## *Rodin 3D Asset Generation Prompts*

## Rodin 3D Asset Generation Prompts: Structural & Architectural Elements

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Dimensions should be modular where appropriate (e.g., fitting a 1-foot grid system ).

### **1. Walls**

#### **1.1 Wall Section - Interior Drywall Panel (Standard)**

* **Mesh Prompt:** "Generate a single, standard interior wall panel, 8 feet high and 4 feet wide, designed for modular assembly. The panel should be perfectly flat with crisp, 90-degree edges. Include subtle indications of panel seams if multiple are placed side-by-side. Ensure the model is a clean, game-ready asset with optimized geometry. Suitable for a modern, clinical/scientific research facility interior."
* **Material Prompt:** "Create a PBR material for a standard painted drywall surface. The color should be a neutral off-white (e.g., RAL 9003 Signal White) with a matte finish. Subtle imperfections like faint roller marks or extremely light scuffs are acceptable for realism, but the overall appearance must be very clean and well-maintained, reflecting a professional, almost sterile environment. Emphasize low roughness, non-metallic."

#### **1.2 Wall Section - Interior Concrete Panel (Standard)**

* **Mesh Prompt:** "Generate a single, pre-cast concrete interior wall panel, 8 feet high and 4 feet wide, suitable for modular construction in a high-tech, industrial-scientific setting. The panel should have a smooth, flat surface with very clean edges. Include subtle indications of panel formwork ties if architecturally appropriate for a modern, refined look. Game-ready asset."
* **Material Prompt:** "Create a PBR material for smooth, high-quality pre-cast concrete. The color should be a light to medium cool gray. The surface should have a very subtle, fine-grained texture, with minimal pitting or blemishes. Low roughness, non-metallic, with a slight sheen under direct light. Overall clean and professional appearance."

#### **1.3 Wall Section - Interior Insulated Panel (Standard)**

* **Mesh Prompt:** "Generate a modular interior insulated wall panel, 8 feet high, 4 feet wide, and approximately 4-6 inches thick. The panel should have a visible metallic or high-grade polymer skin on both sides, with clearly defined, clean edges suggesting a sandwich construction. Suitable for environmentally controlled cleanroom or lab spaces. Game-ready asset."
* **Material Prompt:** "Create a PBR material for the surface of a high-grade insulated panel. The material should be a smooth, non-porous, and easily cleanable white or light gray polymer or powder-coated metal. Very low roughness, slight sheen, non-metallic (or very slightly metallic if coated metal). Emphasize cleanliness and durability."

#### **1.4 Wall Section - Exterior Siding (Map Specific - e.g., Modern Metal Siding)**

* **Mesh Prompt:** "Generate a modular exterior wall section, 10 feet high and 8 feet wide, clad in sleek, modern horizontal metal siding panels (e.g., flat aluminum or steel panels with minimal overlap or a micro-rib profile). Edges should be clean and allow for seamless tiling. Suitable for a contemporary high-tech facility exterior. Game-ready asset."
* **Material Prompt:** "Create a PBR material for modern architectural metal siding. Choose a dark gray or silver anodized aluminum or coated steel finish. The material should have a subtle brushed or matte texture. Medium to low roughness, high metallic value. Reflect a durable, weather-resistant, and professional appearance."

#### **1.5 Wall Section - Exterior Brick (Map Specific - e.g., Modern Engineering Brick)**

* **Mesh Prompt:** "Generate a modular exterior wall section, 10 feet high and 8 feet wide, constructed from modern engineering bricks in a clean, stacked bond or stretcher bond pattern. Ensure crisp mortar lines. Suitable for a contemporary institutional or scientific building exterior. Game-ready asset."
* **Material Prompt:** "Create a PBR material for high-quality, modern engineering bricks. Color should be a consistent dark red or cool gray/blue. Bricks should have a smooth, slightly textured surface. Mortar should be a clean, contrasting light gray. Medium roughness for bricks, slightly higher for mortar, non-metallic. Overall clean and precisely laid appearance."

#### **1.6 Wall Section - Exterior Metal Panel (Map Specific - e.g., Large Architectural Panels)**

* **Mesh Prompt:** "Generate a large modular exterior wall panel, 10 feet high and 10 feet wide, made of a single sheet of architectural metal (e.g., Alucobond style). The panel should be perfectly flat with defined, clean edges for a high-tech facade system. Game-ready asset."
* **Material Prompt:** "Create a PBR material for a large architectural metal panel. The surface should be a smooth, powder-coated semi-gloss finish in a deep blue or brushed stainless steel. Low roughness, high metallic value. Reflects a sleek, modern, and professional building exterior."

#### **1.7 Wall Section - Industrial Pre-fab Panel (Warehouse Scale)**

* **Mesh Prompt:** "Generate a large, industrial pre-fabricated wall panel, 15 feet high and 10 feet wide, designed for rapid warehouse construction. The panel could be a ribbed metal insulated sandwich panel or a large concrete tilt-up style panel. Detail should suggest robust, functional construction. Game-ready asset."
* **Material Prompt:** "Create a PBR material for an industrial pre-fabricated wall panel. If metal, a painted (e.g., off-white or light gray) galvanized steel with visible ribs and a slightly weathered but still functional look. If concrete, a utilitarian, slightly rougher cast concrete texture. Medium roughness, potentially slightly metallic for the metal version. Emphasize functionality and scale."

#### **1.8 Wall Section - Industrial Heavy-duty Concrete (Warehouse Scale)**

* **Mesh Prompt:** "Generate a thick, heavy-duty poured or pre-cast concrete wall section, 15 feet high and 10 feet wide, suggesting a robust industrial structure like a warehouse shell. The surface can show subtle formwork marks or a slightly textured finish. Game-ready asset."
* **Material Prompt:** "Create a PBR material for heavy-duty industrial concrete. The color should be a standard medium gray. The texture should be relatively uniform but can show some aggregate exposure or slight imperfections characteristic of industrial-grade concrete. Medium roughness, non-metallic."

### **2. Floors**

#### **2.1 Floor Section - Polished Concrete**

* **Mesh Prompt:** "Generate a perfectly flat, square floor section, 10 feet by 10 feet, designed for modular assembly. Ensure edges are clean for seamless tiling. Suitable for a modern, high-tech clinical or research facility. Game-ready asset."
* **Material Prompt:** "Create a PBR material for a highly polished concrete floor. The surface should be very smooth with a reflective, glossy finish (high gloss or semi-gloss). Color should be a light to medium neutral gray, with subtle variations and trowel marks visible under the polish. Low roughness, non-metallic. Reflects cleanliness and a modern aesthetic."

#### **2.2 Floor Section - Epoxy Coated Concrete**

* **Mesh Prompt:** "Generate a perfectly flat, square floor section, 10 feet by 10 feet, for modular use. Edges clean for tiling. Intended for labs and clean environments. Game-ready asset."
* **Material Prompt:** "Create a PBR material for a seamless epoxy-coated concrete floor. Color should be a light gray or sterile white with a high-gloss, non-porous, and easily cleanable finish. Very low roughness, non-metallic. Minimal texture, emphasizing a pristine, clinical look."

#### **2.3 Floor Section - Industrial Concrete (Warehouse)**

* **Mesh Prompt:** "Generate a flat, square floor section, 15 feet by 15 feet, for a large industrial warehouse. The surface can have very slight undulations or wear appropriate for heavy use but should tile seamlessly. Game-ready asset."
* **Material Prompt:** "Create a PBR material for an industrial concrete warehouse floor. The surface should be moderately smooth but can show signs of use like faint tire marks, minor stains, or hairline cracks that are not structurally significant. Color medium gray. Medium to low roughness, non-metallic. Must look durable and functional."

#### **2.4 Floor Section - Wood (Residential/Office Aesthetic)**

* **Mesh Prompt:** "Generate a flat, square floor section, 10 feet by 10 feet, composed of modern hardwood planks (e.g., light maple or oak) laid tightly together. Edges should be clean for seamless tiling. Suitable for a 'cozy' variation office or relaxation area within a professional facility. Game-ready asset."
* **Material Prompt:** "Create a PBR material for modern, light-colored hardwood flooring (e.g., maple or white oak). Planks should have a subtle wood grain texture and a satin or semi-gloss finish. Color should be natural light wood tones. Low to medium roughness, non-metallic. Clean and well-maintained appearance."

#### **2.5 Floor Section - Grate (Industrial/Catwalk)**

* **Mesh Prompt:** "Generate a square floor grate section, 4 feet by 4 feet, made of heavy-duty metal (e.g., diamond plate pattern steel or serrated bar grating). Designed for industrial walkways, mezzanines, or areas requiring drainage/airflow. Ensure it has depth and openings are clean. Game-ready, with attention to edge detail for tiling. Include a parameter for load rating indication (e.g., subtle stamped text or color code if visually distinct). "
* **Material Prompt:** "Create a PBR material for a galvanized steel or painted industrial metal floor grate. If galvanized, a slightly weathered metallic look with characteristic spangle. If painted, a dark gray or safety yellow industrial enamel. Medium roughness, high metallic for galvanized, lower for painted. Should look strong and slip-resistant."

### **3. Drains**

#### **3.1 Drain - Standard Floor Drain (Circular/Square)**

* **Mesh Prompt:** "Generate a standard circular or square floor drain assembly, approximately 12 inches in diameter/side. Include a removable metal grate with a simple pattern (e.g., slotted or perforated) and a visible drain basin underneath. Designed to be embedded into concrete or tiled floors. Game-ready asset."
* **Material Prompt:** "Create a PBR material set for the floor drain. The grate should be stainless steel with a brushed or matte finish (high metallic, medium roughness). The visible basin interior can be darker concrete or PVC plastic (non-metallic, medium roughness). Clean but functional appearance."

#### **3.2 Drain - Trench Drain Section (Modular)**

* **Mesh Prompt:** "Generate a modular trench drain section, 4 feet long, 6-8 inches wide. Include a heavy-duty, removable metal grate (e.g., slotted or bar grating) fitting into a pre-formed channel (concrete or polymer concrete). Designed for industrial or lab areas with high water runoff. Allow for variable capacity indication through depth or width if feasible. Game-ready asset. "
* **Material Prompt:** "Create a PBR material set for the trench drain. Grate: heavy-duty galvanized steel or cast iron (high metallic, medium-high roughness, slightly weathered). Channel: smooth pre-cast concrete or dark polymer (non-metallic, low-medium roughness). Professional and robust look."

### **4. Roofs/Ceilings**

#### **4.1 Ceiling Section - Drywall**

* **Mesh Prompt:** "Generate a perfectly flat, square ceiling section, 10 feet by 10 feet, designed for modular assembly. Suitable for standard room heights in a modern facility. Clean edges for seamless tiling. Game-ready asset."
* **Material Prompt:** "Create a PBR material for a standard painted drywall ceiling. The color should be a flat, neutral white (e.g., ceiling white). Texture should be very minimal, almost perfectly smooth, to reflect an untouched ceiling surface. Low roughness, non-metallic."

#### **4.2 Ceiling Section - Suspended Grid (T-bar)**

* **Mesh Prompt:** "Generate a modular T-bar suspended ceiling grid section, 8 feet by 8 feet. Include the main runners and cross tees accurately modeled to accept standard 2x2 or 2x4 ceiling tiles. Model the grid components with slight dimensionality. Game-ready asset."
* **Material Prompt:** "Create a PBR material for a standard T-bar ceiling grid. The material should be painted metal, typically white or off-white, with a satin or matte finish. Low roughness, slightly metallic. Clean and functional appearance."

#### **4.3 Ceiling Tile - Acoustic (for Suspended Grid)**

* **Mesh Prompt:** "Generate a standard square acoustic ceiling tile, 2 feet by 2 feet, designed to fit into a T-bar suspended grid. The tile should have a common fissured or pin-perforated texture. Edges should be cleanly cut (tegular or square edge). Game-ready asset."
* **Material Prompt:** "Create a PBR material for a standard white acoustic ceiling tile. The surface should have a visible texture (fissured or pin-perforated) and a matte, non-reflective finish. Medium-high roughness, non-metallic. Clean appearance."

#### **4.4 Ceiling Tile - Cleanroom (for Suspended Grid)**

* **Mesh Prompt:** "Generate a standard square cleanroom ceiling tile, 2 feet by 2 feet, for a T-bar grid. The tile surface should be perfectly smooth and non-shedding, possibly with a vinyl or sealed face. Edges clean (tegular or square edge). Game-ready asset."
* **Material Prompt:** "Create a PBR material for a white cleanroom ceiling tile. The surface must be very smooth, non-porous, and easily cleanable (e.g., vinyl-faced gypsum or sealed metal). Semi-gloss or satin finish. Low roughness, non-metallic. Pristine, sterile appearance."

#### **4.5 Ceiling Section - Concrete (Industrial/Warehouse)**

* **Mesh Prompt:** "Generate a flat, square concrete ceiling section, 15 feet by 15 feet, representing the underside of a concrete slab in a warehouse or industrial setting. The surface can show subtle formwork marks or a basic poured finish. Clean edges for tiling. Game-ready asset."
* **Material Prompt:** "Create a PBR material for an industrial concrete ceiling. Color should be a standard light to medium gray. Texture can be slightly rougher than a floor, showing imperfections from the pouring process or formwork. Medium roughness, non-metallic."

#### **4.6 Open Rafters/Trusses - Wood (Warehouse/Industrial Alt Style)**

* **Mesh Prompt:** "Generate a section of exposed wooden roof trusses or heavy timber rafters, suitable for spanning a 30-40 foot wide industrial or rustic-tech space. Detail the joinery (e.g., metal plates, bolts if modern; traditional joinery if older style). Create a modular section that can be repeated. Game-ready asset."
* **Material Prompt:** "Create a PBR material for structural timber trusses/rafters. Wood type could be Douglas Fir or similar, with a natural or lightly stained finish. Show wood grain and slight imperfections. If using metal connectors, a dark painted steel or galvanized steel. Medium roughness for wood, medium for metal components. Non-metallic for wood, metallic for connectors."

#### **4.7 Open Rafters/Trusses - Metal (Warehouse/Industrial Standard)**

* **Mesh Prompt:** "Generate a section of exposed steel roof trusses (e.g., Pratt truss, Warren truss) or I-beam rafters, designed for a large industrial warehouse spanning 40-60 feet. Detail should include connection plates, bolts, and clean welds. Create a modular section. Game-ready asset."
* **Material Prompt:** "Create a PBR material for painted structural steel trusses/rafters. Color typically industrial gray or red oxide primer, possibly with some minor wear or dust accumulation but not rust. Satin or matte finish. Medium-low roughness, high metallic value. Should look strong and utilitarian."

### **5. Doors**

#### **5.1 Door - Standard Interior (Solid Core, Facility Use)**

* **Mesh Prompt:** "Generate a standard flush solid-core interior door, 3 feet wide by 7 feet high, with a simple, durable metal frame (hollow metal or heavy-duty aluminum). Include a lever handle and a small vision panel (e.g., 6x24 inches) with safety glass if appropriate for facility use. Game-ready asset."
* **Material Prompt:** "Door Slab: PBR material for a painted birch or laminate finish in a light gray or off-white, smooth and durable. Frame: PBR for brushed stainless steel or painted steel in a contrasting gray. Handle: Brushed stainless steel. Glass: Clear safety glass. Clean, professional look."

#### **5.2 Door - Industrial Roller Shutter (Warehouse Access)**

* **Mesh Prompt:** "Generate a large industrial roller shutter door, 12 feet wide by 14 feet high. Model the interlocking metal slats, guide rails, and the overhead roller mechanism housing. Include a manual chain hoist or an electric motor box detail. Game-ready asset."
* **Material Prompt:** "PBR material for galvanized steel or painted steel slats (e.g., industrial gray or blue). Slats can show minor wear, dust, or faint grease marks near mechanisms. Guide rails and housing similar. Medium roughness, high metallic. Functional, heavy-duty appearance."

#### **5.3 Door - Air Lock Door (Interlocking Pair - Single Door for Prompt)**

* **Mesh Prompt:** "Generate one door of an airlock system. The door should be 3.5 feet wide by 7 feet high, designed for a high-tech cleanroom or containment area. Feature a robust frame with airtight seals, a large reinforced window, and a prominent electronic lock/status indicator panel. Hint at mechanisms for pneumatic operation. Game-ready asset. (Note: a second, mirrored version or identical door would complete the airlock pair)."
* **Material Prompt:** "PBR material for powder-coated aluminum or stainless steel in a light, clinical color (white or light gray). Seals should be black rubber. Window is thick, clear, reinforced safety glass. Lock panel includes small illuminated LED indicators. Very clean, high-tech, and airtight appearance."

### **6. Windows**

#### **6.1 Window - Standard Fixed (Commercial/Facility View)**

* **Mesh Prompt:** "Generate a standard fixed commercial window unit, 4 feet wide by 5 feet high, with a simple, robust aluminum or vinyl frame. Double-glazed. Designed to be set into facility walls. Game-ready asset."
* **Material Prompt:** "Frame: PBR for anodized aluminum (dark bronze or clear) or white vinyl, clean matte/satin finish. Glass: Clear, slightly reflective double-glazing PBR material. Clean and functional."

#### **6.2 Window - Greenhouse Glazing Panel (Large Section)**

* **Mesh Prompt:** "Generate a large greenhouse glazing panel section, 6 feet wide by 8 feet high. Could be single or double-pane safety glass, or polycarbonate twin-wall sheets, set within a minimal aluminum glazing bar system. Designed for maximum light transmission. Game-ready asset."
* **Material Prompt:** "Glazing: PBR for highly transparent safety glass or clear polycarbonate. Minimal distortion, highly reflective. Frame/Glazing Bars: PBR for utilitarian aluminum, unfinished or clear anodized. Clean, light-transmitting focus."

#### **6.3 Window - Industrial Reinforced (Warehouse/Factory)**

* **Mesh Prompt:** "Generate an industrial-grade window, 5 feet wide by 3 feet high, with a heavy-duty steel or reinforced aluminum frame. Glass should be wired safety glass or thick polycarbonate, suggesting resistance to impact. Could be a fixed or simple awning/hopper style. Game-ready asset."
* **Material Prompt:** "Frame: PBR for painted heavy gauge steel (dark gray industrial enamel) or thick, unfinished aluminum. Show some slight weathering or industrial grime. Glass: PBR for wired safety glass (visible wire mesh embedded) or thick, slightly scuffed polycarbonate. Utilitarian and robust appearance."

### **7. Stairs/Ladders/Catwalks**

#### **7.1 Stairs - Industrial Steel Straight Run**

* **Mesh Prompt:** "Generate a straight run of industrial steel stairs, 3 feet wide, designed for a 10-12 foot floor-to-floor height. Treads should be non-slip (e.g., diamond plate or bar grating). Include simple industrial handrails (pipe style) on both sides. Modular design if possible. Game-ready asset."
* **Material Prompt:** "PBR material for painted industrial steel (e.g., safety yellow or gray). Treads and handrails may show some wear, scuffs, or minor dirt, but structurally sound. Medium roughness, metallic."

#### **7.2 Ladder - Fixed Industrial Steel (Vertical Access)**

* **Mesh Prompt:** "Generate a fixed industrial steel ladder, 2 feet wide, designed for vertical access up to 20 feet. Include safety cage if height exceeds 10-12 feet. Rungs should be non-slip. Mounting brackets for wall attachment. Game-ready asset."
* **Material Prompt:** "PBR material for galvanized or painted industrial steel (gray). May show some weathering if exterior, or minor wear if interior. Medium-high roughness, metallic."

#### **7.3 Catwalk Section - Industrial Steel Grating (Modular)**

* **Mesh Prompt:** "Generate a modular industrial catwalk section, 8 feet long and 3 feet wide. Decking should be steel bar grating or heavy-duty perforated metal. Include toe kicks and simple pipe handrails on both sides. Designed for overhead access in warehouses or industrial facilities. Game-ready asset."
* **Material Prompt:** "PBR material for painted or galvanized steel. Decking and handrails should look strong and functional, possibly with minor wear. Medium roughness, metallic. Prioritize safety and utility in appearance."

### **8. Support Pillars/Beams**

#### **8.1 Support Pillar - Concrete (Square/Round, Warehouse)**

* **Mesh Prompt:** "Generate a standalone concrete support pillar, either square (e.g., 2x2 feet) or round (e.g., 2-foot diameter), 15 feet high. Suitable for supporting roof structures in a large warehouse. Base can have a slightly wider footing if appropriate. Game-ready asset."
* **Material Prompt:** "PBR material for unfinished structural concrete. Standard medium gray color. Can show subtle formwork marks or slight texture variation. Medium roughness, non-metallic. Solid and load-bearing appearance."

#### **8.2 Support Pillar/Beam - Steel I-Beam (Warehouse)**

* **Mesh Prompt:** "Generate a steel I-beam column (e.g., W12x26), 15 feet high, for warehouse structural support. Alternatively, a horizontal I-beam section, 20 feet long. Include simple base plates or connection points for bolting. Game-ready asset."
* **Material Prompt:** "PBR material for painted structural steel (e.g., red oxide primer or industrial gray). Can have manufacturer markings stenciled lightly. Minor surface dust or slight scuffs acceptable. Medium-low roughness, high metallic. Strong, engineered appearance."

### **9. Containment Structures (Tents)**

#### **9.1 Grow Tent - Small Residential (e.g., 2x4x6 feet)**

* **Mesh Prompt:** "Generate a small, rectangular grow tent, approximately 2 feet deep, 4 feet wide, and 6 feet high. Include a visible frame structure (metal poles, plastic connectors) and a fabric shell with zippered access door(s) and circular duct ports. Show slight fabric sag or tension. Game-ready asset."
* **Material Prompt:** "Exterior Fabric: PBR for heavy-duty, opaque black or dark gray nylon or canvas, possibly with a subtle textured weave. Interior: Highly reflective silver Mylar material. Frame: Painted metal poles (e.g., gray) and black plastic connectors. Zippers should be black nylon. Clean but functional."

#### **9.2 Grow Tent - Medium Commercial (e.g., 4x8x7 feet)**

* **Mesh Prompt:** "Generate a medium-sized rectangular grow tent, approximately 4 feet deep, 8 feet wide, and 7 feet high. More robust frame than residential, fabric shell with multiple access points (zippered doors/windows), and several clearly defined circular duct ports of various sizes. Game-ready asset."
* **Material Prompt:** "Exterior Fabric: PBR for very durable, opaque black or gray heavy canvas with reinforced stitching. Interior: High-quality, dimpled reflective silver Mylar. Frame: Thicker painted metal poles and robust connectors. Heavy-duty zippers. Professional and resilient appearance."

#### **9.3 Grow Tent - Large Commercial/Industrial (e.g., 10x10x8 feet or larger modular section)**

* **Mesh Prompt:** "Generate a large, possibly modular, commercial grow tent structure, e.g., a 10x10 foot section, 8 feet high. Extremely robust frame, thick fabric shell, large zippered roll-up doors, multiple large duct ports, and possibly viewing windows. Designed for serious cultivation. Game-ready asset."
* **Material Prompt:** "Exterior Fabric: PBR for industrial-grade, tear-resistant, opaque dark gray or black canvas/vinyl. Interior: Maximum-reflectivity, durable silver Mylar. Frame: Heavy-duty steel poles and connectors. Industrial-strength zippers and clear vinyl for windows. Built for intensive use."

## Rodin 3D Asset Generation Prompts: Cultivation & Plant Care Tools

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Tools should appear well-maintained but can show subtle signs of use appropriate to their function and quality tier.

### 1. Pruning & Cutting Tools

*General notes for cutting tools: Blades should appear sharp unless a "worn" or "basic/dull" tier is specified. Handles should be ergonomic and made of durable materials. Consider subtle wear on contact points of handles for higher realism on used tools.*

#### 1.1 Bypass Pruners - Standard Quality

* **Mesh Prompt:** "Generate a 3D model of standard bypass pruners, approximately 8 inches long. Feature ergonomic handles, a locking mechanism, and a visible spring. The cutting blade should overlap the anvil blade typical of bypass design. Clean geometry, suitable for a game asset."
* **Material Prompt:** "Create PBR materials. Blades: Polished carbon steel with a sharp edge, showing very light scratches from use. Handles: Durable textured polymer (e.g., dark gray or green) for good grip. Spring and lock: Standard metal. Overall clean but functional appearance."

#### 1.2 Bypass Pruners - Heavy-Duty (HD) / High-Quality

* **Mesh Prompt:** "Generate a 3D model of heavy-duty bypass pruners, around 8-9 inches long. Design should be robust with larger, more comfortable ergonomic handles, possibly with soft-grip inserts. Include a strong spring and a secure locking mechanism. The blades should be thick and precisely aligned. Game-ready asset with high-quality detailing."
* **Material Prompt:** "Create PBR materials. Blades: High-carbon, precision-ground steel, possibly with a non-stick coating (e.g., PTFE or titanium), exceptionally sharp appearance. Handles: High-grade reinforced polymer or lightweight aluminum with premium soft-grip rubber inserts (e.g., black or a brand-specific accent color like red or orange). Spring and lock: High-quality, corrosion-resistant metal. Professional, durable, and pristine look."

#### 1.3 Snips/Scissors - Micro-Tip (Precision)

* **Mesh Prompt:** "Generate a 3D model of precision micro-tip snips, approximately 6-7 inches long. Feature very fine, sharp, pointed blades (stainless steel) for delicate work. Handles should be slender, spring-loaded for comfort, possibly with a simple locking loop. Optimized for detailed trimming tasks. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Polished stainless steel, needle-sharp tips, extremely clean. Handles: Lightweight, brightly colored (e.g., orange or yellow for visibility) smooth polymer or comfortable soft-grip material. Spring: Small, clean metal spring. Designed for precision and cleanliness."

#### 1.4 Snips/Scissors - Curved Blade (Precision)

* **Mesh Prompt:** "Generate a 3D model of precision trimming scissors with fine, sharp, curved blades, approximately 6-7 inches long. Designed for trimming rounded plant parts. Handles should be ergonomic, possibly spring-loaded, and comfortable for prolonged use. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Polished stainless steel with a visible sharp edge, slight curve. Handles: Lightweight polymer with a comfortable, non-slip textured grip (e.g., green or blue). Spring (if present): Clean metal. Clean and precise appearance."

#### 1.5 Snips/Scissors - Straight Blade (General Purpose)

* **Mesh Prompt:** "Generate a 3D model of general-purpose trimming scissors with straight, sharp blades, approximately 7-8 inches long. Robust design suitable for various cutting tasks. Ergonomic handles for good leverage. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Durable stainless steel or carbon steel, sharp. Handles: Sturdy polymer (e.g., black or dark gray), possibly with textured grip sections. Well-maintained but functional look."

#### 1.6 Scalpels - (Scientific/Propagation Use)

* **Mesh Prompt:** "Generate a 3D model of a scalpel with a standard handle (e.g., No. 3 or No. 4 surgical handle) and a detachable, sharp, pointed blade (e.g., No. 10 or No. 11 blade). Detail the blade attachment mechanism if visible. Intended for precise scientific or plant tissue culture work. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Handle: Brushed or matte stainless steel. Blade: Highly polished, extremely sharp surgical stainless steel. Clinical, sterile appearance."
* **Variation: Disposable Scalpel**
  + **Mesh Prompt:** "Generate a 3D model of a disposable scalpel, with a plastic handle and a fixed, sharp blade. Lightweight design. Game-ready asset."
  + **Material Prompt:** "Create PBR materials. Handle: Light blue or green medical-grade plastic. Blade: Sharp stainless steel. Sterile, single-use appearance."

#### 1.7 Loppers - Standard Duty

* **Mesh Prompt:** "Generate a 3D model of standard bypass or anvil loppers, approximately 24-30 inches long. Feature strong tubular or oval handles with comfortable grips, and geared or compound action mechanism for leverage if appropriate for standard duty. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Hardened carbon steel, sharp, showing some evidence of cutting woody stems. Handles: Painted steel or aluminum (e.g., gray or green) with durable rubber or polymer grips (e.g., black). Mechanism: Oiled metal. Robust and functional."

#### 1.8 Loppers - Heavy-Duty / High-Quality

* **Mesh Prompt:** "Generate a 3D model of heavy-duty loppers, approximately 30-36 inches long. Feature very strong, lightweight handles (e.g., aircraft aluminum or composite), advanced cutting mechanism (e.g., ratchet or high-leverage compound action), and replaceable blades. Professional grade. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Premium, coated high-carbon steel, exceptionally sharp and durable. Handles: Lightweight, high-strength aluminum with ergonomic, shock-absorbing premium grips. Mechanism: Precision-engineered, clean metal components. Top-tier, professional appearance."

#### 1.9 Hand Saw - Pruning Saw (Curved Blade)

* **Mesh Prompt:** "Generate a 3D model of a pruning hand saw, approximately 12-15 inch curved blade with aggressive teeth. Ergonomic pistol grip or D-handle. Suitable for cutting thicker branches. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blade: Polished, high-carbon steel with sharp teeth, may show slight resin residue. Handle: Durable, textured hard polymer or comfortable wood with a varnish finish. Functional and sturdy look."

#### 1.10 Large Hedge Trimmers - Manual (Two-handed Shears)

* **Mesh Prompt:** "Generate a 3D model of manual hedge trimmers (two-handed shears), approximately 20-24 inches in total length with 8-10 inch blades. Feature straight or slightly wavy blades and long, comfortable wooden or polymer handles for leverage. Include a blade tension adjustment knob if common. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Polished carbon steel, very sharp. Handles: Varnished hardwood or durable, textured polymer (e.g., dark green or black). Metal components like bolts and tensioner should be clean steel. Well-maintained appearance."

### 2. Spraying & Application Tools

#### 2.1 Hand Spray Bottle - Basic

* **Mesh Prompt:** "Generate a 3D model of a basic plastic hand spray bottle, approximately 1-liter capacity. Include a translucent bottle, a trigger-operated spray nozzle assembly with adjustable nozzle tip (stream/mist). Simple, functional design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bottle: Translucent HDPE plastic (e.g., milky white or light blue), showing fill level if possible. Spray Head/Nozzle: Opaque colored plastic (e.g., red, green, or blue for the trigger and nozzle parts). Clean, utilitarian."

#### 2.2 Hand Spray Bottle - Chemical Resistant / High-Quality

* **Mesh Prompt:** "Generate a 3D model of a high-quality, chemical-resistant hand spray bottle, 1-liter capacity. More robust construction than basic, possibly with volume markings. Ergonomic trigger and durable, adjustable brass or high-grade plastic nozzle. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bottle: Thicker, chemical-resistant opaque or translucent plastic (e.g., gray or white) with clear volume markings. Spray Head/Nozzle: Heavy-duty polymer and a brass nozzle tip. Professional and durable look."

#### 2.3 Pump Sprayer - 1-2 Gallon (Manual)

* **Mesh Prompt:** "Generate a 3D model of a 1 or 2-gallon manual pump sprayer. Include a sturdy translucent tank with volume markings, a pump handle on top, a flexible hose, a spray wand with a trigger, and an adjustable nozzle. Pressure relief valve detail. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tank: Translucent, UV-resistant HDPE plastic showing fill level. Pump Handle, Wand Handle, Nozzle Body: Durable opaque plastic (e.g., black or green). Hose: Reinforced black rubber or flexible PVC. Wand: Stainless steel or brass. Nozzle Tip: Brass or high-grade plastic. Clean but robustly functional."

#### 2.4 Pump Sprayer - Backpack (Manual, 4-5 Gallon)

* **Mesh Prompt:** "Generate a 3D model of a 4 or 5-gallon manual backpack pump sprayer. Ergonomic tank shape to fit on the back, padded shoulder straps, a side-mounted pump lever, a flexible hose, a spray wand with trigger, and an adjustable nozzle. Large fill opening with filter basket. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tank: Opaque, chemical-resistant polymer (e.g., white or yellow). Straps: Black or dark gray durable nylon webbing with foam padding. Pump Lever: Metal with a polymer handle. Hose, Wand, Nozzle: Similar to gallon sprayer but scaled appropriately. Professional, designed for larger tasks."

#### 2.5 Handheld Duster - Manual (Bulb or Bellows)

* **Mesh Prompt:** "Generate a 3D model of a handheld manual duster for applying powders. Either a rubber bulb duster with a narrow application tube or a small bellows duster with a powder reservoir and an application nozzle. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bulb/Bellows: Flexible rubber (e.g., red or black) or durable plastic. Reservoir (if bellows): Translucent or opaque plastic. Nozzle/Tube: Metal or plastic. Simple, functional."

#### 2.6 Soil Drench Applicator - (e.g., Watering Can with specific spout, or specialized tool)

* **Mesh Prompt:** "Generate a 3D model of a soil drench applicator, resembling a 1-2 gallon watering can but with a long, narrow spout designed for targeted application at the base of plants. Or, a specialized injector tool with a reservoir and a soil probe. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Durable plastic (e.g., green or blue) or galvanized metal. Spout/Probe: Metal or rigid plastic. Clean, purposeful design."

#### 2.7 Motorized Spray Cart - Industrial Scale

* **Mesh Prompt:** "Generate a 3D model of an industrial motorized spray cart. Features a large tank (e.g., 50-100 gallons), an engine or electric motor powering a pump, wheels for mobility, a long hose reel, and a professional spray gun or boom attachment. Control panel with gauges. High-tech, clinical aesthetic. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tank: Stainless steel or high-grade opaque polymer. Frame: Painted steel (e.g., white or gray, powder-coated). Engine/Motor: Clean metal and plastic housing. Hose: Heavy-duty reinforced rubber. Spray Gun/Boom: Stainless steel and brass components. Control Panel: Metal with clear labels and glass/plastic over gauges. Professional, industrial grade."

#### 2.8 Fogger - Thermal or ULV (Ultra Low Volume) - Industrial Scale

* **Mesh Prompt:** "Generate a 3D model of an industrial fogger (ULV or Thermal). Could be a portable unit with a solution tank and motor/heating element, or a larger stationary/cart-mounted unit. Include nozzle array and control interface. Modern, professional design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing: Stainless steel or durable, chemical-resistant polymer (e.g., gray or blue). Tank: Translucent or opaque polymer. Nozzles: Brass or stainless steel. Clean, high-performance appearance."

