***[DARTIS-CRAFT] KAKUSEI:***

***QUESTBOOK***

***“Welcome to the Awakening! Welcome to Kakusei!!”***

**NOTES:**

* As you will find, this Modpack is heavily biased towards World Exploration, while offering an Enhanced Endgame Experience. Meaning this Modpack contains features that I consider Vanilla should have. It also has a heavier lean towards Technology and Unique Mods…
* In 1.12.2 the Vanilla Ender Dragon can be resurrected with 4 x End Crystals, not just Draconic Evolution’s Ritual of Draconic Resurrection
* Everyone will need at least 1 Woot item of the Ender Dragon and a handful of Organic Cells from Genetics Reborn (16 to 32 each – Though you can make more with Organic Substrate, so a minimum of 1 each)
* Both Genetics Reborn and Woot require the ***Vanilla*** Ender Dragon!

***VANILLA VS MODDED 1: JEI***

* When accessing your inventory with **E**, you’ll see a panel on the right of the screen with every block in the game. Underneath this is a **Search Box**.
* This list and Search Box is the mod: **JustEnoughItems** *[otherwise known as* ***JEI****].* Use the **Search Box** to find **ANY Block or Item** in the Modpack and its **Crafting Recipe** just by Clicking that Item or Block in the List.
* If you start your search with **@** you can search **Mod Names** and find all **Crafting Recipes for that Mod** in one go ***[SEE: VANILLA VS MODDED 8 FOR EXAMPLES]***.

***VANILLA VS MODDED 2: JOURNEY MAP***

* In the Top Right of your Screen you’ll find a Mini Map of your surroundings. This Map will automatically update and expand as you explore. Access the entire Map with **J**.
* If you want to find your way back somewhere, place a Waypoint with **B** and name it, then choose a Color for it. This Waypoint can only be seen by you. It also will shine into the sky like a beacon and can be seen anywhere in game *[while in that Dimension]*.

***VANILLA VS MODDED 3: KEEPING INVENTORY***

* This Mod enables the Keeping Inventory cheat permanently. Should also disable Mob Griefing *[such as Endermen carrying your Base’s Machines]*.

***VANILLA VS MODDED 4: CONTROLLING***

* As this one is a Settings Mod, there are no In-Game Recipes. It provides a Search Box and Search Options to the Controls Page of the Settings *[Access with ESC, Options, Controls. The Search Box is on the Bottom Left]*.

***VANILLA VS MODDED 5: @HUNTINGDIMENSION***

**No Evil Mobs in the Overworld:**

* This Mod has a Config option to DISABLE Mob Spawning in the Overworld! So no Mobs will spawn in Caves or Overnight…
* The only exceptions to this are Spawners. They still work…

***VANILLA VS MODDED 6: IN-GAME MOD FEATURES***

* **@Quark** – Adds in “Quality of Life” features like: Sleep Voting *[as long as the majority (50% or higher) of players are sleeping, the night will progress]*, Fast Descent Down Ladders, RCLicking a posted Sign with an empty hand will let you edit that sign, RClicking Dirt with a Shovel creates a Path, to name some…
* **@TinkersConstruct & @EnderIO** – These Modshave custom config edits allowing 1 Ore to 3 Ingot Processing *[TiCon’s Smeltery & EIO’s Sag Mill specifically]* most of the time *[there are exceptions].* Other Ore Processing options in other Mods will generally only give you 1 Ore to 2 Ingots. A Vanilla Furnace will still give you 1 Ore to 1 Ingot.
* **@SimpleRPG** – as you kill mobs and mine, you will level up not only in Minecraft Enchantment Levels, but The SimpleRPG Mod as well; granting higher Strength and Health as you do…
* **@Titles** – As you achieve Advancements in game, you’ll unlock new Titles! These can be selected with NUM1 *[The 1 on the side Number Pad].* You can also find a Title Archive in Dungeon Loot Chests - these contain *purchasable* Titles! Buy with Archive Fragments *[also found in Dungeon Loot Chests]*. Stock your Archive Fragments in your Title Archive by RClicking your Title Archive with your Archive Fragments on it’s immediate right.

***VANILLA VS MODDED 7: WORLD GEN MODS***

* **@Natura** – New Trees *[with wooden recipes like Stairs and Doors]*, plants and Mobs.
* **@RecurrentComplex** – New Village Buildings, random rock formations and some Iron “Meteors” *[Boulders filled with Iron Ore].*
* **@Ruins** – Custom World Gen *[that I built or edited myself]* including: Trapped Dungeons *[with Powerful Customised Loot]* and Stargate Platforms *[allows transportation between discovered Stargates].*

***VANILLA VS MODDED 8: MODS TO CRAFT WITH [SEE: SIDE PROJECT 9]***

Search these **Mod Names** in **JEI** with an **@** *[as shown]* to find some interesting **Crafting Recipes**:

* **@AbsentByDesign** – Missing vanilla recipes *[Crafting Slabs, Stairs, Walls, etc with materials that Vanilla Minecraft doesn’t allow (such as Prismarine, Granite, etc) ].*
* **@AdditionalLights** – Pedestals and Firepit Lighting.
* **@BiblioCraft** – Bookshelves *[Book Storage Cupboard]*, Tool Rack *[Tool & Weapon Storage Cupboard],* Usable: Tables, Chairs and more…
* **@CookingForBlockheads** – Multiblock Kitchen Items *[Benches, Stoves, Fridge, Cow in a Jar (infinite milk) ].*
* **@IronChest** – Craft Bigger Chests with more expensive materials *[Iron, Gold, Diamonds]*
* **@Prefab** – You’ll start out with a Starting House blueprint.
  + Will give you a rather nice starting base to simply move into, complete with Chests, a Bed, Leather Armor, Stone Tools, Food, a Farm for Crops and a Ladder straight to Diamond Mining Level.
  + RClick on the ground to activate it.
  + Once Active, you can Click Preview to see what it will look like in the surrounding area.
  + Other blueprints *[including the Starting House]* are available to be built. Check them Out in **JEI**.
* **@Quark** – Mentioned Before. Also adds a Recipe for each of the Vanilla Wood types for Chests and Trap Doors.
* **@RedstonePaste** – Crafting Redstone with Slime Balls creates Sticky Redstone that can run up walls and on ceilings. Also allows crafting Sticky Redstone Repeaters and Comparators. All these can further be hidden by placing Vanilla Slabs on top of them.
* **@SecretRooms** – Adds in Camouflaged Blocks: such as **Secret Lever** *[Looks like a normal block (like Stone), but works as a Lever]*, **Secret Pressure Plate** *[Looks like a normal block (like Stone), but works as a Pressure Plate – There are even different types such as the* ***Secret Player Plate*** *that only Players can trigger]*, **One-Way Glass** *[Does what it says, makes a normal looking Block (like stone) from one side and Glass on the other that can see through to the other side]*, and more!
* **@Waystones** – These can be found around the world, or crafted yourself. RClicking one will activate it for yourself only. Once you have activated more than one, you can RClick one, and choose any other Waystone to travel to by teleportation. If you Place it yourself, you can choose both its Name and if it is active for everyone or just yourself.

***VANILLA VS MODDED 9: INTERESTING TOOL MODS [SEE: SIDE PROJECT 10]***

* + **@BuildingGadgets** – Makes builds easier ***[REQUIRES RF, SEE OBJECTIVE 11 & 12]***.
  + **@Chisel** – Craft a Chisel. Use it with RClick. Place a Block inside it. Take a Cosmetic version of that block out. The Pretties…
  + **@NotEnoughWands** – A large variety of Wands *[to be Built and found as Loot]* that consume Enchantment Levels to perform some useful actions. Such as **Building Wand** *[makes Building easier]*, **Capturing Wand** *[RClick on a Mob to Capture it. Shift+RClick to place it elsewhere]*, **Illumination Wand** *[Places Sources of Light]* and more…
  + **@PortalGun** – There are several types of Portal Gun. Each Type has its own “Frequency”. Players must agree not to use another’s Portal Gun type or risk wiping their Portal Placements. Click to place Type 1 Portal. RCLick to place Type 2 Portal. Walk into these portals to travel between them.

***VANILLA VS MODDED 10: STARTING ITEMS***

* **As your start out, keep on the lookout for:**
* Sugar Cane
* Wood
* Cobblestone

**NOTE:** These will help set up your Tinkers’ Construct Mod Tools & Weapons ***[SEE: OBJECTIVES 0, 1 & 2 AND SIDE PROJECT 4 [BONUS]*** *(Sugar Cane makes great Crossbow Bolt Cores; they’re called Reeds in the Mod)* ***]***

* Barley/Wheat
* Pigs
* Cows

**NOTE:** These will help you setup Starting Food ***[SEE: OBJECTIVE 3]***

* Rice

**NOTE:** You can craft Rice into Rice Dough then again into Paper

* Clay *[2 Stacks]*
* Sand *[over 2 Stacks]*
* Gravel *[2 Stacks]*

**NOTE:** These will let you build your Tinkers’ Construct Smeltery ***[SEE: OBJECTIVE 4]***

When you Spawn in the World, you will receive some custom items:

* + **@TheOneProbe – The One Probe** *[looks like a piece of Paper with a light blue dot on it]*
  + **@Curio – Magnet Ring** ***[SEE: SIDE PROJECT 11: CURIO]***
  + **@AkashicTome – Akashic Tome** ***[SEE: SIDE PROJECT 10: INTERESTING TOOLS]***
  + **Several Mod Manuals** *[Books]*
  + **@EnderStorage – Ender Pouch** ***[SEE: SIDE PROJECT 12: @ENDERSTORAGE]***
  + **@Prefab – Starting House** ***[SEE: SIDE PROJECT 9: MODS TO CRAFT WITH]***

# OBJECTIVE 0: FIRST MOVES

1. Your **Ender Pouch**’s Inventory is shared by all in the game, and technically all can access it at anytime. However, it can be used for additional storage while you find a place to set up. Decide ahead of time if your multiplayer game leans more towards friendly or pvp game play to know if others will leave your items alone.
2. Select your **One Probe**, Shift+RClick it.
   1. The One Probe shows details of what you are looking at *[eg: Oak Leaves, Pig, Creeper, etc]* along with other details *[like Required Harvest Tool, Tool Level & Remaining Health]*
   2. On the left you will see an in-game picture of a Pig
   3. Click anywhere on the edges of that picture to move the Box around. This box is the information mentioned above, and where you select the Box to sit will be where it appears during game play.
   4. Also, on the right are some options:
      * **Presets:** There are 4 to choose from. Which one you use doesn’t matter, just find one that you like.
      * **Scale:** there are 5 options. This refers to the Size of the Box appearing on your screen.
   5. Press ESC to continue.
3. Press **E** for Inventory.
   1. **Magnet Ring**:
      1. Now click the Ring in the top right corner of your Avatar screen.
      2. Click your Magnet Ring and place it in either of the two Ring slots in the new Inventory Screen *[this will draw in items nearby into your Inventory].*
   2. **Akashic Tome:**
      1. Click your **Akashic Tome** *[large brown book]* and craft it with each of your other **Manuals/Books** *[including your One Probe].* The Akashic Tome will store each of these inside itself.
         * RClick it to bring up all Manuals inside it.
         * Click one to use it.
         * Click the Manual in the distance *[not on anything]* to convert it back to the Akashic Tome.
4. **Starting Tools**:
5. Harvest 1 Tree of your choice, then press **E** and in your **Personal Crafting UI**, craft 3 Wood Logs into Wood Planks. Then use 4 of those to make a **Crafting Table**. It is recommended to craft your Crafting Table *again*, creating the **@TINKERSCONSTRUCT Crafting Station**.
6. Next up, using your **Crafting Station** use 2 Wood Planks to craft 1 **Stick** *[makes 4],* then make a **Wood Pickaxe** & **Wood Axe**. Use these to harvest all the Wood and Cobblestone they will give you *[should grant 60 of Wood Logs and Cobblestone].*

**NOTE:** Ignore **Step 5** *until* you find a place to set up. In the meantime, move onto **OBJECTIVE 1**.

1. Lastly, when you find a location to start building your base, you may use your @Prefab Starting House blueprint to instantly build a house; complete with Crafting Table, Furnace, Chests *[with Food, Stone Tools, Leather Armor, Cobblestone and Oak Wood]*, Bed and Ladder down to Diamond mining level with another Chest containing various Ores and more Cobblestone.
2. RClick on the ground to activate your chosen Blueprint.
3. Once Active, you can Click Preview to see what it will look like in the surrounding area.
4. Then RClick on the ground again *[yellow box is where you had it before]* and select Build.

# OBJECTIVE 1: @TINKERSCONSTRUCT - TABLES & PATTERNS

# [Setup for Crafting Custom Tools and Weapons]

**Blank Pattern** x 10 *[Recipe Makes x 4; Make a total of 40]*

**Stencil Table** *[1 x Wood Planks [any] + 1 x Blank Pattern]*

**Pattern Chest** *[1 x Chest + 1 x Blank Pattern]*

**Part Builder** *[1 x Wood Log [any] + 1 x Blank Pattern]*

**Tool Station** *[1 x Crafting Table or Tinkers Crafting Table + Blank Pattern]*

**Armor Station** *[1 x Crafting Table or Tinkers Crafting Table + 4 x Blank Pattern]*

1. Place your Tables & Chest next to each other in this order *[in two lines]*

* Armor Station – Crafting Station – Tool Station
* Stencil Table – Pattern Chest – Part Builder

1. Place your Blank Patterns into your Stencil Table & make each of the following patterns:

* Pickaxe Head
* Shovel Head
* Axe Head
* Broad Axe Head
* Sword Blade
* Large Sword Blade
* Hammer Head
* Excavator Head
* Kama Head
* Scythe Head
* Tool Rod
* Tough Tool Rod
* Tool Binding
* Tough Tool Binding
* 1 x Sword Guard of your choice *[or all 3]*:
  + Hand Guard *[Long Sword - Long Attack Reach]*
  + Cross Guard [*Rapier – Attacks as fast as you click and ignores any Target Armor]*
  + Wide Guard *[Broadsword – Blocks and has Highest Damage]*
* Large Plate
* Knife Blade
* Bowlimb
* Bow String
* Arrow Head
* Arrow Shaft
* Fletching
* Polishing Kit
* Armor Trim
* Armor Plates
* Helmet Core
* Chestplate Core
* Leggings Core
* Boots Core

**NOTE:** Place each of these Patterns into your Pattern Chest as you go

# OBJECTIVE 2: @TINKERSCONSTRUCT – STONE LEVEL CUSTOM TOOLS

# [Custom Tools and Weapons]

1. Go to your Part Builder with some Cobblestone & Wood Planks to start with *[Metal Parts require a minimum of: the Smeltery, a Bucket of Lava, 3 x Aluminium Ore, 1 x Copper Ore, plus some Ore of what you want to make your Tools out of].*
2. Place your Cobblestone into the top right hand slot .
3. Select your Patterns on the right to place them in the top left hand slot, one at a time, and take each part from the far right slot:
   * Sword Blade
   * One Hand Guard, Cross Guard or Wide Guard
   * Pickaxe Head
   * 2 x Shovel Head
   * Axe Head
   * 2 x Tool Binding
4. Take out your Cobblestone and place in your Wood Planks and craft 4 x Tool Rods *[by also selecting the Tool Rod Pattern on the right].*
5. Next, go to your Tool Station and click each of these tool icons in the following order and shift click the required Tool Parts into the slots.

