Part 3: Basic Understanding - INSTRUCTIONS FOR MICHAEL

**Follow these EXACT steps to complete Part 3**Time: 2.5-3 hours • Goal: 'I'm Really Learning!'

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| MICHAEL: Do These Steps Exactly | JESSE: Your Support Tasks | ✓ Check When Done |
| **STEP 3.1: DETAILED MODELING**  **1. AutoCAD - Garden Layout**  → New drawing → Units: Meters  → Draw rectangles: 2x1m (planters)  → Copy array: 5x3 grid, 3m spacing  → Draw paths: PLINE → Width: 1m  → Add dimensions: DIMLINEAR  → Save as garden\_layout.dwg  → Export → garden\_plan.dxf  **2. Substance - Glass Material**  → New → Glass preset  → Opacity: 0.1  → Roughness: 0.0  → IOR: 1.52  → Add fingerprints layer  → Blend mode: Multiply  → Export as glass\_greenhouse/  **3. Maya - Flowers**  → Create → CV Curve Tool  → Draw petal shape (8 points)  → Surfaces → Loft → 8 copies rotated  → Convert → Polygons  → Combine → Merge vertices  → Instance 20 times in planters  → Save as garden\_flowers.ma | CAD standards doc DXF pipeline Asset naming rules | ☐ Garden planned ☐ Glass shaders ☐ 20 flowers made ☐ DXF exported |
| **STEP 3.2: ADVANCED ANIMATION**  **4. Python - Growth Animation**  → Create growth script: import maya.cmds as cmds flowers = cmds.ls('flower\_\*') for frame in range(1, 101):  cmds.currentTime(frame)  scale = frame \* 0.01  for flower in flowers:  cmds.setAttr(f'{flower}.scaleY', scale)  cmds.setKeyframe(flower, at='scaleY')  → Run → Watch flowers grow!  **5. Facial - Lip Sync**  → Create phonemes: A, E, I, O, U  → Each as blend shape target  → Import audio: "Hello Garden"  → Graph Editor → Match peaks to phonemes  → Keys at: 5(H), 8(E), 12(L), 15(O)  **6. Hair - Grass System**  → Select ground plane  → nHair → Create Hair  → Follicles: U=50, V=50  → Length: Random 0.2-0.4  → Color → Ramp: Green gradient  → Stiffness: 0.8 (grass is stiff) | Audio sync tools Phoneme library Graph templates | ☐ Growth animated ☐ Lip sync working ☐ Grass created ☐ All cached |
| **STEP 3.3: ENVIRONMENT**  **7. Cloth - Cape**  → Model cape shape from plane  → Attach to shoulders (constraints)  → nCloth → Presets → Heavy Cloth  → Wind resistance: 0.5  → Self collision: On  → Cache 200 frames  **8. Crowds - Butterflies**  → Model simple butterfly  → MASH → Distribute → Volume  → Flight node → Oscillate  → Wings: Time → Sin(time\*10)  → Color node → 5 variations  → Animate along path  **9. Mocap - Refined Walk**  → Import walk cycle  → Time Editor → Create clip  → Layer override → Fix foot slides  → Add upper body sway  → Bake and export clean | Butterfly behaviors Path animation Instance optimization | ☐ Cape simulated ☐ Butterflies flying ☐ Walk refined ☐ No foot slides |
| **STEP 3.4: FIRST SHOTS**  **10. Houdini - Water**  → FLIP tank shelf tool  → Particle separation: 0.02  → Emitter → Sphere  → Gravity: -9.8  → Viscosity: 0.001 (water)  → Sim 240 frames → Export  **11. V-Ray - Day Lighting**  → VRay Sun & Sky system  → Sun direction: 45° angle  → Sky model: PRG Clear  → Add rect lights: Fill & Rim  → GI: Brute Force + Light Cache  → Render all passes  **12. Nuke - Layers**  → Read: BG, Character, Water  → Merge nodes (A over B)  → ColorCorrect each layer  → ZDefocus for depth  → Write: shot\_001\_comp.exr  **13. Unity - Optimize**  → Import all FBX files  → LOD Group component  → Occlusion Culling  → Light Probes  → Build Settings → Quality: High | FLIP sim presets Render layers setup Comp templates Build automation | ☐ Water simmed ☐ Lighting done ☐ Comp layered ☐ Unity optimized |