#### 2.9 Integrated Spraying System Components - Nozzles & Manifolds (Fixed Installation)

* **Mesh Prompt:** "Generate a set of modular components for an integrated spraying system: various fine-mist spray nozzles (e.g., brass or stainless steel), sections of pipe/tubing for manifolds, and connection fittings. Designed to be mounted within a grow room for automated application. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Nozzles: Polished brass or stainless steel. Piping/Tubing: High-grade PVC or stainless steel. Fittings: Matching metal or durable polymer. Clean, precision-engineered look."

### 3. Scouting & Monitoring Tools

#### 3.1 Sticky Traps - Yellow Cards

* **Mesh Prompt:** "Generate a 3D model of a yellow rectangular sticky trap card, approximately 4x6 inches, with a small hole for hanging. Double-sided sticky surface. Game-ready asset."
* **Material Prompt:** "Create a PBR material. Card: Bright, vibrant insect-attracting yellow. Surface: Glossy, extremely sticky-looking transparent adhesive layer. May include a few tiny, generic trapped insect silhouettes for realism if desired (optional). Clean, new appearance."

#### 3.2 Sticky Traps - Blue Cards

* **Mesh Prompt:** "Generate a 3D model of a blue rectangular sticky trap card, approximately 4x6 inches, with a small hole for hanging. Double-sided sticky surface. Game-ready asset."
* **Material Prompt:** "Create a PBR material. Card: Bright, specific insect-attracting blue (thrips). Surface: Glossy, extremely sticky-looking transparent adhesive layer. Clean, new appearance."

#### 3.3 Sticky Traps - Yellow Rolls

* **Mesh Prompt:** "Generate a 3D model of a roll of yellow sticky trap material, partially unrolled. Approximately 6-12 inches wide. The roll itself should have a cardboard core. Game-ready asset."
* **Material Prompt:** "Create a PBR material. Trap Material: Bright, vibrant insect-attracting yellow with a glossy, sticky transparent adhesive surface. Core: Standard brown cardboard. New, ready-to-use appearance."

#### 3.4 Magnifying Loupe - Handheld (Jeweler's Loupe Style)

* **Mesh Prompt:** "Generate a 3D model of a handheld magnifying loupe, jeweler's style. Small, foldable design, with a metal or plastic casing and a glass lens (e.g., 10x or 30x magnification indicated subtly). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Polished chrome, brushed stainless steel, or black polymer. Lens: Clear, refractive glass with slight edge thickness. Compact and professional."

#### 3.5 Handheld Digital Microscope - Basic

* **Mesh Prompt:** "Generate a 3D model of a basic handheld digital microscope. Small, ergonomic design with a lens, built-in LED lights around the lens, a small LCD screen (e.g., 2-3 inches), and simple control buttons (e.g., power, zoom, capture). USB port for connectivity. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Matte or slightly textured dark gray or black polymer. Lens Area: Metal and glass. Screen: Glossy screen surface (can be off or show a generic plant closeup). Buttons: Rubberized or plastic. Modern, entry-level tech appearance."

#### 3.6 Handheld Digital Microscope - Advanced

* **Mesh Prompt:** "Generate a 3D model of an advanced handheld digital microscope. Sleek, professional design, larger higher-resolution LCD screen (e.g., 3-4 inches), better optics, more control buttons (menu navigation, settings), possibly Wi-Fi connectivity indicator. High-quality construction. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: High-grade polymer with brushed metal accents. Lens Assembly: Precision metal and coated optics. Screen: Crisp, clear display. Buttons: Tactile, well-integrated. Professional, scientific instrument look."

#### 3.7 Benchtop Standard Microscope - Monocular/Binocular (Basic Educational Grade)

* **Mesh Prompt:** "Generate a 3D model of a basic benchtop compound microscope (monocular or binocular eyepieces). Features a stage with clips, coarse and fine focus knobs, a revolving nosepiece with 3-4 objective lenses, and a light source (mirror or simple electric illuminator) below the stage. Classic educational microscope design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body/Frame: Painted metal (e.g., cream or gray enamel, slightly worn if older basic model). Knobs: Black bakelite or hard plastic. Lenses: Glass set in metal casings. Stage: Black painted metal. Functional, scientific appearance."

#### 3.8 Benchtop Digital Microscope - (Integrated Screen/Camera, Lab Grade)

* **Mesh Prompt:** "Generate a 3D model of a modern benchtop digital microscope. Features binocular eyepieces plus an integrated LCD screen (e.g., 7-10 inches) for live viewing and image capture. LED illumination (above and below stage), smooth X-Y mechanical stage, coaxial coarse/fine focus, multiple high-quality objective lenses on a turret. USB/HDMI outputs. Sleek, laboratory-grade design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body/Frame: Precision-cast metal with a durable powder-coat finish (e.g., white or light gray) and ergonomic polymer components. Knobs: Machined aluminum or high-grip polymer. Lenses: Coated optical glass in polished metal casings. Stage: Smooth, anodized metal. Screen: High-resolution display. High-tech, clinical, and professional."

#### 3.9 Soil/Medium Sample Probe/Corer - T-handle

* **Mesh Prompt:** "Generate a 3D model of a T-handle soil sample probe/corer. Approximately 12-24 inches long, made of stainless steel, with a sharpened tip for easy insertion and a cut-out section along the shaft to retrieve a core sample. Simple, robust design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Probe/Shaft/Handle: Polished or brushed stainless steel. May show slight soil residue or scratches from use. Durable and cleanable."

#### 3.10 Leaf Sample Bags/Vials - (Set of Small, Clear)

* **Mesh Prompt:** "Generate a set of 3-5 small, clear plastic resealable bags (e.g., 3x4 inches) and 2-3 small, clear plastic or glass vials with screw caps (e.g., 5-10ml capacity). Suitable for collecting leaf samples for analysis. One bag could be partially filled with a generic leaf shape. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Bags: Thin, transparent polyethylene plastic, slightly crinkled. Vials: Clear, smooth polystyrene plastic or borosilicate glass. Caps: White or black polypropylene plastic. Clean, disposable/reusable lab appearance."

#### 3.11 Simulated Chlorophyll Meter - Handheld (Visual Only)

* **Mesh Prompt:** "Generate a 3D model of a handheld device visually representing a chlorophyll content meter (e.g., SPAD meter style). Clamping mechanism for a leaf, a small digital display, and a few operational buttons. Ergonomic design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Durable, slightly textured polymer (e.g., dark green or gray). Clamping Jaws: Smooth plastic. Display: Simple LCD-style digital readout (can display generic numbers). Buttons: Rubberized. Functional, field-instrument look."

### 4. Plant Support Tools

#### 4.1 Trellis Netting - Section (Nylon)

* **Mesh Prompt:** "Generate a 3D model of a section of flexible nylon trellis netting, approximately 5x5 feet, with 4-6 inch square mesh. The netting should appear lightweight but strong, with slight sag or tension as if installed. Edges can be simple cut nylon or slightly reinforced. Game-ready asset, tileable if possible."
* **Material Prompt:** "Create a PBR material for white or green nylon trellis netting. Slightly reflective, durable synthetic fiber appearance. Clean."

#### 4.2 Stakes - Bamboo or Plastic Coated Metal (Set of various lengths)

* **Mesh Prompt:** "Generate a set of 3 plant support stakes of varying lengths (e.g., 2ft, 3ft, 4ft).
  + Variation 1 (Bamboo): Natural bamboo stakes, slightly irregular.
  + Variation 2 (Plastic Coated Metal): Thin metal rods coated in green plastic, possibly with a slightly ribbed texture for grip. Game-ready assets."
* **Material Prompt:**
  + "Variation 1 (Bamboo): PBR material for natural dried bamboo. Color variations from light tan to brown, visible nodes and fibrous texture. Matte finish."
  + "Variation 2 (Plastic Coated Metal): PBR material for green plastic coating, smooth or slightly ribbed. Tips might show exposed metal. Clean, functional."

#### 4.3 Tie Wire - Spool (Soft, Plant-Friendly)

* **Mesh Prompt:** "Generate a 3D model of a small spool of soft, plant-friendly tie wire. The wire should be coated, and the spool can be simple plastic or cardboard. Include a small integrated cutter if common for the type. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Wire: Thin metal wire with a green or brown soft rubber or paper coating. Spool: Simple colored plastic or plain cardboard. Functional and practical."

## Rodin 3D Asset Generation Prompts: Nutrient & Irrigation Equipment

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Equipment should look well-maintained, with a focus on precision and control for scientific cultivation.

### 1. Watering Cans/Hoses

#### 1.1 Watering Can - Modern Plastic (1-2 Gallon)

* **Mesh Prompt:** "Generate a 3D model of a modern 1-2 gallon plastic watering can. Feature an ergonomic handle, a long, slender spout with a detachable rose (sprinkler head). Include subtle volume markings on the side. Clean, functional design suitable for a high-tech lab or grow facility. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Durable, slightly translucent colored HDPE plastic (e.g., clinical blue, light gray, or white) allowing fill level to be vaguely discernible. Rose: Contrasting color plastic or clean metal. Overall clean and new appearance."

#### 1.2 Watering Can - Stainless Steel (Professional/Lab Grade)

* **Mesh Prompt:** "Generate a 3D model of a high-quality stainless steel watering can, approximately 1-gallon capacity. Elegant, minimalist design with a comfortable, well-balanced handle and a long, precise spout (no rose, for targeted watering). Impeccable construction for a scientific setting. Game-ready asset."
* **Material Prompt:** "Create a PBR material for brushed or polished stainless steel. The surface should be very clean, reflecting a sterile, professional environment. Minimal scratches, high metallic value, medium-low roughness. Top-tier appearance."

#### 1.3 Hose - Coiled Garden Hose with Spray Nozzle (Utility)

* **Mesh Prompt:** "Generate a 3D model of a 50-foot garden hose, neatly coiled, with a modern, multi-function spray nozzle attached. The hose should appear flexible yet durable. Include standard brass or high-quality plastic connectors. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Hose: Reinforced, flexible rubber or high-grade polymer in a professional color (e.g., dark gray, black, or muted blue), possibly with a subtle ribbed texture. Nozzle: Durable polymer body (e.g., dark gray with colored accents for adjustment points) and metal (brass or stainless steel) internal components/tip. Connectors: Polished brass or impact-resistant black plastic. Clean, well-maintained."

#### 1.4 Hose - Retractable Hose Reel (Wall-Mounted)

* **Mesh Prompt:** "Generate a 3D model of a wall-mounted retractable hose reel unit. Modern, enclosed casing (plastic or painted metal) with a 50-foot hose neatly retracting into it. Include a mounting bracket and a short leader hose for connection. Professional, clean design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Smooth, durable polymer or powder-coated metal in a clinical white or light gray. Hose: High-quality flexible polymer. Mounting Bracket: Painted metal. Clean and tidy appearance, suitable for an organized, high-tech facility."

### 2. Reservoirs/Tanks

#### 2.1 Reservoir/Tank - Small Plastic (e.g., 5-10 Gallon, Nutrient Mixing)

* **Mesh Prompt:** "Generate a 3D model of a small, durable plastic reservoir tank, 5-10 gallon capacity. Cylindrical or rectangular with a flat base, possibly with a loose-fitting lid and molded handles. Include clear gallon/liter volume markings on the side. Suitable for manually mixing nutrients. Game-ready asset."
* **Material Prompt:** "Create a PBR material for heavy-duty, food-grade opaque or slightly translucent HDPE plastic (e.g., white, blue, or black). If translucent, it should hint at fill levels. Markings should be clear and printed. Clean, chemical-resistant appearance."

#### 2.2 Reservoir/Tank - Medium Polyethylene (e.g., 50-100 Gallon, Storage/Feed Tank)

* **Mesh Prompt:** "Generate a 3D model of a medium-sized polyethylene vertical storage tank, 50-100 gallon capacity. Cylindrical shape with a slightly domed top and flat base. Include a top manhole/fill port with a screw-on lid, and one or two threaded outlet ports near the bottom. Clear gallon/liter molded-in volume indicators. Game-ready asset."
* **Material Prompt:** "Create a PBR material for rotationally molded polyethylene. Common colors are opaque white, black, or dark green/blue. Slightly textured, durable surface. Markings should be clearly visible. Clean, suitable for water or nutrient solution storage."

#### 2.3 Reservoir/Tank - Large Industrial Polyethylene (e.g., 200-500 Gallon)

* **Mesh Prompt:** "Generate a 3D model of a large industrial polyethylene vertical storage tank, 200-500 gallon capacity. Robust cylindrical design with a domed top, flat reinforced base. Include a large top access port, multiple bulkhead fittings for inlet/outlet/drain at various heights. Molded-in volume indicators and possibly tie-down lugs. Game-ready asset."
* **Material Prompt:** "Create a PBR material for heavy-duty, UV-stabilized polyethylene (e.g., opaque black or dark green for algae prevention, or natural translucent white). Slightly textured, industrial-grade finish. Clean but built for large scale."

#### 2.4 Reservoir/Tank - Stainless Steel (e.g., 50-200 Gallon, High-Purity/Mixing)

* **Mesh Prompt:** "Generate a 3D model of a high-quality stainless steel tank, 50-200 gallon capacity. Cylindrical with a dished or conical bottom for complete drainage, supported on legs or a frame. Include a top manway with a sanitary clamp, multiple tri-clamp inlet/outlet ports, and possibly a sight glass for level indication. Impeccable weld quality. Game-ready asset."
* **Material Prompt:** "Create a PBR material for food-grade 304 or 316 stainless steel. Surface finish should be polished (e.g., #4 dairy finish or 2B mill finish), sanitary, and highly cleanable. Very high metallic value, low to medium roughness. Reflects a sterile, professional mixing or storage environment."

### 3. Pumps

#### 3.1 Water Pump - Submersible Utility Pump (Small)

* **Mesh Prompt:** "Generate a 3D model of a small submersible utility pump. Compact design with a plastic or stainless steel housing, a bottom intake screen, and a top outlet port (barbed or threaded for hose connection). Include a power cord. Suitable for draining reservoirs or small hydroponic systems. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing: Durable engineering plastic (e.g., dark blue or black) or brushed stainless steel. Intake Screen: Plastic or metal mesh. Power Cord: Black rubber. Clean, functional."

#### 3.2 Water Pump - Inline Centrifugal Pump (Medium Duty)

* **Mesh Prompt:** "Generate a 3D model of a medium-duty inline centrifugal water pump. Cast iron or stainless steel pump housing with visible inlet and outlet flanges or threaded ports. Electric motor attached, with a cooling fan and terminal box. Mounting base. Suitable for circulating water/nutrient solutions in larger systems. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Pump Housing: Painted cast iron (e.g., industrial blue or red) or brushed stainless steel. Motor Housing: Painted metal or cast aluminum, with black plastic fan cover. Clean, robust, industrial appearance."

#### 3.3 Air Pump - Aquarium/Hydroponics Style (Small - DWC)

* **Mesh Prompt:** "Generate a 3D model of a small air pump suitable for hydroponics (DWC) or aquariums. Compact plastic casing with one or two air outlet nozzles, rubber feet for vibration dampening, and a power cord. May have an air output adjustment dial. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Smooth or slightly textured plastic (e.g., black, gray, or blue). Nozzles: Metal or plastic. Rubber Feet: Black rubber. Clean, consumer/prosumer electronics look."

#### 3.4 Air Pump - Commercial Regenerative Blower (Large - DWC/Aeration)

* **Mesh Prompt:** "Generate a 3D model of a commercial regenerative air blower. Cast aluminum housing with distinctive curved vanes, inlet and outlet ports (threaded or flanged), and an attached electric motor. Suitable for aerating large nutrient reservoirs or multiple DWC systems. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing & Motor: Cast aluminum with a natural or painted finish (e.g., silver or industrial gray). Clean, industrial quality, designed for continuous operation."

### 4. Plumbing Components

*General notes for plumbing: Components should be modular and designed for a visual construction system. Ensure clean connections. Show thread detail on threaded components.*

#### 4.1 Pipe - PVC (Schedule 40/80 - Various Diameters)

* **Mesh Prompt:** "Generate a set of modular PVC pipe sections: straight lengths (e.g., 1ft, 2ft, 4ft), 90-degree elbows, 45-degree elbows, T-fittings, and end caps. Provide variations for common diameters (e.g., 1/2 inch, 3/4 inch, 1 inch, 2 inch). Show appropriate wall thickness for Schedule 40 (white) and Schedule 80 (gray). Game-ready assets."
* **Material Prompt:** "Create PBR materials. Schedule 40: Clean white PVC plastic, smooth with subtle manufacturer printing (faint lettering). Schedule 80: Clean dark gray PVC plastic, smooth with subtle manufacturer printing. Low roughness, non-metallic."

#### 4.2 Pipe - PEX Tubing (Roll & Straight Sections - Various Colors/Diameters)

* **Mesh Prompt:** "Generate a roll of PEX tubing (e.g., red for hot, blue for cold, white for general) and separate straight modular sections (1ft, 2ft, 4ft). Common diameters like 1/2 inch and 3/4 inch. The tubing should look flexible yet sturdy. Game-ready assets."
* **Material Prompt:** "Create PBR materials for PEX tubing. Translucent or opaque colored polyethylene (red, blue, white). Smooth, slightly waxy surface. Subtle printed markings (type, rating). Low roughness, non-metallic."

#### 4.3 Pipe - Drip Line Tubing (Roll & Sections - Small Diameter)

* **Mesh Prompt:** "Generate a roll of black polyethylene drip line tubing (e.g., 1/4 inch or 1/2 inch diameter) and separate straight modular sections. Some sections should feature pre-installed inline drip emitters (small, regularly spaced). Game-ready assets."
* **Material Prompt:** "Create a PBR material for black polyethylene drip line tubing. Matte finish, flexible appearance. Emitters: Small, dark plastic. Functional, irrigation-specific look."

#### 4.4 Fittings - PVC (Compatible with PVC Pipes)

* **Mesh Prompt:** *(Covered by "Pipe - PVC" prompt, but if separate generation is needed for unique fittings like threaded adapters, reducers, unions):* "Generate a set of specialized PVC fittings: threaded male/female adapters, reducers/bushings, and unions for common PVC pipe diameters (1/2 to 2 inch). Distinguish between Schedule 40 (white) and Schedule 80 (gray). Game-ready assets."
* **Material Prompt:** "Same as PVC pipe materials: Clean white PVC for Sch 40, clean dark gray PVC for Sch 80. Low roughness, non-metallic."

#### 4.5 Fittings - PEX (Crimp, Expansion, Push-to-Connect)

* **Mesh Prompt:** "Generate a set of PEX fittings for common diameters:
  + Variation 1 (Crimp/Clamp): Brass fittings with barbed ends and copper crimp rings or stainless steel clamp rings.
  + Variation 2 (Expansion): Brass or engineered polymer (ProPEX) expansion fittings.
  + Variation 3 (Push-to-Connect): Brass or high-grade plastic bodies with stainless steel teeth and O-rings (SharkBite style). Include elbows, tees, couplings. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Brass Fittings: Clean, slightly patinated or new yellow brass. Copper Rings: New copper. Stainless Rings/Teeth: Bright stainless steel. Polymer Fittings: Durable black or white engineered plastic. O-rings: Black EPDM rubber. Professional plumbing components."

#### 4.6 Fittings - Drip Line (Barbed Connectors, Emitters)

* **Mesh Prompt:** "Generate a set of small barbed plastic fittings for drip line tubing: T-connectors, elbows, straight connectors, end plugs. Also include individual drip emitters (button, flag, or adjustable stake type). Game-ready assets."
* **Material Prompt:** "Create PBR materials for small, black or dark brown acetal or polypropylene plastic. Matte finish. Functional, UV-resistant appearance."

#### 4.7 Valve - PVC Ball Valve (Manual)

* **Mesh Prompt:** "Generate a PVC ball valve for common pipe diameters (1/2 to 2 inch). White or gray PVC body with a contrasting colored quarter-turn handle (e.g., red or blue). Socket or threaded connections. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: White (Sch 40) or Gray (Sch 80) PVC. Handle: Brightly colored (red/blue) durable plastic, slightly textured for grip. Internal ball (if visible): PVC or appropriate polymer. Clean, functional."

#### 4.8 Valve - Brass Ball Valve (Manual)

* **Mesh Prompt:** "Generate a brass ball valve for common pipe diameters (1/2 to 1 inch). Brass body with a steel or aluminum quarter-turn lever handle (often coated in colored vinyl). Threaded connections. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Cast brass, can be slightly weathered or new. Handle: Steel lever with a red or blue vinyl grip. Clean threads. Robust and reliable appearance."

#### 4.9 Valve - Solenoid Valve (Automated Irrigation/Dosing)

* **Mesh Prompt:** "Generate an electric solenoid valve. Brass or engineered plastic body with an attached cylindrical solenoid coil (often black epoxy-encased or with a metal cover). Inlet/outlet ports (threaded). Wires or a DIN connector for electrical connection. Suitable for automated control systems. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Cast brass or durable black/gray engineering plastic. Solenoid Coil: Black epoxy resin or painted metal casing. Wires: Insulated copper wires. Clean, high-tech component for automation."

#### 4.10 Filter - Inline Sediment Filter (Clear Housing)

* **Mesh Prompt:** "Generate an inline sediment filter assembly. Clear plastic filter housing (sump) with a plastic head (inlet/outlet ports, pressure relief button). Inside, include a replaceable sediment filter cartridge (e.g., pleated paper or string wound). Common sizes for 1/2 or 3/4 inch lines. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing Sump: Transparent, durable polycarbonate or similar clear plastic (may show slight blue tint). Head: Opaque blue or black reinforced polypropylene. Filter Cartridge: White pleated paper or string material. O-ring: Black rubber. Clean, allows visual inspection of filter."

#### 4.11 Filter - Inline Carbon Filter (Opaque Housing)

* **Mesh Prompt:** "Generate an inline carbon filter assembly. Opaque plastic filter housing (similar size to sediment filter) with a plastic head. Designed for GAC or carbon block cartridges (not visible from outside unless cutaway). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing Sump & Head: Opaque white or blue reinforced polypropylene. Clean, functional appearance for water purification."

### 5. Nutrient Mixing Stations/Vats

#### 5.1 Nutrient Mixing Station - Manual (Buckets/Small Tanks & Stirring Tools)

* **Mesh Prompt:** "Generate a small manual nutrient mixing setup: two 5-gallon buckets (one for water, one for mixing), a long plastic or stainless steel stirring paddle/rod, and a set of plastic measuring cups/spoons. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Buckets: Standard HDPE plastic (e.g., white, blue), may have subtle scuffs from use. Stirring Paddle: Clean white plastic or brushed stainless steel. Measuring Cups/Spoons: Translucent or white polypropylene. Clean, basic lab/utility look."

#### 5.2 Nutrient Mixing Vat - Small Scale (e.g., 20-50 Gallon Tank with Lid, Manual Stirring)

* **Mesh Prompt:** "Generate a 20-50 gallon polyethylene tank designated as a nutrient mixing vat. Include a loose-fitting lid, possibly a manual drain valve near the bottom. Accompany with a long, heavy-duty stirring paddle. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tank: Opaque food-grade polyethylene (e.g., white or blue), clean but can show faint residue lines if previously used. Lid: Matching plastic. Valve: PVC or polypropylene. Stirring Paddle: Stainless steel or heavy-duty plastic. Functional, clean setup."

#### 5.3 Nutrient Mixing Station - Large Scale / Industrial (Large Tank, Pump, Agitator)

* **Mesh Prompt:** "Generate a large-scale nutrient mixing station: a 100-200 gallon stainless steel or conical bottom poly tank, equipped with a top-mounted electric agitator/mixer (motor and impeller shaft), an attached recirculation pump, and necessary plumbing (valves, sight glass). Control panel nearby. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tank: Brushed stainless steel or heavy-duty opaque white/blue polyethylene. Agitator Motor: Painted industrial motor housing. Impeller/Shaft: Stainless steel. Pump: Stainless steel or chemical-resistant polymer. Plumbing: PVC or stainless steel. Control Panel: Sheet metal with buttons/indicators. Professional, automated, clean."

### 6. Automated Dosing/Fertigation Systems

*(Note: These are systems composed of many smaller parts like pumps, controllers, sensors, and plumbing, which are prompted separately. This prompt is for a representative visual assembly or control unit.)*

#### 6.1 Automated Doser - Multi-Channel Peristaltic Pump Head Unit

* **Mesh Prompt:** "Generate a compact, wall-mountable automated dosing unit featuring 3-5 small peristaltic pump heads. Enclosed in a professional plastic or metal casing with a small digital display, control buttons/knobs for each channel, and inlet/outlet tubing ports for each pump. High-tech, precise appearance. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Clean white or light gray ABS plastic or powder-coated aluminum. Pump Heads: Clear polycarbonate or durable opaque plastic with visible rollers. Tubing: Small diameter, flexible clear or colored silicone/Tygon tubing. Display: Small LCD screen. Buttons: Tactile polymer. Scientific, precision instrument."

#### 6.2 Fertigation System Controller - Advanced (Wall-Mounted Panel)

* **Mesh Prompt:** "Generate a wall-mounted advanced fertigation system controller panel. Features a larger touchscreen display (e.g., 7-10 inches), status indicator LEDs, connection ports for multiple sensors (EC, pH, flow, level) and valve/pump outputs. Professional, clean enclosure. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Enclosure: Light gray or white powder-coated steel or high-impact polymer. Touchscreen: Clean glass display (can show a mock UI). LEDs: Small, illuminated status lights. Connectors: Standard industrial electrical/data connectors. High-tech, central control unit appearance."

### 7. Growing Mediums/Substrates

*(Note: These are typically represented as bags or bulk containers. The focus is on the packaging/container and a suggestion of the contents.)*

#### 7.1 Growing Medium - Bag of Soil (e.g., 1-2 cubic feet)

* **Mesh Prompt:** "Generate a 3D model of a sealed bag of potting soil, approximately 1-2 cubic feet in size. The bag should be plastic, with realistic folds and shape of a filled bag. Include professional, modern branding/label design related to 'Project Chimera' or a generic high-quality soil. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bag: Heavy-duty plastic (e.g., white, black, or colored) with a slightly glossy or matte finish. Label: High-resolution, professionally designed label with text like 'Premium Organic Soil Mix' or 'Pro-Grade Cultivation Substrate,' and 'Project Chimera' branding elements. Colors should fit the game's aesthetic. Clean, new product."

#### 7.2 Growing Medium - Bag of Coco Coir (Compressed Brick or Loose Fill Bag)

* **Mesh Prompt:**
  + "Variation 1 (Brick): Generate a 3D model of a compressed coco coir brick, wrapped in clear or branded plastic. Standard size (e.g., 5kg brick).
  + Variation 2 (Loose Bag): Generate a 3D model of a sealed bag of loose coco coir, similar in size and style to the soil bag. Modern branding. Game-ready assets."
* **Material Prompt:**
  + "Variation 1 (Brick): Coco Coir: Dark brown, fibrous, compressed texture. Plastic Wrap: Clear or printed plastic with branding.
  + Variation 2 (Loose Bag): Bag: Heavy plastic with modern 'Coco Coir Substrate' branding. Coco visible if a clear window. Clean, professional packaging."

#### 7.3 Growing Medium - Rockwool Cubes/Slabs (Packaged)

* **Mesh Prompt:** "Generate a 3D model of packaged Rockwool growing media.
  + Variation 1 (Cubes): A sheet of small Rockwool starter cubes (e.g., 1-inch cubes) in a plastic tray, wrapped in clear plastic.
  + Variation 2 (Slabs): A long Rockwool slab (e.g., 6x36 inches) wrapped in white opaque plastic. Include branding. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Rockwool: Light tan/yellowish-brown fibrous mineral wool texture. Plastic Wrap/Tray: Clear or white agricultural plastic with branding like 'Hydroponic Grade Rockwool.' Clean, sterile appearance."

#### 7.4 Growing Medium - Bag of Hydroton (Clay Pebbles)

* **Mesh Prompt:** "Generate a 3D model of a sealed plastic bag filled with Hydroton (expanded clay pebbles), typical commercial size (e.g., 10-50 liters). Show the shape of the pebbles through the bag. Modern branding. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bag: Durable plastic, possibly with a clear window showing the pebbles. Label: 'Expanded Clay Pebbles - Hydroponic Medium' with professional branding. Pebbles (if visible): Rounded, porous, reddish-brown terracotta color. Clean packaging."

#### 7.5 Growing Medium - Bale of Peat Moss (Compressed)

* **Mesh Prompt:** "Generate a 3D model of a compressed bale of peat moss, wrapped in branded plastic. Large, rectangular bale (e.g., 3.8 cubic feet). Show compression. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Plastic Wrap: Heavy-duty printed plastic with 'Sphagnum Peat Moss' branding. Peat Moss (if visible at ends): Dark brown, fibrous organic texture. Professional, bulk agricultural product appearance."

#### 7.6 Growing Medium - Container/Tote of Living Soil (Bulk)

* **Mesh Prompt:** "Generate a large, open-top fabric tote or rigid plastic container (e.g., 1 cubic yard 'super sack' style or a large plastic bin) filled with rich, dark living soil. The soil surface should look textured and organic. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tote/Container: Heavy-duty woven polypropylene fabric (for sack) or thick, dark plastic (for bin). Soil: Rich, dark brown to black, loamy texture with visible organic matter (e.g., perlite, small wood chips, compost). Moist, fertile appearance."

### 8. Nutrient Containers

*(Note: Focus on professional, scientific-looking packaging. Labels are key.)*

#### 8.1 Nutrient Bottle - Base Nutrients (Liquid, A+B Two-Part Set, e.g., 1 Liter or 1 Gallon)

* **Mesh Prompt:** "Generate a set of two identical nutrient bottles (Part A and Part B), 1 liter or 1 gallon HDPE plastic. Modern, ergonomic bottle shape with a secure cap and a clearly defined label area. Include subtle volume indicators if molded. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Bottles: Opaque, chemical-resistant HDPE plastic (e.g., white, black, or specific brand colors like blue for Part A, red for Part B). Labels: High-quality, professionally designed waterproof labels. Text should indicate 'Grow/Bloom Base Nutrient Part A' (and B), NPK values, 'Project Chimera HydroScience,' mixing instructions, safety data sheet (SDS) icon. Clean, scientific, premium product look."

#### 8.2 Nutrient Bottle - Additive/Supplement (Liquid, Smaller Size, e.g., 250ml, 500ml, 1 Liter)

* **Mesh Prompt:** "Generate a smaller nutrient additive bottle, 250ml, 500ml, or 1 liter. Unique but complementary shape to the base nutrient bottles. HDPE plastic, secure cap, possibly with a built-in measuring cap feature. Game-ready asset."
* **Material Prompt:** "Create PBR material. Bottle: Opaque HDPE plastic in a distinct color (e.g., silver, green, purple) to differentiate from base nutrients. Label: Professional label with product name (e.g., 'Cal-Mag Boost,' 'Root Enhancer,' 'Bloom Finisher'), ingredients, 'Project Chimera Advanced Nutrients,' usage guide. High-quality, specialized product appearance."

#### 8.3 Nutrient Bag - Dry/Powdered Nutrients or Additives (e.g., 1lb, 5lb, Resealable Pouch or Small Bucket)

* **Mesh Prompt:**
  + "Variation 1 (Pouch): Generate a resealable stand-up pouch for powdered nutrients, (e.g., 1lb or 5lb size). Foil-lined plastic or Mylar.
  + Variation 2 (Bucket): Generate a small plastic bucket (e.g., 1 gallon) with a resealable lid, for dry nutrients. Modern, professional branding. Game-ready assets."
* **Material Prompt:**
  + "Variation 1 (Pouch): Pouch: Metallic Mylar or heavy plastic with a matte or gloss finish. Professional label: 'Soluble Powder Nutrient,' product name, NPK, 'Project Chimera TerraTech,' mixing rates.
  + Variation 2 (Bucket): Bucket/Lid: Opaque white or colored HDPE plastic. Wrap-around label or direct print with similar professional branding. Clean, sealed, moisture-proof appearance."

## Rodin 3D Asset Generation Prompts: Environmental Control Equipment

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Equipment should appear well-maintained, efficient, and precise, suitable for advanced environmental control in a research or commercial cultivation facility. Visual indicators (LEDs, small screens) are encouraged where logical.

### 1. HVAC Systems

#### 1.1 Air Conditioner - Window Unit (Basic/Residential Scale)

* **Mesh Prompt:** "Generate a 3D model of a modern, compact window air conditioner unit. Include front louvers (adjustable if possible), side vents, control panel with simple knobs or digital buttons, and the rear section that sits outside. Standard size for a residential window. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Clean, off-white or light gray durable polymer, slightly matte. Louvers: Matching polymer. Control Panel: Darker polymer with clear labels. Rear Grill: Weathered metal fins and casing. Professional but consumer-grade appearance."

#### 1.2 Air Conditioner - Mini-Split System (Indoor Unit - Wall Mounted)

* **Mesh Prompt:** "Generate a 3D model of a modern, sleek wall-mounted indoor unit for a mini-split air conditioning system. Rectangular, slim profile with an oscillating air discharge louver at the bottom. Include a subtle digital temperature display and status LEDs. Designed for quiet, efficient operation in a clinical or office-like setting. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: High-quality, smooth white or light silver polymer with a satin or semi-gloss finish. Louver: Matching polymer. Display: Darkened acrylic for LED display. Impeccably clean, modern appliance aesthetic."

#### 1.3 Air Conditioner - Mini-Split System (Outdoor Unit - Condenser)

* **Mesh Prompt:** "Generate a 3D model of a modern outdoor condenser unit for a mini-split AC system. Rectangular metal casing with a large fan visible behind a protective grille, and connection ports for refrigerant lines and electrical supply. Include manufacturer-style branding plate. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Painted weather-resistant metal (e.g., beige, gray, or off-white), clean but suitable for outdoor placement. Fan Blades: Metal or durable polymer. Grille: Matching painted metal or heavy-duty plastic. Professional, durable outdoor equipment look."