* Pickaxe *[Stone Pickaxe Head, Stone Tool Binding & Wooden Tool Rod].*
* Mattock *[Stone Shovel Head, Stone Axe Head & Wooden Tool Rod – Works on Dirt, Wood and acts as a Hoe with RClick].*

**NOTE:** Not great on Sand & Gravels.

* Shovel *[Stone Shovel Head, Stone Tool Binding, Wooden Tool Rod – For Dirt, Sand and Gravels].*
* Either a Long Sword, Rapier or Broadsword *[Stone Sword Blade, Stone Hand/Cross/Wide Guard, Wooden Tool Rod].*

1. This is the Order of making any Tinker Tools & Weapons.
2. You can upgrade your Tool Station to a Tool Forge by crafting it with 3 x Seared Bricks *[Block]* ***[SEE: OBJECTIVE 4: SMELTERY]***+ 4 x Metal Blocks *[Any]* ***[SEE: SIDE PROJECT 3 (BONUS) ]****.*

**NOTE:** This allows crafting access to higher tier Tools and Weapons *[Like the Crossbow and Cleaver].*

1. Once you have a basic understanding of how to make the Parts into Tools, use the JEI *[Right Side of the Screen in Inventory or Crafting GUI]* and search for “Tool Rod”, “Pickaxe Head”, etc to find the best balance of Material Statistics *[ie: Durability, Mining Speed, Mining Level, Attack, etc]* and Material Modifiers *[Ecological, Dense, etc]* and aim to craft Tools & Weapons.

# OBJECTIVE 3: @BIRDSFOODS - TOASTED BACON HAMBURGER

# [Basic Custom Survival Food]

1. Harvest: Cows, Pigs, Wheat *[and/or Barley]*
2. Craft Wheat *[and/or Barley]* into Wheat Flour *[or Barley Flour]*
3. Craft Raw Beef into Raw Ground Beef *[x 2]*
4. Craft Raw Pork Chops into Raw Bacon *[x 2]*
5. Cook Flour into Bread *[1 Bread per 1 Wheat instead of 3 Wheat]*
6. Cook Raw Ground Beef into Burgers
7. Cook Raw Bacon into Bacon
8. Craft Bread into Empty Sandwiches *[x 2]*
9. Craft Empty Sandwich, Burger and Bacon into Bacon Hamburgers

**STATS:** 5 Hunger/10 Saturation

1. Cook Bacon Hamburgers into Toasted Bacon Hamburgers

**STATS:** 6 Hunger/12 Saturation

***SIDE PROJECT 1: ULTIMATE @BIRDSFOODS SANDWHICH - DAGWOOD***

***[Advanced Custom Survival Food]***

* 2 x Bread
  + Remember you’ll get 1 x Bread per Wheat if you craft it into Flour first
* 1 x Bacon
  + Craft Raw Pork Chops into Raw Bacon *[x 2]* then Cook it
* 1 x Cooked Egg
  + Cook an Egg
* 1 x Baked Potato
  + Cook a Potato
* 1 x Cheese
  + Crafted with Sugar + Milk Bottle

**NOTE:** Milk Buckets can be Crafted with 3 Bottles to make 3 x Milk Bottles each able to craft the same recipes as a Milk Bucket

* 1 x Sliced Steak
  + Cook Raw Steak, then Craft Steak into Sliced Steak *[x 2]*
* 1 x Fish Fillets
  + Cook Raw Fish or Raw Salmon, then Craft into Fish Fillets *[x 2]*
* 1 x Chopped Chicken
  + Cook Raw Chicken, then Craft into Chopped Chicken *[x 2]*

**STATS:** 10 Hunger + 20 Saturation *[Eating this will make you nearly* Invulnerable *for a short while]*

# OBJECTIVE 4: @TINKERSCONSTRUCT – SMELTERY

***[3 Ingots for every Ore processed, not just 1; Alloying for stronger Metals; Consumes Lava]***

**MINIMUM MATERIALS:**

2 Stacks of Sand + 2 for Glass

2 Stacks of Clay

2 Stacks of Gravel

**CRAFT:**

Sand + Gravel + Clay (Items) into Grout (x 2)

**NOTES:**

* So you want 4 Stacks of Grout (= 2 Stacks each of all 3 ingredients) to cover everything at the basic level, including **SIDE PROJECT 5: BONUS**
* Craft as soon as you can as it will reduce 3 stacks into 2, saving Inventory Space

**SMELT:**

2 x Sand into 2 x Glass

4 Stacks (256) x Grout into 4 Stacks (256) x Seared Bricks *[Items]*

**CRAFT:**

1 x Smeltery Controller

8 x Seared Brick *[Items]* – Chest Pattern

2 x Seared Tanks

8 x Seared Brick *[Items]* – Chest Pattern

1 x Glass - Middle

2 x Casting Tables

7 x Seared Brick *[Items]* – Leggins Pattern

3 x Casting Basin

7 x Seared Brick *[Items]* – Cauldron Pattern

4 x Seared Drains

6 x Seared Brick *[Items]*

5 x Seared Faucets

3 x Seared Brick *[Items]* – Bowl Pattern

24 x Seared Bricks *[Block]* + extra 12 for each level higher you want to raise it

4 x Seared Brick *[Items]* – Stone Bricks Pattern

**SMELTERY CONSTRUCTION:**

1. Dig out a 3x3 hole in the floor and fill it with the Seared Brick (Block) to make a Base
2. Place the 2 x Smeltery Drains on the floor in-line with the 5x5 boarder of the 3x3 Base
3. In front of those Smeltery Drains, dig another hole and place the Casting Table & Casting Basin
4. While looking at your Smeltery Drains, hold Shift and RClick 1 x Seared Faucet onto them, so they sit above your Casting Basin & Casting Table
5. Complete the boarder of the Base by placing more Seared Brick (Block)s until you form a 5x5 Ring
6. On top of your Smeltery Drains, place a Seared Tank (these will need to be filled with Lava to use the Smeltery)
7. Next to the Seared Tanks, place your Smelery Controller
8. Fill this current Ring level with more Seared Brick (Block)s

**OPTIONAL:** You can build this as high as you want – but doing so will only increase the amount of material you can hold at once

***OBJECTIVE 5: TINKER’S CONSTRUCT CASTS***

# [ Accesses Next Tier Tinkers Tools and Weapons]

**NOTE: ALUMINUM BRASS ALLOYING RATIO:** 3 x Aluminum Ingot – 1 x Copper Ingot

**TIP:** Place a Chest next to your Smeltery for your Casts

1. To make Metal Parts you’ll need Aluminium Brass Casts for each Part you want to make
2. To make a Cast place each of your Parts *[eg: Stone Sword Blade, Stone Pickaxe Head, Stone Tool Rod, etc]* onto your Casting Table and pour Aluminium Brass onto it

**NOTE:** Each Castcosts 1 Ingot worth of Aluminum Brass. Making Casts like this *Consumes* the Part you used for it *[so use Cobblestone or Wood Parts]*

# OBJECTIVE 6: @TINKERSCONSTRUCT - BRONZE TOOLS

# [Equal to Iron’s Mining Level (Redstone); but with more Durability and Bonus Traits]

**NOTE: BRONZE ALLOYING RATIO:** 3 x Copper Ingot + 1 x Tin Ingot

Pickaxe Head: Bronze (Dense)

Tool Binding/Sword Guards: Wood (Ecological)

Tool Rods: Copper (Well Established)

1. Pour Bronze into each of the Casts you want to make *[Tool/Weapon Heads]* and collect them afterwards, storing your Casts In your Chest nearby

**TIP:** Make Ingot Casts By Pouring Aluminium Brass over an Ingot *[2 of these will come in handy]*. This will *Consume* your Ingots too…

1. For your Guard/Tool Bindings, use Wood *[This gives your Tools/Weapons Repair Over Time/Mending]*
2. For your Tool Rods, use Copper *[make in the Smeltery with a Tool Rod Cast]*
3. Return to your Tool Station with your new parts and craft your new Tools/Weapons the same way you made your Stone ones

**MODIFIERS:**

Once you’ve made each of your Tools/Weapons, place them back in your Tool Station/Forge in turn and add the following onto them *[if you have it]*

* 1x Lapis for each *[for Pickaxe and Weapons; Adds the Luck/Looting I Modifier]*

**NOTE:** You also get free Lapis Points added to your Tool/Weapon the more it is used on the appropriate target

* 1 x Diamond *[for Pickaxe; Only Upgrades the Mining Level 1 Level, so can add the ability to mine Obsidian, ONLY if used on an Iron equivalent level Pickaxe, but with just one Diamond. So don’t make a Diamond Pickaxe or I will HUNT YOU DOWN!!! Not really lol]*

**Durability: 500|Mining Level: Diamond|Mining Speed: 6.8**

**SWORD STATS:**

Rapier *[Cross Guard]*: Durability: 522|Attack: 2.93|Ability: Spammable

Broadsword *[Wide Guard]*: Durability: 875|Attack: 5.5|Ability: Blockheads

Long Sword *[Hand Guard]*: Durability: 835|Attack: 5.4|Ability: Long Jumper

**TRAITS:**

* Dense – Lasts Longer
* Ecological – Repair over time
* Well Established - +XP

***PROJECT 7: CONSTRUCT’S ARMORY:***

1. To start with, craft a Crafting Station with 4 x Blank Stencils to make an Armor Station. This will allow you to Craft the individual Armory Pieces
2. If you want to Modify your Armor Pieces, you’ll need to upgrade your Armor Station to a Armor Forge, with the same recipe as a Tool Forge, but using the Armor Station instead
3. Each Piece of Armor requires:

* 1 x Core *[Helmet Core, Chestplate Core, etc…]*
* 1 x Armor Trim
* 1 x Armor Plates

**NOTE:** The secret is to balance:

* High Defense Stats
* Great Traits
* And the Highest Toughness Level you can find

**NOTE:** Steel seems to have the highest Toughness Level at 4.5, but has average Durability and Modifiers

**NOTE:** Armor Trims are the only pieces that do NOT grant Stat Modifiers, Only Trait Modifiers – So go for a material with Ecological – like Vibranium or even Wood

**STARTER SET:**

Dwarf Star Alloy Core Set *[one Core for each of the Armor Pieces]*

Steel Plates

Wood Trims

***OBJECTIVE 8: ORE PROCESSING***

* 2x Coal Generators *[Acutally Additions]*
* Simple Sag Mill *[Ender IO – Upgrade to Sag Mill]*
* Simple Alloy Smelter & Simple Powered Furnace *[Ender IO – Use both to upgrade to Alloy Smelter]*

# OBJECTIVE 9: AUTO-PROCESS RUBBER & PLASTIC

***[Industrial Foregoing]***

* 1 x Mechanical User or Block Placer – Place a stack/s of Wood Blocks inside
* 1 x Tree Fluid Extractor
* 2 x Fluid Conduit *[makes 8]*
* 1 x Latex Processing Unit
* 1 x Aqueous Accumulator (Basic) *[Thermal Expansion]*

– or – Endervoir *[Ender IO]*

* 2 x Buckets of water for infinite water source
* 1 x Mechanical Crafter *[Extra Utilities 2] [no power]*

– or – Crafter *[Ender IO powered – simple has power loss]*

* 1 x Redstone Furnace *[Thermal Expansion]*
* Item Conduits *[Ender IO]*
* Energy Conduits *[Ender IO] [Go Basic first – upgrade them later as that way is*

*Cheaper]*

* Basic Energy Cell (Basic) *[Thermal Expansion] [Suggested for reserve power]*

= Free Tiny Dry Rubber = Free Dry Rubber = Free Plastic

**NOTE:** Compatible with Industrial Craft 2’s Rubber

***OBJECTIVE 10: ENGINEER’S WORKSHOP REBORN***

***[Storage, Crafting & Smelting – in a Single Block]***

**Build a Workshop Table:**

* 5 x Cobblestone
* 3 x Wood Planks
* 1 x Blank Upgrade
* 2 x Stone/Andesite/Granite/Diolite or their Polished versions
* 2 x Wood Planks

This Block can store a total of 4 of the following 3 Vanilla Blocks – Chest, Crafting Table and Furnace

Which of the 3 you use, is up to you.

**EXAMPLES:**

2 x Chests, Crafting Table & Furnace

4 x Chests

4 x Furnaces

The benefits of this go beyond simply having them in a single block.

**Furnaces:** The Workshop Table has a **Fuel** source. Adding Coal/Charcoal into here will instantly consume it and store it as fuel. And the Furnaces only consume this fuel when needed – rather than having to get the most out of an active Coal like a Vanilla Furnace.

**Upgrades:** There are a heap of different Upgrades to add into your Workshop Table *[some for the Table, some for specifically Crafting Tables, Furnaces or Chests]*. One such upgrade *[Queuing Upgrade]* allows Furnaces to Process more than one item *[one after the other]*. Another *[Storage Upgrade]* adds extra Storage Slots to your Crafting Table.

# OBJECTIVE 11: POWER SYSTEM

# [Option 1: Tree Oil]

* Spruce Sapplings *[fastest resin production rate]*
* 1-4 x Arboreal Extractors per Spruce Tree

**NOTE:** Arboreal Extractors do not require power

**NOTE:** Each Extractor must be placed at the base of the Tree

**NOTE:** Trees must be naturally grown – not built manually

**NOTE:** Tree must stay on at least one block of Dirt

**NOTE:** Dark/Oak Treesproduce Sap with this setup

* 1 x Fractionating Still
* 1 x Steam Dynamo
* 1 x Energy Cell
* 1 x Aqueous Accumulator
* 1 x Coal/Charcoal
* 1 x Compression Dynamo
* Enough Fluid Conduit *[go Pressurized Fluid Conduit if you can]*
* Enough Energy Conduits
* Enough Item Conduits

**SETUP:**

1. Pump Resin from Arboreal Extractors into Fractioning Still
2. This will Process Resin into Rosin *[a solid fuel source]* if given Power
3. Setup Aqueous Accumulator to pump water into the Steam & Compression Dynamos
4. Connect Energy Conduits from Steam Dynamo to Energy Cell
5. Connect Energy Conduits from Energy Cell to Fractioning Still
6. Add 3 Sticks to Steam Dynamo to kick-start the system
7. The Steam Dynamo will consume 1 Rosin to generate 8,000RF at a base rate of 40RF/t
8. Feed the Fractioning Still’s byproduct of Tree Oil into the Compression Dynamo
9. The Compression Dynamo will consume 1 Bucket of Tree Oil for 1,000,000RF at a base rate of 4RF/t

# OBJECTIVE 11: POWER

# [Option 2: Tree Farm Power System]

* Oak Sapplings *[2nd fastest growth rate]*
* 1 x Plant Sower
* 2 x Plant Gatherers *[1 Minimum]*
* 1 x Sludge Refiner
* 2 x Pressurized or Ender Fluid Conduits
* 3 x “+1” Range Addons *[for Sower & Gathers]*
* 4 x Hydrators
  + - 1 x Animal Sewer
    - 1 x “+5” Range Upgrade *[for Sewer]*
    - 1 x Sewage Composter
    - 1 x Mob Imprisonment Tool
    - 11 x Mobs *[max set up allows]*
    - = 2 x Fertilizer per Hydrator
* 4 x “+3” Range Addons *[for Hydrators, Max “+5”, but you won’t need to go that high for this build]*
* 1 x Aqueous Accumulator (Basic)
* 1 x Redstone Furnace (Basic)
* 1 x Augment: Auxiliary Reception Coil

**NOTE:** Speeds up Redstone Furnace; multiple copies stacks effects, but each takes another augment slot

* 1 x Mechanical Crafter *[Extra Utilities]*
* 1 x Energy Cell (Basic)
* 2 x Steam Dynamos (Basic)
* 4 x Hardened Upgrade Kits