#### 1.4 Heater - Electric Portable (Small Room/Clinical)

* **Mesh Prompt:** "Generate a 3D model of a modern, portable electric space heater. Options:
  + Variation 1 (Ceramic Tower): Slim tower design with an oscillating base, front grille for heat output, digital controls, and display on top.
  + Variation 2 (Oil-Filled Radiator Style): Compact, modern oil-filled radiator design with fins and a simple thermostat control. Clean, safe, professional appearance. Game-ready asset."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Ceramic Tower): Casing: Cool-touch, high-quality polymer in white, silver, or dark gray. Grille: Fine metal mesh. Controls: Sleek digital interface.
  + Variation 2 (Oil-Filled): Casing/Fins: Painted metal (e.g., light gray or off-white). Control Panel: Durable polymer. Modern, clean appliance aesthetic."

#### 1.5 Heater - Gas (Industrial/Warehouse Space Heater, e.g., Forced Air Propane/Natural Gas)

* **Mesh Prompt:** "Generate a 3D model of an industrial forced-air gas heater (propane or natural gas). Cylindrical or rectangular metal body on a stand or wheels, large heat outlet, prominent burner assembly (if visible safely), gas inlet valve, and a simple control panel/igniter. Suitable for large warehouse spaces. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Heavy-gauge painted steel (e.g., industrial red, yellow, or gray), may show slight heat discoloration near the outlet. Burner Components: Stainless steel or heat-resistant alloy. Controls: Robust industrial plastic or metal. Utilitarian, powerful appearance."

#### 1.6 Dehumidifier - Portable Residential/Light Commercial (e.g., 50-70 Pint)

* **Mesh Prompt:** "Generate a 3D model of a modern portable dehumidifier. Sleek plastic casing on caster wheels, top or front air intake grille, side or top air outlet, a visible (possibly translucent) water collection tank with a level indicator, and a digital control panel with humidity settings and display. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Clean white or light gray high-quality polymer. Grilles: Matching polymer. Water Tank: Clear or translucent blue/gray polymer. Control Panel: Smooth interface with LED display. Modern appliance aesthetic, efficient and clean."

#### 1.7 Dehumidifier - Large Commercial/Industrial (LGR or Desiccant)

* **Mesh Prompt:** "Generate a 3D model of a large commercial/industrial dehumidifier. Robust metal casing, possibly on heavy-duty casters or skids. Large air intake/outlet ports for ducting connections. Digital control panel with advanced readouts. Designed for high-capacity moisture removal in large spaces. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Powder-coated or stainless steel (e.g., industrial blue, gray, or stainless finish). Control Panel: Industrial-grade interface. Ports: Heavy-duty flanged or plain duct connections. Professional, powerful, and durable look."

#### 1.8 Humidifier - Ultrasonic Cool Mist (Small Room/Clinical)

* **Mesh Prompt:** "Generate a 3D model of a modern ultrasonic cool mist humidifier. Sleek design with a translucent water tank, an adjustable mist output nozzle, and simple digital or dial controls. Suitable for precise humidity control in smaller, clean environments. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: High-quality white or light-colored polymer. Tank: Clear or lightly tinted (e.g., blue) translucent plastic, showing water level. Nozzle: Matching polymer. Controls: Minimalist modern interface. Clean, quiet, high-tech appearance."

#### 1.9 Humidifier - Industrial/Commercial (e.g., Ducted or Large Evaporative)

* **Mesh Prompt:** "Generate a 3D model of an industrial/commercial humidifier.
  + Variation 1 (Ducted Atomizing/Steam): Unit designed to connect to HVAC ductwork, metal casing with water inlet, power connection, and control interface.
  + Variation 2 (Large Mobile Evaporative): Large mobile unit with a substantial water reservoir, internal fan, and evaporative media. Game-ready asset."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Ducted): Casing: Galvanized or stainless steel. Professional, integrated system component.
  + Variation 2 (Mobile Evaporative): Casing: Durable industrial polymer or painted metal. Reservoir: Opaque heavy-duty plastic. Robust, high-capacity design."

### 2. Fans

#### 2.1 Circulation Fan - Clip-On (Small, Grow Tent/Shelf)

* **Mesh Prompt:** "Generate a 3D model of a small clip-on circulation fan, approximately 6-8 inch diameter. Features a strong spring-loaded clip for mounting, adjustable fan head (tilt/swivel), protective grille, and a simple on/off or speed switch. Power cord. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing/Grille/Clip: Durable black or white plastic. Blades: Matching plastic. Clean, functional utility item."

#### 2.2 Circulation Fan - Standing/Pedestal (Oscillating)

* **Mesh Prompt:** "Generate a 3D model of a modern standing/pedestal circulation fan, 16-18 inch diameter. Adjustable height stand, oscillating head, protective grille, multiple speed settings via buttons or dial on the motor housing or stand. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing/Grille: White, black, or silver polymer or painted metal. Blades: Translucent or opaque polymer. Stand: Metal pole with a weighted plastic base. Clean, modern appliance."

#### 2.3 Circulation Fan - Wall-Mounted (Oscillating, Industrial Look)

* **Mesh Prompt:** "Generate a 3D model of a wall-mounted circulation fan, 18-24 inch diameter. Robust metal construction for grille and blades, heavy-duty wall mounting bracket, pull-chain or wired control for speed and oscillation. Industrial or commercial grade. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing/Grille/Blades: Painted metal (e.g., black or industrial gray) or brushed aluminum/steel. Mounting Bracket: Heavy-gauge painted steel. Durable, powerful appearance."

#### 2.4 Exhaust Fan - Axial (Wall/Ceiling Mount for Room Ventilation)

* **Mesh Prompt:** "Generate a 3D model of a square or circular axial exhaust fan designed for wall or ceiling mounting, e.g., 10-12 inch blade diameter. Includes housing, motor, fan blades, and a protective grille or backdraft damper. Simple, functional design for room air exchange. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing/Grille: White or light gray UV-resistant polymer or painted metal. Blades: Polymer or aluminum. Clean, standard ventilation component."

#### 2.5 Inline Duct Fan - Centrifugal (High Pressure for Ducting Systems)

* **Mesh Prompt:** "Generate a 3D model of an inline centrifugal duct fan, common duct diameters (e.g., 4, 6, 8, 10, 12 inch). Cylindrical or snail-shell metal housing with flanged or plain duct connections on both ends. Visible motor housing, possibly with a junction box for wiring. High-performance design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing: Galvanized steel, painted steel (e.g., industrial blue or gray), or durable polymer for smaller sizes. Impeller (if visible): Metal or reinforced polymer. Clean, powerful, engineered for airflow."

### 3. Ducting

#### 3.1 Ducting - Flexible Insulated/Uninsulated (Various Diameters)

* **Mesh Prompt:** "Generate sections of flexible ducting, 5-10 feet long, for common diameters (4, 6, 8, 10, 12 inch).
  + Variation 1 (Uninsulated): Silver foil, multi-ply aluminum or black plastic, showing internal wire helix for shape.
  + Variation 2 (Insulated): Similar to uninsulated but with a thicker outer jacket (e.g., silver foil or black poly) covering an insulation layer. Game-ready assets, should look realistically flexible."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Uninsulated): Reflective silver aluminum foil or matte black polyethylene. Subtle texture of the ply layers and helix.
  + Variation 2 (Insulated): Outer Jacket: Similar to uninsulated, but appearing thicker and smoother due to insulation. Clean, new ducting material."

#### 3.2 Ducting - Rigid Metal (Galvanized Steel, Spiral or Smooth - Various Diameters)

* **Mesh Prompt:** "Generate sections of rigid metal ducting: straight lengths (e.g., 2ft, 4ft, 5ft), 90-degree elbows, 45-degree elbows, T-pieces, reducers/enlargers. Common diameters (4 to 12 inch).
  + Variation 1 (Spiral): Spiral seam construction.
  + Variation 2 (Smooth/Longitudinal Seam): Smooth cylindrical sections. Game-ready assets."
* **Material Prompt:** "Create a PBR material for galvanized steel. Characteristic spangled or matte finish. Clean, with subtle seam details. Industrial and professional look."

#### 3.3 Ducting Fittings - (Collars, Clamps, Tape)

* **Mesh Prompt:** "Generate a set of ducting accessories:
  + Duct Collars/Flanges: For connecting ducts to fans or walls.
  + Worm Drive Duct Clamps: Adjustable metal clamps.
  + Duct Tape: A roll of silver foil HVAC tape. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Collars/Flanges: Galvanized steel. Clamps: Stainless steel. Tape: Reflective silver foil tape with a fabric scrim texture. Utilitarian, functional."

### 4. CO2 Systems

#### 4.1 CO2 Tank - Compressed Gas Cylinder (Various Sizes)

* **Mesh Prompt:** "Generate a set of high-pressure compressed CO2 gas cylinders, common sizes (e.g., 5lb, 10lb, 20lb, 50lb aluminum or steel). Include protective valve cap/collar and a standard CGA 320 valve outlet. Standing upright. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Cylinder Body: Painted aluminum (brushed silver or gray) or painted steel (e.g., gray, green, or unpainted with clear coat showing manufacturing marks). Valve: Polished brass. Labels: Hazmat diamond for non-flammable gas, CO2 identification, tare weight, inspection dates. Professional, clean, and clearly labeled."

#### 4.2 CO2 Regulator - (Dual Gauge for Tank)

* **Mesh Prompt:** "Generate a 3D model of a CO2 regulator designed to attach to a compressed gas cylinder (CGA 320 inlet). Feature two gauges (tank pressure and output flow/pressure), an adjustable flow control knob, a solenoid valve (for automated control), and an outlet barb/fitting for tubing. Precision instrument. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Forged brass or chrome-plated brass. Gauges: Metal casing, glass/plastic face with clear markings. Knobs: Durable polymer or metal. Solenoid: Black epoxy or metal casing. Tubing Barb: Brass or plastic. Professional, scientific grade."

#### 4.3 CO2 Controller - (Environmental Sensor Input & Regulator/Generator Output)

* **Mesh Prompt:** "Generate a 3D model of a wall-mountable CO2 controller unit. Digital display showing current CO2 PPM, setpoint, and status. Buttons for programming. Input for a CO2 sensor and output to control a CO2 regulator solenoid or a CO2 generator. Modern, clinical design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Light gray or white ABS plastic with a clean, matte finish. Display: LCD screen. Buttons: Tactile polymer. High-tech, precise environmental control unit."

#### 4.4 CO2 Generator - Propane or Natural Gas Burning

* **Mesh Prompt:** "Generate a 3D model of a CO2 generator that burns propane or natural gas. Sheet metal casing (possibly stainless steel or painted) with pilot light assembly, multiple burners, safety shutoffs, gas inlet, and power connection for electronic ignition/controls. Designed for suspension or wall mounting. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Stainless steel or heat-resistant painted steel. Burners: Heat-resistant alloy, may show slight discoloration from heat. Gas Valves/Fittings: Brass. Professional, clean, but shows evidence of high-temperature operation."

### 5. Grow Lights

#### 5.1 Grow Light - HID (High-Intensity Discharge) - MH (Metal Halide) Lamp + Ballast + Hood

* **Mesh Prompt:** "Generate a complete HID Metal Halide grow light assembly:
  + Lamp: MH bulb shape with mogul base.
  + Ballast: Separate, heavy rectangular metal ballast housing (digital or magnetic style) with cooling fins, power cord input, lamp cord output, and possibly a switch or dimming knob.
  + Hood/Reflector: Large open reflector hood (e.g., wing style, air-cooled hood with glass and duct flanges, or large parabolic). Socket assembly for the lamp. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Lamp: Clear or coated glass bulb, ceramic base, brass threads. Ballast: Painted metal (e.g., black, gray, silver) or textured powder coat. Hood: Highly reflective dimpled or polished aluminum interior; painted or plain aluminum exterior. Glass (if air-cooled): Clear, heat-resistant. Professional, high-power lighting."

#### 5.2 Grow Light - HID (High-Intensity Discharge) - HPS (High-Pressure Sodium) Lamp + Ballast + Hood

* **Mesh Prompt:** "Generate a complete HID High-Pressure Sodium grow light assembly (similar components to MH but HPS lamp):
  + Lamp: HPS bulb shape (often tubular with a yellowish/orange internal arc tube visible) with mogul base.
  + Ballast: (As above).
  + Hood/Reflector: (As above). Game-ready assets."
* **Material Prompt:** "Create PBR materials. Lamp: Clear glass bulb showing internal arc tube (yellow/orange glow when on conceptually), ceramic base, brass threads. Ballast & Hood: (As MH). Professional, high-output flowering light."

#### 5.3 Grow Light - LED Panel (Various Wattages/Spectrums/Form Factors)

* **Mesh Prompt:** "Generate a set of modern LED grow light panels:
  + Variation 1 (Quantum Board Style): Flat panel with an array of full-spectrum LED diodes (e.g., Samsung LM301B/H), thin aluminum heatsink backing, remote or attached driver. Common sizes e.g., 100W, 240W, 480W.
  + Variation 2 (Bar Light Style): Multiple linear LED bars (e.g., 4-8 bars) connected to a frame, designed for wider, even coverage. Foldable or rigid frame.
  + Variation 3 (COB/High Power LED Style): Fewer, larger Chip-on-Board LEDs with individual lenses or reflectors, robust heatsinks. Sleek, high-tech, efficient design. Game-ready assets."
* **Material Prompt:** "Create PBR materials. LEDs: Small, multi-colored (white, red, blue, UV, IR - depending on spectrum simulation) emissive points. PCB/Board: White or black FR4 material. Heatsink: Anodized or natural aluminum (silver, black, or gray). Driver Casing: Metal or polymer. Lenses/Covers: Clear optical-grade polymer or glass. Professional, cutting-edge lighting technology. Emphasize heat dissipation features."

#### 5.4 Grow Light - Fluorescent T5 Fixture (e.g., 4-lamp, 4-foot)

* **Mesh Prompt:** "Generate a 3D model of a 4-foot, 4-lamp T5 fluorescent grow light fixture. Slim metal housing with a highly reflective interior, end caps for lamps, and mounting hardware. Includes four T5 fluorescent tubes. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing: Painted metal (e.g., white or silver) or polished aluminum. Reflector: Highly polished, specular aluminum. Lamps: Frosted or clear glass tubes (can emit a cool white/blueish or warm white light conceptually). End Caps: Plastic. Clean, efficient propagation/veg light."

#### 5.5 Grow Light - LEC/CMH (Ceramic Metal Halide) Fixture

* **Mesh Prompt:** "Generate a 3D model of an LEC/CMH grow light fixture. Integrated unit with a specialized CMH lamp, built-in low-frequency ballast, and a compact, highly efficient reflector (often square or rectangular, designed for specific coverage). E.g., 315W or 630W (dual lamp) unit. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Lamp: Specialized ceramic arc tube lamp, often with an outer glass envelope. Ballast/Housing: Robust, powder-coated metal casing with cooling fins. Reflector: Highly reflective, textured or Miro aluminum. Professional, high-intensity, full-spectrum light source."

### 6. Light Timers/Controllers

#### 6.1 Light Timer - Mechanical (Simple Plug-in)

* **Mesh Prompt:** "Generate a 3D model of a simple, plug-in mechanical light timer. Round dial with 24-hour markings and push-down pins for setting on/off times. Outlet(s) on the side or front. Grounded plug. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Beige or white hard plastic. Dial: Contrasting plastic with clear printed markings. Pins: Small colored plastic. Basic, reliable utility item."

#### 6.2 Light Timer - Digital (Programmable Plug-in or Wall Mount)

* **Mesh Prompt:** "Generate a 3D model of a digital light timer.
  + Variation 1 (Plug-in): Rectangular plastic casing with an LCD screen, programming buttons, and outlet(s).
  + Variation 2 (Wall Mount Controller): More robust unit designed to control multiple lights/circuits, larger LCD, more buttons, terminal connections for wiring. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Casing: White or light gray modern ABS plastic. Screen: LCD display with digital readouts. Buttons: Tactile rubber or plastic. Clean, programmable device aesthetic."

### 7. Thermostats, Humidistats, Environmental Controllers

#### 7.1 Thermostat/Humidistat - Basic Analog/Digital (Single Parameter Control)

* **Mesh Prompt:** "Generate a simple wall-mounted thermostat or humidistat.
  + Variation 1 (Analog): Dial interface for setting temperature/humidity.
  + Variation 2 (Digital): Basic LCD screen showing current and setpoint, up/down buttons. Clean, functional design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Off-white or beige plastic. Dial/Buttons: Contrasting plastic. Screen (Digital): Simple LCD. Standard environmental control interface."

#### 7.2 Environmental Controller - Advanced Integrated (Multi-Parameter)

* **Mesh Prompt:** "Generate a sophisticated wall-mounted integrated environmental controller. Large touchscreen interface (e.g., 5-7 inches), status LEDs for different connected systems (HVAC, CO2, lights, humidity). Multiple sensor inputs and relay outputs implied or visible as connection ports. Sleek, modern, central control unit. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: High-quality brushed aluminum or premium white/gray polymer. Touchscreen: Clean glass display (can show a complex mock UI for temp, RH, VPD, CO2, light cycle). LEDs: Small, distinct status lights. High-tech, professional command center for environmental management."

### 8. Sensors

*General notes for sensors: Small, often discreet. Emphasis on precision and data acquisition role. Modern, clean designs. Include subtle branding like "ChimeraSens" or similar if desired.*

#### 8.1 Sensor - Environmental (Air Temp, RH, CO2, Light - Combined Unit)

* **Mesh Prompt:** "Generate a compact, modern environmental sensor unit designed for wall or ceiling mounting. Small casing housing sensors for air temperature, relative humidity, CO2, and light (PAR/PPFD). May have small vents for airflow to sensors. Subtle status LED. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Clean white or light gray matte ABS plastic. Sensor Ports/Vents: Darker, fine mesh or precisely molded openings. LED: Tiny status indicator. Scientific, data-logging instrument."

#### 8.2 Sensor - Leaf Surface Temperature (Infrared Thermopile or Clip-on Thermistor)

* **Mesh Prompt:**
  + "Variation 1 (IR): Small, non-contact infrared thermopile sensor module, possibly in a small directional housing.
  + Variation 2 (Clip-on): Tiny thermistor embedded in a gentle leaf clip with a thin wire. Game-ready assets."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (IR): Housing: Black or gray technical plastic. Lens: Small, specialized IR lens material.
  + Variation 2 (Clip-on): Clip: Soft, non-damaging green or white plastic. Wire: Thin, insulated wire. Precision measurement tools."

#### 8.3 Sensor - Root Zone/Substrate (Moisture VWC%, EC, pH, Temperature - Probe Style)

* **Mesh Prompt:** "Generate a multi-parameter substrate sensor probe. Durable, pointed probe body (e.g., 6-12 inches long) designed to be inserted into growing media. The head of the probe contains a small enclosure for electronics and a weather-proof cable connector. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Probe Body: Inert, durable polymer (e.g., white or gray Delrin/PVC) or stainless steel with visible sensing elements. Head Enclosure: Sealed, rugged polymer. Cable: Black, weather-resistant jacket. Robust, scientific field instrument."

#### 8.4 Sensor - Advanced/Specialized (Inline Water EC/pH/Temp - Post-MVP Visual)

* **Mesh Prompt:** "Generate an inline water sensor assembly. T-fitting or flow-cell made of clear or opaque PVC/acrylic, with integrated probes for EC, pH, and Temperature, sealed with O-rings. Wires leading from each probe. Designed to be plumbed into an irrigation line. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Fitting/Flow-Cell: Clear acrylic or gray/white PVC. Probes: Glass (pH), metallic pins (EC), stainless steel (Temp), set in epoxy or threaded polymer bases. Wires: Insulated. Precise, inline measurement component."

#### 8.5 Sensor - Research-Grade Calibration Standard (Conceptual Visual)

* **Mesh Prompt:** "Generate a conceptual visual for a 'research-grade calibration standard' sensor. This could be a highly precise, perhaps slightly larger version of the combined environmental sensor, with more prominent, finely machined sensor apertures and a connection port for a data logger or calibration interface. Distinctive 'Calibration Reference' markings. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Machined aluminum or high-density technical ceramic (e.g., white or dark gray). Sensor Apertures: Precisely engineered, possibly with visible high-quality sensor elements. Markings: Laser-etched 'Calibration Standard - Project Chimera Labs.' High-precision, reference instrument aesthetic."

### 9. Air Filters

#### 9.1 Air Filter - Intake Filter (Simple Panel/Box for Ducts/Fans)

* **Mesh Prompt:** "Generate a simple intake air filter.
  + Variation 1 (Panel): Flat panel filter (e.g., MERV 8-13) in a cardboard or thin metal frame, standard sizes (e.g., 20x20x1 inch).
  + Variation 2 (Box): Box-style filter with more surface area, designed to fit on the intake of a fan or duct. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Media: Pleated synthetic filter material (white or light blue/green). Frame: Cardboard or thin galvanized steel. Clean, new appearance."

#### 9.2 Air Filter - Carbon Filter (Cylindrical for Odor Control in Ducting)

* **Mesh Prompt:** "Generate a cylindrical activated carbon air filter designed for inline duct connection. Metal mesh exterior and interior, filled with activated carbon pellets (visible through mesh). Flanged ends for duct attachment. Common duct diameters (e.g., 4, 6, 8, 10, 12 inch) and lengths. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Mesh/Flanges: Galvanized or stainless steel. Carbon Pellets: Matte black, granular activated carbon. May include an outer pre-filter sleeve of white non-woven fabric. Professional odor control equipment."

#### 9.3 Air Filter - HEPA/MERV Rated Cartridge (Advanced Filtration)

* **Mesh Prompt:** "Generate a high-efficiency air filter cartridge (HEPA or high MERV rating e.g., 16+). Deep-pleated filter media in a robust metal or plastic frame. Designed for critical air cleaning applications. Standard sizes for filter housings. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Media: Dense, deep-pleated white or specialized filter paper/synthetic material. Frame: Anodized aluminum or heavy-duty polymer. Gasket: Black rubber or neoprene seal. High-performance, clinical-grade filtration component."

## Rodin 3D Asset Generation Prompts: Utility Systems & Equipment

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Equipment should appear robust, well-engineered, and clearly indicate its function, adhering to a clean and organized facility layout. Safety features and clear labeling should be implied or visible where appropriate.

### 1. Electrical Wiring

*(Note: These are likely to be procedural or spline-based in-game, but representative sections/types can be generated.)*

#### 1.1 Electrical Wire - Standard Romex NM-B Cable (Representative Section)

* **Mesh Prompt:** "Generate a 3D model of a short, representative section (e.g., 1 foot) of non-metallic sheathed electrical cable (Romex NM-B style). Show the outer flat-sided PVC jacket with 2-3 inner insulated conductors (e.g., black, white, bare copper ground) slightly exposed at one end as if prepared for connection. Common gauges like 14/2, 12/2. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Outer Jacket: White or yellow PVC plastic, matte finish, with subtle printed text (e.g., 'NM-B 12/2 AWG 600V'). Inner Conductor Insulation: Smooth colored PVC (black, white). Copper Conductor: Bare, slightly reflective copper. Clean, new appearance."

#### 1.2 Electrical Wire - Armored Cable/MC Cable (Representative Section)

* **Mesh Prompt:** "Generate a 3D model of a short section (e.g., 1 foot) of armored electrical cable (MC Cable). Show the flexible, interlocked metal armor (aluminum or steel) with inner insulated conductors (e.g., black, red, blue, white, green ground) slightly exposed at one end. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Armor: Spirally wound aluminum or galvanized steel, slightly reflective, metallic. Inner Conductor Insulation: Smooth colored PVC (black, red, blue, white, green). Clean, industrial appearance."

#### 1.3 Electrical Conduit - EMT (Electrical Metallic Tubing) - (Sections & Fittings)

* **Mesh Prompt:** "Generate a set of modular EMT conduit components: straight lengths (1ft, 2ft, 4ft), 90-degree elbows, 45-degree elbows, couplings, and connectors for common trade sizes (e.g., 1/2 inch, 3/4 inch, 1 inch). Game-ready assets."
* **Material Prompt:** "Create a PBR material for galvanized steel EMT conduit. Smooth, slightly reflective metallic finish with characteristic sheen. Clean, with subtle manufacturing marks or printed UL listings. Professional electrical installation appearance."

#### 1.4 Electrical Conduit - PVC (Schedule 40/80) - (Sections & Fittings)

* **Mesh Prompt:** "Generate a set of modular PVC electrical conduit components: straight lengths, elbows, couplings, adapters, junction boxes (FS box style). Trade sizes (e.g., 1/2 to 2 inch). Distinguish Schedule 40 (gray) and Schedule 80 (heavier wall, often gray). Game-ready assets."
* **Material Prompt:** "Create a PBR material for gray PVC electrical conduit. Smooth, matte finish. Schedule 80 should appear slightly thicker. Clean, with subtle printed ratings. Durable, weather-resistant look for appropriate applications."

### 2. Circuit Breakers / Fuse Boxes / Panels

#### 2.1 Circuit Breaker Panel - Residential/Light Commercial (e.g., 100-200 Amp)

* **Mesh Prompt:** "Generate a 3D model of a modern circuit breaker panel suitable for residential or light commercial use (100-200 Amp). Rectangular metal enclosure with a hinged front door. Interior should show a main breaker at the top and rows of buss bars for 15-20 individual circuit breakers (a mix of single-pole and double-pole breakers). Include a neutral/ground bar. Clean, organized layout. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Enclosure/Door: Painted steel (typically light gray or beige), matte or satin finish, with a printed schematic/legend sticker on the inside of the door. Breakers: Black or colored thermoset plastic with legible amp ratings (15, 20, 30, 50A) and on/off/tripped indicators. Buss Bars: Tinned copper or aluminum. Clean, professional electrical panel."

#### 2.2 Circuit Breaker Panel - Industrial (e.g., 400A+, 3-Phase)

* **Mesh Prompt:** "Generate a 3D model of a larger, industrial-grade circuit breaker panel or distribution board (e.g., 400 Amp or higher, 3-phase). Robust, free-standing or wall-mounted NEMA enclosure. Front door may have a latch handle and possibly viewing windows for meters. Interior reveals larger molded case circuit breakers, heavy-duty bussing, and wiring channels. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Enclosure: Heavy-gauge painted steel (industrial gray), powder-coated finish. Breakers: Larger, industrial molded case circuit breakers in black or gray engineered plastic, with clear amp ratings and status indicators. Buss Bars: Heavy copper bars. Professional, high-power distribution equipment."

#### 2.3 Disconnect Switch - Heavy Duty Safety Switch (Fused/Non-Fused)

* **Mesh Prompt:** "Generate a 3D model of a heavy-duty, wall-mounted safety disconnect switch. NEMA enclosure (e.g., painted steel) with a prominent external operating handle (often red or black) that clearly indicates on/off position. Interior may house fuses or a switch mechanism. Common ratings e.g., 30A, 60A, 100A. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Enclosure: Industrial gray or orange/red painted steel. Handle: High-visibility colored, durable polymer or painted metal. Interior Components (if visible): Copper contacts, fuse holders, ceramic elements. Robust, safety-critical appearance."

### 3. Generators

#### 3.1 Generator - Portable Gasoline (Basic, e.g., 3-5kW)

* **Mesh Prompt:** "Generate a 3D model of a basic portable gasoline generator (e.g., 3-5kW). Features an exposed gasoline engine, a fuel tank on top, a tubular metal frame with carrying handles and possibly small wheels, a control panel with outlets (e.g., 120V NEMA 5-20R), circuit breakers, and a recoil starter. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Engine: Cast aluminum and steel components, spark plug wire. Fuel Tank/Frame: Painted steel (e.g., red, blue, or black), may show slight scuffs or fuel residue near cap. Control Panel: Metal or plastic with clear labels. Utilitarian, consumer/light-industrial grade."

#### 3.2 Generator - Diesel Standby (Commercial, e.g., 20-100kW, Sound-Attenuated Enclosure)

* **Mesh Prompt:** "Generate a 3D model of a commercial diesel standby generator (e.g., 20-100kW) housed in a sound-attenuated, weather-proof enclosure. Rectangular, skid-mounted unit with access doors for maintenance, an external control panel with digital readouts, an emergency stop button, and connection points for fuel and electrical output. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Enclosure: Heavy-gauge painted steel (e.g., beige, gray, or green) with acoustic foam lining visible if doors are openable. Control Panel: Industrial interface with weatherproof cover. Exhaust Port: Heat-resistant metal. Professional, reliable backup power system."

#### 3.3 Generator - CoGen (Combined Heat and Power) Unit (Small Industrial/Commercial)

* **Mesh Prompt:** "Generate a 3D model of a compact Combined Heat and Power (CoGen) unit, typically natural gas fueled. Enclosed in a professional, modern casing focusing on efficiency and quiet operation. Include visible connections for gas input, electrical output, and heat exchange fluid lines. Control panel integrated. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Sleek, powder-coated metal or high-grade polymer panels (e.g., white, silver, or blue) designed for clean environments. Control Panel: Modern digital interface. Pipes/Connections: Stainless steel or high-quality insulated piping. High-tech, energy-efficient appearance."

### 4. Battery Banks / UPS (Uninterruptible Power Supply)

#### 4.1 UPS - Small Desktop/Rackmount (e.g., 500-1500VA)

* **Mesh Prompt:** "Generate a 3D model of a small Uninterruptible Power Supply (UPS).
  + Variation 1 (Desktop): Compact tower or flat unit with multiple outlets on the back, status LEDs, and a power button on the front.
  + Variation 2 (Rackmount): 1U or 2U rack-mountable unit with a similar front panel (LEDs, small LCD, buttons) and rear outlets/terminal blocks. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Casing: Black or dark gray textured ABS plastic or painted metal. Front Panel: Smooth plastic with clear LED indicators (power, battery, fault) and possibly a small LCD screen. Professional office/IT equipment look."

#### 4.2 Battery Bank - Modular Powerwall Style (Commercial/Industrial)

* **Mesh Prompt:** "Generate a 3D model of a modular battery bank system, similar to Tesla Powerwall or commercial equivalents. Sleek, wall-mountable or floor-standing rectangular units that can be arrayed together. Minimalist design with subtle status indicators and connection points for power and data. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Smooth, high-quality polymer or powder-coated metal in modern colors (e.g., white, metallic gray, dark blue). Status Indicators: Softly glowing LEDs or a small integrated e-ink display. High-tech, clean energy storage aesthetic."

#### 4.3 Battery Bank - Industrial Cabinet (Large Capacity with Racks of Batteries)

* **Mesh Prompt:** "Generate a 3D model of an industrial battery cabinet. Tall metal NEMA enclosure with a front door (possibly vented or with a viewing window). Inside, show racks of large deep-cycle batteries (e.g., AGM or LiFePO4 blocks) with visible busbars and wiring. Include an external control/monitoring panel or connection to a larger BMS. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Cabinet: Heavy-duty painted steel (industrial gray). Batteries: Black or gray plastic casings with terminal posts. Busbars: Heavy copper or tinned copper. Wiring: Thick, insulated cables. Robust, high-capacity energy storage."

### 5. Main Power Grid Connection Point (Abstracted)

#### 5.1 Main Power Meter & Disconnect Box (Exterior Wall Mount)

* **Mesh Prompt:** "Generate a 3D model of a typical exterior wall-mounted electrical meter box and an adjacent main disconnect switch box. The meter box should have a glass or clear plastic dome for the digital or analog kWh meter. The disconnect box is a smaller NEMA enclosure with an external handle. Conduit connections entering and exiting. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Meter Box/Disconnect Box: Weathered painted steel (light gray) or durable polymer. Meter Dome: Clear glass or polycarbonate, slightly dusty. Meter Face: Digital LCD or analog dials. Conduit: Weathered galvanized steel or PVC. Utilitarian, standard utility interface."

### 6. Water Supply Connection Point (Abstracted)

#### 6.1 Main Water Meter & Shutoff Valve Assembly (Utility Access Point)

* **Mesh Prompt:** "Generate a 3D model of a main water supply connection point. This could be an assembly including a brass or bronze water meter (with dial or digital readout), a main shutoff valve (gate or ball valve), and possibly a backflow preventer, with pipe connections (e.g., copper or galvanized steel). Could be in a small utility box or exposed if interior. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Water Meter: Cast brass or bronze body, glass/plastic face. Valve: Brass or bronze for ball valve, cast iron for gate valve with colored handle. Pipes: Copper (can be slightly patinated) or galvanized steel. Functional, essential utility hardware."

#### 6.2 Water Treatment Interface Point - RO System Input/Output Manifold (Visual)

* **Mesh Prompt:** "Generate a compact wall-mounted manifold representing the input/output for a Reverse Osmosis (RO) or treated water system. Features several clearly labeled valves (e.g., 'Source Water In,' 'RO Water Out,' 'Waste Water Out'), pressure gauges, and connection points for PEX or flexible tubing. Professional, clean installation. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Manifold Block: Engineered polymer or stainless steel. Valves: Small brass or plastic ball valves with colored handles. Gauges: Small, stainless steel cased pressure gauges. Tubing Connectors: Brass or high-grade plastic push-to-connect fittings. Precise, clean water treatment interface."

## Rodin 3D Asset Generation Prompts: Pots, Containers, & Growing Surfaces

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Containers should appear clean, functional, and appropriate for a controlled, scientific cultivation environment.