**NOTE:** Upgrade Furnace, Cell & both Dynamos

**NOTE:** R-Click Upgrade Kits on machines to upgrade to that level

* 4 x Reinforced Upgrade Kits

**NOTE:** Upgrade all – redstone furnace is recommended, but not necessary

* 2 x Signalum Upgrade Kits

**SUGGESTION:** Upgrade Cell & Energy Dynamo

* 2 x Resonant Upgrade Kits

**SUGGESTION:** Upgrade Cell & Energy Dynamo

**SUGGESTION:** Get all components to this level eventually

* 1 x Boiler Conversion – Augment

**NOTE:** Add to Steam Dynamo

* 1 x Turbine Conversion – Augment

**NOTE:** Add to Energy Dynamo

* 2 x Auxiliary Transmission Coil – Augment

**NOTE:** Add to Signalum Energy Dynamo; multiple copies stacks effects, but each takes another augment slot

* Energy, Item and Fluid Conduits
* Item Filters
* Trash Can *[for overflow control]*

**SETUP:**

1. Transfer water from the Reinf+ Aqueous Acc to the Hard Steam Dy with the Boiler Augment.
2. Use Yeta to point Boiler into Reinf+ Steam Dy with the Turbine, Fuel & Excitation Augments *[last Augment only if Signalum Upgrade used]*
3. Point Turbine into Reinf+ Energy Cell (via conduits), then use conduits to separate input and output power *[Turbine conduits don’t touch base & tree farm conduits]*

# OBJECTIVE 11: POWER

# [Option 3: Infinity Generator]

* 4 x Dwarf Star Alloy Plates
* 1 x Advanced Circuit
  + 4 x Copper Wiring
    - 1 x Copper Plate *[Makes x 4]*
    - 1 x Wire Cutter
      * 2 x Sticks
      * 1 x Iron Plate
  + 2 x Redstone
  + 2 x LV Capacitor
    - 2 x Iron Ingots
    - 1 x Redstone
    - 1 x Lead Ingot
    - 4 x Iron Plate
    - 1 x Copper Plate
  + 1 x Basic Circuit
    - 6 x Copper Wiring
    - 2 x Redstone
    - 1 x Iron Plate
* 1 x HV Capacitor
  + 2 x Steel Ingots
    - 1 x Pulverized Iron
    - 4 X Pulverized Coal
    - *[Makes 1 x Steel Blend]*
  + 1 x Redstone Block
  + 4 x Iron Plates
  + 1 x Block of Lead
  + 1 x Intertium Plate
    - 2 x Pulverized Iron
    - 1 x Osmium Dust
    - *[Makes 3 x Intertium Dust]*
* 1 x Nether Star

**NOTES:**

Requires 1 x Tesseract

Generates 100,000 FE/t

Forge Energy should equal RF 1:1

# OBJECTIVE 11: POWER

# [Option 4: ZPM Hub]

* 1 x Electronic Circuit
  + 6 x Insulated Copper Cable
    - 1 x Plastic *[Industrial Foregoing]* or Rubber *[IC2 or WarpDrive]*
    - 1 x Copper Cable *[Makes 2]*
      * 1 x Copper Plate
        + 1 x Copper Ingot
        + 1 x Forge Hammer *[IC2]*

5 x Iron Ingots

2 x Sticks

* + - * 1 x Cutter *[IC2]*
        + 3 x Iron Plate

1 x Iron Ingot

1 x Forge Hammer

* + - * + 2 x Iron Ingot
  + 2 x Redstone Dust
  + 1 x Iron Plate
* 1 x Advanced Machine Casing
  + 4 x Steel Plate
    - 4 x Steel Ingot *[Use in Thermal Expansion Compactor]*
      * 1 x Pulverized Iron
      * 4 x Pulverized Coal

**NOTE:** This makes Steel Blend, smelt it

* + 2 x Carbon Plate
    - Carbon Brick *[Use in Thermal Expansion Compactor]*
      * 6 x Coal
  + 2 x Advanced Alloy
    - Mixed Metal Ingot *[Use in IC2 Compressor]*
      * 3 x Iron Plate
      * 3 x Bronze Plate
      * 3 x Tin Plate
  + 1 x Basic Machine Casing
    - 8 x Iron Plate
* 3 x Copper Cable
* 3 x ZPM Console
  + 2 x Emerald
  + 1 x Glass Pane
  + 1 x Stargate Controller Crystal
  + 3 x Iron Block
  + 1 x Stargate Core Crystal
  + 1 x Gold Block
* 1 x Basic Machine Casing

**REQUIRES:**ZPMs

**RECOMMENDED:**

Use 3 at once for increased efficiency

Use Flux Networks’ Flux Plug on ZPM Hub to convert IC2 Level 5 Power to RF and wirelessly

transmit it anywhere over infinite distance with one or more Flux Points

* 1 x Flux Plug
  + 4 x Flux Core
    - 4 x Flux *[Dust]*

**NOTE:** Throw Redstone between Bedrock & Obsidian *[There must be one block gap]*. Punch the Obsidian to convert the Redstone to Flux

* + - 4 x Obsidian
    - 1 x Eye of Ender
  + 1 x Flux Block
    - 9 x Flux *[Dust]*
* 1 x Flux Point
  + 4 x Flux Core
  + 1 x Redstone Block

**NOTES:**

* Each ZPM holds 2.14B RF
* ZPMs are Non Renewable, once they’re depleted, that’s it

If you do not use Flux Networks or IC2 Transformers to step down the Tier 5 IC2 Power, you WILL blow up your Machines

# SIDE PROJECT 2: HEROES EXPANSION

# [Super Powers]

**NOTE: You will need one of these Super Power Sets with Strength to use the Ultimate Tinkers Construct Tools and Ultimate Construct’s Armory Armor Set**

# Machines:

# Boiler – Input Power, water [into the left side] and ingredients for the fluid you require in the middle – output into either a bucket on the right [or output into an Ender IO Tank to output into Bucket]

# Extractor – Input Power, Water [on the left side] and your desired recipe ingredient [eg: Kryptonian Fossil or Kree Flesh] into the centre-left slot with an empty Injection item in the centre slot

* + - * Construction Table – Place “Instruction Recipes” into this to craft the Super Hero Suits
      * Suit Stand – Display your Suits and their Accessories!

**Items:**

* **Hammer** – Used in crafting recipes.

**NOTE:** Use Pulverizer from Thermal series to grind ores and ingots into blends.

**NOTE:** If you get one hammer, make a metal plate and create a cast for it in Tinkers Construct Smeltery

* **Instruction Recipes** – Obtained via Advancements specific to each Super Hero, used to craft their Suit in the Construction Table
* **Injection** – Grants the Super Hero’s Abilities
* **Heart-Shaped Herb/Potion** – Plant Vibranium Ore under Dirt to grow the Herb. Craft the Herb with a bowl to grant Black Panther Powers
* **Kryptonian Fossil** – 5% chance drop from mining Kryptonite from meteors *[Fortune affected]*. Use in the Extractor to gain Superman Powers
* **Kryptonite** – Mined from Kryptonite Meteors. Do not Touch if a Kryptonian…
* **Mjolnir** – Found in Craters as World Gen. You need 200 Positive Karma from killing Aggressive Mobs to be worthy enough to pick it up *[Also Craftable with a Tinkers Contruct Cast (Found in Norse Villages in Spruce Forests) and Uru Ore]*
* **Ultimate Mjolnir/Stormbreaker** – Craftable with Uru Ore and a Tinkers Construct Cast *[Found in Norse Villages in Spruce Forests]*
* **Tesseract** – Found in Norse Villages *[10% chance of Spawning in the Church]*

**World Gen:**

* **Vibranium Ore** - Found between Y Height 5-12. Brilliant for Tinker’s Construct. Pulverize it and mix with 2 x Steel Blend to make Adamantium Blend *[Even better for Tinker’s Constuct!]*
* **Titanium Ore** – Found between Y Height 5-12. Alloy in Smeltery 1:1 with Gold for Gold-Titanium Alloy. Use to Cast the Infinity Gaunlett! *[Takes a lot of it though]*
* **Mjolnir Craters** – If you are worthy *[~200 positive Karma – Kill more mobs]* you can pick up Mjolnir and obtain the **Powers of Thor**. Also spawns random amount of **Uru Ore** - Best Material for Tinker’s Construct Attack Power.
  + Uru Ore also found in Birch Outpost Dungeons *[1:3 chance]* which can generate anywhere
* **Norse Villages** – Found in Plains/Spruce Forests. Mjolnir & Stormbreaker Tinker’s Construct Casts & Thor Armor can be found upstairs in houses. Can spawn Churches with 3 x Blocks of Gold as the Bell in Spire. Also has 10% chance of spawning **Tesseract** *[refer MCU Captain America 1]*
  + Thor Armor & Casts can also be found in Birch Outpost Dungeons *[1:3 chance for each set]* in Birch Forests/Forests
  + Tesseract can also be found in Lighthouse Dungeons *[1:4 chance]* in Birch Forest Hills/Forest Hills/Beaches
* **Crashed Kree Ships** – Found in Deserts so far… Loot Galore! Vibranium Ore, Captain Marvel Suit Instruction Recipes… Has Chance to Spawn Kree – Kill for their Flesh to create **Captain Marvel Powers**
  + Kree Flesh & Captain Marvel Suit Instruction Recipes also found in X Marks The Spot Traps *[50/50 chance]* Deserts/Desert Hills/Beaches
  + Use Kree Flesh in the Extractor to gain Captain Marvel Powers
* **Kryptonite Meteor Craters** – These spawn all over, and contain Kryptonite Blocks that when mined have a 5% chance to drop Kryptonian Fossils to gain the **Powers of** **Superman**
  + Kryptonian Fossils & Superman Suit Instruction Recipes can also be found in X Marks The Spot Traps *[50/50 chance]* in Deserts/Desert Hills/Beaches
  + Use Kryptonian Fossils in the Extractor to gain Powers of Superman
* More secrets inside…

**NOTES:**

* You can only have one Super Power at a time unless you use an empty Injection on yourself to remove them…
* As you use your Power Set’s Abilities, you will level up in this mod, this unlocks higher abilities.

***SIDE PROJECT 3: @RUINS x @SGCRAFT***

***[Travel between Stargates across Infite Distances & Dimensions]***

* As I said, this Modpack puts great emphasis on World Exploration. Before discussing **@Ruins** again, we need to cover **@SGCraft** or as its called, **Stargate Network**.
* If you don’t know about Stargate, it’s a TV Franchise centered around a Device called a Stargate.
* Each Stargate has its own Address *[like a Phone Number]*, it is made up of a combination of 9 Letters and Numbers. By RClicking on a Gate you find, you will see its Address.
* But in order to *use* that address, you will need a second Gate’s Address.
* By RClicking on the Black Pedestal in front of the Gate, you can manually type in any Gate’s Address. This will allow you to go into the Gate and come out at the Gate you dialed.
* To make this easier, you can find *[Custom Loot]* or build *[Recipe in* ***JEI****]* a Personal Dialing Device. This will allow you to Shift+RClick a Gate and *SAVE* that Address by naming it. Simply RClick near a Gate and select that Name to dial that Gate without needing to type the Address in manually.

**WARNING:** When the Gate finishes Dailling, the Wormhole will explode out of the Gate. This will be Fatal if you’re in front of it when this happens.

**WARNING:** Walking into an Active Iris will kill you immediately.

* Normally, **@SGCraft** will only generate Stargates in Villages & Temples. Here **@Ruins** comes in again. With some help of my Online Friends, We made a Stargate Platform TML for Ruins to generate. Now, these Platforms will be found Everywhere, and in Every Dimension!
* Look below for more info on the **@SGCraft** Mod:

**BASICS:**

Each Gate needs:

1 x Stargate Base

7 x Stargate Chevron Blocks

8 x Stargate Ring Blocks

1 x Stargate Controller

And yes you can Craft these instead of just finding them…

**TOOLS:**

**GDO**

Remote Iris Control

**Personal Dialing Device *[PDD]***

Shift+RClick to store current Gate Address

RClick, then Click stored gate address to dial

**Configurator**

Complete control over gate functions *[Creative Only]*

**Tollan Phase Shift Device**

Walk through any Base’s Incoming Iris *[Creative Only; Must deactivate Outgoing Iris to leave though]*

**ZPM**

Rare Loot Chest Find

Contains over 2,000,000,000 RF in non-replenishing Power

Use in ZPM Machines to transmit power

**EXTRAS:**

**Iris Upgrade**

Needed for Base Security. Any GDO can remotely disable it

**ZPM Console**

Wirelessly power Gates *[unneeded – Power consumption disabled on Config Level]* However, You may be able to use RF Power Mods to Transfer the RF to your Base

**Chevron Upgrade**

Allows cross dimension dialing *[Unneeded – built into Gates on Config level]*

**SG Power Unit**

Use RF to power Gate *[unneeded – Power consumption disabled on Config Level]*

**BONUS:**

If a Stargate has access to the Sky during a Thunderstorm, there is a 5 in 100 chance that the Gate *[while dialing another Gate]* can be Struck by Lightning and the Destination Gate will be changed to ANY discovered Gate – Including some hidden ones…

***SIDE PROJECT 4: ULTIMATE TINKERS TOOLS!***

*Do you know of a better configuration? Let us know!!!*

**NOTES:**

Use either a Hammer from **@LucraftCore** *[crafting]* or a Pulverizer from ***@*ThermalExpansion** *[Machine Processing – Attained in* ***OBJECTIVE 12: @THERMALEXPANSION****]*

**NOTE: STEEL BLEND ALLOYING RATIO:** 1 Pulverized Iron + 4 Pulverized Coal *[Not Charcoal]*

**NOTE: ADAMANTIUM BLEND ALLOYING RATIO:** 1 Vibranium Dust + 2 Steel Blend

***Pickaxe Group Project!***

**Head:** Adamantium or Uru *[2,500|Cobalt|15|Sharp or Super Heavy]*

**Tool Rod:** Adamantium *[x4|+2,000|Sharp]*

**Binding:** Vibranium *[+400|Dense|Ecological|Lightweight]*

**Stats:**

**Durability:** 13,000|**Mining Level:** Cobalt|**Mining Speed:** 15

***Sword Group Project!***

**Sword Blade:** Uru *[16,300|Super Heavy]*

**Tool Rod:** Adamantium *[x4|+2,000|Sharp]*

**Guard:** Vibranium *[+400|Dense|Ecological|Lightweight]*

**Guard Embossment:** Manyullyn *[Cold-Blooded]*

**Sword Option’s Stats:**

**Rapier** *[Cross Guard]***:** Durability: 55,500|Attack: 22|Ability: Spammable

**Broadsword** *[Wide Guard]***:** Durability: 55,500|Attack: 39|Ability: Blockheads

**Long Sword** *[Hand Guard]***:** Durability: 55,500|Attack: ?|Ability: Long Jumper

**Traits:**

**Super Heavy:** Only **@LucraftCore** Super Heroes *[with Strength; from* ***@HeroesExpansion***

***(SEE SIDE PROJECT 2)*** *]* can lift this

**Alien:** Stats will be adjusted by a total of 800 points, randomly

spread across all Categories *[for better or worse]*

**Sharp:** Bleeding Effects

**Dense:** Longer Lasting at Low Durability

**Ecological:** Self Repair

**Cold-Blooded:** Extra Damage to Targets with Full Health

***SIDE PROJECT 4 [BONUS]: @TINKERSCONSTRUCT – TOOL FORGE***

***[Access to Higher Tier Tools & Weapons]***

1. Harvest & Craft your Tool Station with 4 Blocks of any Metal *[use your most common Metal]* and 3 Seared Brick *[Blocks]*
2. Look up **Tool Forge** in **JEI** for Recipe
3. Now you can Craft Crossbows, Cleavers and more!

***Crossbow Group Project!***

**Bowlimb:** Uru *[Durability: 16,300|Draw Speed: 0.17|Range: 12|*

*|Bonus Damage: 20|Alien, Super Heavy]*

**Tough Tool Rod:** Adamantium *[x4|+2,000|+600|Sharp]*

**Tough Binding:** Vibranium *[+400|Dense, Lightweight, Ecological]*

**Bowstring:** String *[x1]*

**Bolt Core:** Reeds *[Sugar Cane] [x1.5|+20|Breakable]*

**Bolt Metal:** Uru *[2 x Ingots] [Alien, Super Heavy]*

**Stats:**

**Crossbow:** Durability: 69,800|Draw Speed: 0.34|Range: x12|Bonus Damage: 30

**Bolt:** Durability *[Ammo]*: 2010|Attack: 50.3| Accuracy: 100%

**Traits:**

**Super Heavy:** *Only Lucraft Super Heroes (with Strength) can lift this*

**Alien:** *Stats will be adjusted by a total of 800 points, randomly*

*spread across all Categories – for better or worse*

**Dense:** *Longer Lasting at Low Durability*

**Ecological:** *Self Repair*

**Lightweight:** *Faster Mining Speed*

**Sharp:**  *Bleeding Effects*

**Modifiers:**

**Bolt:** Direct Dark Steel Upgrade *[Instantly collect your sniped loot]*

# Cleaver Group Project!

**Large Sword Blade:** Uru *[Durability: 16,300|Damage: 40|Alien, Super Heavy]*

**Large Plate:** Adamantium *[Durability: +2,500|Damage: 20|Sharp]*

**Tough Tool Rod 1:** Vibranium *[Durability: 1,000|Modifier: x2|Dense, Lightweight,*

*Ecological]*

**Tough Tool Rod 2:** Manyullyn *[Durability: 250|Modifier: 0.5|Cold-Blooded]*

**Stats:**

Durability: 40,000|Bonus Speed: 10%|Damage: 48.63|Beheading II

**Traits:**

**Super Heavy:** *Only Lucraft Super Heroes (with Strength) can lift this*

**Alien:** *Stats will be adjusted by a total of 800 points, randomly*

*spread across all Categories – for better or worse*

**Dense:** *Longer Lasting at Low Durability*

**Ecological:** *Self Repair*

**Lightweight:** *Faster Mining Speed*

**Sharp:**  *Bleeding Effects*

**Modifiers:**

**Beheading:** *Ender Pearl + Obsidian x 8*

**NOTE:** Each Level of Beheading adds 10% chance of getting Mod’s Heads as drops, and Cleaver’s get a extra level for free – Beheading II! And every time you add an Ender Pearl & Obsidian *[consuming a Modifier]*, you’ll gain another 10%!! And it can be Stacked more than once!!!

***SIDE PROJECT 5: TINKERS EMBOSSMENT:***

Each Embossment Requires:

* Green Slime Crystal
* Blue Slime Crystal
* Magma Slime Crystal
* Block of Gold
* Another Tinkers Tool Part for the Tool/Weapon you’re wanting to Emboss *[eg: Binding for Pickaxe, Guard for Sword, etc…]*

Doing this will allow you to use a better statistical part *[eg: sugar cane for bolts for +20 ammo]* to make the weapon/tool; then add a better Modifier Part onto it *[eg: Wooden Arrow Shaft for Ecological – Repair over time/Mending].*

**NOTE:** Only 1 Embossment per Tool

***SIDE PROJECT 6: ULTIMATE CONSTRUCT’S ARMORY SET:***

Uru Core Set *[one Core for each of the Armor Pieces]*

**NOTE:** Requires Strength from LucraftCore

Vibranium Trims

Adamantium Plates

**MODFIERS:**

* **All Armor:**
  + Add a Steel Polishing Kit to add Toughness of 4.5 to your Armor *[Requires 1 for each Armor Piece, costs 2 Ingots each in the Smeltery] [Requires 1 x Sand to add it]*
  + Add a Diamond, to increase the Toughness Stat by an additional 2 and give a boost to Durability *[If you add this* before *the Polishing Kit, the Kit will* override *the Toughness Stat, instead of Stacking it]*.
  + Add 1 x Resistance Plate to reduce all Damage
  + Add 1 x Emerald to add 50% Extra Base Durability *[only when you have nothing else to Modify your Armor with]*
* **Leggings:**
  + Add 1 x Traveller’s Belt [Storage] for an extra Hotbar to swap between

**NOTE:**  I use one Hotbar for Mining, and one for Combat, in that all Mining and Combat Tools, Weapons, additional Armor and Food/Potions are stored in separate Hotbars

* **Leggings & Boots Options:**
  + Add 1 x Invisible Ink to make them render invisible – cosmetic change only
* **Chestplate Options:**
  + Make 2 Chestplates – or just choose one
    - Mining Ability Set
      * Add 1 x Invisible Ink to render it invisible
      * Add 1 x Knapsack for extra inventory storage
      * Add 1 x Gauntlet of Far Reach to mine up to 7 blocks away
    - Combat Ability Set
      * Add 1 x Cloak of Invisibility to allow you to toggle full invisibility for yourself
      * Add 1 x Gauntlet of Power to increase Attack Damage
* **Helmet Options:**
  + Make 2 Helmets – or just choose one
    - Mining Ability Set
      * Add 1 x Traveller’s Goggles [Night Vision]
      * Add 2 x Glass *[side by side]* and 1 x Prismarine Crystal to your Helmet to add temporary underwater breathing
    - Combat Ability Set
      * Add 1 x Travellers’ Goggles [Soul Sight] to see any mob or player when they move
      * Add 2 x Glass *[side by Side]* and 1 x Prismarine Crystal to your Helmet to add temporary underwater breathing

**SIDE PROJECT 6 *[BONUS]:***

There are lots of Materials to craft Armor, Tools and Weapons *[using the Vanilla Recipes]* in this Modpack *[Copper, Bronze, even Emerald]* – Aim to build an Armory Room with 1 of every type! **@BiblioCraft** even has Armor Stands and Sword Pedestals to display these great builds!

***OBJECTIVE 12: @THERMALFOUNDATION, @THERMALEXPANSION & @THERMALDYNAMICS***

***[Machine Processing by consuming RF (Power) ]***

**BASIC MACHINES:**

* **Redstone Furnace** – Electric Furnace
* **Pulverizer** – Crushes Ores and Ingots into Pulverized *[Powdered]* forms *[Ores will give 2 Ingots worth of Pulverized Metals]*
* **Induction Smelter** – Combines 2 Materials into One *[similar to the Smeltery from* ***Objective 4****’s Alloying ability]*
* **Magma Crucible** – Melts Metals into Liquid form *[similar to the Smeltery from* ***Objective 4****’s Smelting ability]*
* **Fractionating Still** – Changes Fluids into other Materials *[It does more than just the Rosin from* ***Objective 11****]*
* **Fluid Transposer** – Fills Items with Liquids *[such as a Bucket with Water. Really depends on what you’re filling this Machine with]*
* **Energetic Infuser** – Transfers RF into Items *[Such as RF Powered Tools and Weapons]*
* **Glacial Precipitator** – Creates Snow and Ice if fed with Water
* **Igneous Extruder** – Creates Various Stones *[Stone, Cobblestone, Obsidian, etc]* if fed with Water & Lava
* **Aqueous Accumulator** – If surrounded with Water, will collect infinite Water into itself. Can then be connected to other Machines that will consume that Water
* **Arboreal Extractor** – Extracts Fluids from Trees *[the type of Tree determines the Fluid extracted]*

**POWER GENERATORS:**

* **Steam Dynamo** – Generates RF *[Power]* if feed with Water and a Solid Fuel Source *[eg: Coal, Charcoal, Rosin, etc]*
* **Magmatic Dynamo** – Generates RF if feed with Lava
* **Compression Dynamo** – Generates RF if fed with Water and a Liquid Fuel Source *[eg: Tree Oil]*

**STORAGE:**

* **Energy Cell** – Stores RF *[like a rechargeable battery]*
* **Portable Tank** – Stores Fluids
* **Cache** – Stores a total of 20,000 units of a Single Item
* **Strongbox** – Securable Chest
* **Flux Capacitor** – Stores RF *[like a rechargeable battery]* for rechargingyour RF Powered Items on the go
* **Satchel** – Stores Items on the go *[like a bag]*

**NOTE:** A Signalum Security Lock can be used to prevent other Players from accessing your Item *[requires it to be able to be Securable, like a Strongbox]*

**UPGRADE KITS:**

**NOTE:** Upgrades a Machine to its level *[the previous level is required]*. Doing this improves the Machine’s Ability, and allows the use of Augments to further Improve or Specialize the Machine. Simply Shift + RClick the Upgrade onto the Machine

* **Hardened – 1st Level** *[All Machine are recommended to be at this Level]*

1 x Bronze Gear

4 x Bronze Ingot

Alloy in Tinkers Construct Smeltery 3 x Copper Ingot & 1 x Tin Ingot

4 x Invar Ingot

Alloy in Tinkers Construct Smeltery 2 x Iron Ingot & 1 x Nickel Ingot

2 x Redstone

* **Reinforced – 2nd Level** *[Specialized Machines are recommended to be at this Level]*

1 x Silver Gear

4 x Silver Ingot

4 x Electrum Ingot

Alloy in Tinkers Construct Smeltery 1 x Silver Ingot & 1 x Gold Ingot

2 x Hardened Glass (Makes x 2 in Induction Smelter)

4 x Pulverized Obsidian

Place Obsidian in Pulverizer (Makes x 4)

1 x Pulverized Lead

Place Lead Ingot in Pulverizer – (Makes x 1)

* **Signalum – 3rd Level** *[Energy Cells are recommended to be at this Level]*

1 x Electrum Gear

4 x Electrum Ingot

4 x Signalum Ingot

3 x Pulverized Copper

1 x Pulverized Silver

1 x Destabilized Redstone Bucket

Use a Fluid Transposer to fill a Bucket with Destabilized Redstone

Use a Magma Crucible to melt Redstone for 100mb

Use a Magme Crucible to melt Redstone Ore for 1000mb

2 x Cryotheum

1 x Snowball

1 x Redstone

2 x Blizz Powder ***[SEE: SIDE PROJECT: 7]***

* **Resonant – 4th Level** *[while useful, you probably won’t be needing this]*

1 x Lumium Gear

4 x Lumium Ingot

3 x Pulverized Tin

1 x Pulverized Silver

1 x Energized Glowstone Bucket

Use a Fluid Transposer to fill a Bucket with Energized Glowstone

Use a Magma Crucible to melt Glowstone Dust for 250mb

Use a Magma Crucible to melt Glowstone for 1000mb

4 x Enderium Ingot

3 x Pulverized Lead

1 x Pulverized Platinum

1 x Resonant Ender Bucket

Use a Fluid Transposer to fill a Bucket with Resonant Ender

Use a Magma Crucible to melt Ender Pearl for 250mb

**AUGMENTS:**

**NOTE:** To use an Augment, at least 1 Upgrade Kit must have been used first. Only 1 Specialization can be installed in a Machine at the Same Time

* **Auxiliary Reception Coil – Generic Augment:** Increases Machine Processing Speed at the Cost of Fuel/RF

4 x Gold Ingot

1 x Redstone Reception Coil

1 x Gold Ingot

2 x Redstone

* **Trivection Chamer – Redstone Furnace Specialization:** Doubles Food Output when Cooked. *[Only Food Items can be furnace]*

1 x Copper Gear

4 x Copper Ingot

2 x Silver Plate

Use a Compactor to Make Plates with just 1 x Ingot

Use the Tinkers Construct Smeltery with a Plate Cast to Make Plates with just 1 x Ingot

1 x Bricks

4 x Brick

1 x Redstone Conductance Coil

1 x Electrum Ingot

2 x Redstone

* **Flux Anodizers – Redstone Furnace Specialization:** Bonus Ingot Output when Ores are Smelted. *[Only Ores can be Furnaced]*
* **Flux Linkage Concentrator – Energetic Infuser Specialization:** Rapid Recharging
* **Flux Reconstruction – Energetic Infuser Specialization:** Repairs Damaged items if supplied with Essence of Knowledge
* **Parabolic Flux Coupling – Energetic Infuser Specialization:** Wireless Recharging of Flux Capacitors
* **Pyroclastic Injection – Igneous Extruder Specialization:** Water is no longer consumed

1 x Copper Gear

2 x Invar Plate

1 x Redstone Server

1 x Iron Ingot

2 x Redstone

1 x Cryotheum Dust

* **Auxiliary Transmission Coil – Generic Dynamo Augment:** Increases RF/t

4 x Silver Ingot

1 x Redstone Transmission Coil

1 x Silver Ingot

2 x Redstone

* **Fuel Catalyzer – Generic** **Dynamo Augment:** Increases RF produced by Fuels

4 x Lead Ingot

1 x Redstone Conductance Coil

2 x Redstone

1 x Electrum Ingot

* **Boiler Conversion – Steam Dynamo Specialization:** Changes a Steam Dynamo into a Steam Boiler *[Which outputs Steam instead of RF, more efficiently than a Steam Dynamo can. Output the Steam into a Steam Dynamo for boosted Fuel for power generation]*

1 x Iron Gear

2 x Copper Plate

1 x Bucket

1 x Hardened Glass (Makes 2 in Induction Smelter)

4 x Pulverized Obsidian

Place Obsidian in Pulverizer (Makes x 4)

1 x Pulverized Lead

Place Lead Ingot in Pulverizer – (Makes x 1)

* **Turbine Converion – Steam** **Dynamo Specialization:** Changes a Steam Dynamo into a Steam Turbine *[Which generates RF from Steam more efficiently than a Steam Dynamo can]*

1 x Iron Gear

2 x Copper Plate

1 x Iron Ingot

1 x Conductance Coil

**DUCTING:**

**FLUXDUCTS:** Transfers RF *[Power]* from your Generators or Energy Cells to your Machines, so they can run. Each type has its limits on how much RF can pass through it at once. Each Machine will consume a set amount while in use. If your Machines consume more power than your Fluxducts provide they will stop.

* **Leadstone Fluxduct** –1,000 RF/t (makes x 6)

6 x Redstone

2 x Lead

1 x Glass

* **Hardened Fluxduct** – 4,000 RF/t
* **Redstone Energy Fluxduct** – 9,000 RF/t
* **Signalum Fluxduct** – 16,000 RF/t
* **Resonant Fluxduct** – 25,000 RF/t
* **Cryo-Stabilzed Fluxduct** – Infinite RF/t

**FLUIDUCTS:** Transfers Fluids between Machines such as the Aqueous Accumulator

* **Fluiduct (Opaque)** –Breaks with Hot or Cold Fluids (Makes x 6)

2 x Copper Ingot

1 x Lead Ingot

* **Hardened Fluiduct (Opaque)** – Transfers Fluids of all temperatures

2 x Invar Ingot

1 x Lead Ingot

* **Signalum-Plated Fluiduct** **(Opaque)**– Transfers Fluids of all temperatures + 4,000 RF/t

3 x Hardened Fluiduct (Opaque)

1 x Signalum Ingot

1 x Electrum Ingot

**ITEMDUCTS:** Transfers Items between Machines

* **Itemduct (Opaque)** – Transfers Items

2 x Tin Ingot

1 x Lead Ingot

* **Impulse Itemduct** **(Opaque)** – Transfers Items Faster
* **Signalum-Plated Itemduct** **(Opaque)** – Transfers Items + 4,000 RF/t

3 x Itemduct (Opaque)

1 x Signalum Ingot

1 x Electrum Ingot

* **Signalum-Plated Impulse Itemduct (Opaque)** – Transfers Items Faster + 4,000 RF/t

**NOTE:** The normal Ducts mentioned here will show their contents as their items travel in it. This may create Lag in large systems. Their “(Opaque)” versions hide their contents, so should create very little Lag (the Opaque Ducts are easier to craft as well)

**EXAMPLES:**

* Take your Basic Power System from **OBJECTIVE 11 *[Option 1]***. After setting it up, you would run your Fluxducts from the Energy Cell into your Base and connect your machines to it. This would allow them to run.
* Some Machines require different Fluids *[such as Water or Lava]* to operate. An Aqueous Accumulator can provide them with Water by using the Fluiducts. You can use a **@RangedPumps** Pump to pump Lava from the Nether into a **@EnderStorage** Ender Tank. Then put an Ender Tank in your Base on the same Color Frequency and use Hardened Fluiducts to provide your Igneous Extruder with Lava – providing infinite Stone, Cobblestone and Obsidian! ***[SEE: SIDE PROJECT 14]***
* If you have Machines constantly processing Items, use Itemducts and connect them to the next Machine or even a Storage Block. Say you have a Double Chest. Connect an Itemduct to it and a Pulverizer. This will drag ores from the Chest into the Pulverizer and it will process them into Powdered forms of that Ore. Another Itemduct between the Pulverizer and a Redstone Furnace will allow it to smelt the Powdered Metals into Ingots
* This is Automating your Machine Processing!