### 1. Pots

#### 1.1 Pot - Standard Plastic Nursery Pot (Set of Sizes: Small, Medium, Large)

* **Mesh Prompt (Small):** "Generate a 3D model of a small, standard plastic nursery pot, approximately 6 inches in diameter and height. Tapered square or round shape with a rolled lip and multiple drainage holes at the bottom. Lightweight, utilitarian design. Game-ready asset."
* **Material Prompt (Small):** "Create a PBR material for black or dark green nursery-grade polypropylene plastic. Matte finish, slightly flexible appearance. Clean, new condition."
* **Mesh Prompt (Medium):** "Generate a 3D model of a medium plastic nursery pot, approximately 10-12 inches in diameter (equivalent to 3-5 gallons). Tapered shape, prominent rolled lip for handling, and ample drainage holes. Game-ready asset."
* **Material Prompt (Medium):** "Create a PBR material for black or terracotta-colored durable polypropylene. Matte finish, may show very subtle scuff marks from handling but overall clean. Faint manufacturer markings (e.g., size) on the bottom or side."
* **Mesh Prompt (Large):** "Generate a 3D model of a large plastic nursery pot, approximately 18-24 inches in diameter (equivalent to 10-20 gallons). Robust, tapered design with reinforced rim and numerous large drainage holes. May include subtle handles molded into the rim. Game-ready asset."
* **Material Prompt (Large):** "Create a PBR material for heavy-duty black polypropylene. Matte, slightly textured finish for durability. Clean but visibly robust and capable of holding a large plant."

#### 1.2 Pot - Decorative Ceramic Pot (Modern, for 'Cozy' Areas - Set of Sizes)

* **Mesh Prompt (Medium):** "Generate a 3D model of a medium-sized modern ceramic plant pot, approximately 10 inches in diameter. Sleek, minimalist design (e.g., cylindrical or slightly tapered) with a smooth finish and a single drainage hole. Includes a matching ceramic saucer. Suitable for office or relaxation area plant decor. Game-ready asset."
* **Material Prompt (Medium):** "Create a PBR material for glazed ceramic. Options:
  + Variation 1: Matte white or light gray glaze, very smooth.
  + Variation 2: Glossy dark blue or charcoal glaze. Clean, high-quality, non-porous appearance. Saucer matches pot material."
* **Mesh Prompt (Large):** "Generate a 3D model of a large modern ceramic plant pot, approximately 16-18 inches in diameter. Simple, elegant form (e.g., tall cylinder or rounded square). Includes a subtle, integrated or matching saucer. Game-ready asset."
* **Material Prompt (Large):** "Create a PBR material for high-quality glazed ceramic. Options:
  + Variation 1: Textured matte glaze in an earthy or neutral tone.
  + Variation 2: Smooth satin finish in a muted color (e.g., sage green, stone gray). Sophisticated, clean, and substantial."

### 2. Fabric Grow Bags

#### 2.1 Fabric Grow Bag (Set of Sizes: Small, Medium, Large)

* **Mesh Prompt (Small):** "Generate a 3D model of a small fabric grow bag, approximately 1-gallon capacity (e.g., 7 inches diameter, 7 inches high). Cylindrical shape made from thick, non-woven fabric, with visible stitching on seams. May have two simple fabric handles. Should look slightly pliable, as if filled with soil. Game-ready asset."
* **Material Prompt (Small):** "Create a PBR material for black or dark gray breathable, non-woven geotextile fabric. Matte, slightly fibrous texture. Clean, new appearance. Stitching should be a contrasting heavy-duty thread."
* **Mesh Prompt (Medium):** "Generate a 3D model of a medium fabric grow bag, approximately 5-7 gallon capacity (e.g., 12 inches diameter, 11 inches high). Robust construction with reinforced stitching and sturdy fabric handles. The bag should appear filled and slightly bulging. Game-ready asset."
* **Material Prompt (Medium):** "Create a PBR material for black, tan, or dark green durable, non-woven fabric. Matte texture. May show very faint moisture staining at the base if depicted as 'used but clean'. Handles should be of the same or reinforced material."
* **Mesh Prompt (Large):** "Generate a 3D model of a large fabric grow bag, approximately 15-25 gallon capacity (e.g., 20 inches diameter, 15 inches high). Heavy-duty fabric, very strong reinforced handles, and double-stitched seams. Appears solidly filled. Game-ready asset."
* **Material Prompt (Large):** "Create a PBR material for heavy-duty black or dark brown non-woven geotextile. Pronounced fibrous texture. Designed for durability and aeration. Clean, professional grade."

### 3. Trays / Flats (Seedling, Propagation)

#### 3.1 Seedling Tray - Standard 1020 Flat (No Cells)

* **Mesh Prompt:** "Generate a 3D model of a standard 1020 propagation flat (tray without individual cells), approximately 10x20 inches and 2.5 inches deep. Made of thin, black plastic with ridges on the bottom for strength and drainage. Game-ready asset."
* **Material Prompt:** "Create a PBR material for thin, slightly flexible black thermoformed plastic. Matte or slightly satin finish. Clean, new condition."

#### 3.2 Seedling Tray - Cell Pack Insert (e.g., 72-cell)

* **Mesh Prompt:** "Generate a 3D model of a 72-cell plastic seedling tray insert, designed to fit into a 1020 flat. Each cell should be small, square, and tapered, with a drainage hole. Thin plastic construction. Game-ready asset."
* **Material Prompt:** "Create a PBR material for very thin black or translucent thermoformed plastic. Flimsy but functional appearance. Clean."

#### 3.3 Propagation Tray - Heavy Duty with Humidity Dome

* **Mesh Prompt:** "Generate a 3D model of a heavy-duty propagation tray system. Includes a sturdy black plastic base tray (1020 size), and a tall, clear plastic humidity dome with adjustable vents on top. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Base Tray: Thick, durable black ABS or polypropylene plastic, matte finish. Humidity Dome: Transparent, clear polycarbonate or polystyrene, smooth and highly see-through. Vents: Small white or black plastic sliders. Professional, clean propagation equipment."

### 4. Rockwool Cubes / Slabs

#### 4.1 Rockwool Starter Cubes - Sheet (e.g., 1.5-inch cubes)

* **Mesh Prompt:** "Generate a 3D model of a sheet of Rockwool starter cubes, (e.g., a 98-cube sheet of 1.5x1.5x1.5 inch cubes). Cubes are pre-scored for separation and may have a small dibble hole on top. The sheet sits flat. Game-ready asset."
* **Material Prompt:** "Create a PBR material for light tan/yellowish-brown fibrous mineral wool (Rockwool). Slightly coarse, porous texture. Cubes should look dry and sterile. Wrapper (if any) is thin clear plastic."

#### 4.2 Rockwool Block - Larger (e.g., 4x4x4 inch)

* **Mesh Prompt:** "Generate a 3D model of an individual larger Rockwool growing block, approximately 4x4x4 inches, often wrapped in white UV-resistant plastic on four sides, leaving the top and bottom exposed. May have a larger central hole for a starter cube. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Exposed Rockwool: Light tan/yellowish-brown fibrous texture. Plastic Wrapping: Thin, white opaque polyethylene film, slightly crinkled. Clean, hydroponic-grade appearance."

#### 4.3 Rockwool Slab - (e.g., 6x3x36 inch)

* **Mesh Prompt:** "Generate a 3D model of a long Rockwool growing slab, approximately 6 inches wide, 3 inches high, and 36 inches long. Entirely encased in a sealed white UV-resistant plastic wrapper, possibly with pre-cut planting holes or markings. Game-ready asset."
* **Material Prompt:** "Create a PBR material for white, opaque polyethylene plastic wrapping, smooth or slightly textured. May have printed branding related to hydroponics. Clean and ready for use."

### 5. Hydroponic/Aeroponic Systems

*General notes: These systems should look clean, precise, and often involve custom-molded plastics or well-fabricated components. Emphasize the water/nutrient delivery mechanisms.*

#### 5.1 Hydroponic System - Basic Ebb & Flow (Flood and Drain) Table

* **Mesh Prompt:** "Generate a 3D model of a basic ebb & flow hydroponic table, e.g., 2x4 feet. A shallow, flat tray (flood table) made of durable plastic with channels for water flow, an inlet fitting, and an overflow drain fitting. Sits on a simple metal or plastic stand to accommodate a reservoir underneath (reservoir prompted separately). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Flood Table: Thick, opaque white or black ABS or food-grade plastic, smooth interior. Stand: Painted metal (e.g., gray) or heavy-duty plastic. Fittings: PVC or plastic. Clean, functional hydroponic setup."

#### 5.2 Hydroponic System - DWC (Deep Water Culture) Bucket System (Single Unit)

* **Mesh Prompt:** "Generate a 3D model of a single DWC bucket system. Includes a 5-gallon opaque bucket (e.g., black or white), a net pot lid (e.g., 6 or 8 inch diameter) that sits in the bucket's opening, an air stone (visible if bucket is translucent or cutaway), and airline tubing leading out. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bucket: Opaque, food-grade HDPE plastic (black to block light, or white). Net Pot Lid: Black, heavy-duty plastic mesh. Air Stone: Light gray porous stone. Airline Tubing: Clear or blue flexible silicone/PVC. Clean and simple hydroponic unit."
* **Mesh Prompt (Multiple Linked DWC Buckets - Representative Module):** "Generate a module of 2-3 linked DWC bucket systems. Each bucket as described above, interconnected near the bottom with PVC piping and fittings for water level equalization, and an inlet/outlet for a main reservoir connection. Game-ready asset."
* **Material Prompt (Multiple):** "Same as single DWC, with added clean PVC piping and fittings (white or gray)."

#### 5.3 Hydroponic System - NFT (Nutrient Film Technique) Channel Section

* **Mesh Prompt:** "Generate a modular section of an NFT hydroponic channel, approximately 4-6 feet long. Rectangular or square cross-section, shallow gully made of food-grade plastic (e.g., white PVC or HDPE), with a removable top cover that has regularly spaced holes for net pots. Channel should have a slight slope. Game-ready asset, designed for arraying."
* **Material Prompt:** "Create a PBR material for smooth, opaque white or light gray food-grade PVC or HDPE plastic. Interior should be very clean. Exterior clean. Professional hydroponic component."

#### 5.4 Aeroponic System - Basic Chamber/Tote (Small Scale/DIY Look but Clean)

* **Mesh Prompt:** "Generate a 3D model of a basic, small-scale aeroponic cloner or system. An opaque plastic tote or custom-built chamber (e.g., 2x2x1.5 feet) with a lid featuring multiple holes for plant collars/net pots. Inside, show a manifold with several fine mist spray nozzles pointed upwards. External connections for a pump and reservoir. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tote/Chamber: Opaque black or dark gray food-grade plastic. Lid: Matching plastic. Spray Nozzles/Manifold: Small brass or high-grade plastic nozzles on PVC or plastic tubing. Plant Collars: Neoprene (dark gray/black). Clean, functional, high-humidity environment implied."

#### 5.5 Aeroponic System - High-Pressure Aeroponics Module (Professional)

* **Mesh Prompt:** "Generate a sleek, professional high-pressure aeroponics growing module. Enclosed chamber design with integrated misting nozzles for high-pressure atomization. Secure lid with plant sites. Connections for high-pressure pump lines and drainage. Modern, clinical aesthetic. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Chamber/Lid: High-grade, smooth, opaque white or light gray engineering polymer or stainless steel. Nozzles: Precision stainless steel or specialized polymer. Seals: Food-grade silicone or EPDM. High-tech, efficient, and sterile appearance."

### 6. Growing Benches / Tables

#### 6.1 Growing Bench/Table - Flood Table (Ebb & Flow specific, on Stand)

* **Mesh Prompt:** *(This is largely covered by 5.1 Hydroponic System - Basic Ebb & Flow Table. If a standalone flood table without the specific ebb & flow fittings is needed for general bench use):* "Generate a 3D model of a heavy-duty plastic flood table / shallow tray, e.g., 4x8 feet, approximately 4-6 inches deep. Features molded channels for drainage and a flat, wide rim. Can be placed on a separate bench or stand. Game-ready asset."
* **Material Prompt:** "Create a PBR material for thick, durable opaque white, black, or gray ABS or food-grade plastic. Smooth, easily cleanable interior. Robust and functional."

#### 6.2 Growing Bench/Table - Wire Racks/Shelving (Adjustable, Commercial Grade)

* **Mesh Prompt:** "Generate a modular section of commercial-grade wire shelving / growing rack, e.g., 4 feet wide, 2 feet deep, with 3-4 adjustable wire shelves. Chrome or epoxy-coated steel construction. Posts should have height adjustment grooves. Game-ready asset, designed for linking multiple units."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Chrome): Polished chrome-plated steel. Highly reflective, clean, professional.
  + Variation 2 (Epoxy Coated): Thick green or black epoxy coating over steel. Durable, corrosion-resistant, slightly matte. Strong, open design for airflow."

#### 6.3 Growing Bench/Table - Rolling Bench System (Commercial Greenhouse/Warehouse)

* **Mesh Prompt:** "Generate a section of a commercial rolling bench system. A large, flat growing surface (e.g., 6 feet wide, 10-12 feet long, topped with expanded metal or flood tray sections) mounted on a robust metal frame with rollers that allow it to move side-to-side on fixed tracks. Include a crank handle or mechanism for movement. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Growing Surface: Galvanized expanded metal mesh, or sections of plastic flood trays (see 6.1). Frame/Tracks: Heavy-duty galvanized or painted steel (industrial gray). Rollers/Mechanism: Oiled steel components. Professional, space-efficient greenhouse/warehouse equipment."

## Rodin 3D Asset Generation Prompts: Pest & Disease Management

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Equipment used for diagnostics and treatment should appear exceptionally clean, precise, and well-maintained, reflecting a sterile or controlled approach to plant health.

### 1. Scouting Tools

*(Note: Some tools overlap with "Cultivation & Plant Care Tools". Prompts here emphasize their specific P&DM application or refined versions for diagnostics.)*

#### 1.1 Sticky Traps - Yellow Cards (P&DM Context)

* **Mesh Prompt:** "Generate a 3D model of a pristine yellow rectangular sticky trap card, 4x6 inches, with a hanging hole. The card is specifically for pest monitoring in a clinical cultivation setting. Include a peel-off backing paper on one side, partially removed to reveal the fresh sticky surface. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Card: Bright, uniform insect-attracting yellow. Sticky Surface: Perfectly clear, high-gloss, extremely tacky adhesive. Backing Paper: Clean white silicone-coated paper. Overall unused, sterile appearance."
  + *(If different from earlier prompt, otherwise refer)*

#### 1.2 Sticky Traps - Blue Cards (P&DM Context)

* **Mesh Prompt:** "Generate a 3D model of an unused blue rectangular sticky trap card, 4x6 inches, with hanging hole and partially removed peel-off backing paper. Specifically for thrips monitoring in a high-tech grow environment. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Card: Specific, vibrant insect-attracting blue. Sticky Surface: Crystal clear, high-gloss adhesive. Backing Paper: Clean white. Pristine condition."
  + *(If different from earlier prompt, otherwise refer)*

#### 1.3 Sticky Traps - Yellow Rolls (P&DM Context)

* **Mesh Prompt:** "Generate a 3D model of a new roll of yellow sticky trap material, approximately 6 inches wide, with a protective interloc paper layer partially unwound, revealing the fresh adhesive. Cardboard core. For large-scale pest monitoring. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Trap Material: Bright yellow with a flawless, high-tack clear adhesive surface. Interloc Paper: Clean white or translucent protective paper. Core: Brown cardboard. New, professional-grade pest management tool."
  + *(If different from earlier prompt, otherwise refer)*

#### 1.4 Handheld Magnifying Loupe - Illuminated LED (Diagnostic Grade)

* **Mesh Prompt:** "Generate a 3D model of a high-quality handheld magnifying loupe (e.g., 30x-60x triplet lens), jeweler's style, but with integrated micro-LED illumination around the lens for enhanced diagnostic viewing. Compact, foldable metal or high-grade polymer casing. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Brushed stainless steel or matte black anodized aluminum. Lens: Multi-element clear optical glass. LEDs: Tiny, bright white light points. Professional, precision diagnostic tool."
  + *(Refinement of earlier loupe prompt)*

#### 1.5 Microscope - Handheld Digital (P&DM Optimized, e.g., with UV/polarized light modes)

* **Mesh Prompt:** "Generate a 3D model of an advanced handheld digital microscope optimized for pest and disease diagnostics. Sleek ergonomic design with high-resolution optics, integrated adjustable LED ring light (with selectable white/UV/polarized light modes via a small switch or button). Small, high-resolution color LCD screen for live viewing. USB-C port. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Professional matte dark gray or silver high-grade polymer with rubberized grip sections. Lens Assembly: Precision metal with coated optics. Screen: Crisp, clear display. Switches/Buttons: Tactile, clearly labeled. Clinical, advanced diagnostic instrument."
  + *(Refinement of earlier handheld digital microscope)*

#### 1.6 Microscope - Benchtop (P&DM Staining/Slide Preparation Accessories Visual)

* **Mesh Prompt:** "Generate a 3D model of a modern laboratory benchtop microscope (binocular or trinocular for camera attachment). Include a mechanical stage, coaxial focus, multiple objectives. *Accessory Focus:* Adjacent to the microscope, include a small set of P&DM-specific accessories: a box of blank glass microscope slides, a pack of cover slips, a small dropper bottle labeled 'Microscope Immersion Oil,' and another labeled 'Lactophenol Cotton Blue Stain.' Game-ready assets."
* **Material Prompt:** "Create PBR materials. Microscope: (As per previous advanced benchtop microscope - clinical white/gray). Slides/Cover Slips: Clear, clean glass. Dropper Bottles: Amber or clear glass/plastic with dropper caps and professional scientific labels ('Immersion Oil - Type A', 'Lactophenol Cotton Blue Fungal Stain'). Diagnostic lab setting implied."
  + *(Refinement of earlier benchtop microscope, adding P&DM context)*

### 2. Application Tools

*(Note: Overlaps with "Cultivation & Plant Care Tools". Prompts focus on specific P&DM application needs, such as ultra-fine mist or targeted application.)*

#### 2.1 Hand Spray Bottle - Fine Mist Trigger Sprayer (for Foliar Treatments)

* **Mesh Prompt:** "Generate a 3D model of a 500ml or 1L hand spray bottle specifically designed for fine mist application of foliar treatments. Chemical-resistant translucent plastic bottle with clear volume markings. Features a high-quality trigger mechanism and an adjustable nozzle capable of producing a very fine, even mist. Ergonomic design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bottle: Translucent, chemical-resistant HDPE or PET plastic (e.g., clear, light blue, or green), showing fill level. Spray Head/Nozzle: Durable, chemical-resistant polymer (e.g., white or gray) with a precision brass or stainless steel nozzle tip. Clean, professional applicator for targeted treatments."
  + *(Refinement of earlier spray bottle)*

#### 2.2 Pump Sprayer - Pressurized Fine Mist (e.g., 1-Liter Handheld for Precise Application)

* **Mesh Prompt:** "Generate a 3D model of a 1-liter handheld pressurized pump sprayer designed for precise, fine mist application of pesticides or fungicides. Robust, ergonomic design with a manual pump on top, a pressure relief valve, and a short wand with a high-quality fine mist nozzle. Lockable trigger. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tank: Heavy-duty opaque or translucent chemical-resistant polymer (e.g., white or gray) with clear markings. Pump/Handle/Nozzle Assembly: Durable, high-grade polymer and brass components. Designed for controlled, targeted application of sensitive solutions."

#### 2.3 Pump Sprayer - Backpack (P&DM Specific Nozzle Kit/Boom Visual)

* **Mesh Prompt:** "Generate a 3D model of a 4-gallon professional backpack sprayer for P&DM. Ergonomic design with comfortable straps, internal piston or diaphragm pump, and a lever action handle. *Accessory Focus:* Include a specialized P&DM nozzle kit visible: an assortment of interchangeable nozzle tips (e.g., flat fan, hollow cone, adjustable cone) and a small, detachable spray boom (e.g., 2-3 nozzle boom) for uniform coverage. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tank: Opaque yellow or white UV-resistant, chemical-resistant polymer. Straps: Padded black nylon. Wand/Boom: Stainless steel or reinforced polymer. Nozzles: Brass, stainless steel, or colored polymer tips. Professional, versatile application tool for various treatments."
  + *(Refinement of earlier backpack sprayer)*

### 3. (Simulated) Pesticides/Fungicides/Biologicals - Representative Containers

*(Note: These represent the physical product packaging. Labels are crucial for identification and conveying a professional/scientific approach.)*

#### 3.1 Pesticide/Fungicide - Small Liquid Concentrate Bottle (e.g., 250ml - 1L)

* **Mesh Prompt:** "Generate a 3D model of a small, robust bottle for liquid pesticide or fungicide concentrate, e.g., 250ml, 500ml, or 1L. Child-resistant cap, durable chemical-resistant plastic (HDPE), possibly with a molded measuring chamber or clear view stripe for liquid level. Modern, professional packaging. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bottle: Opaque white, dark brown, or black HDPE plastic. Cap: Contrasting color, child-resistant design. Label: Professional, GHS-compliant label with placeholder text for 'Broad Spectrum Fungicide Concentrate' or 'Systemic Insecticide,' 'Project Chimera PlantShield,' active ingredient (placeholder), hazard symbols, application rates, and safety warnings. Clinical, high-potency product appearance."

#### 3.2 Biological Control Agent - Small Vial/Container (e.g., Predatory Mites, Nematodes)

* **Mesh Prompt:** "Generate a 3D model of a small, specialized container for biological control agents.
  + Variation 1 (Vial for Mites/Insects): Small, clear plastic vial or tube (e.g., 50ml) with a breathable cap, containing a carrier material like vermiculite (with tiny dots representing mites).
  + Variation 2 (Pouch/Sachet for Nematodes): Small, sealed foil or plastic sachet, or a small plastic tub, containing a powder/gel carrier for beneficial nematodes. Include appropriate 'Live Biological Control Agent' labeling. Game-ready assets."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Vial): Clear polystyrene or PET plastic. Breathable Cap: Fine mesh or perforated plastic. Carrier: Light brown/gray vermiculite texture.
  + Variation 2 (Pouch/Sachet/Tub): Foil-lined plastic sachet (metallic interior, printed exterior) or opaque white/translucent plastic tub. Label: 'Live Beneficial Insects/Nematodes,' species name (placeholder), 'Project Chimera BioGuard,' storage/application instructions. Specialized, perishable product look."

#### 3.3 Organic/Natural Pesticide - Spray Bottle or Concentrate (Eco-Branding)

* **Mesh Prompt:** "Generate a 3D model for an organic/natural pesticide.
  + Variation 1 (Ready-to-Use Spray): 750ml - 1L spray bottle (similar to 2.1 but with specific branding).
  + Variation 2 (Concentrate Bottle): 500ml - 1L concentrate bottle (similar to 3.1 but with specific branding). Labeling should emphasize 'Organic,' 'Natural,' 'Neem Oil Based,' or 'Pyrethrin Spray.' Game-ready assets."
* **Material Prompt:** "Create PBR materials. Bottle: Recyclable PET or HDPE plastic (possibly green, brown, or clear to show natural product color). Label: Earthy tones, green/brown color palette, leaf motifs, 'Certified Organic,' 'Eco-Friendly Plant Protection,' 'Project Chimera GreenLeaf Defense.' Professional but natural/safe aesthetic."

### 4. In-game "Plant Problems Guide" UI/Asset - Physical Representation

#### 4.1 Plant Problems Guide - Ruggedized Tablet Displaying Guide UI

* **Mesh Prompt:** "Generate a 3D model of a modern, ruggedized tablet device (e.g., 10-inch screen) specifically for field diagnostics. The tablet is displaying a UI page from the 'Project Chimera Plant Problems Guide,' showing an image of a plant leaf with deficiency symptoms alongside diagnostic text and solution recommendations (mock-up UI). The tablet has a thick rubberized protective casing and a hand strap or kickstand. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Tablet Casing: Matte black or dark gray ruggedized rubber and hard polymer. Screen: Clean glass displaying a bright, clear UI mock-up of the guide (high-resolution texture for the screen content is crucial). UI design should be clean, scientific, with clear typography and medical/botanical illustration style for plant problems. Tablet buttons/ports should be sealed or covered. Durable, field-ready tech."

#### 4.2 Plant Problems Guide - Physical Ring-Binder Manual (Lab/Office Reference)

* **Mesh Prompt:** "Generate a 3D model of a thick, professional ring-binder manual titled 'Project Chimera: Plant Problems Diagnostic Guide Vol. 1.' The binder is sitting closed or slightly open on a surface. High-quality cover design with clear typography and scientific/botanical imagery. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Binder Cover: Durable, textured polymer or high-quality laminated cardstock in a professional color (e.g., deep blue, clinical gray, or white) with embossed or foil-stamped title. Spine should have clear labeling. Pages (if visible): Thick, matte paper with printed content (subtle lines/images to suggest pages). Metal Rings: Polished steel. Professional, comprehensive reference manual appearance."

## Rodin 3D Asset Generation Prompts: Harvesting & Processing Equipment

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Harvesting tools should appear sharp and well-maintained. Processing equipment, especially anything post-harvest that contacts the product, should emphasize cleanliness, food-grade materials where appropriate, and precision.

### 1. Harvesting Tools

#### 1.1 Large Trimming Shears (Harvest Shears/Heavy-Duty)

* **Mesh Prompt:** "Generate a 3D model of heavy-duty harvesting shears, approximately 10-12 inches long, designed for cutting thick plant stalks and branches. Feature robust steel blades (one serrated, one smooth, or both smooth and heavy-gauge), a strong spring mechanism, and large, ergonomic handles with non-slip grips for high leverage. Include a secure locking mechanism. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: High-carbon, hardened steel with a very sharp edge, possibly with a non-stick coating; can show faint resin or plant matter residue if 'used but clean'. Handles: Reinforced polymer or lightweight aluminum with thick, comfortable rubber or textured polymer grips (e.g., black, dark gray, or a high-visibility color like orange). Spring/Lock: Durable, clean metal. Professional, heavy-duty tool appearance."

#### 1.2 HD Loppers (for Harvesting - if distinct from Cultivation Loppers)

* **Mesh Prompt:** "Generate a 3D model of heavy-duty loppers specifically optimized for harvesting, approximately 24-30 inches long. Lightweight but extremely strong handles (e.g., aluminum or fiberglass), bypass cutting head with a large cutting capacity for mature plant stalks. Precision pivot bolt and shock-absorbing bumpers. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Premium, coated high-carbon steel, exceptionally sharp and clean. Handles: Lightweight, high-strength aluminum or fiberglass in a professional color, with ergonomic, non-slip grips. Bumpers: Black rubber. Pivot Bolt: Polished steel. Top-tier, efficient harvesting tool."

#### 1.3 Hand Saw (Harvesting - Fine-toothed, for Stalks)

* **Mesh Prompt:** "Generate a 3D model of a compact hand saw designed for harvesting, featuring a 10-12 inch fine-toothed, rigid blade suitable for cleanly cutting through fibrous plant stalks. Ergonomic, non-slip pistol grip handle. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blade: Polished, high-quality steel with very sharp, fine teeth; may show minimal plant residue. Handle: Durable, textured polymer (e.g., black or dark green) or a comfortable rubberized grip. Clean, precise cutting tool."

#### 1.4 Hedge Trimmers (Harvesting - Manual, for bulk foliage/branch removal)

* **Mesh Prompt:** "Generate a 3D model of robust, manual hedge trimmers (two-handed shears) optimized for bulk harvesting tasks, such as rapidly cutting down multiple smaller branches or large fan leaves prior to detailed processing. Approximately 22-26 inches total length with sharp, 9-11 inch steel blades (straight or slightly serrated). Long, ergonomic handles for leverage and comfortable grip. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Blades: Sharp, durable carbon steel, potentially with a non-stick coating, clean but showing signs of light use. Handles: Lightweight aluminum or fiberglass with comfortable, non-slip textured polymer grips. Efficient and sturdy harvesting tool."

#### 1.5 Collection Totes/Bins (Food-Grade Plastic - Various Sizes)

* **Mesh Prompt:** "Generate a set of 2-3 stackable, food-grade plastic collection totes/bins for harvested plant material.
  + Small Tote: Approx. 10-15 gallons, with handles.
  + Large Bin: Approx. 30-50 gallons, robust with molded handles, possibly on small casters or with a compatible dolly. Smooth interior for easy cleaning. Game-ready assets."
* **Material Prompt:** "Create PBR materials for heavy-duty, food-grade polypropylene or HDPE plastic. Common colors: white, light gray, blue, or green. Smooth, non-porous, easily cleanable surface. May have subtle scuffs from use but overall very clean. Labels indicating 'Food Grade Material' or 'Harvest Collection' are a plus."

#### 1.6 Tarps (Heavy-Duty, for collection/transport)

* **Mesh Prompt:** "Generate a 3D model of a heavy-duty tarp, e.g., 8x10 feet, laid out flat with some realistic folds and wrinkles, or partially folded. Include reinforced edges and metal grommets. Game-ready asset."
* **Material Prompt:** "Create PBR materials for heavy-duty polyethylene or canvas. Color options: blue, brown, green, or silver. Slightly weathered but durable, waterproof appearance. Grommets: Brass or aluminum. Utilitarian harvest accessory."

### 2. Trimming Tools

#### 2.1 Trim Scissors - Micro-Tip (Spring-Loaded, various tip types)

* **Mesh Prompt:** "Generate a set of 2-3 spring-loaded micro-tip trimming scissors, approximately 6-7 inches long.
  + Variation 1: Straight, needle-thin blades.
  + Variation 2: Curved, fine blades.
  + Variation 3: Angled fine tip blades. All feature ergonomic, non-slip handles and a blade lock. Designed for precision manual trimming. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Blades: High-quality stainless steel, extremely sharp, polished or with a non-stick coating (e.g., titanium nitride). Handles: Lightweight polymer with comfortable, bright-colored (e.g., orange, green, blue for visibility) soft-grip inserts. Spring: Small, clean metal. Professional, precision trimming tools."

#### 2.2 Trim Bin/Tray (with Kief Screen)

* **Mesh Prompt:** "Generate a 3D model of a two-part trim bin/tray. Top tray features a comfortable armrest area and a fine (e.g., 150-micron) stainless steel mesh screen for trimming over. Bottom tray (collection bin) sits directly underneath to catch kief/pollen that falls through the screen. Lightweight, ergonomic design. Include a small plastic brush/scraper tool. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Trays: Durable, smooth, anti-static black or dark gray ABS plastic. Screen: Fine stainless steel mesh, taut and clean. Brush/Scraper: Small, simple plastic tool. Clean, designed for efficient trimming and kief collection."

#### 2.3 Isopropyl Alcohol/Wipes (Cleaning Supplies for Trimming Tools)

* **Mesh Prompt:** "Generate a set of cleaning supplies for trimming tools:
  + Variation 1: A plastic spray bottle (approx. 250-500ml) labeled 'Isopropyl Alcohol 70-99%'.
  + Variation 2: A cylindrical plastic container of pre-moistened cleaning wipes, labeled 'Tool Cleaning Wipes - Resin Remover'. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Spray Bottle: Translucent or opaque HDPE plastic with a professional label. Wipes Container: White or colored plastic with a resealable dispenser lid and a professional label. Labels should have clear text, hazard symbols if appropriate, and a clean, clinical look."

#### 2.4 Rags (Cleaning Rags for Trimming Tools)

* **Mesh Prompt:** "Generate a small stack of 2-3 clean, folded, lint-free cleaning rags or microfiber cloths suitable for cleaning resin off trimming tools. Game-ready asset."
* **Material Prompt:** "Create PBR materials for lint-free cotton or microfiber cloth. White, light blue, or gray. Texture should be soft and absorbent. Clean, possibly with very faint, dried resin stains on one if depicted as 'slightly used but clean'."

#### 2.5 Electrically Operated, Manually Controlled Hand Trimming Assist Tool

* **Mesh Prompt:** "Generate a 3D model of an ergonomic, electrically operated, manually controlled hand trimming tool. Resembles a small, lightweight electric shaver or Dremel-like tool, but with specialized, guarded reciprocating or rotating micro-blades designed for trimming leaves close to buds. Includes a thin power cord. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing: Lightweight, durable polymer in a professional color (e.g., dark gray or teal) with comfortable grip areas. Blade Assembly: Small, precision stainless steel micro-blades, possibly with a clear safety guard. Power Cord: Thin, flexible black rubber. High-tech, precision manual trimming aid."

### 3. Bowl Trimmers

#### 3.1 Bowl Trimmer - Manual (Hand Crank)

* **Mesh Prompt:** "Generate a 3D model of a manual bowl trimmer. Features a clear plastic dome top, a central metal bowl section housing a grate and a cutting blade assembly (e.g., X-shaped wire or thin blade), and a hand crank mechanism on top or side for rotating the blade. A lower collection bowl sits beneath. Approximately 16-19 inches in diameter. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Dome Top: Transparent, durable polycarbonate. Bowl/Grate: Stainless steel. Cutting Wires/Blade: Thin, sharp stainless steel. Collection Bowl: Stainless steel or food-grade plastic. Crank Handle: Metal with a plastic grip. Clean, functional, entry-level automation."

#### 3.2 Bowl Trimmer - Electric (Small Scale)

* **Mesh Prompt:** "Generate a 3D model of an electric bowl trimmer, similar in size and basic design to the manual version (clear dome, metal bowl with grate and blades, collection bowl), but with an integrated electric motor replacing the hand crank. Small control panel with on/off switch and possibly a speed control. Power cord. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Dome Top: Transparent polycarbonate. Bowl/Grate/Blades: Stainless steel. Collection Bowl: Stainless steel. Motor Housing/Control Panel: Durable plastic or painted metal. Professional, slightly more automated appearance than manual."

### 4. Automated Trimming Machines

#### 4.1 Automated Trimming Machine - Medium Scale (e.g., Tumbler Style)

* **Mesh Prompt:** "Generate a 3D model of a medium-scale automated trimming machine (tumbler style). Features a cylindrical or rectangular metal housing, a rotating drum/tumbler (often perforated or with grates) where untrimmed product is fed. Internal blades or brushes trim the product as it tumbles. Input chute, output chute for trimmed product, and a separate collection system for trim/leaves. Control panel for speed, duration. On casters for mobility. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing/Drum: Food-grade stainless steel or powder-coated steel (e.g., white or gray). Control Panel: Industrial digital interface with clear readouts. Chutes: Stainless steel or food-grade polymer. Casters: Heavy-duty locking casters. Professional, efficient, automated processing equipment."