**SERVOS & FILTERS:**

* **Filters:** Used to restrict Items or Fluids in Ducts. But cannot Extract them. Higher Tier Filters grant better options.
* **Servos:** Used to Extract Items or Fluids in Ducts. Can also Filter these as well. Higher Tier Servos grant better options.

# SIDE PROJECT 7: MOB DROP SHORTCUTS [DUE TO NO OVERWORLD MOBS]

**NOTES:**

* Solidified Essence in Magma Crucible = Essence of Knowledge
* The Following Items are Fluid Transposer Recipes that combine them with Essence of Knowledge
* Use the Resulting Powders in a Compactor to gain the Mob Drop Rods
* **Blaze Powder:**

Sulfur

* **Basalz Powder:**

Obsidian Powder

* **Blizz Powder:**

Snow Ball

* **Blitz Powder:**

Niter (Sand Grinding by-product)

***OBJECTIVE 13: @ENDERIO***

***[Machine Processing by consuming RF (Power) ]***

**NOTE: ELECTRICAL STEEL ALLOYING RATIO:** 1 x Iron Ingot + 1 x Pulverized Coal + 1 x Silicon *[Or 1 x Steel Ingot + 1 x Silicon]*

**NOTE: ENERGETIC ALLOYING RATIO:** 1 x Gold Ingot + 1 x Redstone Dust + 1 x Glowstone Dust

**NOTE: VIBRANT ALLOYING RATIO:** 1 x Energetic Alloy Ingot + 1 x Ender Pearl

**NOTE: CONDUCTIVE IRON ALLOYING RATIO:** 1 x Iron Ingot + 1 x Redstone Dust

**NOTE: PULSATING IRON ALLOYING RATIO: 1** x Iron Ingot + 1 x Ender Pearl

**NOTE: DARK STEEL ALLOYING RATIO:** 1 x Iron Ingot + 1 x Pulverized Coal + 1 x Obsidian *[Or 1 x Steel Ingot + 1 x Obsidian]*

**NOTE: SOLARIUM ALLOYING RATIO:** 1 x Gold Ingot + 1 x Soul Sand

**NOTE: END STEEL ALLOYING RATIO:** 1 x Dark Steel Ingot + 1 x Endstone + 1 x Obsidian

If you have trouble following this, Search Youtube for:

“Ender IO! Getting Started Minecraft 1.12 Bit by Bit” for a Tutorial

**BASE CRAFTING ITEMS:**

* **Grains of Infinity** ***[to make Simple Machines]*** – Set Bedrock on Fire. Magnet Ring from Curio/World Spawn will help collect it
* **Industrial Dye Blend *[to make Normal Tier Machines]***
  + 4 x Nether Quartz Dust
    - Sag Mill Nether Quartz or Nether Quartz Ore
  + 2 x Lapis Lazuli Dust
    - Sag Mill Lapis Lazuli
  + 2 x Organic Green Dye

**NOTE:** This is technically an Alloy, so process it in an Alloy Smelter

* + - 12 x Clippings and Trimmings
      * Sag Mill Plants *[Cactus grants best results]*
    - 1 x Slimeball
  + 1 x Organic Black Dye

**NOTE:** This is technically an Alloy, so process it in an Alloy Smelter

* + - 6 x Pulverized Coal *[or Charcoal]*
    - 1 x Slimeball
* **Industrial Dye Blend *[to make some of the Useful Machines]***
  + 4 x Nether Quartz Dust
  + 2 x Soul Powder
    - Sag Mill Soularium Ingot
  + 2 x Organic Brown Dye

**NOTE:** This is technically an Alloy, so process it in an Alloy Smelter

* + - 12 x Twigs and Prunings
      * Sag Mill Shrub or Dead Bush
    - 1 x Slimeball
  + 1 x Organic Black Dye
* **Conduit Binder Composite** ***[to make Conduits to transfer Items, Power & Fluids]***
  + 5 x Gravel
  + 2 x Sand
  + 2 x Clay *[Item]*

**SIMPLE TIER MACHINES *[LOSES POWER OVER TIME]*:**

* **Simple Powered Furnace** – Electric Furnace *[Does not allow Alloying]*
  + 2 x Iron Ingot
  + 2 x Stone Bricks
  + 1 x Bucket
  + 1 x Furnace
  + 2 x Stone Gear
    - 4 x Cobblestone
    - 4 x Stick
  + 1 x Simple Machine Chassis
    - 4 x Iron Bar
      * 6 x Iron Ingot
    - 4 x Iron Ingot
    - 1 x Grains of Infinity
* **Simple Alloy Smelter** – Electric Furnace Allowing Alloying of 2 to 3 Materials together *[Does not allow basic Furnacing]*
  + 3 x Iron Ingot
  + 1 x Bucket
  + 2 x Furnace
  + 2 x Stone Gear
    - 4 x Cobblestone
    - 4 x Stick
  + 1 x Simple Machine Chassis
    - 4 x Iron Bar
      * 6 x Iron Ingot
    - 4 x Iron Ingot
    - 1 x Grains of Infinity
* **Simple Sag Mill** – Crushes Ores and Ingots into Pulverized *[Powdered]* forms *[Ores will give 3 Ingots worth of Pulverized Metals; generally]*
  + 3 x Flint
  + 2 x Iron Ingot
  + 1 x Piston
  + 2 x Stone Gear
  + 1 x Simple Machine Chassis
* **Simple Sterling Generator** - Burns Fuel to create Power *[Micro Infinity Power Type, 2:1 compatible with RF]*
  + 4 x Stone Bricks
  + 1 x Piston
  + 1 x Furnace
  + 2 x Infinity Bimetal Gear
    - 4 x Iron Ingot
    - 4 x Iron Nugget
    - 1 x Grains of Infinity
  + 1 x Simple Machine Chassis
    - 4 x Iron Bar
      * 6 x Iron Ingot
    - 4 x Iron Ingot
    - 1 x Grains of Infinity

**NORMAL TIER MACHINES:**

* **Alloy Smelter** – Electric Furnace *[can switch between Furnace mode and Alloying Mode]*
  + 1 x Simple Powered Furnace + 1 x Simple Alloy Smelter *[or 3 x Furnace]*
  + 2 x Dark Steel Ingot
  + 2 x Dark Bimetal Gear
    - 8 x Dark Steel Nuggets
    - 1 x Infinity Bimetal Gear
  + 1 x Industrial Machine Chassis

**NOTE:** This is technically an Alloy, so process it in an Alloy Smelter

* + - 1 x Simple Machine Chassis
      * 4 x Iron Bar
        + 6 x Iron Ingot
      * 4 x Iron Ingot
      * 1 x Grains of Infinity
    - 1 x Industrial Dye Blend
* **Sag Mill** – Crushes Ores and Ingots into Pulverized *[Powdered]* forms *[Ores will give 3 Ingots worth of Pulverized Metals; generally]*
  + 1 x Simple Sag Mill *[or 3 x Flint + 1 x Piston]*
  + 2 x Dark Steel Ingot
  + 2 x Dark Bimetal Gear
  + 1 x Industrial Machine Chassis
* **Sterling Generator** - Burns Fuel to create Power *[Micro Infinity Power Type, 2:1 compatible with RF]*
  + 1 x Simple Sterling Generator *[or 2 x Stone Bricks + 1 x Furnace + 1 x Piston]*
  + 2 x Dark Steel Ingot
  + 2 x Dark Bimetal Gear
  + 1 x Industrial Machine Chassis

**USEFUL MACHINES:**

* **Experience Obelisk** – Store your Minecraft Enchantment Levels. Afterwards you can reclaim them or push them into other Machines in Liquid form
* **Weather Obelisk** – Changes the Weather based on Fluid Catalyst *[Requires a lot of Power]*
* **The Vat** – Combines Items and Fluids to create other Fluids
* **Wireless Charger** – Recharges Compatible “Battery Powered” Tools
* **Slice’n’Splice** – Combines several items and Mod Drops into Crafting Components
* **Zombie Generator** – Created with Zombie Head Mod Drops and filled with liquefied Meat called Nutrient Distillation as a fuel source to create Power
* **Frank’n’Zombie Generator** – Created with Zombie Head Mod Drops and filled with liquefied Meat called Nutrient Distillation as a fuel source to create More Power
* **Enchanter** – Combines Items, Book and Quill and XP to create Enchanted Books
* **Slice’n’Splice** – Combines several items and Mod Drops into Crafting Components
* **Soul Binder** – Combines a Broken Spawner with a Soul Vial to create a new operational Spawner of that Soul Type
  + **Soul Vial**
    - 1 x Soularium Ingot
    - 3 x Fused Quartz

**NOTE:** This is technically an Alloy, so process it in an Alloy Smelter

* + - * 1 x Block of Quartz *[or 4 x Nether Quartz]*
    - RClick on a Mob to set the Soul Type
* **Endervoir** – Infinite Water Source
* **Fluid Tank** – Store Fluids and Interact with them *Store Liquid XP and use this to Activate Dark Steel Upgrades]*

**CONDUITS:**

**NOTE:** Multiple Conduit Types can share the same Block Space by simply RClicking themn on each other. Shift RClicking will not work

* **Item Conduit *[Makes 8]*** – Transfers Items *[Can be Filtered with multiple Filter Types]*
  + 6 x Conduit Binder
  + 3 x Pulsating Iron Nugget
* **Fluid Conduit** ***[Makes 8]***– Transfers Fluids *[Limited by Gravity and Fluid Thickness. Can be Filtered by RClicking a Bucket of Desired Fluid onto it]*
  + 6 x Conduit Binder
  + 3 x Quite Clear Glass

**NOTE:** This is technically an Alloy, so process it in an Alloy Smelter

* + - Glass
* **Pressurized Fluid Conduit *[Makes 8]*** – Transfers Fluids *[Not limited by Gravity or Fluid Thickness. Can be Filtered by RClicking a Bucket of Desired Fluid onto it]*
  + 6 x Conduit Binder
  + 3 x Fused Quartz *[or 2 x Fused Quartz + 1 x Fluid Conduit - Upgrade]*
* **Ender Fluid Conduit *[Makes 8]*** – Transfers Fluids *[Instantly. Also Transfers multiple types at once]*
  + 6 x Conduit Binder
  + 2 x Vibrant Alloy Ingot
  + 1 x Fused Quartz *[or 1 x Pressurized Fluid Conduit - Upgrade]*
* **Energy Conduit *[Makes 8]*** – Transfers Energy *[Limited to 640mi (or ~320RF)/T]*
  + 6 x Conduit Binder
  + 3 x Conductive Iron Ingot
* **Enhanced Energy Conduit *[Makes 8]*** – Transfers Energy *[Limited to 5120mi (or ~2560RF)/T]*
  + 6 x Conduit Binder
  + 3 x Energetic Alloy Ingot *[or 2 x Energetic Alloy Ingot + 1 x Energy Conduit – Upgrade]*
* **Ender Energy Conduit *[Makes 8]*** – Transfers Energy *[Limited to 20,480mi (~10,240RF)/T]*
  + 6 x Conduit Binder
  + 3 x Vibrant Alloy Ingot *[or 2 x Vibrant Alloy Ingot + 1 x Enhanced Energy Conduit – Upgrade]*
* **ME Conduit *[Makes 4]*** – Applied Energistics 2 Compatibility Addon ***[SEE: OBJECTIVE 15 (PART 2) ]*** *[Connects most AE2 Devices via the Multiple Conduits in one Block Space Design of EnderIO]*
  + 6 x Conduit Binder
  + 2 x Fluix Crystal
  + 1 x Quartz Fibre
* **Dense ME Conduit *[Makes 1]*** – Applied Energistics 2 Compatibility Addon ***[SEE: OBJECTIVE 15 (PART 2) ]*** *[Connects most AE2 Devices via the Multiple Conduits in one Block Space Design of EnderIO]*
  + 5 x Conduit Binder
  + 4 x ME Conduit

**CONDUIT FILTERS:**

* **Basic Item Filter** – 5 Items
* **Advanced Item Filter** – 10 Items with more options
* **Big Item Filter** – 36 Items
* **Advanced Big Item Filter** –36 Items with more options
* **Existing Item Filter** – RClick an Inventory and Add Everything in it to the Filter!
* **Power Item Filter** – Interacts with Items based on the “Battery Power Level” of the Item

**ARMOR & TOOLS:**

* **Dark Helm:**
* **Dark Plate:**
* **Dark Leggings:**
* **Dark Boots:**
* **Dark Shield:**
* **The Ender:**
* **Dark Pickaxe:**
* **Dark Axe:**
* **Ender Helm:**
* **Ender Plate:**
* **Ender Leggings:**
* **Ender Boots:**
* **Ender Shield:**
* **The Ender Mk2:**
* **Ender Pickaxe:**
* **Ender Axe:**

**DARK STEEL UPGRADES:**

Craft a Dark Steel Anvil and use the Interface to add Dark Steel Upgrades

Dark Steel Upgrades must be Activated with Liquid XP before they can be added to Armor

* **Micro Anvil** – Allows you to Edit the Tool/Weapon/Armor Piece with Dark Steel Upgrades without an Anvil
* **Mini Anvil** - Allows you to Edit all Tool/Weapon/Armor Piece with Dark Steel Upgrades without an Anvil
* **Pocket Anvil** – Allows full Anvil Functionality without an Anvil
* **Direct** – Instantly collects Items into Inventory *[Limited to the Tools/Weapon used]*
* **Elytra** – Grants Chestplates the Flight Ability of an Elytra
* **Empowered I-V** – Overrides Tool Durability with a Rechargable Durability *[or “Battery Powered”]* dependant on mi or RF Chargers *[Such as the Wireless Charger or @ThermalExpansion’s Energetic Infuser]*
* **Night Vision** – Self Explanitory *[Infinite but can be turned on and off]*
* **Solar I-III** – Recharges Armor while in sunlight
* **Sound Locator** – Displays Location of Sounds
* **The One Probe** – Your One Probe can be added to your Dark Steel Helm to see Inventory’s Contents without opening them

***OBJECTIVE 14: HUNTING DIMENSION***

***[Dimension just for Mob Hunting]***

1. Build a securable room for the Portal *[The Portal will randomly spawn a Mob from the Hunting Dimension, so you don’t want that roaming your base]*
2. Craft 3 Hunting Dimension Frames
3. Assemble the Portal just like a Nether Portal
4. Finally, RClick the bottom of the Portal Frame with any Sword *[Vanilla or Modded]* to activate it.
5. Whenever you want to travel to the Hunting Dimension to Farm Mobs, stand in the Portal and Crouch with Shift

**NOTE:** The Mobs here are Stronger, have more Armor; but also have more Loot!

**REMEMBER:** Create a Waypoint with B to find your way back to the Portal, or you may be stuck here

Lastly, have fun exploring!