#### 4.2 Automated Trimming Machine - Large Scale/Industrial (High Throughput)

* **Mesh Prompt:** "Generate a 3D model of a large-scale, industrial automated trimming machine. Significantly larger footprint than medium scale, possibly conveyor-fed input and output. Multiple trimming stages or larger/more aggressive tumbling/cutting mechanisms. Sophisticated control panel with PLC interface. Robust stainless steel construction designed for continuous operation and easy cleaning. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Entire Construction: Heavy-gauge, polished or brushed food-grade stainless steel. Conveyor Belts: Food-grade polymer. Control Panel: Advanced touchscreen PLC interface. All components designed for high throughput, durability, and GMP compliance. Top-tier industrial processing equipment."

### 5. Drying Racks / Clotheslines & Hangers

#### 5.1 Drying Rack - Stackable Mesh Trays

* **Mesh Prompt:** "Generate a 3D model of a stackable mesh drying rack system. Individual trays are approximately 2x2 feet or 2x3 feet, made of a lightweight frame with a taut fine mesh (fabric or plastic) base for airflow. Trays designed to stack securely, creating multiple tiers. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Lightweight aluminum or durable plastic (e.g., white or gray). Mesh: Fine, food-grade nylon or coated polyester mesh (white or light color). Clean, designed for optimal air circulation."

#### 5.2 Drying System - Clothesline & Hangers (Specialized for Plants)

* **Mesh Prompt:** "Generate a set for a plant drying system:
  + Clothesline: A length of strong nylon rope or plastic-coated wire, with attachment points or tensioners.
  + Hangers: Specialized plant drying hangers – e.g., multi-tiered circular mesh hangers, or simple wire/plastic hangers with clips for branches. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Rope/Wire: Braided nylon or coated steel wire. Hangers (Mesh): Lightweight fabric mesh on a collapsible wire frame. Hangers (Clip): Stainless steel or durable plastic. Clean, simple, effective drying solutions."

### 6. Curing Containers

#### 6.1 Curing Jar - Glass (Various Sizes with Lids)

* **Mesh Prompt:** "Generate a set of 2-3 classic glass curing jars with airtight lids.
  + Small: Approx. 1 pint or 0.5 liter.
  + Medium: Approx. 1 quart or 1 liter.
  + Large: Approx. 0.5 gallon or 2 liters. Clear glass, wide mouth, with a two-part metal screw-on lid (flat disk and ring) or a hinged glass lid with a rubber gasket and wire bail. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Jar: Clear, clean, thick glass. Lid (Screw-on): Tin-plated steel or aluminum. Lid (Hinged): Matching clear glass with a silver wire bail and an orange or white rubber gasket. Classic, airtight curing containers."

#### 6.2 Curing Bucket/Container - Food-Grade Plastic with Airtight Lid (e.g., 5 Gallon)

* **Mesh Prompt:** "Generate a 3D model of a 5-gallon food-grade plastic bucket with a matching airtight, resealable lid (e.g., gamma seal lid or a standard snap-on lid with gasket). Robust construction. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bucket/Lid: Opaque white, blue, or black food-grade HDPE plastic. Smooth, clean surface. Gasket (if visible): Silicone or rubber. Professional, bulk curing container."

#### 6.3 Automated Curing System - Smart Container/Cabinet (Conceptual High-Tier)

* **Mesh Prompt:** "Generate a 3D model of a conceptual automated 'smart' curing container or small cabinet. Sleek, modern design, possibly stainless steel or high-grade polymer. Features a sealed door (perhaps with a small viewing window), an integrated digital display/control panel for monitoring and adjusting internal RH/temperature, and subtle ventilation ports. For precise, automated curing. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Housing: Brushed stainless steel or premium matte white/gray polymer. Door Seal: Food-grade silicone. Viewing Window: Tinted, tempered glass. Display: Modern LCD or OLED screen. High-tech, precision environmental control for curing."

### 7. Weighing & Measuring

#### 7.1 Digital Pocket Scale (Precision, e.g., 0.01g readability)

* **Mesh Prompt:** "Generate a 3D model of a compact digital pocket scale. Small, rectangular design with a stainless steel weighing platform, a hinged protective cover that may also serve as an expansion tray, a small LCD display, and buttons for power, tare, mode. Approx. 100-500g capacity. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Black or silver ABS plastic. Platform: Brushed stainless steel. Cover: Clear or tinted plastic, or matching body material. Display: LCD with clear digits. Buttons: Small, tactile polymer. Precise, portable weighing tool."

#### 7.2 Digital Bench Scale (Larger Capacity, e.g., 1-5kg readability 0.1g)

* **Mesh Prompt:** "Generate a 3D model of a digital bench scale. Larger stainless steel weighing platform (e.g., 6x6 inches or larger), a separate or integrated digital display unit with larger digits and more function buttons (tare, hold, units, calibration). Robust base. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Platform: Brushed or polished stainless steel, easy to clean. Base/Display Housing: Durable ABS plastic or painted die-cast metal. Display: Large, clear LCD or LED. Professional, accurate scale for lab or processing use."

#### 7.3 Industrial Platform/Floor Scale (High Capacity)

* **Mesh Prompt:** "Generate a 3D model of an industrial platform or floor scale.
  + Variation 1 (Platform): Low-profile square or rectangular platform (e.g., 2x2 ft or 3x3 ft) with a diamond plate or smooth steel surface, connected by a cable to a remote digital indicator/control unit (wall or stand-mounted).
  + Variation 2 (Floor Scale): Larger, heavy-duty platform (e.g., 4x4 ft) designed to be pit-mounted or with ramps. High capacity (e.g., 500-5000 lbs). Game-ready assets."
* **Material Prompt:** "Create PBR materials. Platform: Heavy-gauge painted steel (industrial gray or blue) with a non-slip diamond plate texture or smooth stainless steel. Remote Indicator: Industrial plastic or metal housing with a large digital display and robust buttons. Built for heavy loads and industrial environments."

#### 7.4 Calibration Weights (Set for Various Scales)

* **Mesh Prompt:** "Generate a set of precision calibration weights. Include various standard gram and kilogram weights (e.g., 1g, 5g, 10g, 50g, 100g, 500g, 1kg, 2kg). Cylindrical or slotted design, possibly in a protective wooden or plastic case. Individual weights should have their mass clearly marked. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Weights: Highly polished stainless steel or chrome-plated steel. Markings: Laser-etched or stamped mass values. Case (Optional): Varnished wood with felt lining or durable plastic foam-lined case. Precision, metrology-grade appearance."

### 8. Transporting Equipment

#### 8.1 Transporting Baskets (Plastic, Stackable)

* **Mesh Prompt:** "Generate a set of 2-3 stackable plastic harvesting or transporting baskets. Open mesh or solid design, rectangular, with comfortable handles. Durable and lightweight. E.g., 1-2 bushel capacity. Game-ready assets."
* **Material Prompt:** "Create PBR materials for heavy-duty polypropylene or HDPE plastic. Colors like green, blue, gray, or red. Slightly flexible but strong. Clean, utilitarian design."

#### 8.2 Hand-Drawn Garden Cart/Wagon (Utility)

* **Mesh Prompt:** "Generate a 3D model of a utility garden cart or wagon. Features a steel mesh or solid plastic bed (e.g., 2x4 feet), four pneumatic or solid rubber tires, and a long pivoting pull handle. Sides might be removable or foldable. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Bed: Painted steel mesh (e.g., green or black) or durable colored polymer. Frame: Painted tubular steel. Tires: Black rubber with plastic or metal hubs. Handle: Metal with a rubber or plastic grip. Robust, all-purpose transport."

#### 8.3 Small Motorized Transport (e.g., Electric Utility Cart for Indoor Facility Use)

* **Mesh Prompt:** "Generate a 3D model of a small, electric motorized utility cart or platform truck. Compact design for navigating indoor facility pathways. Flatbed or shallow bin for transporting materials. Simple steering mechanism (tiller or wheel), small electric motor housing, and industrial-grade non-marking tires. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body/Chassis: Painted steel or durable, scuff-resistant polymer (e.g., industrial gray or blue). Bed Surface: Non-slip rubber mat or textured polymer. Tires: Solid gray or black rubber. Control Interface: Simple, clean industrial controls. Efficient, clean indoor transport."

#### 8.4 Portable Conveyor Belt (Small, Modular Section for Processing Line)

* **Mesh Prompt:** "Generate a 3D model of a small, portable conveyor belt section, approximately 6-10 feet long and 12-18 inches wide. Lightweight aluminum or stainless steel frame, on adjustable height legs with casters. Food-grade belt material. Small electric motor drive. Designed for use in a processing line. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Brushed aluminum or stainless steel. Belt: White or light blue food-grade PVC or polyurethane, smooth or slightly textured. Motor/Rollers: Clean metal components. Professional, modular processing line component."

### 9. Cold Storage

#### 9.1 Refrigerator - Commercial Reach-In (Stainless Steel)

* **Mesh Prompt:** "Generate a 3D model of a commercial stainless steel reach-in refrigerator (single or double door). Standard height (approx. 78-84 inches). Features solid insulated door(s) with robust handles, external digital temperature display/controller, and possibly interior shelving visible if door is openable. On casters or legs. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Exterior/Interior: Brushed or polished stainless steel (food grade). Door Gaskets: Black or gray rubber/vinyl. Handles: Heavy-duty stainless steel or aluminum. Shelving: NSF-approved coated wire or stainless steel. Digital Display: Clear LCD/LED. Professional, clean, cold storage unit."

#### 9.2 Freezer - Commercial Chest or Upright (for Fresh Frozen)

* **Mesh Prompt:** "Generate a 3D model of a commercial freezer suitable for fresh-frozen product.
  + Variation 1 (Chest Freezer): Large, top-opening chest freezer with a white or stainless steel exterior.
  + Variation 2 (Upright Freezer): Similar to the reach-in refrigerator but specifically a freezer, possibly with a solid, non-glass door. Includes temperature controls. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Exterior: White painted steel or stainless steel. Interior: White enameled metal or aluminum. Gaskets: Heavy-duty rubber. Controls: Simple dial or digital display. Clean, efficient freezing unit."

### 10. Extraction/Concentrate Equipment (Post-MVP Visuals)

*(These are for future implementation, so prompts are for initial visual representation rather than deep mechanical detail unless specified.)*

#### 10.1 Solventless Press - Rosin Press (Manual or Pneumatic, Benchtop)

* **Mesh Prompt:** "Generate a 3D model of a benchtop rosin press. Features two heated plates (e.g., 3x5 inches or 4x7 inches), a sturdy frame, and a mechanism for applying pressure (manual hand crank/lever, hydraulic jack, or pneumatic cylinder). Digital temperature controllers for each plate. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Plates: Polished aluminum or stainless steel. Frame: Heavy-duty painted or powder-coated steel (e.g., black or industrial gray). Pressure Mechanism: Steel components, hydraulic fluid lines if applicable. Controllers: Small digital PID controllers. Robust, precision extraction device."

#### 10.2 Basic Extraction System - Small Scale Closed Loop (Conceptual Visual)

* **Mesh Prompt:** "Generate a conceptual 3D model of a small-scale, closed-loop botanical extraction system (e.g., for butane or CO2, visually simplified). Comprises several interconnected stainless steel vessels: material column, collection vessel, solvent tank. Interconnected with high-pressure hoses, valves, and pressure gauges. Mounted on a frame. Scientific, lab-grade appearance. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Vessels/Tubing/Valves: Polished or passivated stainless steel (304 or 316). Hoses: Braided stainless steel high-pressure hoses. Gauges: Stainless steel cased pressure gauges. Frame: Stainless steel or powder-coated steel. Professional, high-purity extraction equipment."

## Rodin 3D Asset Generation Prompts: Facility Furniture & Fixtures

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Furniture and fixtures should appear durable, well-maintained, easy to clean, and contribute to an organized, safe, and efficient facility environment.

### 1. Workbenches

#### 1.1 Workbench - Standard Duty (Steel Frame, Laminate/Butcher Block Top)

* **Mesh Prompt:** "Generate a 3D model of a standard-duty workbench, approximately 6 feet long, 30 inches deep, and standard counter height (34-36 inches). Features a robust steel frame (bolted or welded), a thick work surface, and possibly a lower shelf or stringer for stability. Clean, functional design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Painted industrial steel (e.g., gray, blue, or black powder coat), satin or matte finish. Work Surface Variation 1: Light-colored, smooth laminate (e.g., white or light gray), easy to clean. Work Surface Variation 2: Sealed butcher block wood, showing some grain but well-finished. Lower Shelf (if present): Matching steel or particle board. Professional, durable appearance."

#### 1.2 Workbench - Heavy Duty (All Steel Construction, with Drawers/Pegboard)

* **Mesh Prompt:** "Generate a 3D model of a heavy-duty industrial workbench, 6-8 feet long. All-steel construction. Thick steel work surface. Integrated features like multiple lockable drawers on one side, a steel pegboard backsplash, and possibly an overhead light fixture attachment point. Designed for workshops or lab areas. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Entire Structure: Heavy-gauge steel with a durable powder-coat finish (e.g., textured gray, blue, or red). Work Surface: Thick steel plate, possibly with a non-slip rubber mat on top. Drawers: Smooth-gliding, with brushed aluminum handles. Pegboard: Matching painted steel. Robust, highly functional, and organized."

#### 1.3 Workbench - Lab Grade (Stainless Steel or Chemical Resistant Top)

* **Mesh Prompt:** "Generate a 3D model of a laboratory-grade workbench, 6 feet long. Frame designed for stability and cleanliness.
  + Variation 1 (Stainless Steel): Entire workbench made of stainless steel, including legs, frame, and work surface with a rolled front edge and backsplash.
  + Variation 2 (Chemical Resistant Top): Steel frame with a thick, chemical-resistant phenolic resin or epoxy resin countertop. Minimalist, easy-to-sanitize design. Game-ready asset."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Stainless Steel): Brushed or satin finish food-grade/lab-grade stainless steel throughout. Very clean, slightly reflective.
  + Variation 2 (Chemical Resistant Top): Frame: Powder-coated steel (white or light gray). Countertop: Smooth, matte black or dark gray phenolic/epoxy resin, non-porous. Clinical, high-purity environment aesthetic."

### 2. HD Shelving

#### 2.1 HD Shelving Unit - Industrial Metal (Adjustable Shelves, e.g., NSF Wire or Solid Steel)

* **Mesh Prompt:** "Generate a 3D model of an industrial heavy-duty metal shelving unit, approximately 4-6 feet wide, 18-24 inches deep, and 6-7 feet high. Four or five adjustable shelves.
  + Variation 1 (Wire Shelving): NSF-style chrome or epoxy-coated wire shelves on round posts with plastic clips for height adjustment.
  + Variation 2 (Solid Steel Shelving): Solid steel shelves supported by bolted angle iron or T-posts. Game-ready asset, modular appearance for linking."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Wire Shelving): Polished chrome-plated steel or green/black epoxy-coated steel wire. Clean, allows airflow.
  + Variation 2 (Solid Steel Shelving): Painted industrial steel (e.g., gray or blue powder coat), matte or satin finish. Strong, durable look. Both should appear clean and capable of holding significant weight."

#### 2.2 HD Shelving - Wall-Mounted (Metal, with Brackets)

* **Mesh Prompt:** "Generate a set of 2-3 wall-mounted heavy-duty metal shelves, various lengths (e.g., 3ft, 4ft, 6ft), 12-18 inches deep. Include robust metal L-brackets or standard and track systems for mounting. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Shelves & Brackets: Painted industrial steel (gray, white, or black), powder-coated finish, or brushed stainless steel for a more clinical look. Clean, strong, space-saving storage."

### 3. Storage Cabinets

#### 3.1 Storage Cabinet - Standard Metal (Lockable, Double Door)

* **Mesh Prompt:** "Generate a 3D model of a standard metal storage cabinet, approximately 3 feet wide, 18-24 inches deep, and 6 feet high. Double doors with a recessed locking handle (3-point locking system implied). Multiple adjustable internal shelves. Utilitarian but clean design. Game-ready asset."
* **Material Prompt:** "Create PBR materials for painted steel (e.g., light gray, beige, or blue powder coat), matte or satin finish. Handle: Chrome or black plastic. Shelves: Matching painted steel. Clean, secure, general-purpose storage."

#### 3.2 Storage Cabinet - Plastic/Polymer (Utility, Lockable)

* **Mesh Prompt:** "Generate a 3D model of a heavy-duty plastic/polymer utility storage cabinet, similar dimensions to the metal one. Durable, molded construction with double doors and lockable handles. May have a slightly more modern or rounded design. Game-ready asset."
* **Material Prompt:** "Create PBR materials for textured, heavy-duty polypropylene or polyethylene plastic (e.g., gray, black, or two-tone like gray body with yellow accents). Resistant to dents and chemicals. Clean but rugged."

#### 3.3 Storage Cabinet - Flammable Liquid Safety Cabinet (Yellow, Self-Closing)

* **Mesh Prompt:** "Generate a 3D model of a flammable liquid safety storage cabinet. Standard size (e.g., 30-60 gallon capacity). Bright safety yellow, double-wall steel construction with prominent 'FLAMMABLE - KEEP FIRE AWAY' warning labels. Self-closing, lockable doors. Grounding screw, vents with flame arresters. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Bright safety yellow powder-coated steel. Labels: High-contrast red/white warning labels, GHS pictograms. Handles: Spark-resistant metal or polymer. Clearly a specialized safety cabinet."

#### 3.4 Storage Cabinet - Chemical Resistant (Acid/Corrosive Storage, e.g., Blue Polyethylene)

* **Mesh Prompt:** "Generate a 3D model of a chemical-resistant storage cabinet for acids or corrosives. Made of non-metallic material like polyethylene. Double doors, lockable, with 'ACID' or 'CORROSIVE' labels. May have internal spill containment sumps or trays. Game-ready asset."
* **Material Prompt:** "Create PBR materials for heavy-duty, corrosion-resistant polyethylene (typically safety blue or white). Labels: Clear warning labels ('ACID', 'CORROSIVE'). Handles: Non-metallic, chemical-resistant polymer. Specialized for safe chemical storage."

### 4. Rolling Utility Carts

#### 4.1 Rolling Utility Cart - Multi-Shelf Plastic/Polymer

* **Mesh Prompt:** "Generate a 3D model of a rolling utility cart with 2 or 3 deep shelves/trays. Durable plastic/polymer construction with an ergonomic push handle and four caster wheels (two fixed, two swivel, possibly with locks). E.g., 3 feet long, 18 inches wide. Game-ready asset."
* **Material Prompt:** "Create PBR materials for heavy-duty textured polypropylene or structural foam plastic (e.g., black, gray, or beige). Shelves may have a lip to contain spills. Casters: Black rubber wheels with metal swivels. Clean, versatile, mobile storage."

#### 4.2 Rolling Utility Cart - Stainless Steel (Lab/Cleanroom)

* **Mesh Prompt:** "Generate a 3D model of a stainless steel rolling utility cart with 2 or 3 flat shelves. All stainless steel construction, including tubular frame/handles and shelves with raised edges. High-quality caster wheels (non-marking, lockable). Designed for lab or cleanroom use. Game-ready asset."
* **Material Prompt:** "Create PBR materials for brushed or polished food-grade/lab-grade stainless steel throughout. Very clean, smooth, easily sanitizable. Casters: High-quality polyurethane wheels with stainless steel forks. Professional, sterile-environment utility."

### 5. Seating

#### 5.1 Stool - Lab/Workshop (Adjustable Height, Swivel)

* **Mesh Prompt:** "Generate a 3D model of a lab/workshop stool. Features a round, padded vinyl or molded polyurethane seat, a pneumatic height adjustment lever, a five-star base with caster wheels or glides, and an optional adjustable foot ring. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Seat: Black or dark gray durable vinyl or easy-to-clean molded polyurethane. Base/Gas Lift: Polished chrome or black painted steel. Casters: Black nylon. Functional, ergonomic seating for lab/task work."

#### 5.2 Chair - Office/Task Chair (Ergonomic, for Control Rooms/Desks)

* **Mesh Prompt:** "Generate a 3D model of a modern, ergonomic office task chair. Features a breathable mesh back, cushioned fabric or leatherette seat, adjustable armrests, lumbar support, tilt/swivel mechanism, and a five-star base with caster wheels. Professional and comfortable design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Mesh Back: Black or gray high-quality nylon mesh. Seat: Durable fabric upholstery (e.g., gray, blue, black) or black leatherette. Frame/Armrests: Black or silver high-impact polymer or polished aluminum. Base: Polished aluminum or reinforced black nylon. High-quality, modern office aesthetic."

#### 5.3 Folding Chair - Basic Utility (Plastic or Metal)

* **Mesh Prompt:** "Generate a 3D model of a basic folding chair, folded and unfolded states if possible (or just unfolded).
  + Variation 1 (Plastic): Molded plastic seat and back on a tubular steel frame.
  + Variation 2 (Metal): All-metal (e.g., steel) construction, perhaps with a slightly padded seat. Game-ready asset."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Plastic): Seat/Back: Textured polypropylene (e.g., beige, gray, black). Frame: Light gray or black powder-coated tubular steel. Rubber foot caps.
  + Variation 2 (Metal): Painted steel (e.g., brown, gray) or chrome-plated steel. Padded Seat (if any): Simple vinyl. Clean, simple, storable utility seating."

### 6. Sinks

#### 6.1 Industrial Sink/Wash Basin - Stainless Steel (Wall-Mount or Freestanding with Legs)

* **Mesh Prompt:** "Generate a 3D model of an industrial sink/wash basin. Large, deep single or double basin made of heavy-gauge stainless steel. High backsplash.
  + Variation 1 (Wall-Mount): Includes wall mounting brackets.
  + Variation 2 (Freestanding): Supported by sturdy stainless steel legs with adjustable feet. Includes pre-drilled holes for faucet fixtures. Game-ready asset."
* **Material Prompt:** "Create PBR materials for brushed or satin finish heavy-gauge stainless steel (e.g., 304 grade). Utilitarian, durable, and easy to clean. May show subtle water spots or very light scratches from use in a clean facility."

#### 6.2 Faucet Fixtures - Commercial/Lab Grade (for Sinks)

* **Mesh Prompt:** "Generate a set of commercial/lab grade faucet fixtures for sinks:
  + Variation 1 (Gooseneck Spout): High-arc gooseneck spout with dual lever or wrist-blade handles for hot/cold. Deck or wall mounted.
  + Variation 2 (Pre-Rinse Sprayer): Commercial pre-rinse unit with a flexible hose, high-pressure spray valve, and wall bracket. Game-ready assets."
* **Material Prompt:** "Create PBR materials, predominantly polished chrome-plated brass or stainless steel. Handles may have colored (red/blue) indicators. Spray nozzle may have black rubber components. Durable, professional, and cleanable."

### 7. Safety Equipment

#### 7.1 Eye Wash Station - Wall-Mounted or Pedestal

* **Mesh Prompt:** "Generate a 3D model of an emergency eye wash station.
  + Variation 1 (Wall-Mounted): Bowl with dual aerated spray heads, a stay-open ball valve activated by a large push handle/paddle, and wall mounting plate. Safety green or yellow accents.
  + Variation 2 (Pedestal): Similar bowl/spray head assembly mounted on a floor pedestal. Includes universal emergency eye wash sign. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Bowl: Stainless steel or safety green/yellow ABS plastic. Spray Heads: Chrome-plated brass or yellow plastic with protective caps. Activation Handle/Paddle: Bright safety yellow or green powder-coated steel or high-impact plastic. Piping (Pedestal): Galvanized or safety green painted steel. Sign: Green/white standard safety signage."

#### 7.2 Emergency Shower - Industrial (Overhead Drench Shower)

* **Mesh Prompt:** "Generate a 3D model of an industrial emergency drench shower. Overhead shower head (large diameter, high flow), activated by a rigid pull rod with a triangular handle. Safety green or yellow painted galvanized steel piping. Could be combined with an eyewash station. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Shower Head: Safety orange/yellow plastic or stainless steel. Piping: Galvanized steel painted safety green or yellow. Pull Rod/Handle: Stainless steel rod with a bright safety yellow/green triangular handle. Robust, high-visibility safety equipment."

#### 7.3 Fire Extinguisher - ABC Dry Chemical (Wall-Mounted with Bracket)

* **Mesh Prompt:** "Generate a 3D model of a standard ABC dry chemical fire extinguisher (e.g., 5lb or 10lb size). Red painted steel cylinder, valve assembly with pressure gauge and pull pin, discharge hose and nozzle. Includes a simple wall mounting bracket and instruction/inspection label. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Cylinder: Bright safety red painted steel, glossy finish. Valve Assembly: Brass or chrome-plated metal. Hose: Black rubber. Nozzle: Black or red plastic. Label: White/black instruction and inspection tag/label. Pressure Gauge: Small, clear face. Clean, clearly identifiable safety device."

#### 7.4 First Aid Kit - Wall-Mounted (Industrial/Commercial Size)

* **Mesh Prompt:** "Generate a 3D model of a wall-mounted first aid kit. White or green metal or plastic box (e.g., 100-200 person kit size) with a prominent red cross or 'FIRST AID' lettering. Hinged door, possibly with a latch or lock. May include a mounting bracket. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Box: Painted steel (white or green) or durable ABS plastic. Markings: Red cross and/or bold 'FIRST AID' text. Clean, easily recognizable emergency kit."

### 8. General Facility Items

#### 8.1 Wall Clock - Simple, Modern (Facility Style)

* **Mesh Prompt:** "Generate a 3D model of a simple, modern wall clock, approximately 12-14 inches in diameter. Minimalist design with a clear face, legible numerals or markers, and simple hour/minute/second hands. Suitable for a professional facility. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Brushed aluminum, black or white polymer. Face: Clean white or off-white with black or dark gray markings. Hands: Simple black or metallic. Glass/Plastic Cover: Clear, slightly reflective. Unobtrusive, functional design."

#### 8.2 Trash Can/Waste Bin - Industrial Rolling (Various Sizes/Colors for Sorting)

* **Mesh Prompt:** "Generate a set of 2-3 industrial rolling waste bins/trash cans. Heavy-duty plastic construction (e.g., Rubbermaid Brute style), 32-55 gallon capacity, with integrated handles and durable caster wheels. Include attachable flat or domed lids.
  + Color Variation 1: Standard Gray or Black (General Waste)
  + Color Variation 2: Bright Blue (Recycling)
  + Color Variation 3: Green (Compost/Organic Waste) Game-ready assets."
* **Material Prompt:** "Create PBR materials for heavy-duty, slightly textured HDPE plastic. Respective colors should be vibrant and clear for sorting. Lids match bin material. Casters: Black rubber and metal. May have subtle scuffs but generally clean and robust. Labels for 'TRASH', 'RECYCLING', 'ORGANICS' clearly visible."

#### 8.3 Recycling Bin - Office/Lab Style (Smaller, Distinct Shape/Color)

* **Mesh Prompt:** "Generate a 3D model of a smaller office/lab recycling bin, e.g., 7-10 gallons. Distinctive shape or bright blue color, with a universal recycling symbol prominently displayed. Open top or a lid with specific openings (e.g., slot for paper, round hole for cans). Game-ready asset."
* **Material Prompt:** "Create PBR materials for durable polypropylene plastic, typically bright blue. Recycling symbol should be white or contrasting color. Clean, clearly designated for recycling."

#### 8.4 Mop & Bucket - Industrial (with Wringer)

* **Mesh Prompt:** "Generate a 3D model of an industrial mop bucket with a side-press or down-press wringer. Yellow or gray heavy-duty plastic bucket (e.g., 35-quart) on caster wheels. Includes a standard industrial wet mop with a cotton or microfiber head and a metal or fiberglass handle. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Bucket/Wringer: Bright safety yellow or gray heavy-duty plastic. Mop Handle: Varnished wood, aluminum, or fiberglass. Mop Head: White/off-white cotton strings or blue/gray microfiber. Metal Components: Galvanized or plated steel for wringer mechanism/handle. Clean but utilitarian cleaning equipment."

#### 8.5 Broom & Dustpan - Industrial/Lobby Style

* **Mesh Prompt:** "Generate a set:
  + Broom: Industrial push broom with a wide head and stiff bristles, and a long wooden or metal handle. OR, an angle broom/lobby broom.
  + Dustpan: Lobby-style dustpan with a long handle and a pivoting covered bin, or a simple heavy-duty plastic/metal dustpan with a rubber lip. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Broom Bristles: Colored synthetic (e.g., black, gray, red) or natural fiber. Broom Handle: Varnished wood or painted/anodized aluminum. Dustpan: Painted metal or heavy-duty black/gray plastic. Rubber Lip: Black rubber. Functional, durable cleaning tools."

#### 8.6 Wet Floor Sign - Folding A-Frame (Yellow)

* **Mesh Prompt:** "Generate a 3D model of a standard yellow folding A-frame 'Wet Floor' sign. Bright yellow plastic with bi-lingual 'Caution Wet Floor' text and universal wet floor symbol. Game-ready asset."
* **Material Prompt:** "Create PBR materials for bright safety yellow polypropylene plastic. Text/Symbol: Black or red, clear print. Clean, high-visibility safety item."

#### 8.7 Floor Mat - Anti-Fatigue (Industrial/Lab Use)

* **Mesh Prompt:** "Generate a 3D model of an anti-fatigue floor mat, rectangular (e.g., 2x3 feet or 3x5 feet). Thick, cushioned rubber or foam material, possibly with a textured non-slip surface and beveled edges. Game-ready asset."
* **Material Prompt:** "Create PBR materials for heavy-duty black or dark gray rubber or closed-cell foam. Surface could be diamond plate texture, ribbed, or pebbled. Matte finish. Durable and provides cushioning."

#### 8.8 Floor Mat - Entrance Mat (Scraper/Wiper)

* **Mesh Prompt:** "Generate a 3D model of a commercial entrance mat, e.g., 3x5 feet or 4x6 feet. Durable, low-profile design for trapping dirt and moisture.
  + Variation 1 (Scraper): Coarse, abrasive surface texture.
  + Variation 2 (Wiper/Absorbent): Carpet-like absorbent surface with a rubber backing. Game-ready asset."
* **Material Prompt:** "Create PBR materials.
  + Variation 1 (Scraper): Tough, looped vinyl or coarse synthetic fibers in dark gray, brown, or black.
  + Variation 2 (Wiper): Olefin or nylon carpet fibers in charcoal, brown, or blue, with a heavy black rubber backing and border. Functional, clean entrance mats."

#### 8.9 Lockers - Metal (Single or Multi-Tier for Staff)

* **Mesh Prompt:** "Generate a unit of metal staff lockers.
  + Variation 1 (Single Tier): Bank of 2-3 full-height single-tier lockers.
  + Variation 2 (Double Tier): Bank of 2-3 double-tier lockers (two lockers per column). Each locker has a vented door, a recessed handle with a hasp for a padlock, and possibly a number plate. Game-ready asset."
* **Material Prompt:** "Create PBR materials for painted steel (e.g., light gray, beige, or blue powder coat), matte or satin finish. Handles: Chrome or black plastic. Number Plates: Small aluminum or plastic plates. Standard, clean staff storage."

#### 8.10 Dumpsters - (Commercial sizes, for external facility waste)

* **Mesh Prompt:** "Generate a 3D model of a commercial front-load or rear-load dumpster.
  + Variation 1 (Front-Load): Slanted top, 2-8 cubic yard capacity, with plastic lids.
  + Variation 2 (Rear-Load): Flat top, 1-6 cubic yard capacity, with plastic or metal lids, possibly on casters. Made of painted steel. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Painted heavy-gauge steel (typically industrial green, blue, gray, or brown), may show some dents, scratches, rust spots, and general grime from outdoor use. Lids: Durable HDPE plastic (often black, green, or blue), can be faded or dirty. Warning labels/company logos (generic) are a plus. Utilitarian, heavy-duty waste container."

## Rodin 3D Asset Generation Prompts: Map Specific Assets

**Core Aesthetic Notes for all Prompts:** The base aesthetic is "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" for player-modifiable areas. However, initial map states might vary (e.g., a standard residential house, a utilitarian warehouse). Game-ready, optimized models with PBR materials are standard. The focus is on creating distinct, believable environments that define the scale and context of operations.

### 1. Residential House (Initial Map Environment)

#### 1.1 Residential House - Exterior Shell (Modern Suburban/Transitional Style)

* **Mesh Prompt:** "Generate a 3D model of a complete exterior shell for a two-story modern suburban or transitional style residential house. Include walls, roof (e.g., gabled or hip roof with asphalt shingles or modern flat/low-slope sections), foundation, standard window openings, and door openings (front, back, garage). Include an attached two-car garage. Overall dimensions approximately 40-50 feet wide, 30-40 feet deep. Game-ready asset, with clean geometry allowing for interior cell placement."
* **Material Prompt:** "Create PBR materials. Walls: Modern siding (e.g., light gray or beige fiber cement or vinyl) with clean white trim around windows/doors. Roof: Dark gray or black asphalt shingles or modern roofing material for flat sections. Foundation: Poured concrete. Garage Door: Painted steel sectional door (e.g., white or matching trim). Front Door: Modern painted fiberglass or wood door. Clean, well-maintained suburban aesthetic, but with potential for slight wear (e.g., minor dirt accumulation near base)."

#### 1.2 Residential House - Interior Shell (Basic Walls, Floors, Ceilings - "White Void" for Non-Playable areas, defined for Playable)

* **Mesh Prompt:** "Generate the basic interior shell layout for the previously described two-story residential house. Include partition walls defining typical rooms (living room, kitchen, bedrooms, bathrooms, basement/utility area where initial grow might start). Define floor slabs and ceilings for each level. Non-playable/inaccessible areas can be simplified ('white void' style if occluded). Playable areas need clean geometry for player construction. Include basic staircases between floors. Game-ready asset."
* **Material Prompt:** "Create PBR materials for initial playable interior surfaces. Walls/Ceilings: Standard painted drywall (neutral off-white, slightly worn or marked in 'starter' areas like basement). Floors: Basic subfloor (plywood/OSB texture) in unfinished areas, or simple, slightly worn linoleum/carpet/hardwood in 'lived-in' sections. Materials should suggest a standard, slightly aged residential interior prior to player renovation for grow operations."

#### 1.3 Residential House - Unique Fixtures/Utility Connection Points (Starter Scale)

* **Mesh Prompt:** "Generate a set of small-scale residential utility fixture/connection points:
  + A basic residential electrical panel (breaker box, smaller than commercial).
  + A simple laundry sink/utility sink in a basement or garage area.
  + Exterior water spigot/hose bib.
  + Basement window (small, hopper or slider style). Game-ready assets, appropriately scaled for a house."
* **Material Prompt:** "Create PBR materials. Electrical Panel: Gray painted metal, consumer grade. Utility Sink: Worn white ceramic or molded plastic. Spigot: Aged brass or galvanized steel. Basement Window Frame: Painted wood or vinyl, possibly with a slightly dirty glass pane. Materials should reflect standard, slightly aged residential utility fixtures."

### 2. Warehouse (Next Scale of Operations)

#### 2.1 Warehouse - Exterior Shell (Large Open Concrete/Metal Structure)

* **Mesh Prompt:** "Generate the exterior shell of a large, modern industrial warehouse. Rectangular structure, approximately 80-120 feet wide, 150-200 feet long, and 25-30 feet high to eaves. Walls can be pre-cast concrete panels or insulated metal siding. Roof is a low-slope gable or flat roof with appropriate industrial roofing material. Include multiple large industrial roll-up door openings, standard personnel door openings, and some openings for industrial windows or ventilation. Loading dock area on one side. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Walls: Light gray or beige pre-cast concrete panels with visible seams, or corrugated/ribbed insulated metal siding (e.g., off-white, gray). Roof: Dark gray EPDM rubber roofing or standing seam metal. Roll-up Door Frames: Painted steel. Utilitarian, large-scale industrial aesthetic. Can show minor weathering suitable for a newer industrial park building."

#### 2.2 Warehouse - Interior Shell (Open Concrete Structure, Support Pillars/Beams)

* **Mesh Prompt:** "Generate the interior shell of the large industrial warehouse. Vast open space with a poured concrete floor. Exposed structural steel frame (columns and roof trusses/beams) supporting the roof. Interior surfaces of the exterior walls (concrete or metal liner panels). No internal partition walls initially ('giant open shell to build within'). Game-ready asset, optimized for large open views."
* **Material Prompt:** "Create PBR materials. Floor: Smooth, power-troweled industrial concrete, sealed or unsealed, may show some tire marks or minor staining but generally clean. Walls (Interior Surface): Exposed pre-cast concrete or light-colored metal liner panels. Structural Steel: Painted industrial gray or red oxide primer on I-beams and trusses. Expansive, clean, utilitarian industrial interior."

#### 2.3 Warehouse - Industrial Doors/Windows (Specific Components if not covered by Structural Elements)

* **Mesh Prompt:** "Generate:
  + Large Industrial Roll-Up Door (separate asset if more detail needed than just an opening): 12-14 feet wide, 14-16 feet high, interlocking metal slats, guide rails, overhead mechanism.
  + Industrial Steel Personnel Door: Heavy-duty steel door and frame, with panic bar hardware.
  + Industrial Fixed Window: Reinforced frame, wired glass or polycarbonate, for warehouse walls. Game-ready assets."
* **Material Prompt:** "Roll-Up Door: Galvanized or painted steel slats. Personnel Door: Heavy-gauge painted steel (industrial gray). Window Frame: Dark anodized aluminum or painted steel. Glass: Wired safety glass or thick polycarbonate. Robust, secure, industrial-grade fixtures."

### 3. Future Map Types (Conceptual Shells & Defining Features)

#### 3.1 Greenhouse - Structure (Glass/Polycarbonate, Vents, Frame)

* **Mesh Prompt:** "Generate the structural shell of a large, modern commercial greenhouse. Gothic arch or A-frame design, aluminum or galvanized steel frame. Glazing with large panels of clear glass or twin-wall polycarbonate. Include automated roof vents and possibly side wall vents. Multiple sections or bays. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Silver anodized aluminum or galvanized steel. Glazing: Highly transparent, clean glass or semi-transparent twin-wall polycarbonate with visible channels. Vent Mechanisms: Aluminum and steel components. Bright, light-filled structure."

#### 3.2 Research Lab - Interior Shell (Sterile Materials, Integrated Lab Benches/Fume Hoods - Conceptual)

* **Mesh Prompt:** "Generate a modular interior section of a high-tech research laboratory. Features walls with smooth, non-porous, easily cleanable surfaces (e.g., epoxy-coated or stainless steel panels). Integrated, flush-mounted ceiling light panels. Floor suitable for sterile environments. Conceptually include areas for built-in lab benches, fume hoods, and pass-through chambers. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Walls/Ceilings: Seamless, high-gloss white or light gray epoxy or stainless steel panels. Floor: Seamless, poured resin floor (e.g., light gray or blue), chemical resistant and anti-static. Lighting Panels: Diffused, bright white light. Extremely clean, sterile, high-tech laboratory aesthetic."

#### 3.3 Outdoor Field - Landscape, Fencing (Conceptual Area)

* **Mesh Prompt:** "Generate a large, delineated outdoor field area suitable for cultivation. Relatively flat or gently sloping terrain. Include a secure perimeter fence (e.g., 8-foot chain-link with privacy slats or a solid security fence) and a main access gate. Conceptual representation of tilled rows or marked plots within the field. Game-ready asset (terrain and fencing)."
* **Material Prompt:** "Create PBR materials. Terrain: Fertile dark soil, tilled earth texture, or short-cut grass/cover crop. Fencing (Chain-Link): Galvanized steel mesh and posts. Fencing (Privacy Slats): Green, brown, or black plastic slats. Fencing (Solid Security): Painted metal or pre-cast concrete panels. Gate: Matching fencing material. Natural but controlled agricultural environment."

#### 3.4 Vertical Farm - Interior Module (Multi-Tiered Racking, Integrated Lighting/Irrigation - Conceptual)

* **Mesh Prompt:** "Generate a modular section of a vertical farm interior. Tall, multi-tiered racking system (e.g., 4-6 levels) designed to hold growing trays. Each tier has integrated LED grow lighting strips and provisions for irrigation/fertigation lines. Automated lift/access points or catwalks implied for higher levels. High-density, controlled environment. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Racking: Powder-coated steel or aluminum (white or light gray). Grow Trays: White or light-colored food-grade plastic. LED Lighting Strips: Slim aluminum profiles with visible LED diodes. Irrigation Lines: Small diameter PEX or PVC tubing. Highly organized, clean, space-efficient, and technologically advanced."

#### 3.5 Subterranean Lab - Shell (Reinforced Concrete, Tunnel Access - Conceptual)

* **Mesh Prompt:** "Generate the shell of a subterranean laboratory entrance and initial corridor section. Access via a reinforced concrete bunker-style door set into a hillside or a heavy-duty elevator shaft. Corridors are utilitarian, reinforced concrete, possibly with arched or heavily structured ceilings. Piping and conduits visible along walls/ceilings. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Walls/Ceilings/Floors: Raw, cast-in-place concrete, possibly showing formwork patterns or slight dampness/mineral deposits in older sections. Reinforced Door: Heavy steel plate, painted industrial gray, with robust locking mechanisms. Piping/Conduits: Galvanized steel or heavy PVC. Utilitarian, secure, underground aesthetic."

#### 3.6 Abandoned Research Outpost - Shell (Weathered, Overgrown Elements - Conceptual)

* **Mesh Prompt:** "Generate the shell of a small, abandoned research outpost building. Single-story structure, possibly pre-fabricated or concrete block construction, now weathered and showing signs of disrepair (cracked walls, broken windows, partially collapsed roof sections). Some vegetation (vines, weeds) starting to reclaim the structure. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Walls: Faded, stained, and cracked concrete block or rusted, dented metal siding. Roof: Missing shingles/panels, exposed weathered wood or rusted metal decking. Windows: Broken or missing glass, grimy frames. Vegetation: Dry or tenacious green vines/weeds. Overall derelict, forgotten, and slightly eerie aesthetic."

#### 3.7 Geothermal Greenhouse Complex - Shell (Hybrid Structure, Geothermal Elements - Conceptual)

* **Mesh Prompt:** "Generate the shell of a geothermal greenhouse complex. Features large greenhouse structures (glass/polycarbonate) connected to a more industrial/technical building housing geothermal heat exchange equipment (visible pipes, pumps, control units). Steam vents or heat dissipation arrays may be visible nearby. A blend of agricultural tech and energy infrastructure. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Greenhouse Sections: (As per 3.1 Greenhouse). Technical Building: Industrial concrete or metal siding, possibly with insulated panels. Geothermal Equipment: Insulated pipes (stainless steel or high-temp polymer), industrial pumps (painted metal), control panels. Ground around vents may show mineral deposits or heat shimmer. Innovative, sustainable energy aesthetic combined with advanced cultivation."

## Rodin 3D Asset Generation Prompts: Decorative & 'Cozy' Items

**Core Aesthetic Notes for all Prompts:** While the base facility has a "Modern, High-Tech, Clinical/Scientific" feel, these decorative items allow for "player-driven 'Relaxed & Cozy' variations" and "Aspirational/Professional" touches. Assets should be game-ready, optimized, with PBR materials. Items should be tasteful and align with either a comfortable, personalized space or a refined professional environment.

### 1. Posters & Art

#### 1.1 Poster - Botanical Illustration (Cannabis Themed)

* **Mesh Prompt:** "Generate a 3D model of a framed poster, approximately 24x36 inches, hanging flat against a wall (or as a standalone object with a thin frame). The poster depicts a detailed, vintage-style botanical illustration of a cannabis plant, showing leaves, flowers, and root structure with scientific labels. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Simple, modern black or light wood (e.g., maple) thin gallery frame. Poster Paper: High-quality, matte, slightly off-white art paper. Print: Rich, detailed colors for the botanical illustration with crisp text. Glass (Optional): Clear, slightly reflective acrylic or glass front. Clean, academic, or artistic look."

#### 1.2 Poster - Abstract Art (Modern, Minimalist)

* **Mesh Prompt:** "Generate a 3D model of a framed modern abstract art piece, square or rectangular (e.g., 30x30 inches or 24x30 inches). The artwork itself is minimalist, with geometric shapes, subtle color gradients, or a textured abstract design. Simple, clean frame. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Sleek brushed aluminum or painted black/white wood. Artwork: PBR material simulating a canvas or art paper with subtle textures. Colors should be contemporary (e.g., muted tones, or a bold accent color with neutrals). Finish can be matte or satin. Sophisticated, modern office/lounge decor."

#### 1.3 Poster - Inspirational Quote/Company Values (Professional Typography)

* **Mesh Prompt:** "Generate a 3D model of a framed poster, landscape orientation (e.g., 36x24 inches), featuring an inspirational quote or stylized 'Project Chimera' company values/mission statement in elegant, modern typography. Minimalist design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Thin, dark gray or silver metal frame. Poster Paper: Premium matte white or dark gray paper. Typography: Crisp, high-resolution text in a contrasting color (e.g., white text on dark gray, or dark text on white), possibly with a single accent color. Professional, aspirational office decor."

#### 1.4 Art - Small Sculptural Piece (Abstract or Nature-Inspired)

* **Mesh Prompt:** "Generate a 3D model of a small, abstract sculptural piece suitable for a desk or shelf, approximately 8-12 inches high. Modern design, either geometric, fluid/organic, or a stylized nature-inspired form (e.g., a metallic leaf, a polished stone cairn). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Options:
  + Variation 1: Polished chrome or brushed bronze (high metallic, low-medium roughness).
  + Variation 2: Smooth, matte ceramic in a muted color (e.g., white, gray, teal).
  + Variation 3: Dark, polished hardwood. Elegant, artistic accent piece."

### 2. Rugs

#### 2.1 Rug - Modern Area Rug (Geometric or Abstract Pattern)

* **Mesh Prompt:** "Generate a 3D model of a modern area rug, rectangular (e.g., 5x8 feet or 8x10 feet), with a low to medium pile. The rug lies flat on the floor with realistic slight thickness and edge detail. Game-ready asset."
* **Material Prompt:** "Create PBR materials for a woven wool or synthetic fiber rug.
  + Pattern Variation 1: Subtle geometric pattern in neutral tones (grays, creams, beige).
  + Pattern Variation 2: Abstract color-block pattern with a few complementary modern colors.
  + Texture: Soft but durable, with visible fiber detail. Clean, adds warmth and texture to a room."

#### 2.2 Rug - Small Accent Rug (Round or Organic Shape)

* **Mesh Prompt:** "Generate a 3D model of a small accent rug, approximately 3-4 feet in diameter if round, or an equivalent organic/asymmetrical shape. Medium pile for a cozy feel. Game-ready asset."
* **Material Prompt:** "Create PBR materials for a soft, plush rug.
  + Material Variation 1: Faux fur or shag in a solid neutral or calming color (e.g., cream, light gray, soft blue).
  + Material Variation 2: Natural fiber look (e.g., jute or sisal) for a more organic/boho cozy feel. Adds a comfortable touch to a personal space."

### 3. Small Furniture (Decorative Chairs, Tables)

#### 3.1 Decorative Chair - Modern Accent Chair (Lounge/Office)

* **Mesh Prompt:** "Generate a 3D model of a modern accent chair suitable for a lounge area or a stylish office corner. Elegant design with comfortable upholstery. Examples: a sleek Eames-style lounge chair with ottoman (ottoman separate asset), a minimalist Scandinavian-design armchair, or a contemporary tub chair. Game-ready asset."
* **Material Prompt:** "Create PBR materials.
  + Upholstery Variation 1: High-quality fabric in a solid modern color (e.g., charcoal gray, navy blue, mustard yellow) or a subtle textured weave.
  + Upholstery Variation 2: Genuine or high-quality faux leather (e.g., black, tan, cream).
  + Frame/Legs: Polished chrome, matte black steel, or finished wood (e.g., walnut, light oak). Comfortable, stylish, and professional or cozy."

#### 3.2 Decorative Table - Coffee Table (Modern, Minimalist)

* **Mesh Prompt:** "Generate a 3D model of a modern, minimalist coffee table. Rectangular or round, low height. Simple, clean lines. Examples: glass top with metal frame, solid wood block style, or sleek lacquered finish. Game-ready asset."
* **Material Prompt:** "Create PBR materials.
  + Material Variation 1: Top: Clear tempered glass. Frame: Brushed stainless steel or matte black powder-coated steel.
  + Material Variation 2: Solid dark walnut or light oak with a natural satin finish.
  + Material Variation 3: High-gloss white or gray lacquer. Elegant and functional centerpiece for a seating area."

#### 3.3 Decorative Table - Side Table/End Table (Compact, Stylish)

* **Mesh Prompt:** "Generate a 3D model of a compact and stylish side table or end table. Suitable next to an accent chair or sofa. Various shapes (round, square, C-shape to slide under a sofa). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Combination of materials like:
  + Top: Marble (white Carrara or black Marquina), polished wood, or colored glass.
  + Frame/Legs: Thin metal (gold, brass, black steel), or sculptural wood. Adds a touch of sophistication or a convenient surface."

### 4. Non-Cannabis Plants (Decorative Houseplants)

#### 4.1 Decorative Houseplant - Potted Floor Plant (e.g., Fiddle Leaf Fig, Monstera)

* **Mesh Prompt:** "Generate a 3D model of a medium to large potted decorative floor plant, approximately 3-5 feet tall (including pot). Examples: Fiddle Leaf Fig with large violin-shaped leaves, or a Monstera Deliciosa with iconic split leaves. Healthy, vibrant appearance. The plant sits in a modern decorative pot (prompted separately or as part of this). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Leaves: Lush green, with realistic textures, vein patterns, and slight translucency (subsurface scattering). Stems/Trunk: Woody or green, appropriate to plant type. Pot: (Refer to Decorative Ceramic Pot prompts or a simple, modern planter material like matte white/gray ceramic or textured composite). Soil: Dark, moist potting soil visible at the top of the pot."

#### 4.2 Decorative Houseplant - Potted Desk/Shelf Plant (e.g., Snake Plant, Pothos, Succulent Arrangement)

* **Mesh Prompt:** "Generate a set of 2-3 small potted desk/shelf plants.
  + Variation 1 (Snake Plant): Upright, architectural leaves in a small modern pot.
  + Variation 2 (Pothos): Trailing vines with heart-shaped leaves, in a hanging pot or a standard pot with vines draping.
  + Variation 3 (Succulent Arrangement): Mix of 3-5 small, varied succulents in a low, wide decorative bowl. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Leaves/Stems: Appropriate colors and textures for each plant type (e.g., variegated patterns for Pothos/Snake Plant, fleshy matte texture for succulents). Pots: Small, stylish ceramic or concrete pots in various modern designs and colors. Soil/Top Dressing: Potting soil, decorative pebbles, or sand for succulents. Adds life and a touch of nature."

### 5. Decorative Lighting

#### 5.1 Decorative Lighting - Floor Lamp (Modern Arc or Tripod Style)

* **Mesh Prompt:** "Generate a 3D model of a modern decorative floor lamp.
  + Variation 1 (Arc Lamp): Large arcing metal stem with a dome or globe shade, designed to extend over a seating area.
  + Variation 2 (Tripod Lamp): Wooden or metal tripod base with a fabric drum shade. Includes power cord. Game-ready asset. Emissive material for the light source itself."
* **Material Prompt:** "Create PBR materials.
  + Arc Lamp: Stem: Brushed stainless steel, matte black, or brass. Shade: Metal, fabric, or acrylic.
  + Tripod Lamp: Base: Dark wood, light wood, or black/brass metal. Shade: Textured linen or cotton fabric in a neutral color (cream, gray). Light Source: Warm white emissive material for the bulb area when 'on'."

#### 5.2 Decorative Lighting - Desk/Table Lamp (Stylish, Functional)

* **Mesh Prompt:** "Generate a 3D model of a stylish and functional desk or table lamp. Modern design.
  + Variation 1 (Architect Swing Arm Lamp): Classic design with adjustable arms and a focused metal shade.
  + Variation 2 (Minimalist LED Desk Lamp): Sleek, thin profile LED lamp with adjustable brightness/color temperature (implied by controls).
  + Variation 3 (Ambient Table Lamp): Sculptural base with a fabric or glass shade creating soft, diffused light. Game-ready asset. Emissive material for light source."
* **Material Prompt:** "Create PBR materials, varying by style. Metal parts (brushed nickel, matte black, brass), polymer housing, fabric shades (linen, cotton), glass shades (frosted, clear, colored). Light source: Warm or neutral white emissive. Professional or cozy ambient lighting."

### 6. Personal Items (Subtle Touches of Personality)

#### 6.1 Personal Item - Coffee Mug (Modern Design)

* **Mesh Prompt:** "Generate a 3D model of a modern ceramic coffee mug. Simple, elegant shape with a comfortable handle. Game-ready asset."
* **Material Prompt:** "Create PBR materials for glazed ceramic.
  + Variation 1: Solid color (matte white, black, dark blue, or a muted pastel).
  + Variation 2: Subtle branding, e.g., a small 'Project Chimera' logo or a minimalist scientific/botanical graphic. Clean, everyday object."

#### 6.2 Personal Item - Small Stack of Books (Relevant Themes)

* **Mesh Prompt:** "Generate a 3D model of a small stack of 3-4 books, neatly or casually stacked. Spines should be visible. Books are of varying but similar thickness. Game-ready asset."
* **Material Prompt:** "Create PBR materials for book covers. Design modern, professional-looking covers with placeholder titles related to botany, genetics, chemistry, business, or science fiction/aspirational themes. Colors should be contemporary. Paper texture for page edges. Slightly used but good condition."

#### 6.3 Personal Item - Framed Photo (Abstract/Landscape/Generic Personal)

* **Mesh Prompt:** "Generate a 3D model of a small, framed photo suitable for a desk or shelf (e.g., 5x7 or 4x6 inches). Simple, modern frame with a stand. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Frame: Thin black, silver, or light wood. Photo: A generic, slightly blurred abstract image, a pleasant landscape, or a placeholder silhouette to imply a personal photo without specific detail. Glass: Clear, slightly reflective acrylic/glass. Adds a small personal touch."

### 7. Paint/Texture Options (Represented by Sample Assets)

*(Note: These are primarily cosmetic shader/material changes. These prompts are for visual samples of these options applied to basic structural elements, rather than the system itself. These do not change core material properties in MVP.)*

#### 7.1 Painted Wall Section - Sample Swatch (Various Colors)

* **Mesh Prompt:** "Generate a simple, flat rectangular wall section (e.g., 4x4 feet) suitable for displaying a paint color swatch. Game-ready asset."
* **Material Prompt (Series of variations):** "Create PBR materials representing high-quality interior wall paint with a matte or eggshell finish.
  + Color Variation 1: Neutral calming beige.
  + Color Variation 2: Modern muted blue-gray.
  + Color Variation 3: Warm terracotta accent.
  + Color Variation 4: Deep sophisticated green. The paint should appear smooth and evenly applied, very low roughness."

#### 7.2 Textured Wall Panel - Sample Swatch (e.g., Subtle Fabric, Wood Veneer)

* **Mesh Prompt:** "Generate a simple, flat rectangular wall panel (e.g., 2x4 feet) for showcasing decorative wall textures. Game-ready asset."
* **Material Prompt (Series of variations):**
  + "Texture Variation 1 (Fabric): PBR material simulating a subtle linen or grasscloth wallpaper. Neutral color, visible woven texture, matte finish.
  + Texture Variation 2 (Wood Veneer): PBR material simulating a light oak or dark walnut wood veneer panel. Fine wood grain, satin finish.
  + Texture Variation 3 (Textured Plaster): PBR material simulating a very subtle textured plaster (e.g., a light skip trowel or Venetian plaster effect) in an off-white. These are cosmetic overlays, not changing underlying structural material properties."

#### 7.3 Decorative Floor Tile - Sample Swatch (e.g., Modern Patterned Ceramic, Wood-Look Vinyl)

* **Mesh Prompt:** "Generate a single, large floor tile (e.g., 24x24 inches) or a small section of flooring (e.g., 3x3 feet) to display decorative floor options. Game-ready asset."
* **Material Prompt (Series of variations):**
  + "Floor Texture 1 (Patterned Ceramic): PBR material for a modern patterned ceramic tile in geometric or abstract designs, matte or satin finish.
  + Floor Texture 2 (Wood-Look Vinyl Plank): PBR material simulating luxury vinyl planks with a realistic wood grain (e.g., light gray wash or warm hickory). Durable, slightly textured satin finish. These are cosmetic floor finishes."

## Rodin 3D Asset Generation Prompts: Plant Assets (Core for Procedural System)

**Core Aesthetic Notes for all Prompts:** Plants should exhibit a high degree of realism and botanical accuracy, suitable for a deep simulation. The aesthetic should be "aspirational," meaning healthy, vibrant representations for base models, which can then be dynamically altered by GxE factors. All assets must be game-ready, with optimized topology suitable for procedural manipulation (e.g., growth, bending, pruning responses) and dynamic shader effects. PBR materials are essential.

### 1. Base 3D Models - Foundational Landrace-Inspired Strain (Representative Mature Plant)

*(This prompt defines a 'typical' healthy, mature foundational plant. Specific genetic expressions for 5-10 landraces would involve tweaking parameters of this base via the procedural system, but Rodin would generate this high-quality archetype.)*

#### 1.1 Foundational Strain - Mature Vegetative Mother Plant (For Cloning/Base Genetics)

* **Mesh Prompt:** "Generate a highly detailed 3D model of a mature, healthy Cannabis Sativa L. 'foundational strain' mother plant in a late vegetative stage, approximately 2-3 feet tall. Exhibit a well-developed, bushy structure with a strong central stem and numerous evenly spaced, robust lateral branches. Leaves should be large, iconic palmate cannabis leaves with 7-9 leaflets, arranged in an alternate phyllotaxy on upper sections, opposite on lower. Ensure clean topology for potential procedural cloning and pruning modifications. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Leaves: Lush, vibrant dark green with a healthy, slightly waxy sheen. Veins should be clearly defined but not overly exaggerated. Subtle subsurface scattering to simulate light passing through leaves. Stems/Branches: Green to slightly woody light brown at the base of the main stem, with fine vertical texturing. No signs of pests, disease, or deficiency. Overall, an exceptionally healthy and vigorous plant, representing peak genetic potential in optimal vegetative conditions."

### 2. Key Growth Stage Variations (as Base Meshes for Procedural System)

*(These prompts are for distinct base meshes representing key life cycle points. The procedural system will handle transitions and detailed GxE variations.)*

#### 2.1 Seedling Stage (Cotyledon & First True Leaves)

* **Mesh Prompt:** "Generate a 3D model of a Cannabis Sativa L. seedling, approximately 2-4 inches tall. Show a slender primary stem emerging from a small representation of growing medium (e.g., a rockwool cube or small soil plug). Model the initial pair of cotyledon leaves (simple, oval) and the first one or two sets of true leaves, starting with a single leaflet, then progressing to three serrated leaflets. Delicate structure. Game-ready asset, optimized for small scale."
* **Material Prompt:** "Create PBR materials. Stem: Tender, light green, slightly translucent. Cotyledons: Smooth, light to medium green. True Leaves: Brighter, fresh green, with very fine trichome fuzz if observable at this scale. Growing Medium: Dark, moist soil texture or light tan rockwool texture. Overall delicate, new growth appearance."

#### 2.2 Early Vegetative Stage (Developing Structure)

* **Mesh Prompt:** "Generate a 3D model of a young Cannabis Sativa L. plant in the early vegetative stage, approximately 8-12 inches tall. The plant has a defined central stem and 4-6 nodes with developing lateral branches. Leaves are palmate with 5-7 leaflets, showing healthy expansion. Root flare visible at medium interface. Clean topology for procedural growth. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Stems/Branches: Vibrant, healthy green, smooth texture. Leaves: Medium to dark green, soft but firm, displaying healthy turgor. No imperfections. Appearance of rapid, healthy growth."

#### 2.3 Mid-Flowering Stage (Bud Formation & Pistil Development)

* **Mesh Prompt:** "Generate a 3D model of a Cannabis Sativa L. plant in its mid-flowering stage, approximately 2-3.5 feet tall (strain dependent). Significant bud (cola) formation at multiple nodes along the main stem and branches. Buds are composed of dense clusters of calyxes, with numerous visible white/cream pistils. Leaves may show early signs of slight fade or nutrient redistribution if an GxE effect is desired for the base. Trichome development is becoming apparent on buds and sugar leaves. Game-ready asset, capable of supporting detailed close-ups on buds."
* **Material Prompt:** "Create PBR materials. Stems/Branches: Green, possibly with slight purple or reddish hues depending on conceptual strain genetics. Leaves: Dark green, some 'sugar leaves' around buds show developing trichomes. Calyxes: Bright green, swollen. Pistils: Abundant, creamy white or very light orange/pink. Trichomes: Small, clear to slightly milky glandular trichomes visible on calyxes and nearby small leaves, giving a crystalline shimmer. Overall appearance of a plant focusing energy on flower production."

#### 2.4 Mature/Harvest-Ready Stage (Swollen Calyxes, Mature Trichomes, Receding Pistils)

* **Mesh Prompt:** "Generate a 3D model of a mature, harvest-ready Cannabis Sativa L. plant. Buds are extremely dense and swollen, with calyxes visibly engorged. Most pistils have changed color (e.g., orange, red, brown) and are receding. Trichomes are at peak maturity. Some larger fan leaves may show natural senescence (yellowing/fade). Plant structure is robust, supporting heavy flowers. Game-ready asset, optimized for dense floral geometry."
* **Material Prompt:** "Create PBR materials. Stems/Branches: Mature green or slightly woody with possible anthocyanin coloration. Leaves: Fan leaves show some natural fade (yellows, purples depending on genetics), while sugar leaves are heavily coated in trichomes. Calyxes: Swollen, green or with genetic color expressions (e.g., purple hues), almost obscured by trichomes. Pistils: Majority (~70-90%) have darkened to orange, amber, or brown and curled inwards. Trichomes: Dense coverage of glandular trichomes, predominantly milky/cloudy with a percentage (e.g., 10-30%) turned amber, giving a very 'frosty' and resinous appearance. Appearance of peak ripeness and cannabinoid/terpene production."

#### 2.5 Harvested Plant (Whole Plant, Stalks & Branches - Post-Fan Leaf Removal)

* **Mesh Prompt:** "Generate a 3D model of a harvested Cannabis Sativa L. plant, hung upside down for drying. The main stalk with its primary branches intact. Most large fan leaves have been removed, but smaller 'sugar leaves' remain around the bud sites. Buds are still relatively fresh and full but beginning the drying process. Include a cut point at the base of the stalk. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Stalk/Branches: Freshly cut green to light brown, sap may be subtly visible at the cut. Buds/Sugar Leaves: Colors similar to mature stage but starting to slightly darken or dull as drying begins. Trichomes remain visible but may lose some immediate sparkle of a live plant. Overall appearance of a freshly harvested plant prepared for drying."

#### 2.6 Dried Bud Cluster (Cured, Trimmed Product)

* **Mesh Prompt:** "Generate a 3D model of a well-trimmed and cured cannabis bud cluster (cola tip or dense nug). Approximately 2-4 inches long. Individual calyxes are still distinct but tightly packed. Minimal stem visible. Showcasing high-quality, dense flower structure. Game-ready asset, high detail for close-ups."
* **Material Prompt:** "Create PBR materials. Calyxes: Dried, colors depend on strain genetics (e.g., deep greens, purples, oranges), with a dense coating of intact, mature (milky/amber) trichomes giving a crystalline, 'frosted' appearance. Pistils: Dried, orange/brown, curled amongst the calyxes. Texture should be slightly shrunken and dense compared to fresh flower. Overall appearance of premium, well-cured cannabis."

### 3. Dynamic Shader/Material Effect Prompts (Applied to Plant Parts)

*(These prompts describe the desired visual state for materials that will be dynamically changed by the game engine based on GxE parameters. These would be material variations or shader parameters applied to the base plant models.)*

#### 3.1 Leaf Material - Nitrogen Deficiency

* **Material Prompt:** "Create a PBR material variation for a cannabis leaf displaying early to mid-stage nitrogen deficiency. Overall leaf color is pale green, progressing to yellowing (chlorosis) starting with older, lower leaves. Yellowing is relatively uniform across the affected leaf, veins may remain slightly greener initially. Leaf texture remains relatively normal but may appear less turgid. No necrosis in early stages."

#### 3.2 Leaf Material - Phosphorus Deficiency

* **Material Prompt:** "Create a PBR material variation for a cannabis leaf displaying phosphorus deficiency. Leaves, especially older ones, develop a dull, dark green to blue-green hue. Stems and petioles may show purplish coloration (anthocyanin buildup). Leaf tips may curl downwards. In advanced stages, leaves may develop bronze or purple patches and become stiff. Growth is stunted."

#### 3.3 Leaf Material - Potassium Deficiency

* **Material Prompt:** "Create a PBR material variation for a cannabis leaf displaying potassium deficiency. Edges and tips of older leaves exhibit chlorosis (yellowing), progressing to necrosis (browning, scorching, 'burn'). Interveinal chlorosis may occur. Leaves may curl upwards or appear crinkled. Stems may weaken."

#### 3.4 Leaf Material - Overwatering/Poor Drainage (Wilting & Edema)

* **Material Prompt:** "Create a PBR material variation for cannabis leaves affected by overwatering. Leaves appear swollen, turgid to the point of being stiff, and may droop downwards from the petiole due to weight and root stress. Leaf surface may show small blisters or bumps (edema) in severe cases. Color might be a darker, duller green."

#### 3.5 Leaf Material - Underwatering (Wilting)

* **Material Prompt:** "Create a PBR material variation for cannabis leaves affected by underwatering. Leaves are limp, wilted, and drooping significantly. Leaf texture appears dry and less turgid. Color may become a duller or lighter green. In advanced stages, yellowing and browning/crisping of edges can occur."

#### 3.6 Leaf Material - Heat Stress

* **Material Prompt:** "Create a PBR material variation for cannabis leaves showing signs of heat stress. Leaf edges may curl upwards (tacoing). Surface may appear dull. In severe cases, tips and edges can exhibit browning or scorching. Overall plant may show signs of wilting despite adequate water."

#### 3.7 Leaf Material - Light Burn (Bleaching)

* **Material Prompt:** "Create a PBR material variation for cannabis leaves closest to a very intense light source, displaying light burn. Affected areas, typically upper leaves, appear bleached to a pale yellow or white, while veins may remain greener. Texture becomes dry and crispy in burnt areas. Distinct from nutrient deficiencies."

#### 3.8 Bud/Flower Material - Botrytis (Gray Mold)

* **Material Prompt:** "Create a PBR material variation for a cannabis bud infected with Botrytis cinerea (gray mold). Affected areas appear as brownish-gray, fuzzy mold growth, often starting from within denser parts of the bud. Texture is soft, web-like, and may become dusty with spores. Underlying plant tissue becomes mushy and discolored."

#### 3.9 Leaf Material - Spider Mite Damage

* **Material Prompt:** "Create a PBR material variation for a cannabis leaf showing early to moderate spider mite damage. Upper leaf surface exhibits fine, light-colored stippling or speckling (tiny dots) where mites have fed. In heavier infestations, fine webbing may be visible between leaflets or on undersides. Leaves may appear dusty and lose their healthy sheen."

#### 3.10 Trichome Material - Maturation Stages

* **Material Prompt (Series of variations for trichome shader):**
  + "Trichome State 1 (Clear): Glandular trichome heads are transparent like glass or water droplets. Highly reflective."
  + "Trichome State 2 (Milky/Cloudy): Glandular trichome heads are translucent white or cloudy, resembling milky plastic. Reduced direct reflectivity, more diffuse."
  + "Trichome State 3 (Amber): Glandular trichome heads are amber or light brown in color, translucent. Indicating advanced maturity or degradation."