# SIDE PROJECT 8: GENETICS REBORN

***[Gain Abilities from Gene Therapies based on Mob Genes]***

**Process:**

1. Craft a Metal Scraper and use it with RClick on any mob to obtain it’s Organic Matter
2. Craft yourself a Cell Analyser to process a Mob’s Organic Matter to get Cells for that Mob
3. Craft a DNA Extractor to process the Mob’s Cells to obtain “Gene Type: Unknown” DNA Helixes for that Mob
4. Craft a DNA Decrypter to process “Gene Type: Unknown” DNA Helixes to get either “Gene Type: Basic Gene” or a “Gene Type: Trait Specific Gene” DNA Helixes for that Mob

**EXAMPLE:** DNA Helix | Gene of a Llama | Gene Type: Basic Gene

**EXAMPLE:** DNA Helix | Gene of an Ender Dragon | Gene Type: Flight

1. Craft 8 Basic Gene DNA Helixes into a “Gene Not Set” DNA Plasmid
2. Craft a Plasmid Infuser and place a Trait Specific DNA Helix on left, and a “Gene Not Set” DNA Plasmid on right. It will process the “Trait Specific” DNA Helix and add it to the DNA Plasmid; making the Plasmid Trait Specified. Complete the now Trait Specified DNA Plasmid by adding more “Trait Specific” DNA Helixes or Basic Helixes

**NOTES:**

* All DNA Helixes (Basic or Trait Specific) must be from the same Mob
* Amount to complete the Plasmid is shown at the bottom right of the Plasmid Infuser’s UI
* Trait Specific DNA Helixes Grant 2 Points, Basic DNA Helixes only grant 1 point
* Hard Mode will not let you use Basic DNA Helixes to complete DNA Plasmids

1. Craft a Glass Syringe and use it on Yourself with RClick
2. Craft a Blood Purifier and place the filled Glass Syringe in here to purify the blood for the first time
3. Craft a Plasmid Injector and place the completed Trait Specified DNA Plasmid on the left and the Purified Glass Syringe on the right
4. **IMPORTANT:** Once the Gene Therapy has been added to your Syringe, you MUST place it BACK in the Blood Purifier again to purify the Gene Therapy
5. Use Shift+RClick to Syringe yourself again to give yourself that Mob’s Gene Trait

**NOTES:**

* Best to add Gene Therapies one at a time – Especially when attempting Flight! Make sure you add one of its prerequisites BEFORE adding Flight!
* Most Mutations will also give you the previous version of that Gene

**EXAMPLE:** Strength II Mutated Cells will grant both Strength II & Strength I Genes

This means you can skip some basic processing and focus on just the Mutation instead and get BOTH versions at the same time! (Look for Genes in *ITALICS*)

* The recommended Genes to obtain are in **BOLD**

***List of Basic Gene Therapies:***

Bioluminescence Blaze, Magma Cube (You become a Light Source; bad for server)

*Claws Wolf, Polar Bear (Attack with your bare hands to apply Bleeding*

*effect; Mutatable)*

Climb WallsSpider, Cave Spider (Climb Vertical Walls; however you cannot

vertical slide down walls)

Dragon’s BreathEnder Dragon (Press H, Kill everything)

Eat GrassCow, Sheep (RClick Grass with empty hand to eat Half a chunk of

Hunger)

*Efficiency Silverfish (All tools receive Efficiency I; Mutatable)*

Emerald HeartVillager (You drop an Emerald when you die)

**Ender Dragon’s Health Holding a Dragon Health Crystal depletes its Durability**

**whenever you receive damage**

Explosive ExitCreeper (If you have 5 Gun Powder upon death – you explode)

**Fireproof Zombie Pigman, Blaze, Magma Cube (Fire & Lava can’t stop you**

**now)**

**Flight** **Ender Dragon (Creative Flight; This is still a Mutation; Must have**

**No Fall Damage, Jump Boost or Teleport to add Mutation)**

*Haste Silverfish (Permanent Haste I potion effect; Mutatable)*

Jump Boost Horse, Rabbit (Higher Jump ability)

Keep Inventory Endermite (Died? You keep Everything – may loose armor if you

have a full inventory at the time)

Item Attraction FieldEndermite (Attact items in a 6 block range)

Infinity Skeleton (You don’t need normal Arrows to fire a bow)

Lay Eggs Chicken (Every 5-7 Minuites, lay an Egg; *Plop!)*

Meaty Pig (Other players can Shear you for Raw Pork Chops; Mutatable)

Milky Cow (Other players can Milk you with a Bucket)

**Mob Sight Bat, Guardian (See Mobs via an outline)**

***More Hearts Iron Golem, Endermen (+10 Hearts; Mutatable)***

Night Vision Bat, Spider, Cave Spider, Wolf (Permanent Night Vision potion

effect)

**No Fall Damage Chicken (Like it says)**

No Hunger Wolf (Hunger will not drop below half)

**Poison Immunity** **Cave Spider (Poison effects will instantly disappear)**

***Regeneration******Iron Golem, Shulker (permanent Regeneration II potion effect;***

***Mutatable)***

***Resistance******Shulker, Zombie (Permanent Resistance I potion effect;***

***Mutatable)***

***Scare Creepers******Ocelot (Creepers will run away & not blow up near you;***

***attacking them will change that though; Mutatable)***

***Scare Skeletons******Wolf (Skeleton will run away, but can still shoot you; Mutatable)***

Shoot Fireballs Blaze, Ghast (Hold a Blaze Rod and RClick; Will not affect blocks)

Slimey Slime (When you die, a substitute Slime will spawn and take the

heat from the mobs around you; escape while you can)

*Speed Ocelot, Rabbit, Horse (Walk and Sprint faster; Mutatable)*

Step Assist Horse, Polar Bear (Walk – not jump – up 1 block high obstacles)

***Strength Polar Bear, Llama (Permanent Strength I potion effect;***

***Mutatable)***

Teleport Endermen (Press G, teleport where you’re looking 6 Blocks; if you

fall the distance stacks until you hit the Ground)

**Water Breathing Squid, Guardian (Breathe under water)**

Wooly Sheep (Other players can shear you for wool)

**Wither Hit Wither Skeleton (Hit something to give it Wither for 1-5**

**seconds)**

**Wither Proof Wither (No more Withering Effect)**

XP Attraction Field Endermite (Draw in XP Orbs around you)

**Mutation Process:**

**NOTES:**

* Use either a Brewing Stand or Incubator
* Use an Incubator in Low Temp Mode – click the Heat Bar – from Potion of Cell Mutation stage onwards, for best results; or use High Temp Mode with a Chorus Fruit as a tertiary Ingredient
* An Incubator’s Low Temp Mode will take about a full Minecraft Day
* Make 9

1. **Substrate (Tier 0):**
   1. *3 x Water Bottles + 1 x Redstone*
   2. *3 x Mundane Potion + 1 x Any Organic Matter*
   3. Used to duplicate Cells (Base Potion)

* Substrate + any Cell = 3 of the same Cell (Brewing Stand/High Temp Incubator)
* Substrate + any Cell = 18 of the same Cell (Low Temp Incubator)

1. **(PCG) Potion of Cell Growth (Tier 1):**

**IGNORE THIS TIER**

* + - 3 x Substrate + Any Basic Gene Helix
    - ~~Grants new Cells with high chance of success in a DNA Decrypter. If the Cell fails, it becomes a Basic Gene~~

1. **(PCM) Potion of Cell Mutation (Tier 2):**
   1. 3 x Potion of Cell Growth + Fermented Spider Eye
   2. Base potion for the Overpowered Gene versions. These PCM’s should be used in an Incubator (Low Temp Mode) for best results.
   3. Grants new Cells with DNA Helix with high chance of success in the DNA Decrytper. *If the Cell fails, it grants the lower version of the Mutated Gene (eg: Speed I not Speed II);* or a Mutated Gene.
   4. When building Plasmids for Mutations, you can only use Mutated Gene Helixes (Basic). (Although I’ve never had issues ignoring this)
   5. Throwing a PCM on grass will create Cursed Earth if the Extra Utilities mod is installed
   6. Any Mutatable Gene from the initial Gene list can be obtained by Mutating the higher version
      * *PCM + Any Cell*

= Potion of Cell Mutation (That Cell Type)

* + - PCM (Any Cell Type) + Sugar

= 75% Mutated Gene (used for completing genes & making plasmids for mutations)

* + - * **PCM (Bat/Parrot Cell Type) + Feather**

**= 75% Flight (requires either: Teleportation, Jump Boost or No Fall Damage)**

* + - * **PCM (Shulker/Zombie Cell Type) + Diamond**

***= 50% Resistance II vs Resistance I***

* + - * PCM(Bear/Wolf Cell) + Diamond

= 50% Claws II vs Claws I

* + - * **PCM (Bear/Llama Cell Type) + Emerald**

**= 50% Strength II vs Strength I**

* + - * PCM (Rabbit Cell Type) + Redstone

= 50% Speed II vs. Speed I

* + - * PCM (Ocelot Cell Type) + Redstone

= 50% Speed III vs. Speed II

* + - * **PCM (Rabbit Cell Type) + Emerald**

**= 50% Luck II**

* + - * PCM (Rabbit Cell Type) + Iron Ingot

= 50% Haste II vs. Haste I

* + - * PCM (Silverfish Cell Type) + Redstone

= 50% Efficiency IV vs. Efficiency I

* + - * **PCM (Zombie Cell Type) + Spider Eye**

**= 75% Scare Zombies vs Scare Creepers**

* + - * **PCM (Spider Cell Type) + Spider Eye**

**= 75% Scare Spiders vs Scare Skeletons**

* + - * **PCM (Ender Dragon Cell Type) + Redstone**

**= 50% Regeneration II vs Regeneration I**

* + - * **PCM (Skeleton/Bat Cell Type) + Eye of Ender**

**= 50% Invisibility**

* + - * **PCM (Enderman Cell Type) + Golden Apple**

**= 50% More Hearts II vs More hearts I**

1. **(BVA) Bottle of Viral Agents (Tier 3):**
   1. Potion of Mutation + Chorus Fruit
   2. Base Splash Potion to transfer negative affects to mobs and players. These Viral Genes will keep returning until the target receives the Cure or dies. Temporarily alleviate symptoms with milk.
   3. To create the Negative Genes, use these Viral Splash Potions on yourself (free of other gene therapies), then extract your blood for a syringe of all those splash potion Negative Genes.

* BVA + Poison Immunity Helix = Poison II
* BVA + Wither Hit Helix = Poison IV
* BVA + Wither Proof Helix = Wither II
* BVA + Strength Helix = Weakness
* BVA + Night vision Helix = Blindness
* BVA + Speed I Helix = Slowness I
* BVA + Speed II Helix = Slowness IV
* BVA + Speed III/Flight Helix = Slowness VI
* BVA + Milky/Meaty/Lay Egg Helix = Nausea
* BVA + No Hunger Helix = Hunger
* BVA + Fire Proof Helix = Flambé
* BVA + Luck Helix = Cursed
* BVA + Haste Helix = Mining Fatigue
* BVA + Emerald Heart Helix = Convert Villagers to Zombie
* BVA + Scare Creeper Helix = Instant Death to Creepers (Green Death)
* BVA + Scare Zombie/Skeleton Helix = Instant Death to Undead (Un-Death)
* BVA + Resistance Helix = Instant Death to Passive Mobs (White Death)
* BVA + Dragon Breath Helix = Instant Death to Hostile Mobs (White Death)
* BVA + Glass Syringe with all negative genes = Death to ALL (Black Death) (Wither II + Poison IV + Weakness + Blindness + Slowness VI + Nausea + Hunger + Flambé + Cursed + Mining Weakness + Green Death + Un-Death + White Death)

1. **The Cure:** Curesmobs or players of any virus

* **BVA + Emerald Heart Helix = The Cure**
  + Using a Cure potion on a Zombie Villager will instantly convert it into a villager

***List of Mutation Gene Therapies:***

Claws Polar Bear (Mutate up to Claws II – They Bleed twice as fast)

EfficiencySilverfish (Mutate up to Efficiency IV)

**Flight Ender Dragon, Bat, Parrot (Creative; Must have Jump Boost,**

**Teleport or No Fall Damage to add Mutation)**

Haste Silverfish (Mutate up to Haste II)

**Invisible** **Permanent Invisibility potion effect (Mutation Only)**

**Luck** **Permanent Luck potion effect (Mutation Only)**

Meaty Pig (Mutate up to Meaty II to drop Raw Pork Chops every 5-7

Minutes)

**More Hearts Iron Gloem, Endermen (+10 Extra Hearts – 20 Total)**

**Regeneration Iron Golem, Shulker (Mutate up to Regeneration IV)**

**Resistance Shulker, Zombie (Mutate up to Resistance IV)**

**Scare Creepers Ocelot (Mutate to Scare Zombies as well)**

**Scare Skeletons Wolf (Mutate to Scare Spiders as well)**

Speed Ocelot, Rabbit (Mutate up to Speed IV)

**Strength Polar Bear (Mutate up to Strength II)**

**NOTE:** Dying will not destroy your gene therapies (custom config)

**NOTE:** To Backup Gene Therapies: Syringe Yourself again, Centrifuge the Filled Syringe and store for when needed.

***RECOMMENDED MINIMUM SETUP***

1 x All 6 Basic Processing Machines

9 x Advanced Incubators:

**Bottom Left to Right - Cell Cloning:**

* Mundane Potion Creation (3 x Water + 1 x Redstone

**NOTE:** Any more and the Mundane Potion will Process a second Redstone

* Organic substrate Creation (3 x Mundane Potion + Stack of Organic Matter)
* 3 x Organic Substrate + 1 x Desired Cell (High Temp = 3 / Low Temp = 18)

**Middle Left to Right - Mutation Process 1-3:**

* Mundane Potion Creation (3 x Water + 1 x Redstone [NOTE: any more and the Mundane Potion will Process a second Redstone] )
* Organic substrate Creation (3 x Mundane Potion + Stack of Organic Matter)
* Potion of Cell Growth Creation (3 x Organic Substrate + Stack of Basic Genes)

**Top - Left to Right - Mutation Process 4-6:**

* Potion of Cell Mutation Creation (3 x Potion of Cell Growth + Stack of Fermented Spider Eye)

**NOTE - Mod Compatibility:** An Aqueous Accumulator from Thermal Expansion + 2 x Spores Recreator from Industrial Foregoing can help with both Mushroom Type production (one for each). And if you have Bird’s Foods installed, you can use its recipe for 1 x Red Mushroom + 1 x Potato to make a Poisonous Potato then use it as a substitute for Spider Eyes.

**TIP:** Bird’s Foods is better than Pam’s Harvestcraft as it gives similar food crafting, but only with vanilla world gen - so no extra lag for gardens and additional trees

* Potion of Cell Mutation (Mob Specific) Creation: 3 x Potion of Cell Mutation + Stack of Mob Specific Cells
* Mutated Cell (Mutation Specific): 3 x Potion of Cell Mutation (Mob Specific) + Stack of “Catalyst”

**EXAMPLE:** 3 x Potion of Cell Mutation (Parrot) + Stack of Feathers = Parrot Cells (Flight Mutated)

**TIP:** Add your favourite Redstone Lamp from either vanilla or a mod. Because when these machines finish processing, they will emit a Redstone signal that will turn on the Lamp letting you know that the Process is finished! (a suggestion I made on Github a while ago that was implemented, nice!)

# https://lh4.googleusercontent.com/oRWNvRldX7S4mX2aq5-yjnOgy0E4I9TR2j1ZvX4jMRWhRSpqq7mk9bKSLIsVWeFjq4D0dvqalluqtROB7CHt0svQ8dLVJ2Kpy8--gvjdF2tIqtmY5j5qfWD5zo_UT1MWUeVy3mDIhQegDyGSYvd0w10

***SIDE PROJECT 9: MODS TO CRAFT WITH***

***[Reminder from Vanilla vs Modded: 8]***

**@AbsentByDesign:**

Missing vanilla recipes *[Crafting Slabs, Stairs, Walls and Fences with materials that Vanilla Minecraft doesn’t allow (such as Stone, Prismarine, Granite, Brick, etc) ]*

**@AdditionalLights:**

Pedestal and Firepit Lighting

**Stone Bricks Standing Torch – L:**

2 x Stone Bricks

1 x Coal or Charcoal

**Stone Bricks Fire Pit – L:**

6 x Stone Bricks

1 x Coal or Charcoal

And more…

**@BiblioCraft:**

**Bookshelves *[Book Storage Cupboard]:***

6 x Wood Planks

3 x Wood Slabs

**Tool Rack *[Tool & Weapon Storage Cupboard]***

8 x Wood Slabs

1 Iron Ingot

**Tables *[that can display items]:***

3 x Wood Slabs

2 x Wood Planks

**Chairs *[that you can sit in]:***

Wool

Wood Slab

Pressure Plate

2 x Sticks

**Chair Backs *[to add to your Chairs]:***

Wool

Wood Slab

**Dinner Plate *[to display your Steak and Veg]:***

3 x Quartz Slabs

and more…

**@CookingForBlockheads:**

Multiblock Kitchen Items:

**Cooking Table *[Crafting Table for Food]:***

3 x Stone

5 x Terracotta

1 x Cooking for Blockheads II (Manual)

2 x Crafting Tables

2 x Diamonds

1 x Cooking for Blockheads I (Manual)

Cook a Book

**Kitchen Counter *[any Food items stored can be crafted with from the Cooking Table]*:**

3 x Stone

5 x Terracotta

1 x Chest

**Kitchen Cabinet *[any Food items stored can be crafted with from the Cooking Table]*:**

5 x Terracotta

1 x Chest

**Fridge *[any Food items stored can be crafted with from the Cooking Table; can also be stacked 2 high to increase storage]*:**

1 x Chest

1 x Iron Door

**Oven *[Cooks Food]*:**

3 x Glass

5 x Iron Ingot

1 x Furnace

**Cow in a Jar *[infinite milk]:***

Drop an Anvil on top of a Cow that’s standing on top of a Milk Jar.

Milk Jar:

7 x Glass

1 x Milk Bucket

1 x Wood Planks

**Fruit Basket *[displays Food items]:***

2 x Wood Planks

1 x Pressure Plate

**Kitchen Floor *[connects all Kitchen Blocks into a Multiblock Structure]:***

2 x Block of Quartz

2 x Block of Coal

And more…

**@IronChest:**

**Iron Chest *[2 x Chest Sized]:***

1 x Chest

8 x Iron Ingot

**Gold Chest *[3 x Chest Sized]:***

1 Iron Chest

8 Gold Ingot

**Diamond Chest *[4 x Chest Sized]:***

6 x Glass

2 x Diamond

1 x Gold Chest

And more, like: Iron/Gold/Diamond Shulker Chests

**@Prefab:**

* Blueprints that will automatically build the structure you choose.
* You’ll start out with a **Starting House** Blueprint.
  + Will give you a rather nice starting base to simply move into, complete with Chests, a Bed, Leather Armor, Stone Tools, Food, a Farm for Crops and a Ladder straight to Diamond Mining Level
* RClick on the ground to activate your chosen Blueprint.
* Once Active, you can Click Preview to see what it will look like in the surrounding area.
* Other blueprints *[including the Starting House]* are available to be built:
  + **Moderate House**
    - 3 x **Starting House**
      * 1 x Crafting Table
      * 1 x Clock
        + 4 x Gold Ingot
        + 1 x Redstone
      * 1 x Furnace
      * 2 x Compressed Stone
        + 9 x Stone
      * 1 x Bed
      * 3 x Bundle of Timber
        + 9 x Wood (Logs)
  + **Produce Farm:**
    - 4 x Pallet of Bricks
      * 9 x Pile of Bricks
        + 9 x Bricks
    - 2 x Double Compressed Dirt
      * 9 x Compressed Dirt
        + 9 x Dirt
    - 2 x Water Buckets
    - 1 x Double Compressed Glowstone
      * 9 x Compressed Glowstone
        + 9 x Glowstone
* And heaps more!

**@Quark:**

Among other Quality of Life things via its Configs, it adds a Recipe for each of the Vanilla Wood types for Chests *[that can be stacked side by side without needing a Trapped Chest in between]* and Trap Doors.

**@RedstonePaste:**

* **Sticky Redstone *[can run round corners, up walls and on ceilings]*:**

1 x Redstone

1 x Slime Ball

* **Sticky Repeater *[that can also be placed on walls and ceilings]*:**

1 x Redstone Repeater

1 x Slime Ball

* **Sticky Comparator *[that can also be placed on walls and ceilings]*:**

1 x Redstone Comparator

1 x Slime Ball

* All these can further be hidden by placing Slabs on top of them.

**@SecretRooms:**

Uses Camouflage Paste to create Secret Blocks:

8 x any Dye of same colour

1 x Sand, Dirt or Clay

* **Secret Lever *[Looks like a normal block (like Stone), but works as a Lever]:***

1 x Lever

4 x Camouflage Plaste

4 x Wool or Rotten Flesh

* **Torch Lever *[Looks like a Torch, also a Lever]:***

1 x Torch

1 x Lever

* **Secret Pressure Plate** ***[Looks like a normal block (like Stone), but works as a Pressure Plate]:***

1 x Wooden Pressure Plate

4 x Camouflage Paste

4 x Wool or Rotten Flesh

* **Secret Player Plate *[Looks like a normal block (like Stone), but works as a Pressure Plate that only Players can trigger]:***

1 x Stone Pressure Plate

4 x Camouflage Paste

4 x Wool or Rotten Flesh

* **One-Way Glass** ***[Makes a normal looking Block (like stone) from one side and Glass on the other that can see through to the other side]:***

6 x Glass

3 x Camouflage Paste

**@Waystones:**

* These can be found around the world, or crafted yourself.
* RClicking one will activate it for yourself only.
* Once you have activated more than one, you can RClick one, and choose any other Waystone to travel to by teleportation.
* If you Place it yourself, you can choose both its Name and if it is active for everyone or just yourself.
* Craft a Waystone:

3 x Stone Bricks

3 x Obsidian

1 x Warp Stone

4 x Purple Dye

4 x Ender Pearl

1 x Emerald

***SIDE PROJECT 10: INTERESTING TOOLS***

***[Reminder from Vanilla vs Modded: 9]***

**@Chisel:**

Craft a Chisel:

1 x Iron Ingot

1 x Stick

1. Use it with RClick
2. Place nearly any Block inside it
3. Take a Cosmetic version of that block out. *[The Pretties]*…

**@AkashicTome:**

Craft an Akashic Tome *[you will Spawn with one]*:

1 x Book

1 x Leather

3 x Paper

1 x Bookshelf

6 x Wood Planks

3 x Book

1. Craft it with any Manuals you receive
2. Use RClick to select any Manual
3. Use RClick to use that Manual
4. Use Click in the distance to convert it back to the Akashic Tome

**@NotEnoughWands:**

A large variety of Wands *[to be Built and found as Loot]* that consume Enchantment Levels to perform some useful actions.

* + **Building Wand** *[makes Building easier]*
  + **Capturing Wand** *[RClick on a Mob to Capture it. Shift+RClick to place it elsewhere]*
  + **Illumination Wand** *[Places Sources of Light]*
  + **Teleportation Wand** *[teleport a short distance]*
  + and more…

**@PortalGun:**

* There are several types of Portal Gun.
  + Each Type has its own “Frequency”.
  + Players must agree not to use another’s Portal Gun type or risk wiping each other’s Portal Placements.
  + Click to place Type 1 Portal.
  + RCLick to place Type 2 Portal.
  + Walk into these portals to travel between them.
  + Craft a Portal Gun:

5 x Iron Ingot

2 x Obsidian

1 x Diamond

1 x Minature Black Hole

1 x Nether Star

8 x Ender Pearl Dust

Smelt an Ender Pearl

# SIDE PROJECT 11: @CURIO

***[Flight Alternative + More]***

**Infusion:**

1 x Infusing Table

1 x Enchantment Table

1 x Each of:Fire, Water, Air, Earth & Mystical Crystals

To Level Up your Mystical Crystals: RClick one into the Infusing Table, then you must also RClick 0-8 Lapis depending on the Level of Crystal you require:

* 0 Lapis: Level 5 Crystal
* 1 Lapis: Level 10 Crystal
* 2 Lapis: Level 15 Crystal
* 3 Lapis: Level 20 Crystal
* 4 Lapis: Level 25 Crystal
* 5 Lapis: Level 30 Crystal
* 6 Lapis: Level 35 Crystal
* 7 Lapis: Level 50 Crystal
* 8 Lapis: Level 100 Crystal

RClick to Start, Shift RClick to remove the last added item.

You also need the corresponding Experience Levels collected for the Infusion.

**Base Crafting Ingredients:**

* Fire Crystal Shard: Nether
* Earth Crystal Shard: Forests
* Air Crystal Shard: Mountain Tops
* Water Crystal Shard: Floor of Large Bodies of Water
* Mystical Crystal: Ore found near Diamond Ore
* Ring: 4 x Gold Nuggets
* Amulet: 4 x Leather
* Belt: 3 x Leather, 1 x Iron Ingot
* Tiara: 4 x Gold Nuggets

**Others:**

* Curious of Curio (Instruction Manual):

1 x Mystical Crystal, 1 x Book

* Pedestal (Display any item; also shares item’s effect to the Player who placed it up to 25 blocks):

2 x Level 20 Mystical Crystals, 1 x Glass, 4 x Polished Diorite

**Bauble Items:**

* Amulet of the Fiery Core (Fire Protection; Limited Durability):

1 x Amulet, 1 x Level 20 Mystical Crystal, 2 x Fire Crystal Shards, 1 x Potion of Fire Resistance (8:00)

* Amulet of Night Vision (Duh…):

1 x Amulet, 1 x Level 25 Mystical Crystal, 1 x Night Vision Potion (8:00)

* Amulet of Diving (Water Breathing):

1 x Amulet, 1 x Level 20 Mystical Crystal, 1 x Air Crystal Shard, 1 x Potion of Water Breathing (8:00), 1 x Water Crystal Shard

* Growth Pendant (Speeds up plant growth; Limited durability):

1 x Amulet, 1 x Level 20 Mystical Crystal, 2 x Bone Meal, 1 x Earth Crystal Shard

* Belt of Water Walking (Walk on top of Water; Hold Shift to descend):

1 x Belt, 1 x Level 10 Mystical Crystal, 1 x Water Crystal Shard

* Belt of Feather Falling (Removes fall damage):

1 x Belt, 1 x Level 5 Mystical Crystal, 2 x Feathers, 1 x Air Crystal Shard

* Speed Belt (Speed Upgrade; Affects Flight as well):

1 x Belt, 1 x Level 10 Mystical Crystal, 2 x Feathers, 1 x Potion of Swiftness (1:30)

* Wall Climbing Belt:

1 x Ladder, 1 x Belt, 2 x Vines, Level 5 Mystical Crystal

* Ring of Flight (Creative Flight):

1 x Ring, 2 x Feathers, 1 x Level 100 Mystical Crystal, 2 x Air Crystal Shards, 1 x Nether Star

* Magnet Ring (Pulls mined and loose items to you; Limited range):

2 x Iron Ingots, 2 x Level 10 Mystical Crystals, 1 x Ring

* Deflection Tiara (Deflects 50% of Projectiles; Infusible with 50 Levels for 100% Deflection):

1 x Tiara, 1 x Level 25 Mystical Crystal, 1 x Shield

***SIDE PROJECT 12:* @ENDERSTORAGE**

***[Item & Fluid Storage that can be linked across Infinite Distances and Dimensions]***

**NOTE:** You get an Ender Pouch when you Spawn in the world. *ANYONE* can access its Inventory, until you change its Frequency *[which is recommended]*

**Ender Chest:** For Item Storage. *[Can be privatized to stop others accessing your Color Frequency remotely if you Shift+RClick a Diamond onto the Golden Latch]*

4 x Blaze Rods

2 x Obsidian

1 x Ender Pearl

1 x Chest

1 x Wool *[Wool Color designates starting Frequency]*

**Ender Pouch:** For Item Storage on the go. *[Links with Ender Chests if you Shift+RClick an Ender Chest with it. This also copies any Privatized settings]*

4 x Blaze Powder

3 x Leather

1 x Ender Pearl

1 x Wool *[Wool Color designates starting Frequency]*

**Ender Tank** *[For Fluid Storage]*

4 x Blaze Rods

2 x Obsidian

1 x Ender Pearl

1 x Cauldron

1 x Wool *[Wool Color designates starting Frequency]*

All of these have 3 Buttons on top of them. The color of the buttons designates the “Color Frequency” the Chest/Pouch/Tank is tuned to, and these buttons can be changed on the Chest & Tank by RClicking a Vanilla or Modded Dye onto each of them; into any combination of matching or different colors. The Pouch is different. To change the Color Frequency, Shift+RClick an Ender Chest to Synchronize the Pouch to the Chest’s Color Frequency.

***SIDE PROJECT 13: @ENCHANTINGPLUS***

***[Advanced Enchanting]***

Craft 1 x Advanced Enchantment Table

* 4 x Gold Ingots
  + 2 x Obsidian
  + 1 x Book and Quill
    - 1 x Book
    - 1 x Feather
    - 1 x Ink Sac
  + 1 x Eye of Ender
    - 1 x Ender Pearl
    - 1 x Blaze Powder
  + 1 x Enchantment Table
    - 4 x Obsidian
    - 2 x Diamond
    - 1 x Book

This Advanced Enchantment Table Shows the names of every accessible Enchantment in the Game and its cost. It has the same requirements as the Vanilla Enchantment Table in regards to Bookshelves and Enchantment Levels…

***SIDE PROJECT 14: @RANGEDPUMPS, @ENDERSTORAGE & @THERMAL – INFINITE LAVA***

***[Lag free Lava pumped straight from the Nether]***

**NETHER:**

1 x Pump *[Placed on Block next to Lava Lake]*

1 x Magmatic Dynamo *[RClick with Crescent Hammer to “point” the Dynamo into the Pump]*

2 x Hardened Fluiducts *[Connects the Pump to the Dynamo to provide it with Lava; so it can provide the Pump with Power]*

1 x Ender Tank *[Shift+RClick on top of the Pump]*

Press **E** and select the little Map Icon in top Left.

RClick the Square your Pump is on to Claim it as yours

Shift-RClick your Claimed Square to **Chunk Load** it *[now it will stay active while you’re not there]*

**OVERWORLD:**

1 x Ender Tank *[Same Color Frequency as Nether Tank]*

**USES:**

* Place on top of Igneous Extruder to provide it with Infinite Lava to provide you with Infinite Stone, Cobblestone, Obsidian, etc
* Place near your Tinkers Construct Smeltery and connect it with a hardened Fluiduct to your Seared Tank to provide your Smeltery with infinite Lava to use it with…

***OBJECTIVE 15: DIGITAL STORAGE & CRAFTING***

***[Option 1: Modular Storage from RFTools]***

1 x “Modular Storage”

1 x Level 2 “Storage Module” (recommended)

Level 1 “Storage Module” needed in crafting

**NOTES:**

* Very cheap and simple while offering digital storage and crafting
* Requires access to Nether Quartz
* Only empty “Storage Modules” can be upgraded – Max Level 3
* No Power Required
* Cannot be accessed in the floor face up

# OBJECTIVE 15: DIGITAL STORAGE AND CRAFTING

# [Option 2-Part 1: Auto-Process Inscribers And Chargers from Ae2 & Super Factory Manager]

***NOTE:*** *Skip if not making an ME System (eg: if using Refined Storage or RF Tools)*

1 x Energy Acceptor

2 x Charger (If powered by ME Conduits from below, it will power Chargers above too)

9 x Inscriber (If powered by ME Conduits from below, it will power Inscribers above too)

1 x Inventory Manager

13 x Inventory Cable

1 x Chest

ME Conduit (Ender IO)

**Notes:**

Place all machines in a single line (no gaps) and build higher:

3 wide x 3 high of Inscribers

1 wide x 2 high of Chargers

1 x Inventory Manager with 1 x Chest on top

Then connect the Energy Acceptor to underneath the machines with ME Conduits and place Inventory Cable Blocks behind each machine.