### 4. Root System Visualization (Potential Asset)

#### 4.1 Root System - Fibrous Taproot System in Transparent Medium (Conceptual Viz)

* **Mesh Prompt:** "Generate a 3D model of a healthy, well-developed cannabis root system, showing a main taproot with extensive lateral branching and fine feeder roots. The root system should be visualized as if growing in a transparent medium or a cutaway view of soil/hydroponic setup. Density and structure appropriate for a mature vegetative or early flowering plant. Game-ready asset, optimized for potentially complex geometry."
* **Material Prompt:** "Create PBR materials. Main Roots: Creamy white to light tan, with a slightly fibrous, robust texture. Feeder Roots: Finer, whiter, almost translucent. Root tips should appear fresh and active. Overall healthy, non-diseased appearance. No browning or sliminess."
* **Variation (Cloned Plant Roots):** "Mesh variation for cloned plant: No dominant taproot, instead a more diffuse, laterally spreading fibrous root system originating from the base of the cutting."
* **Variation (Rootbound):** "Mesh variation for rootbound plant: Dense, circling roots tightly packed, conforming to the shape of an unseen container."

## Rodin 3D Asset Generation Prompts: Data Collection & Lab Equipment

**Core Aesthetic Notes for all Prompts:** Maintain a "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. Assets should be game-ready, optimized for real-time rendering, with clean topology. PBR materials are standard. Lab equipment must appear precise, well-calibrated, and clean. Handheld devices should be ergonomic and feature clear digital displays. Benchtop instruments should look like sophisticated, modern laboratory apparatus.

### 1. Handheld Meters (Visual - for "Action Mode" Data Acquisition)

#### 1.1 Handheld EC/PPM Meter

* **Mesh Prompt:** "Generate a 3D model of a modern handheld EC/PPM meter. Pen-style or small rectangular body with a digital LCD display, a few control buttons (power, hold, mode), and an electrode probe at one end (possibly with a protective cap). Ergonomic grip. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Durable, water-resistant polymer in a professional color (e.g., dark gray, blue, or white) with rubberized grips or accents. Display: Clear LCD screen with legible digital readout. Buttons: Tactile rubber or plastic. Electrode: Graphite or platinum sensor elements visible. Protective Cap: Clear or opaque plastic. Clean, precise instrument."

#### 1.2 Handheld pH Meter

* **Mesh Prompt:** "Generate a 3D model of a modern handheld pH meter. Similar form factor to the EC/PPM meter (pen-style or small rectangular body) with a digital LCD display, control buttons, and a glass bulb electrode probe at one end, typically with a protective cap filled with storage solution (visual representation of solution optional). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Chemical-resistant polymer (e.g., light gray or blue). Display: Clear LCD. Buttons: Sealed rubber or plastic. Electrode: Glass bulb (slightly bluish tint) with internal reference, housed in a protective plastic shroud. Protective Cap: Clear plastic, possibly with a visual hint of liquid. Clean, scientific appearance."

#### 1.3 Handheld Temperature Probe (Multi-Purpose: Air, Water, Soil)

* **Mesh Prompt:** "Generate a 3D model of a handheld digital temperature probe. Features a comfortable handle/body with an LCD display and a pointed stainless steel probe (approx. 4-6 inches long) suitable for insertion into soil, water, or for air temperature readings. Simple controls (power, °C/°F). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body/Handle: Durable polymer (e.g., yellow, orange for visibility, or gray) with a non-slip grip. Display: Clear LCD. Probe: Polished stainless steel. Clean, robust, and accurate-looking."

#### 1.4 Handheld Soil Moisture Meter (Probe Style)

* **Mesh Prompt:** "Generate a 3D model of a handheld digital soil moisture meter. Features a main body with an LCD display and one or two prongs/probes (approx. 6-8 inches long) designed for insertion into soil or substrate. Simple interface. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Green, gray, or black durable plastic. Display: LCD screen. Probes: Corrosion-resistant metal (e.g., stainless steel or brass). Functional, field-ready tool."

#### 1.5 Handheld PAR/PPFD Meter (Quantum Sensor)

* **Mesh Prompt:** "Generate a 3D model of a handheld PAR/PPFD meter. Features a main unit with a digital LCD display and control buttons, connected by a coiled or straight cable to a separate quantum sensor head (small, flat, often with a white diffuser on top). Professional, scientific instrument design. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Main Unit: Durable polymer (e.g., dark gray or black) with a protective rubber boot. Display: Clear LCD. Buttons: Rubberized, tactile. Cable: Black, flexible. Sensor Head: Anodized aluminum or black plastic casing with a white cosine-corrected diffuser. Precise light measurement tool."

#### 1.6 Handheld Infrared Thermometer (Leaf Surface Temperature)

* **Mesh Prompt:** "Generate a 3D model of a handheld non-contact infrared thermometer gun. Pistol-grip design with a trigger, a small LCD display on the back, and an infrared sensor lens at the front. May include a laser pointer aimer (visual only, not functional beam). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: Durable, slightly textured polymer (e.g., yellow/black, or gray/blue). Display: LCD screen. Trigger/Buttons: Contrasting colored plastic or rubber. Lens: Small, dark IR lens. Laser Aperture: Small, distinct. Modern, ergonomic diagnostic tool."

#### 1.7 Handheld VPD Meter (Calculates from Temp/RH, or direct reading if sensor exists)

* **Mesh Prompt:** "Generate a 3D model of a specialized handheld VPD (Vapor Pressure Deficit) meter. Compact device with an LCD display showing VPD, temperature, and RH. May have integrated sensors or a small external sensor probe for leaf/air temperature and RH. Modern, scientific look. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Body: High-quality polymer (e.g., light gray or white) with a clean, matte finish. Display: High-contrast LCD. Buttons: Minimalist, tactile. Sensor area should look precise. Specialized environmental monitoring tool."

### 2. Benchtop Meters/Analyzers (Visual)

#### 2.1 Lab-Grade EC/pH Meter (Benchtop)

* **Mesh Prompt:** "Generate a 3D model of a benchtop laboratory-grade EC/pH/Temp meter. Features a stable base unit with a large, clear digital display (LCD or touchscreen), multiple input ports for separate pH, EC, and temperature probes, calibration knobs/buttons, and an articulated electrode holder arm. Professional lab instrument. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Unit Casing: Off-white or light gray chemical-resistant ABS plastic or powder-coated metal. Display: Large, clear glass/plastic fronted display. Knobs/Buttons: Precision feel. Electrode Holder: Polished metal or durable plastic. Probes (separate but associated): Glass pH electrode, platinum EC electrode, stainless steel temp probe, with cables. Clean, precise, lab-standard."

#### 2.2 Spectrophotometer - Basic UV-Vis (Simulated Use)

* **Mesh Prompt:** "Generate a 3D model of a basic benchtop UV-Vis spectrophotometer. Compact rectangular unit with a sample compartment (lid for cuvettes), a small digital display, a simple keypad or control knobs for wavelength selection and readings (Absorbance/Transmittance). Power switch and port at the back. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Cream, light gray, or white painted metal or durable plastic, lab equipment aesthetic. Sample Compartment Lid: Matching material, possibly with a dark interior. Display: Simple LCD or LED segment display. Keypad: Membrane or tactile buttons. Standard analytical lab instrument."

#### 2.3 HPLC System - Modular Stack (Conceptual High-Tier - Post-MVP Visual)

* **Mesh Prompt:** "Generate a conceptual 3D model of a modular High-Performance Liquid Chromatography (HPLC) system stack. Consists of 3-4 stacked modules: Solvent delivery pump, Autosampler, Column compartment/oven, and Detector (e.g., UV-Vis or DAD). Each module has a distinct front panel with status indicators, small displays, or access doors. Interconnecting tubing and cables. Connected to a nearby desktop computer (prompted separately) for control and data analysis. Game-ready asset, emphasizing a high-tech lab appearance."
* **Material Prompt:** "Create PBR materials. Module Casings: Sleek, modern design in off-white, light gray, or silver powder-coated metal or high-grade polymer. Front Panels: Glass or clear acrylic over displays, precision buttons, and status LEDs. Tubing: Fine, translucent or colored PEEK/stainless steel tubing. High-tech, complex analytical instrument. Labels for each module ('Pump', 'Autosampler', 'Column Oven', 'Detector')."

#### 2.4 GC-MS System - Benchtop (Conceptual High-Tier - Post-MVP Visual)

* **Mesh Prompt:** "Generate a conceptual 3D model of a benchtop Gas Chromatography-Mass Spectrometry (GC-MS) system. Consists of two main interconnected units: the Gas Chromatograph (with an oven for the column, sample injector port, gas connections) and the Mass Spectrometer (with vacuum pumps implied, ion source, and detector). Sophisticated appearance with various access panels, status lights, and connections for gases and data. Connected to a desktop computer. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casings: Professional laboratory instrument finish (e.g., light gray or beige powder-coated metal). Access Panels: Metal with secure latches. Tubing/Connections: Stainless steel for gas lines, specialized connectors. Indicator Lights: LEDs for system status (vacuum, temperature, power). Advanced, high-precision analytical equipment."

#### 2.5 ICP-MS/OES System - Benchtop (Conceptual Advanced Analysis - Post-MVP Visual)

* **Mesh Prompt:** "Generate a conceptual 3D model of a benchtop Inductively Coupled Plasma (ICP) spectrometer (OES or MS variant). Features a sample introduction system (peristaltic pump, nebulizer, spray chamber), the ICP torch box (with a viewing window for the plasma), and the spectrometer optics/detector housing. Requires connections for argon gas, cooling water, and exhaust. Sophisticated control panel or interface to a computer. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Main Housing: Robust, professional lab instrument casing (light gray/blue tones). Torch Box: Heat-resistant materials, quartz window. Sample Introduction: Clear or translucent polymer components for nebulizer/spray chamber, peristaltic pump tubing. High-tech, elemental analysis instrument."

#### 2.6 Elemental Analyzer (CHNS/O - Conceptual Advanced Analysis - Post-MVP Visual)

* **Mesh Prompt:** "Generate a conceptual 3D model of a benchtop Elemental Analyzer for CHNS/O determination. Compact unit with a sample loading port (autosampler or manual), a combustion/reduction furnace tube area (likely internal but with access panels), gas supply connections (He, O2), and a detector/data processing module. Integrated digital display/controls or computer interface. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Modern laboratory instrument design, powder-coated metal in professional colors. Furnace Area: Heat-resistant insulation and components. Display: Digital interface. Gas Fittings: Stainless steel. Precise, automated chemical analysis equipment."

#### 2.7 NIR/MIR Spectrometer - Handheld or Portable Benchtop (Conceptual Rapid Analysis - Post-MVP Visual)

* **Mesh Prompt:** "Generate a conceptual 3D model of a portable Near-Infrared (NIR) or Mid-Infrared (MIR) spectrometer.
  + Variation 1 (Handheld): Pistol grip or compact handheld device with a sensor window/probe for direct contact with samples, integrated touchscreen display.
  + Variation 2 (Portable Benchtop): Small, robust case with a sample port/stage, internal optics, and a display/button interface or USB connection to a laptop. Game-ready assets."
* **Material Prompt:** "Create PBR materials.
  + Handheld: Durable, ergonomic polymer casing (dark gray/black) with rubberized grips. Touchscreen display. Sensor Window: Specialized optical material.
  + Portable Benchtop: Ruggedized aluminum or polymer casing. Sample Stage: Stainless steel or chemically inert material. High-tech, rapid, non-destructive analysis tool aesthetic."

### 3. Data Logging & Interface (Visual)

#### 3.1 Laptop - Modern, Slim (Professional/Lab Use)

* **Mesh Prompt:** "Generate a 3D model of a modern, slim professional laptop, 14-16 inch screen, open as if in use. Thin bezel display, standard keyboard layout, trackpad. Subtle branding. Include ports (USB-C, USB-A, HDMI) on the sides. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Brushed aluminum (silver or space gray) or high-quality matte black/dark gray polymer. Screen: Glossy or matte display (can show a generic scientific data interface or OS desktop). Keyboard: Dark keys with backlit lettering. Clean, high-performance mobile computing device."

#### 3.2 Tablet - Modern (Data Entry/Monitoring)

* **Mesh Prompt:** "Generate a 3D model of a modern tablet computer, approximately 10-11 inch screen, held or on a simple stand. Thin profile, minimal buttons. Can be a standard consumer model (e.g., iPad-like) or a slightly more ruggedized version for lab use. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Aluminum back (silver, gray) or durable polymer. Screen: Clean glass display (can show a data dashboard UI mock-up). Minimalist, modern portable interface."

#### 3.3 Desktop Computer Setup (Monitor, Keyboard, Mouse - Lab Control/Analysis)

* **Mesh Prompt:** "Generate a modern desktop computer setup for a lab:
  + Monitor: 24-27 inch widescreen LCD/LED monitor with a slim bezel and ergonomic stand.
  + PC Tower: Sleek, minimalist mid-tower or small form factor (SFF) PC case.
  + Keyboard: Standard full-size or tenkeyless ergonomic keyboard.
  + Mouse: Modern optical ergonomic mouse. All connected with appropriate cables (conceptually). Game-ready assets."
* **Material Prompt:** "Create PBR materials. Monitor/PC Case: Matte black or silver/gray polymer and metal. Screen: Clean display (can show complex scientific software UI). Keyboard/Mouse: Dark gray or black plastic with clear lettering. Professional, powerful workstation."

#### 3.4 Clipboard with Data Sheets & Pen

* **Mesh Prompt:** "Generate a 3D model of a standard A4/Letter size clipboard (metal or hard plastic) holding a few sheets of paper with printed tables/checklists (generic scientific data log). A simple ballpoint pen is clipped to the board or lying on top. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Clipboard: Brushed aluminum or dark brown hardboard/plastic. Paper: White paper with faint blue/gray printed lines and placeholder text/data. Pen: Simple plastic or metal ballpoint pen. Standard manual data recording tool."

#### 3.5 Whiteboard - Wall-Mounted with Markers & Eraser

* **Mesh Prompt:** "Generate a 3D model of a wall-mounted magnetic whiteboard, e.g., 4x3 feet or 6x4 feet. Aluminum frame, a tray holding a few dry-erase markers (various colors) and an eraser. Some faint, erasable scientific notes, diagrams, or calculations can be on the board. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Whiteboard Surface: Smooth, glossy white enamel or porcelain. Frame/Tray: Anodized aluminum. Markers: Colored plastic casings. Eraser: Felt and plastic. Collaborative/brainstorming tool for a lab/office setting."

#### 3.6 Industrial Server Rack - (Data Logging/Facility Control - Visual)

* **Mesh Prompt:** "Generate a 3D model of a half-height or full-height industrial server rack (e.g., 24U or 42U). Enclosed with vented front and rear doors (possibly with a glass front door section). Populated with several generic rack-mounted server units, a network switch, and a UPS (prompted separately if detailed, or generic boxes here). Visible cabling at the back if appropriate. Status LEDs on equipment. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Rack Frame/Panels: Black or dark gray powder-coated steel. Server Units/Switch: Metal casings (black, silver) with blinking or steady LED status lights (green, amber, blue). Cabling: Bundled network and power cables (various colors). High-tech data center/control room equipment."

#### 3.7 Large Control Display - Wall-Mounted (Facility Overview Dashboard)

* **Mesh Prompt:** "Generate a 3D model of a large (e.g., 55-75 inch) flat-panel display screen, wall-mounted in a control room or main facility area. Displaying a complex, high-level overview dashboard UI for Project Chimera facility status (environmental zones, resource levels, system alerts – mock-up UI). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Screen: Clean, modern flat panel display with minimal bezel. UI Texture: High-resolution, vibrant, and data-rich dashboard mock-up with graphs, charts, status indicators in the Project Chimera aesthetic. Professional, command-center style information display."

### 4. Calibration Weights (Lab Specific)

#### 4.1 Calibration Weight Set - Precision Analytical Balance (Milligram to Grams)

* **Mesh Prompt:** "Generate a 3D model of a precision calibration weight set for analytical balances. Small, individual cylindrical weights with knobs for handling, ranging from milligrams (e.g., 1mg, 10mg, 100mg - often flat foils or wires for smallest) up to grams (e.g., 1g, 5g, 10g, 50g, 100g). Housed in a protective, felt-lined wooden or high-quality plastic case with individual compartments and tweezers for handling. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Weights: Highly polished, non-magnetic stainless steel or plated brass. Markings: Finely engraved mass values. Case: Dark varnished wood with velvet/felt lining, or precision-molded dark plastic case with foam cutouts. Tweezers: Stainless steel or non-magnetic alloy. High-precision metrology instruments."

### 5. Simulated Lab Analysis Interface (Physical Terminal/Display)

#### 5.1 Lab Analysis Terminal - Dedicated Benchtop Monitor & Interface

* **Mesh Prompt:** "Generate a 3D model of a dedicated benchtop terminal for interacting with the Simulated Lab Analysis Interface. Features a medium-sized touchscreen monitor (e.g., 15-19 inches) on an adjustable stand, possibly with an integrated card reader or small barcode scanner for sample ID. No separate keyboard/mouse, or a very compact integrated keypad if necessary. Connected to lab network (implied). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Monitor Casing: Clean, chemical-resistant white or light gray polymer, designed for lab environments. Screen: Clear glass touchscreen displaying a mock-up of the Lab Analysis Interface UI (sample queue, results pending, data entry fields for sample submission). Card Reader/Scanner: Dark plastic. Clean, specialized data interaction point for lab workflows."

## AI Visual Design Prompts: UI & Data Visualization Elements

**Core Aesthetic Notes for all Prompts:** UI elements must embody the "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic of Project Chimera. Clarity, readability, and intuitive navigation are paramount. Data should be presented in a clean, digestible, and often graphical manner. The overall feel should be sophisticated and empower the player with information.

### 1. Environmental Data Dashboards/Overlays

* **UI Element Name:** Environmental Data Dashboard/Overlay
* **Display Context:** Appears on in-game monitors, tablets, or as a contextual heads-up display (HUD) overlay when interacting with environmental zones or equipment.
* **Visual Design, Content & Layout Prompt:** "Design a customizable, modular UI dashboard for real-time environmental monitoring. It must clearly display: \* **Temperature:** Digital readout (switchable °C/°F), visual gauge/bar showing current value against optimal range (color-coded: blue for too cold, green for optimal, orange for warm, red for critical). Historical mini-line graph (e.g., last 1h, 24h). \* **Relative Humidity (RH):** Digital percentage, visual gauge/bar against optimal range (color-coded). Historical mini-graph. \* **Vapor Pressure Deficit (VPD):** Digital readout in kPa, color-coded based on plant stress levels (e.g., green for optimal, yellow for caution, red for danger). Historical mini-graph. \* **CO2 Level:** Digital readout in PPM, visual gauge/bar showing current level against target enrichment range. Historical mini-graph. \* **Light (PAR/PPFD):** Digital readout in µmol/m²/s, current DLI (Daily Light Integral) accumulation progress bar/value. Historical mini-graph for PPFD. \* **Airflow/Exchange Rate:** (If directly measured) Digital readout or qualitative status indicator (e.g., Good, Fair, Poor). Layout should be grid-based, allowing players to resize, reorder, or hide modules. Use clear, sans-serif typography. Icons for each parameter should be modern and easily recognizable."
* **Aesthetic Style & Feel Prompt:** "High-tech, clinical, and precise. Data visualizations (gauges, graphs) should be clean and easy to interpret. Use a color palette of cool grays, blues, and whites, with accent colors (green, yellow, orange, red) for status and alerts. Subtle animations for data updates (e.g., smooth gauge transitions, pulsing alert icons). Background should be semi-transparent if an overlay, or match a dark/light theme if on a dedicated screen. Overall feel of a professional scientific monitoring system."
* **In-World Manifestation (for Overlays):** "If a contextual overlay, the UI elements should appear to float cleanly in space or be anchored to the relevant equipment/zone, with good readability against various backgrounds. Consider subtle depth and lighting effects to integrate it into the 3D world without being obtrusive."

### 2. Graphs & Charts (Historical Data Analysis)

* **UI Element Name:** Historical Data Analysis Interface (Graphs & Charts)
* **Display Context:** Full-screen interface accessible via terminals, laptops, or tablets for in-depth data review.
* **Visual Design, Content & Layout Prompt:** "Design a comprehensive data analysis interface for viewing historical trends. \* **Chart Types:** Support line graphs (primary for time-series data), bar charts (for comparisons), scatter plots (for multi-variable analysis). \* **Data Selection:** Allow players to select multiple parameters (e.g., Temperature, RH, VPD, CO2, specific nutrient levels, plant growth metrics, yield) to plot on the same or linked charts. Date/time range selection is crucial (hourly, daily, weekly, per crop cycle). \* **Interactivity:** Hover-over tooltips for exact data points. Zoom and pan functionality. Ability to overlay different crop cycles for comparison. \* **Key Metrics Display:** Alongside charts, display summary statistics for the selected range (min, max, average, standard deviation). Layout should be organized with a clear data source/parameter selection panel, a main charting area, and a summary/statistics panel. Use consistent iconography and clear labeling."
* **Aesthetic Style & Feel Prompt:** "Professional, analytical, and powerful. Clean lines, ample white space (or dark space in a dark theme). Data plots should be clear, with distinct colors for different data series. Typography must be highly legible. The interface should feel responsive and allow for easy exploration of complex datasets. Emphasize a 'data science' or 'research lab' feel."

### 3. Plant Health/Status Indicators (On-Model & Detail UI)

* **UI Element Name:** Plant Health & Status Indicators
* **Display Context:**
  + **On-Model:** Icons/bars appearing directly above or near individual plant models in the 3D world when targeted or in a specific view mode.
  + **Detail View UI:** A pop-up or side panel UI appearing when a plant is selected, showing more detailed information.
* **Visual Design, Content & Layout Prompt (On-Model):** "Design a set of minimalist, easily recognizable icons or compact status bars appearing on/near plant models to indicate: \* **Overall Health:** Simple bar (green to red) or a heart/leaf icon that changes color/state. \* **Water Status:** Water droplet icon changing color (e.g., blue for hydrated, yellow for thirsty, red for severely wilted) or a fillable bar. \* **Nutrient Status:** A stylized nutrient molecule or leaf icon indicating general nutrient status (e.g., green for optimal, yellow for minor deficiency, red for major deficiency/toxicity). \* **Pest/Disease Presence:** Small, distinct alert icon (e.g., exclamation mark, biohazard symbol, or a specific pest/disease icon) if an issue is detected. These should be non-intrusive but clear."
* **Visual Design, Content & Layout Prompt (Detail View UI):** "Design a clean, informative pop-up/panel for a selected plant. Include: \* Plant ID/Name/Strain. \* Current Growth Stage. \* Detailed breakdown of health, water, and nutrient status (e.g., specific deficiencies like 'Nitrogen: Low', 'Calcium: Optimal'). \* List of active pests/diseases with severity indicators. \* Key growth metrics (height, number of nodes, estimated yield if applicable). \* Recent stress events or treatments applied. Use clear typography, icons, and progress bars/status graphics."
* **Aesthetic Style & Feel Prompt:** "On-model indicators should be subtle, using a clean, modern icon set. Detail View UI should be an extension of the main game UI – professional, scientific, and data-rich but easy to navigate. Consistent color-coding with dashboards for status (green, yellow, red)."
* **In-World Manifestation (On-Model):** "Icons/bars should appear to 'float' near the plant or be subtly projected onto its base/pot. They should orient towards the camera for readability but not obstruct the view of the plant itself. Consider subtle animations or pulses for critical alerts."

### 4. Nutrient Management Interface

* **UI Element Name:** Nutrient Management & Mixing Interface
* **Display Context:** Accessed via dedicated terminals near mixing stations, or on tablets.
* **Visual Design, Content & Layout Prompt:** "Design an interface for managing and mixing nutrient solutions. \* **Reservoir Overview:** Visual representation of connected reservoirs (graphical tank icons showing fill level and current solution name/type). Display current EC, pH, temperature, and DO for each. \* **Recipe Management:** Create, save, and load nutrient recipes (listing specific nutrients, additives, and their amounts per gallon/liter). \* **Mixing UI:** Step-by-step guided mixing process. Visual representation of adding ingredients to a virtual tank. Calculates required amounts based on target volume and recipe. Live readouts of EC/pH as (simulated) ingredients are added. \* **Nutrient Inventory:** Shows available stock of different nutrient bottles/bags. \* **Testing Results Log:** Area to input and view results from runoff/substrate tests (EC, pH) to inform recipe adjustments. Use clear icons for different nutrients, intuitive controls for adjusting amounts, and visual feedback during the mixing process."
* **Aesthetic Style & Feel Prompt:** "Precise, scientific, and slightly industrial/lab-like. Visuals of tanks and mixing should be clean and diagrammatic. Typography for ingredient names and measurements must be very clear. Emphasis on accuracy and control. Color-coding for different nutrient types or solution parameters."

### 5. Genetic Data Display

* **UI Element Name:** Genetic Data & Lineage Explorer
* **Display Context:** Accessed via dedicated terminals in a genetics lab, research interface on laptops/tablets, or when selecting parent plants for breeding.
* **Visual Design, Content & Layout Prompt:** "Design a sophisticated UI for displaying cannabis strain genetic information and lineage. \* **Strain Summary:** Prominently display Strain Name, user-assigned ID, generation (F1, F2, IBL etc.), and a visual representation (e.g., a high-quality thumbnail image or stylized 3D model preview of the mature plant/bud). \* **Lineage View:** Interactive Pedigree Chart allowing traversal through parentage. Each node in the chart should show basic strain info on hover/click. \* **Key Traits Display:** Visually represent key genetic traits using sliders, bars, or radar charts. Traits include: \* Yield Potential (e.g., Low to High, g/m²) \* Flowering Time (e.g., days/weeks, Short to Long) \* Potency Potential: THC, CBD, CBG ranges (e.g., 0-30%) \* Dominant Terpene Profile (e.g., icons or bar graph for Myrcene, Limonene, Caryophyllene, etc.) \* Growth Habit (e.g., Tall/Sativa-like, Bushy/Indica-like, Compact) \* Key Resistances (e.g., icons or ratings for Powdery Mildew, Spider Mites) \* **Punnett Square Simulator (Basic):** For selected parents and a few key Mendelian traits (e.g., flower color, simple disease resistance gene), display a simulated Punnett Square predicting offspring genotype probabilities. \* **Abstracted Genetic Marker/Allele Display (Advanced/Late-Game):** A section showing simplified representations of key genetic markers (e.g., 'Marker A3\_THCAS: Present') linked to specific desirable traits, unlocked via research. Layout should be clean, with distinct sections for each type of information. Typography must be clear and suitable for scientific data."
* **Aesthetic Style & Feel Prompt:** "High-tech, genomic research aesthetic. Use a color palette that evokes precision and science (e.g., blues, teals, grays, with subtle DNA helix motifs or abstract genetic sequence backgrounds). Data visualizations should be modern and easily interpretable. Pedigree charts should be clean and navigable. The feel should be that of a cutting-edge genetic research tool."

### 6. Simulated Lab Analysis Results Interface

* **UI Element Name:** Lab Analysis Report Viewer
* **Display Context:** Accessed via lab terminals, laptops/tablets after submitting samples for simulated analysis.
* **Visual Design, Content & Layout Prompt:** "Design a UI for viewing simulated lab analysis results. Each report should be clearly dated and linked to a sample ID. \* **Cannabinoid Profile:** Displayed as a bar chart or spider chart showing percentages of major cannabinoids (THC, THCA, CBD, CBDA, CBG, CBGA, CBN) and a list of detectable minor cannabinoids. Total THC, Total CBD, and Total Cannabinoids clearly displayed. \* **Terpene Profile:** Displayed as a bar chart or table showing concentrations (PPM or %) of dominant and secondary terpenes (e.g., Myrcene, Limonene, Pinene, Linalool, Caryophyllene). A 'flavor/aroma wheel' visualization could be used. \* **Simulated Tissue Nutrient Analysis:** Table displaying levels of macro and micro-nutrients in plant tissue (e.g., N, P, K, Ca, Mg, Fe) against optimal ranges. \* **Simulated Water Quality Report:** Table showing pH, EC, and levels of key minerals or potential contaminants in water samples. \* **Quality Control/Pesticide Screen (if applicable):** Pass/Fail status or levels of detected (simulated) contaminants. Allow users to compare reports side-by-side or view historical trends for a specific strain or grow batch. Option to 'export' or print (to in-game notes/log). Clear headings, units, and reference ranges."
* **Aesthetic Style & Feel Prompt:** "Official laboratory report aesthetic – clean, precise, and authoritative. Use a formal, legible sans-serif font. Data presented in clear tables and professional-looking charts. Minimal color, primarily using shades of gray, black, and white, with color used sparingly for emphasis (e.g., highlighting out-of-range values). Digital letterhead or watermark for 'Project Chimera Analytical Labs.' Should feel like viewing certified results."

### 7. Breeding Interface

* **UI Element Name:** Cannabis Breeding & Pheno-Hunting Workbench
* **Display Context:** Accessed via dedicated terminals in a genetics lab or advanced research interface.
* **Visual Design, Content & Layout Prompt:** "Design a comprehensive UI for managing cannabis breeding projects. \* **Parent Selection:** Two main slots for selecting 'Parent A' and 'Parent B'. Allow Browse/searching of available plants/strains (from player's genetic library) with key genetic data (see Genetic Data Display) visible for each selection. \* **Crossing UI:** Visual confirmation of selected parents. A 'Initiate Cross' button. Display estimated time for seed production, potential number of seeds, and associated costs/resource requirements. \* **Offspring Prediction (Simplified):** Based on parent genetics, show a probabilistic preview of potential offspring trait ranges for key characteristics (e.g., THC/CBD potential, flowering time) using bar graphs or distribution curves. Include results from Punnett Square simulations for selected Mendelian traits. \* **Pheno-Hunting Tools:** An interface to manage populations of offspring from a cross. Allow tagging, rating (e.g., 1-5 stars for vigor, aroma, structure), and note-taking for individual phenotypes as they (conceptually) grow. Filter/sort options for identifying promising candidates. \* **Batch Management:** Track breeding projects, their generations (F1, F2, BC1, etc.), and associated plants/seeds. Intuitive drag-and-drop or selection anels for choosing parents."
* **Aesthetic Style & Feel Prompt:** "Scientific, research-oriented, but with a clean and engaging user experience. Blend the feel of a genetic laboratory interface with a project management tool. Use clear iconography for traits and actions. Visualizations of genetic mixing or trait inheritance should be modern and abstract. Professional, but not overly sterile – encourage experimentation."

### 8. Facility Management Overlays

* **UI Element Name:** Facility Management & Utility Views
* **Display Context:** Toggleable overlays when in facility build/management mode, or dedicated views on facility terminals.
* **Visual Design, Content & Layout Prompt:** \* **Utility View ("X-Ray Vision"):** \* **Visual:** When activated, structural elements (walls, floors) become semi-transparent or wireframe. Utility networks (Pipes for water/nutrients, HVAC Ducting, Electrical Wiring) are highlighted and color-coded by type. \* **Data:** Display abstracted flow direction indicators on pipes/ducts. Show load/capacity indicators for electrical circuits (e.g., % utilization). Highlight connection points and equipment status (on/off, errors). \* **Interaction:** Allow selecting individual utility segments or equipment to see detailed stats (e.g., pipe flow rate, duct CFM, wire gauge/load). \* **Zoning UI:** \* **Visual:** Top-down or isometric view of the facility with rooms/areas color-coded by their assigned zone type (e.g., "Flowering Room 1," "Veg Area," "Propagation Lab," "Drying Room"). \* **Data:** Display key environmental targets vs. actuals for each zone at a glance. Show capacity utilization (e.g., plants / max plants). \* **Interaction:** Allow creating, resizing, naming, and assigning parameters/profiles to zones. \* **Resource Inventory/Consumption Overview:** \* **Visual:** Dashboard-style display showing current stock levels of key consumables (Water, Power, Nutrients, CO2, Building Materials, Seeds/Clones) using graphical bars or gauges. \* **Data:** Show consumption rates (e.g., per hour/day) and estimated time until depletion for critical resources. Display costs associated with consumption. Use clear icons and a consistent color scheme for different utilities and zones."
* **Aesthetic Style & Feel Prompt:** "X-Ray view should be a high-tech, schematic overlay – think architectural blueprints or engineering CAD views brought to life. Zoning UI should be clean, like a modern building management system. Resource overview should be a clear, concise dashboard. Overall, highly functional, providing critical operational insights with a polished, professional interface."
* **In-World Manifestation (X-Ray/Zoning):** "The X-Ray view is a direct visual overlay on the 3D world. The Zoning UI might be a top-down overlay or a dedicated mode that transforms the main view. These overlays should not completely obscure the underlying facility but enhance it with information."

### 9. Operational & Financial Data Interface

* **UI Element Name:** Operational & Financial Analytics Dashboard
* **Display Context:** Accessed via a main office terminal, laptop/tablet, or a dedicated "Business Management" section of the game's UI. Essential for core economy simulation.
* **Visual Design, Content & Layout Prompt:** "Design a professional UI dashboard for tracking operational and financial data. \* **Key Financial Metrics (Dashboard View):** Prominently display: \* Current Cash/Bank Balance \* Gross Revenue (e.g., per period, per batch) \* Total Costs (broken down by categories: utilities, nutrients, labor, rent/mortgage, equipment amortization) \* Net Profit/Loss (with clear visual indicator - green for profit, red for loss) \* Profit Margin (percentage) \* **Detailed Reports/Tabs:** \* **Income Statement:** Standard P&L format (Revenue - COGS - Operational Expenses = Net Income) for selected periods. \* **Cash Flow Statement:** Tracking cash inflows and outflows. \* **Expense Tracker:** Detailed breakdown of all operational costs with ability to drill down into sub-categories (e.g., 'Utilities' can show 'Electricity', 'Water', 'Gas'). \* **Sales Ledger:** Log of all sales, contracts, buyer information, quantities, prices, and payment status. \* **Budgeting Tools:** Interface to set budgets for upcoming periods/projects and track performance against budget. Use clear charts (bar graphs for expenses, line graphs for trends like revenue over time, pie charts for expense distribution) and tables for detailed data. Data should be filterable by date range, facility, or crop batch.
* **Aesthetic Style & Feel Prompt:** "Clean, professional, corporate/business analytics aesthetic. Use a color palette that conveys financial stability and clarity (e.g., blues, greens for positive figures, grays for neutral, reds for negative figures). Typography should be crisp and highly legible, suitable for numerical data. Graphs and charts should be modern, easily understandable, and interactive (e.g., hover-over details). The feel should be that of a powerful business intelligence tool, allowing the player to make informed financial decisions."

### 10. Alerts & Notifications System

* **UI Element Name:** Alerts & Notifications System
* **Display Context:** Appears as pop-ups, a persistent on-screen log/feed, or as indicators on specific equipment or plants in the 3D world. Critical for player feedback and managing issues. Tiered alerts are part of MVP design.
* **Visual Design, Content & Layout Prompt:** \* **Alert Types & Icons:** Design a set of clear, distinct icons for various alert types: \* Environmental: Temperature out-of-range (thermometer icon with up/down arrow), Humidity out-of-range (droplet icon), CO2 out-of-range, VPD out-of-range. \* Equipment Malfunction: Wrench/gear icon, specific equipment icon with alert overlay. \* Resource Low: Fuel gauge icon, water droplet with 'low' indicator, CO2 tank icon. \* Plant Health: Wilting plant icon, pest icon (e.g., generic bug), disease icon (e.g., spotted leaf, biohazard symbol for root rot). \* Financial/Operational: Contract deadline approaching, low funds, inspection due. \* **Notification Pop-up/Banner:** When a new alert occurs, a non-intrusive banner or pop-up appears briefly with the alert icon, a short description (e.g., "Flowering Room 1: Temperature High - 32°C"), and severity level (e.g., color-coded: yellow for warning, orange for moderate, red for critical). \* **Alerts Log/Feed:** A scrollable list of recent and active alerts, filterable by type or severity. Each entry should be timestamped and allow clicking to navigate to the source of the alert (e.g., the specific room or equipment).
* **Aesthetic Style & Feel Prompt:** "Alerts should be immediately noticeable but not overly disruptive for minor issues. Use clear, universally understood iconography. Color-coding for severity is crucial. Pop-ups should be clean and concise. The overall system should feel responsive and informative, helping the player prioritize actions. High-tech, integrated system feel."
* **In-World Manifestation:** "For critical alerts on equipment, the equipment model itself could have a flashing red/yellow status LED. For plant-specific alerts, the on-plant indicators (previously defined) would activate. Audio cues (distinct sounds for different alert types/severities) should accompany visual notifications."

### 11. Historical Logs & Notes Interface

* **UI Element Name:** Player & System Logs / Journal
* **Display Context:** Accessed via a main menu section, terminals, or tablets. For player observations and auto event logging.
* **Visual Design, Content & Layout Prompt:** "Design a digital logbook or journal interface. \* **Automated Event Log:** Chronological list of significant system-generated events: environmental setpoint changes, equipment on/off cycles, completion of tasks (e.g., mixing nutrients, harvesting), critical alerts that occurred, (simulated) staff actions. Timestamped and filterable by event type, date, or facility/room. \* **Player Notes Section:** A free-form text entry area allowing players to create notes for specific dates, crop cycles, plants, or experiments. Rich text formatting (bold, italics, bullet points) would be a plus. Ability to tag notes with keywords for searching. \* **Photo/Data Attachment (Conceptual):** Allow players to (conceptually) 'attach' in-game screenshots or data snapshots (e.g., a specific graph view) to their notes. \* **Search & Filter:** Robust search functionality across both automated logs and player notes. Layout should be clean, like a digital notebook or a professional logging application."
* **Aesthetic Style & Feel Prompt:** "Organized, clean, and functional. Typography should be highly readable for extended text. Easy navigation between automated logs and player notes. A 'lab notebook' or 'captain's log' feel, but with modern digital tools. Color scheme should be calm and conducive to reading/writing. Subtle paper texture background for notes section could add a touch of skeuomorphic comfort if desired, contrasting with the high-tech logs."

### 12. Tutorial & Information Overlays (Contextual Help)

* **UI Element Name:** Contextual Tutorial & Info System
* **Display Context:** Appears as non-intrusive pop-ups, tooltips, or highlighted overlays when the player first encounters new equipment, mechanics, or UI elements. Essential for onboarding and explaining complex mechanics.
* **Visual Design, Content & Layout Prompt:** \* **Tutorial Pop-ups:** Small, clean pop-up windows with concise explanatory text (e.g., explaining VPD, GxE interactions, or how to use a new piece of equipment). May include a small illustrative diagram or icon. A "Got it" or "Learn More" button. \* **Tooltip System:** Hovering over UI buttons, icons, or in-game objects reveals a small tooltip with a brief description of its function or current status. \* **First-Time Interaction Overlays:** When interacting with a complex new system (e.g., the nutrient mixer or breeding interface for the first time), certain UI elements could be highlighted in sequence with short text callouts explaining their purpose. \* **"Codex" or "Encyclopedia" Access:** A main game menu section where all previously shown tutorial topics and additional lore/science information are archived and searchable. Content should cover core game concepts, cannabis science (GxE, deficiencies, pests), equipment operation, and breeding principles. Content should be well-written, accurate, and broken down into easily digestible chunks."
* **Aesthetic Style & Feel Prompt:** "Helpful, clear, and unobtrusive. Tutorial elements should be easily distinguishable from the main game UI but share its clean, modern aesthetic. Use friendly, encouraging language. Icons and diagrams should be simple and illustrative. The overall system should feel like a built-in intelligent assistant, guiding the player without being overwhelming. The "Codex" section should feel like a comprehensive scientific or technical reference library."
* **In-World Manifestation (Highlight Overlays):** "When highlighting objects or UI elements in the 3D world or on a screen, use a subtle glow, outline, or animated arrows to draw attention, accompanied by a clean text box for the explanation."

## Rodin 3D Asset Generation Prompts: Advanced Breeding & Lab Equipment

**Core Aesthetic Notes for all Prompts:** These assets must epitomize the "Modern, High-Tech, Clinical/Scientific, Aspirational/Professional" aesthetic. They are late-game, high-tier equipment. Designs should be sleek, exceptionally clean, often with stainless steel or specialized polymer finishes. Emphasize precision engineering, advanced control interfaces, and a sterile or highly controlled operational environment. All assets game-ready, optimized, with PBR materials.

### 1. Tissue Culture Station & Associated Equipment

*(A Tissue Culture Station is an assembly of various components. We'll prompt key individual items.)*

#### 1.1 Sterile Work Area - Laminar Flow Hood (Benchtop)

* **Mesh Prompt:** "Generate a 3D model of a benchtop horizontal laminar flow hood for sterile tissue culture work. Approximately 4-6 feet wide. Features a stainless steel work surface, clear polycarbonate or glass side panels and sash (front shield, possibly adjustable). HEPA filter unit on top or rear, with a visible grille. Integrated fluorescent or LED lighting within the hood. Control panel with power, light, and fan speed switches. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Work Surface & Interior Walls: Brushed or polished stainless steel (304/316 grade), exceptionally clean. Side Panels/Sash: Highly transparent, scratch-resistant polycarbonate or tempered glass. Exterior Casing: Powder-coated steel or aluminum (white or light gray). Control Panel: Clean interface with indicator lights. Impeccably sterile, professional appearance."

#### 1.2 Autoclave - Benchtop/Small Lab Scale

* **Mesh Prompt:** "Generate a 3D model of a benchtop laboratory autoclave (steam sterilizer), front-loading. Compact, robust design with a cylindrical or rectangular chamber, a heavy, insulated locking door with a radial arm or bolt mechanism, and a control panel with pressure/temperature gauges (analog or digital), cycle selectors, and status lights. Safety valves visible. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Exterior Casing: Polished stainless steel or heavy-duty enameled steel (white or light gray). Chamber Door: Thick, polished stainless steel with a robust locking mechanism. Chamber Interior: Polished stainless steel. Control Panel: Industrial-grade interface with clear readouts. Gaskets: Black, heat-resistant silicone. Professional, high-pressure sterilization equipment."

#### 1.3 Incubator - CO2 Incubator for Plant Tissue Culture (Benchtop)

* **Mesh Prompt:** "Generate a 3D model of a benchtop CO2 incubator for plant tissue culture. Features an insulated main chamber with a sealed inner glass door and an outer heated door (possibly with a viewing window). Multiple perforated shelves inside. Sophisticated external digital control panel for temperature, humidity, and CO2 levels. Ports for gas input. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Exterior Casing: Powder-coated steel (white or light gray) with a clean, smooth finish. Inner Glass Door: Clear, tempered safety glass with good seals. Outer Door: Insulated, matching exterior, with high-quality hinges and latch. Shelves: Polished stainless steel, perforated. Control Panel: Modern digital touchscreen or button interface. Precise, controlled environment equipment."

#### 1.4 Microscope - Dissecting/Stereo Microscope (for Tissue Culture)

* **Mesh Prompt:** "Generate a 3D model of a high-quality stereo dissecting microscope suitable for tissue culture. Binocular head, long working distance, zoom magnification control knob, focus knob. Mounted on a stable base with a large stage area. Top and/or bottom LED illumination. Articulated arm stand or a fixed stand. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Microscope Body/Arm: Precision-cast metal with a durable white or light gray enamel finish. Optics: Coated optical glass lenses. Knobs: Machined aluminum or high-grip polymer. Stage Plate: Frosted glass or reversible black/white contrast plate. LED Illuminators: Clean, modern design. Professional, high-clarity optical instrument."

#### 1.5 Racks for Culture Vessels (Test Tube Racks, Petri Dish Holders)

* **Mesh Prompt:** "Generate a set of laboratory racks for holding tissue culture vessels:
  + Variation 1: Autoclavable polypropylene test tube rack (e.g., for 50 tubes).
  + Variation 2: Stainless steel rack for holding stacks of petri dishes.
  + Variation 3: Rack for holding multiple larger culture jars or Magenta boxes. Clean, functional designs. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Polypropylene Racks: White, blue, or red semi-rigid plastic, smooth and cleanable. Stainless Steel Racks: Polished or electro-polished stainless steel wire or sheet metal. Designed for organization and sterility."

#### 1.6 Culture Vessels (Petri Dishes, Test Tubes, Jars, Magenta Boxes)

* **Mesh Prompt:** "Generate a set of common plant tissue culture vessels:
  + Petri Dishes: Stack of clear polystyrene petri dishes (e.g., 100x15mm), some with lids slightly ajar as if in use (with a subtle generic agar-like substance inside one or two).
  + Test Tubes: Glass or clear disposable plastic test tubes with caps, in a rack.
  + Culture Jars/Flasks: Small glass jars or flasks (e.g., baby food jars, Erlenmeyer flasks) with autoclavable lids.
  + Magenta Boxes: Clear, autoclavable polycarbonate culture vessels (GAs-7 type). Game-ready assets."
* **Material Prompt:** "Create PBR materials. Polystyrene/Polycarbonate Vessels: Highly transparent, smooth, sterile plastic. Glass Vessels: Clear, clean borosilicate glass. Lids/Caps: Polypropylene or metal, various colors. Agar (if visible): Semi-translucent, light tan or colored gel. Disposable/reusable sterile labware."

#### 1.7 pH Meter & Analytical Balance (for Tissue Culture Media Preparation)

* **Mesh Prompt (pH Meter - Lab Benchtop):** *(Refer to Data Collection & Lab Equipment 2.1, if detailed lab version is prompted there, ensure it fits high-tier lab). If a more specialized one for media prep is needed:* "Generate a high-precision benchtop pH meter optimized for media preparation. Large stable base, articulated electrode arm, high-resolution digital display with 0.01 pH accuracy. Calibration and temperature compensation features clearly indicated on interface. Includes a specialized pH electrode for viscous solutions or small samples."
* **Material Prompt (pH Meter - Lab Benchtop):** "As per prior lab-grade pH meter, emphasizing ultra-cleanliness and precision markings. Electrode should look specialized for delicate media."
* **Mesh Prompt (Analytical Balance):** "Generate a 3D model of an analytical balance with a draft shield. Features a high-precision weighing pan enclosed by glass draft shield doors (top and sides), a digital display showing readings to 0.001g or 0.0001g, tare and calibration buttons. Leveling bubble visible. Game-ready asset."
* **Material Prompt (Analytical Balance):** "Create PBR materials. Casing: Die-cast metal or heavy polymer (white or light gray). Weighing Pan: Polished stainless steel. Draft Shield: Clear, anti-static glass panels with smooth sliding mechanism. Display: High-contrast digital display. High-precision laboratory instrument."

#### 1.8 Glassware (Beakers, Flasks, Graduated Cylinders for Media Prep)

* **Mesh Prompt:** "Generate a set of standard laboratory glassware for media preparation: Borosilicate glass beakers (100ml, 250ml, 500ml), Erlenmeyer flasks (125ml, 250ml, 500ml), and graduated cylinders (25ml, 100ml, 250ml). Clear volume markings. Game-ready assets."
* **Material Prompt:** "Create PBR materials for clean, clear borosilicate glass. Markings: White or blue permanent enamel graduations. Heat-resistant, chemical-resistant appearance."

#### 1.9 Sterilizable Tools (Scalpels, Forceps, Spatulas for Tissue Culture)

* **Mesh Prompt:** "Generate a set of sterilizable laboratory tools for tissue culture:
  + Scalpel Handles (No. 3, No. 4) with various blade shapes (e.g., #10, #11, #15).
  + Long, fine-tipped forceps (straight and curved).
  + Micro spatulas (various small flat/spoon ends). Laid out neatly, perhaps in a sterilization tray. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Tools: High-quality, polished stainless steel (surgical grade). Designed for repeated autoclaving. Exceptionally clean and sharp where applicable."

#### 1.10 Bunsen Burner / Glass Bead Sterilizer

* **Mesh Prompt:**
  + "Variation 1 (Bunsen Burner): Classic laboratory Bunsen burner with a metal base, gas inlet valve, air collar, and burner tube. Connected to a lab gas tap (conceptual).
  + Variation 2 (Glass Bead Sterilizer): Small electric benchtop unit with a crucible filled with glass beads for rapid tool sterilization. Digital temperature display. Game-ready assets."
* **Material Prompt:**
  + "Variation 1 (Bunsen Burner): Base/Tube: Brass or chrome-plated metal. Collar: Aluminum. Flame (if on): Blue, hot flame with an inner cone.
  + Variation 2 (Glass Bead Sterilizer): Casing: Heat-resistant polymer or painted metal. Crucible: Ceramic or metal. Glass Beads: Small, clear/frosted spherical beads. Display: Digital temperature readout. Both should appear functional for sterile work."

#### 1.11 Refrigerators/Freezers (Lab Grade, for Media/Cultures)

* **Mesh Prompt:** "Generate a lab-grade refrigerator and a separate lab-grade freezer (upright models). Solid, insulated doors (no glass). Precise digital temperature controls and displays on the exterior. Interior with adjustable shelves. Designed for stable temperature storage of reagents, media, and cultures. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Exterior/Interior: White or light gray powder-coated steel or specialized lab-grade polymer, easy to clean. Door Seals: Heavy-duty magnetic gaskets. Temperature Display: Clear digital LED/LCD. Professional, validated cold storage units."

### 2. Lab Furniture (Specialized Versions)

#### 2.1 Lab Bench - Specialized (Stainless Steel Top, Integrated Services)

* **Mesh Prompt:** "Generate a specialized laboratory bench, 6-8 feet long. Heavy-duty steel frame supporting a thick stainless steel countertop with a rolled front edge and integral backsplash. Integrated service strip/panel along the backsplash with outlets for electricity, data, and taps for lab gases/vacuum (conceptual connections). May include under-bench suspended cabinets or mobile drawer units (prompted separately if needed). Game-ready asset."
* **Material Prompt:** "Create PBR materials. Countertop/Backsplash: Heavy-gauge, brushed or satin #4 finish stainless steel, exceptionally clean. Frame: Powder-coated steel (gray or white). Service Strip: Anodized aluminum or stainless steel with clearly labeled utility outlets. High-end, functional lab furniture."

#### 2.2 Lab Bench - Specialized (Chemical Resistant Top, e.g., Epoxy Resin)

* **Mesh Prompt:** "Generate a specialized laboratory bench, 6-8 feet long. Heavy-duty steel frame supporting a thick, seamless chemical-resistant countertop (e.g., black epoxy resin or gray phenolic resin). Countertop has a marine edge (drip-resistant lip). Integrated service options as above. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Countertop: Smooth, matte black or dark gray epoxy/phenolic resin, completely non-porous. Frame: Chemically resistant powder-coated steel (e.g., light gray). Service Strip: As above. Built for harsh chemical use."

#### 2.3 Storage Cabinet - Lab Specific (Under-Bench or Wall-Mounted, Vented for Chemicals)

* **Mesh Prompt:** "Generate a lab-specific storage cabinet, designed to fit under a lab bench or be wall-mounted.
  + Variation 1 (General Lab Supply): Metal or chemical-resistant polymer with adjustable shelves.
  + Variation 2 (Vented Chemical Storage): Steel construction with louvered vents, possibly for connection to an exhaust system, specifically for storing volatile chemicals. Clearly labeled 'VENTED CHEMICAL STORAGE'. Lockable doors. Game-ready assets."
* **Material Prompt:** "Create PBR materials.
  + Variation 1: Powder-coated steel (white/gray) or light-colored chemical-resistant polypropylene.
  + Variation 2: Heavy-gauge steel with a durable, chemical-resistant powder coat (e.g., blue for acids, red for flammables if not the yellow safety cab, or gray). Clear warning labels. Professional, safe lab storage."

#### 2.4 Lab Sink - Specialized (Deep Basin, Chemical Resistant, with Gooseneck Faucet)

* **Mesh Prompt:** "Generate a specialized lab sink unit. Features a deep basin made of epoxy resin, polypropylene, or stainless steel, integrated into a chemical-resistant countertop section or as a standalone drop-in/undermount unit. Comes with a tall gooseneck faucet with hot/cold lever handles (possibly foot-pedal operated for hands-free use - conceptual). May include an emergency eyewash attachment on the faucet. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Sink Basin: Black or dark gray matte epoxy resin/polypropylene, or brushed stainless steel. Countertop (if integrated): Matching chemical-resistant material. Faucet: Chrome-plated brass or stainless steel, lab-grade. Professional, highly functional washing station."

### 3. Cryopreservation Unit & Equipment

#### 3.1 Cryopreservation Unit - Ultra-Low Temperature Freezer (-80°C Lab Freezer)

* **Mesh Prompt:** "Generate an upright ultra-low temperature (ULT) laboratory freezer (-80°C). Robust, heavily insulated unit with a single or double door featuring multiple inner sealed doors/compartments to maintain temperature. Advanced digital control panel with temperature display, alarms, and possibly a chart recorder or data logging port. Vacuum relief port. Heavy-duty casters. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Exterior: Powder-coated steel (typically white, light gray, or blue) designed for minimal heat ingress. Interior: Stainless steel. Door Seals: Multiple layers of specialized, cryogenic-resistant gaskets. Control Panel: Professional interface. High-performance, specialized cold storage."

#### 3.2 Liquid Nitrogen (LN₂) Storage Dewar/Tank - (Lab Scale)

* **Mesh Prompt:** "Generate a laboratory-scale liquid nitrogen (LN₂) storage dewar/tank.
  + Variation 1 (Canister Dewar): Pressurized, wheeled stainless steel dewar (e.g., 20-50 Liters) with a top-mounted valve assembly, pressure gauge, liquid level indicator, and dispensing hose/lance.
  + Variation 2 (Open Neck Storage Dewar): Wide-necked aluminum dewar with a loose-fitting insulated cap, designed for holding cryoboxes/canes in LN₂ vapor or liquid phase (e.g., 10-30 Liters). Game-ready assets."
* **Material Prompt:** "Create PBR materials.
  + Variation 1: Polished or brushed stainless steel exterior, super-insulated. Valve Assembly: Brass and stainless steel.
  + Variation 2: Brushed aluminum exterior. Insulated Cap: Cork or dense foam with a plastic/metal handle. Labeling for 'Liquid Nitrogen,' 'Cryogenic Hazard.' Specialized cryogenic storage."

#### 3.3 Cryovials / Straws & Storage Canes/Boxes (for LN₂ Storage)

* **Mesh Prompt:** "Generate a set of cryopreservation consumables:
  + Cryovials: Small (1-2ml) sterile polypropylene vials with external or internal threads and O-ring screw caps, some in a cryobox.
  + Cryoboxes: Cardboard or polycarbonate boxes with dividers for holding cryovials (e.g., 81 or 100 place).
  + Straws (for plant germplasm): Small, sealed plastic straws.
  + Storage Canes: Aluminum canes for holding multiple cryovials or straws, designed to fit into LN₂ dewar canisters. Game-ready assets."
* **Material Prompt:** "Create PBR materials. Cryovials/Straws: Translucent or opaque medical-grade polypropylene/plastic. Caps: Colored plastic. Cryoboxes: Waxed cardboard (various colors) or clear/colored polycarbonate. Canes: Anodized aluminum. Small, precise, sterile items for genetic archiving."

### 4. Advanced Genetic Modification Equipment (Visual)

#### 4.1 Electroporator Unit (Benchtop)

* **Mesh Prompt:** "Generate a 3D model of a benchtop electroporator unit. Compact electronic device with a front panel featuring a digital display for voltage/pulse settings, control knobs/buttons, and output ports for connecting cuvette holders or electrodes. Modern lab instrument aesthetic. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Casing: Sleek, powder-coated metal or high-grade polymer (white, light gray, or blue). Display: Clear digital LCD/LED. Controls: Precision knobs and tactile buttons. Ports: Specialized electrical connectors. High-tech, precision pulse generator."

#### 4.2 Gene Gun / Biolistic Particle Delivery System (Benchtop, Conceptual)

* **Mesh Prompt:** "Generate a conceptual 3D model of a benchtop gene gun (biolistic particle delivery system). Features a sample chamber, a mechanism for accelerating DNA-coated microprojectiles (gas pressure system implied), control panel for pressure/firing parameters, and possibly a vacuum pump connection. Robust, specialized lab equipment. Game-ready asset."
* **Material Prompt:** "Create PBR materials. Main Housing/Chamber: Stainless steel or heavy-duty polymer. Control Panel: Digital interface with pressure gauges and firing controls. Tubing: High-pressure gas lines. Specialized, slightly industrial-lab aesthetic. Advanced, somewhat experimental looking."

## Rodin 3D Asset & UI Design Prompts: Consumable Resources

**Core Aesthetic Notes for all Prompts:** UI representations should be clean, intuitive, and fit the "Modern, High-Tech, Clinical/Scientific" game interface. Physical 3D models for stored resources should look organized, professional, and appropriate for a high-tech facility. Game-ready assets with PBR materials are standard for 3D models.

### 1. Water

* **Item:** Water (Supply Types: Tap, RO, Treated)
  + **UI Representation Prompt (Icon/Status):** "Design a set of UI icons to represent different water quality types: 'Tap Water,' 'Reverse Osmosis (RO) Water,' and 'Treated Utility Water.' Icons should be simple, modern, and easily distinguishable (e.g., a tap icon, an RO membrane/filter icon, a water droplet with a plus/gear icon). Also, design a UI element to display current water storage levels (e.g., a stylized tank fill graphic or percentage readout)."
  + **Style & Feel:** "Clean, clear, and informative. Icons should be universally understandable. The fill graphic should be modern and fit the overall UI aesthetic."
* **Item:** Water Storage (Tanks, Reservoirs - Bulk Visual)
  + **Note:** Detailed Tank/Reservoir models have been prompted in "Nutrient & Irrigation Equipment (Section 2)." Prompts here could focus on arrangements or very large-scale storage if not previously covered.
  + **Mesh Prompt (Example: Large Outdoor Water Silo/Tank - if needed beyond previous tank prompts):** "Generate a 3D model of a very large outdoor water storage silo or tank (e.g., 5,000-10,000 gallon capacity), cylindrical, made of corrugated galvanized steel or bolted fiberglass panels. Include an access ladder, level indicator, and pipe connections. Game-ready asset."
  + **Material Prompt (Example: Large Silo):** "Create PBR materials. Galvanized Steel: Weathered but structurally sound, characteristic spangle. Fiberglass Panels: Faded blue or green, showing panel seams and bolt heads. Clean industrial appearance for bulk water storage."

### 2. Power

* **Item:** Power Supply (Grid, Generator Fuel, Battery Charge)
  + **UI Representation Prompt (Source Indicator & Consumption Meter):** "Design UI elements to display power status: \* **Source Indicator:** Icons representing 'Grid Power' (e.g., power pylon/plug), 'Generator Power' (e.g., generator icon), 'Battery Power' (e.g., battery icon). \* **Consumption Meter (Digital):** A sleek digital meter UI element displaying current total power consumption (kW), peak demand, and energy used (kWh) over a period. Graphical element showing load relative to capacity. \* **Generator Fuel Level (UI):** A fuel gauge icon with a fill level bar/percentage for generator fuel. \* **Battery Charge Level (UI):** A battery icon with a dynamic fill level bar/percentage.
  + **Style & Feel:** "High-tech, clear, and precise. Icons should be modern. Meters and gauges should have a digital, scientific instrument look. Color-coding for status (e.g., green for normal, yellow for low fuel/battery, red for critical)."
* **Item:** Generator Fuel (Physical Storage - e.g., Jerry Cans, Fuel Drums)
  + **Mesh Prompt (Jerry Can):** "Generate a 3D model of a modern, safety-compliant jerry can for diesel or gasoline, 5-gallon (20 liter) capacity. Robust plastic or metal construction with a self-venting spout and handles. Game-ready asset."
  + **Material Prompt (Jerry Can):** "Create PBR materials. Plastic Can: Opaque red (gasoline) or yellow (diesel) HDPE plastic, slightly textured. Metal Can: Painted steel (e.g., olive drab or red) with embossed details. Spout: Black plastic or metal. Clear 'Diesel Fuel' or 'Gasoline' labels. Clean, new, or slightly used."
  + **Mesh Prompt (Fuel Drum):** "Generate a 3D model of a standard 55-gallon industrial fuel drum (steel), standing upright. Include bung holes/caps on top. Optional: a compatible manual rotary pump or siphon hose. Game-ready asset."
  + **Material Prompt (Fuel Drum):** "Create PBR materials for painted steel (e.g., red, blue, or black), may show some scuffs, minor dents, or slight weathering/rust if 'used' but generally in good condition. Clear hazard labels for fuel type. Pump/Hose: Metal and rubber components."

### 3. Nutrients

* **Item:** Packaged Fertilizers (Bottles/Bags)
  + **Note:** Detailed Nutrient Container models (bottles, bags) have been prompted in "Nutrient & Irrigation Equipment (Section 8)."
  + **Mesh Prompt (Pallet of Nutrient Bottles/Bags):** "Generate a 3D model of a standard wooden or plastic pallet neatly stacked with multiple cases/boxes of 'Project Chimera' branded nutrient bottles, or several large bags of dry nutrients (referencing previously defined bottle/bag designs). The pallet should be shrink-wrapped (optional clear plastic wrap). Game-ready asset for storage areas."
  + **Material Prompt (Pallet):** "Create PBR materials. Wooden Pallet: Standard used pallet wood, some wear. Plastic Pallet: Dark gray or black textured HDPE. Nutrient Packaging: Consistent with previously defined nutrient container materials and branding. Shrink Wrap: Thin, clear, slightly reflective plastic film. Organized bulk storage appearance."
* **Item:** Mixed Nutrient Solution (in Reservoir)
  + **Note:** This is visually represented by the fill level and potentially the color/turbidity of the liquid within the Reservoir/Tank models (prompted in "Nutrient & Irrigation Equipment"). No separate model needed.
  + **UI Representation Prompt (Solution Info):** "Design a UI element associated with a nutrient reservoir, displaying: Solution Name (user-defined or recipe name), current EC, pH, temperature, DO, and volume. Color of the solution could be hinted at in a small visual representation of the tank in the UI."
  + **Style & Feel:** "Clean, data-rich, integrated with the reservoir's control interface. Uses the standard scientific/clinical UI aesthetic."

### 4. CO2

* **Item:** CO2 Tanks (Visual)
  + **Note:** Detailed CO2 Tank models have been prompted in "Environmental Control Equipment (Section 4.1)." This refers to the physical tanks.
* **Item:** CO2 Gas (UI Representation)
  + **UI Representation Prompt (Tank Level & Room PPM):** "Design UI elements for CO2 status: \* **CO2 Tank Level Gauge (on tank UI or central display):** A vertical or radial gauge UI element showing the remaining CO2 gas level in a connected tank (percentage or pressure reading). \* **Room CO2 PPM Display:** (Covered by Environmental Data Dashboard UI).
  + **Style & Feel:** "Industrial/scientific gauge aesthetic for tank level. Clear, precise digital readout for room PPM on dashboards."

### 5. Building Materials (Bulk Storage Visuals)

* **Item:** Pallet of Wall Panels
  + **Mesh Prompt:** "Generate a 3D model of a pallet stacked neatly with modular wall panels (e.g., interior drywall sheets, pre-fab insulated panels, or exterior siding sections – refer to previously defined wall panel types). Secured with banding straps. Game-ready asset."
  + **Material Prompt:** "Create PBR materials. Wall Panels: Consistent with the materials defined for individual wall panel types (e.g., painted drywall texture, metal siding finish). Pallet: Wooden or plastic. Banding Straps: Black or clear plastic/metal. Bulk construction material appearance."
* **Item:** Stack/Bundle of Pipes (PVC, Metal Conduit)
  + **Mesh Prompt:** "Generate a 3D model of a neatly stacked bundle of pipes (e.g., 10-20 PVC pipes or EMT conduit sections, 8-10 feet long), secured with plastic or metal straps. Game-ready asset."
  + **Material Prompt:** "Create PBR materials. Pipes: Consistent with previously defined PVC (white/gray) or EMT conduit (galvanized steel) materials. Straps: Black plastic or steel. Organized stock of piping."
* **Item:** Spool of Electrical Wire/Cable (Large Industrial Spool)
  + **Mesh Prompt:** "Generate a 3D model of a large industrial wooden or metal spool wound with electrical wire or armored cable (refer to previously defined wire types). Include labels on the spool indicating wire type/gauge. Game-ready asset."
  + **Material Prompt:** "Create PBR materials. Spool: Weathered wood or painted/galvanized steel. Wire/Cable: Consistent with previously defined wire materials (e.g., black/colored PVC insulation, metallic armor). Labels: Industrial paper labels with clear text. Bulk electrical supply."
* **Item:** Stack of Ducting Sections (Rigid Metal or Box of Flexible Ducting)
  + **Mesh Prompt:** \* "Variation 1 (Rigid): A stack of several sections of rigid spiral or smooth galvanized steel ducting (various diameters). \* Variation 2 (Flexible): A large cardboard box labeled 'Flexible Ducting' with a section of compressed flex duct visible. Game-ready assets."
  + **Material Prompt:** "Create PBR materials. Rigid Ducting: Galvanized steel, as previously defined. Flexible Ducting: Silver foil or black poly, as previously defined. Cardboard Box: Standard brown corrugated cardboard with black printed labels ('Flexible HVAC Ducting', size, length). Bulk HVAC components."

### 6. Seeds/Clones (Visual Inventory Items)

* **Item:** Seeds (Strain-Specific - Visual Packet/Vial)
  + **Mesh Prompt:** "Generate a 3D model of a small, professionally packaged seed packet or small clear vial containing a few visible cannabis seeds. \* Packet: Foil-lined or high-quality paper/plastic sachet, sealed, with modern, scientific branding. \* Vial: Small, clear glass or plastic vial with a secure cap, containing 3-5 distinct cannabis seeds. Game-ready assets."
  + **Material Prompt:** "Create PBR materials. Seeds: Small, ovoid, light to dark brown/gray, possibly with mottled patterns, slightly textured. Packet: Metallic foil, matte paper, or plastic with high-resolution printing – 'Project Chimera Genetics,' Strain Name (placeholder, e.g., 'CX-001 Landrace Indica'), 'Feminized Seeds,' seed count, breeder logo. Vial: Clear glass or plastic. Cap: Black or silver. Premium, sterile genetic material packaging."
* **Item:** Clones/Cuttings (Visual for Inventory/Propagation - Tray of Plantlets)
  + **Mesh Prompt:** "Generate a 3D model of a small propagation tray (e.g., fitting 6-12 cells) containing young cannabis clones/cuttings. Each cutting should be a small plantlet (2-4 inches tall) with a few sets of small leaves, rooted in a visible starter plug (e.g., Rockwool cube or peat/soil plug). Some may have a clear plastic humidity dome over the tray (optional). Game-ready asset."
  + **Material Prompt:** "Create PBR materials. Plantlets: Fresh, vibrant green leaves and stems (as per seedling stage). Starter Plugs: Dark, moist peat/soil or light tan Rockwool. Tray: Black or translucent propagation plastic. Humidity Dome (Optional): Clear, thin plastic. Represents young, rooted clones ready for transplant."

### 7. Finances

* **Item:** In-Game Currency
  + **UI Representation Prompt (Currency Display):** "Design a UI element to display the player's current in-game currency. Should feature a clear, modern currency symbol (e.g., a stylized 'C' with lines, or a unique Project Chimera credit symbol) followed by the numerical amount. Positioned prominently in the main game HUD or financial screens. Digital, clean aesthetic."
  + **Style & Feel:** "High-tech, secure, digital currency feel. Typography for numbers should be exceptionally clear and easily readable. The symbol should be unique and fit the game's branding. Consider subtle animations for updates (e.g., numbers smoothly counting up/down)."