Then, taking note of the XZY co-ords of the lineup, follow instructions for Inventory Manager below:

# Inventory Manager Setup:

**Trigger** (Setup 1/3 - Same Inventory Manager)

**Input:**

-Inventory: Chest

-Direction: North (Active)

-Blacklist: Nothing

**Flow: Split 2**

**Flow (#1) (Split 5): “Raw Material”**

**Output: “Silicon”**

-Inventory: Top Row, All (Y)

-Direction: North (Active)

-Whitelist: Silicon

**Output: “Gold”**

-Inventory: Middle Row, Left

-Direction: North (Active)

-Whitelist: Gold Ingot

**Output: “Diamond”**

-Inventory: Middle Row, Middle

-Direction: North (Active)

-Whitelist: Diamond

**Output: “Pure Certus”**

-Inventory: Middle Row, Right

-Direction: North (Active)

-Whitelist: *Pure* Certus Quartz

**Flow (#2) (Split 5): “Presses”**

**Output: “Silicon”**

-Inventory: Bottom Row, All (Y)

-Direction: Up (Active)

-Whitelist: Printed Silicon

**Output: “Logic”**

-Inventory: Bottom Row, Left

-Direction: Down (Active)

-Whitelist: Printed Logic Circuit

**Output: “Engineering”**

-Inventory: Bottom Row, Middle

-Direction: Down (Active)

-Whitelist: Printed Engineering Circuit

**Output: “Calculation”**

-Inventory: Bottom Row, Right

-Direction: Down (Active)

-Whitelist: Printed Calculation Circuit

**Output: “Redstone”**

-Inventory: Bottom Row, All (Y)

-Direction: North (Active)

-Whitelist: Redstone (Dust)

**Trigger:** (Setup 2/3 - Same Inventory Manager)

**Input:**

-Inventory: All Inscribers

-Direction: North (Active)

-Whitelist: All Printed Circuits & Processors

-(Silicon-Calculation - 7 Total)

**Output:**

-Inventory: Chest

-Direction: North (Active)

-Whitelist: All Printed Circuits & Processors

-(Silicon-Calculation - 7 Total)

**Trigger:** (Setup 3/3 - Same Inventory Manager)

**Flow: Split 2**

**Input: “Certus”**

-Inventory: Chest

-Direction: North (Active)

-Whitelist: Certus Quartz Crystal

**Output**

-Inventory: All Chargers

-Direction: North (Active)

-Whitelist: Certus Quartz Crystal

**Input: “Charged”**

-Inventory: All Chargers

-Direction: North (Active)

-Whitelist: Charged Certus Quartz Crystal

**Output**

-Inventory: Chest

-Direction: North (Active)

-Whitelist: Charged Certus Quartz Crystal

# Inscribers & Chargers.png

# OBJECTIVE 15: DIGITAL STORAGE & CRAFTING

# [Option 2-Part 2: M.E. System from AE2]

4 x Crystal Growth Accelerators

1 x Lever

1 x ME Toggle Bus

1 x Cable Facade

1 x Vacuum Chest

1 x Item Filter

*-OR-*

1 x Crystal Growth Chamber

1 x Chest

ME Conduits/ME Glass Cables - Fluix

**NOTE:**

Crystal Growth Accelerators must be turned off by Toggle Bus when not in use. It must connect to ME Glass Cable – Fluix (not ME Conduit). You must also place the toggle bus *under* the top piece of Glass Cable before connecting it to the rest of the setup – otherwise the level won’t reach the Toggle Bus.

---------------------------------------------------------------------------------------------------------

* 1 x ME Drive
* 1 x ME Crafting Terminal
* 1 x 16K Storage Cell (to start off with)
  + 2 x Quartz Glass
  + 3 x Redstone
  + 3 x Iron Ingot
  + 1 x 16K
    - 1 x Calculation Processor
    - 1 x Quartz Glass
    - 4 x Glowstone Dust
    - 3 x 4K
      * 1 x Calculation Processor
      * 1 x Quartz Glass
      * 3 x Redstone Dust
      * 3 x 1K
      * 1 x Logic Processor
        + 4 x Redstone Dust
        + 4 x Pure/Certus Quartz Crystal

**NOTE: Total for 1 x 16K Storage Cell:**

3 x Iron Ingots

4 x Glowstone Dust

6 x Quartz Glass

9 x Gold (for Logic Processors)

40 x Pure Certus Quartz Crystal (including 4 Calculation Processors)

51 x Redstone Dust

ME Glass Cable – Fluix (most ME devices – such as Terminals and Buses *require* Glass Cables)

ME Conduit

Conduit Facades – For aesthetics

Cable Facades – For aesthetics

**NOTE:**

I needed at least one AE2 Energy Cell (I used a Dense one) to fix the issues of continuous: crafting from the ME System & emptying my inventory into the ME System, both being interrupted

***OBJECTIVE 15: DIGITAL STORAGE & CRAFTING***

***[Option 3: Refined Storage]***

**Resources Needed:**

Iron

Nether Quartz

Silicon (can smelt Quartz)

Quartz Enriched Iron (Crafted 3 Iron : 1 Quartz)

Gold

Diamond

Redstone

Glowstone

(Power System Not Included in Mod)

**Machines Required:**

* 1 x Controller (Power Required)
* 1 x Solderer (Crafting Table + Furnace)
  + 6 x Quartz Enriched Iron
  + 2 x Sticky Pistons
* Crafting Grid (Recommended)
  + 1 x Crafting Table
  + 1 x Advanced Processor (Diamond Level)
* Grid (Accesses all connected Inventories)
  + 3 x Glass
  + 1 x Machine Casing
  + 1 x Q.E. Iron
  + 2 x Improved Processor (Gold Level)
  + 1 x Construction Core
  + Basic Processor (Iron Level)
    - Glowstone Dust
    - 1 x Destruction Core
    - Basic Processor (Iron Level)
    - Nether Quartz

**SOLDERER NOTES:**

* Put Silicon in this, and it will eventually make a Printed Silicon – the base for the mod
* Put Iron, Gold or Diamond in, and it will eventually make their Printed versions
* Put in Printed Silicon and the Printed version of Iron, Gold or Diamond for the Processors
* As long as the machines touch each other and a Controller they will all be powered
* Cables can extend power reach from Controller

6 x Quartz Enriched Iron, 2 x Glass + 1 x Redstone Dust = 12 x Cable

* Speed Upgrades can increase Operational Speed

1 x Sugar

1 x Redstone Dust

1 x Upgrade

6 x Q.E.Iron

2 x Glass

1 x Improved Processor (Gold Level)

**Tools:**

Wrench (You may never need it, but can come in handy)

R-Click Changes modes:

Config -> Dismantle -> Rotate

Shift-R-Click Uses Wrench

Config: Saves settings and transfers them to another machine

Rotate: Duh

Dismantle: Pickup Block

**Storage Option 1:**

1k Storage Block (Holds 1,000 Different Items/Stacks)

Basic Processor (Iron Level)

Machine Casing

?

1k Storage Part

1 x Redstone Dust

4 x Silicon

3 x Glass

1 x Q.E. Iron

4k Storage Block (Holds 4,000 Different Items/Stacks)

16k Storage Block (Holds 16,000 Different Items/Stacks)

64k Storage Block (Holds 64,000 Different Items/Stacks)

**Storage Option 2:**

External Storage (Connects to any modded/vanilla storage block/s)

1 x Construction Core

1 x Destruction Core

1 x Improved Processor (Gold Level)

1 x Cable

2 x Chests

3 x Q.E.Iron

**NOTES:**

* Flat part needs to be on the Storage
* Multiple Connects allowed
* R-Click on the flat part can access the filtering options
* Standard Whitelist/Blacklist rules apply
* Priority sets which storage block is used first

**Storage Option 3:**

1 x Disk Drive (Holds 8 Disks)

6 x Q.E. Iron

1 x Chest

1 x Machine Casing

1 x Advanced Processor (Diamond Level)

Disks – As many as you can make

1k Disk

1 x 1k Storage Part

1 x Storage Housing

2 x Glass

3 x Redstone Dust

3 x QE Iron

4k, 16k, 64k

# SIDE PROJECT 10: COMPUTERS

# [Option 1: OpenComputers - LUA based coding for so much – but focusing on Stargate Control]

**Basic PC:**

1 x Computer Case (Tier 3)

**NOTE:** Required for SGCX

**NOTE:** Your Case determines the Tiers of Components

1 x Graphic Card (Tier 3)

**NOTE:** Required for SGCX

1 x Internet Card – HTTP calls using real world TCP connections

**NOTE:** Required to install SGCX using the wget command

2 x Wireless Network Card

**NOTE:** Allows Devices to communicate across cabling and wirelessly using power

1 x CPU (Tier 3)

2 x Memory (Tier 3.5)

1 x Hard Disk Drive (Tier 3)

1 x Hard Disk Drive (Tier 2) (Optional)

1 x Screen (Tier 3)

**NOTE:** Although, OpenScreens’ Holo Screen looks cool, it cannot use the touch screen features of OC. Otherwise use a number of OpenScreens’ Flatscreen (Front or Back) (Tier 3), as they all form a much larger screen – and can use the touch screen features!

1 x Scrench

3 x OpenComputers Manuals

1 x Floppy Disk (Craft with the Manual to get a reusable OpenOS Disk)

1 x EEPROM (Craft with Manual to get OpenOS “Bios”)

**Basic Accessories**

1 x Charger

Allows recharging your Tablet

Also allows Installing Software to your Tablet like a Floppy

1 x Open Computers Stargate Interface

1 x Relay

1 x CPU (Tier 3)

1 x Memory (Tier 3.5)

1 x Hard Disk Drive (Tier 3)

1 x Wireless Network Card (Tier 2)

**Basic Tablet:**

1 x Electronics Assembler

Used to assemble all Tablet parts into one unit

1 x Tablet Case (Tier 2)

1 x Battery Upgrade (Tier 3)

1 x Solar Generator Upgrade (Recharges Tablet in sunlight)

1 x Keyboard

1 x Wireless Network Card

1 x Internet Card

1 x APU (Tier 3)

2 x Memory (Tier 2.5)

1 x EEPROM

1 x Hard Disk Drive (Tier 2)

1 x Upgrade Container (Tier 2)

**NOTE:** Shift Click all parts into Assembler then click the Start Button. This will take some time to process

**INSTALLATION**

**PC OS Installation:**

First assemble your Computer (Tier 3) and shift clicking everything in

**NOTE:** Ensure you add the EEPROM and Floppy Disk (both crafted with a Manual)

Next, click Turn On

Once the PC starts, type:

install

Hit enter and follow the prompts – this installs the OpenOS from the Floppy to the HDD of your choice. Next accept the reboot.

**PC SGCX Installation:**

Now, type (or use Copy & the INSert button):

wget <https://gitlab.com/d_rzepka/oc-equipment/raw/master/installer/arpm.lua>

And hit enter (if required). The PC will say

Downloading... Success.

Saved data to /home/arpm.lua

type

arpm install sgcx

to install the SGCX Program.

The PC will say:

Downloading the Registry… OK

Generating installation list… OK

Checking Directories… OK

Copying Files:

…

Installation Successful

**PC SGDB Installation:**

wget -f https://gist.githubusercontent.com/Nyabloody/d5af8abc26ad937feeeba23740067eb4/raw/aa3e6e452e457bbf7d34802f992e1a77b1f493c6/sgdb.lua

**Tablet OpenOS Installation:**

Place Tablet into Charger (needs to be placed next to PC)

Ensure that the OpenOS Floppy is in the PC

Type:

Df

To get the ID/Address of the new Tablet device

Type:

Install

Again and choose your new Tablet device, and accept the reboot. Shut down the pc and remove the OpenOS Floppy and the Tablet

**Tablet irisAuth Installation:**

Next Boot up the Tablet and install arpm to it using:

wget <https://gitlab.com/d_rzepka/oc-equipment/raw/master/installer/arpm.lua>

And hit enter (if required). The PC will say

Downloading... Success.

Saved data to /home/arpm.lua

type

arpm install sgcx

to install the SGCX Program. The PC will say:

Starting installation...

Downloading the Registry… OK

Generating installation list… OK

Checking Directories… OK

Copying Files:

…

Installation Successful

**Launching SGCX:**

Initially type:

sgcx init

Hit enter and follow the prompts to launch into the SGCX Program

**NOTE:** Your PC has to be connected to the OC SG Interface under the gate by using OpenComputers’ Cables

After initial launch you can exit it bby using the button in the top right. To reopen the program, you only need to type

sgcx

**OC Relay Installation:**

While connecting your OC SG Interface to your PC, also connect it to a Relay as close to the Gate as possible with these upgrades:

1 x CPU (Tier 3)

1 x Memory (Tier 3.5)

1 x Hard Disk Drive (Tier 3)

1 x Wireless Network Card (Tier 2)

This will allow your Tablet to connect to your PC Network (and the SGCX Program on it) via the Wireless Network Cards

**Setting Up Iris Deactivation Control:**

First launch your SGCX program

Down towards the middle bottom, enable Mode: Automatic (Iris Control)

Next, in the top right near the exit button, you will see:

Port: Closed

Channel: Random Number

Code: Random Number

Change these values to:

Port: Open

Channel: Port number you will remember

Code: Iris Deactivation Code you will remember

Next, boot up your Tablet, type:

irisAuth

Now type:

p and enter your Port Channel’s Number and hit enter

k and enter your Iris Deactivation Code and hit enter

**You are Done! How to use:**

When ever the Gate receives an incoming Wormhole, the Iris will automatically close. Using your Tablet’s irisAuth program near the Gate on either side and pressing:

s

will deactivate the Iris for 12 Seconds

You can Store any Gate Addresses into your SGCX Program and even categorise them using the Gate Address Groups: Edit button

If you know the XZ/Chunk Co-ords of another Gate you can use the Address Calculator to get that Address – or vice versa

**Renaming Use:**

Type label –s /mnt NameOfBlankFloppy sgdb then type sgdb export or sgdb import to export your Gate Addresses onto your Floppy or import them onto your HDD

**Commands & Terminology:**

* The default name of your Devices is the first 3 alpha-numeric characters of the Devices Address.
* edit FileName – Creates and then edits the file you specify
* ctrl+w – closes the file you’re editing
* ctrl+s – save the file you’re editing
* ctrl+alt+c – force close any program
* ls – List command for all available command options (bin, boot, etc, lib, mnt, tmp, usr) and programs installed (test, touchscreen, etc)
* components – lists all devices and their addresses
* reboot – Reboots the PC
* df – Shows all device’s stats and names
* label – Renames your Devices

**LABEL NOTES:**

Type label and hit enter to see how to use the label command.

Type df to see the list of device’s names installed on the PC

Now type label –a /mnt NameOfDevice DesiredNameOfDevice

Type df to confirm the Renaming worked

* /mnt –
* cd -
* mount – allows you to mount your Device to a specific location without compromising the /mnt folder.

**NOTE:** Type mount NameOfDevice /NameOfDevice

**nexDHD:**

Now, type (or use Copy & the INSert button):

|  |
| --- |
| wget -f https://raw.githubusercontent.com/Nex4rius/Nex4rius-Programme/master/nexDHD/installieren.lua |
| /installieren.lua |

And hit enter (if required). The PC will say

Downloading... Success.

Saved data to /home/installieren.lua

Type

Installieren to install the nexDHD program

Then type your desired language and hit enter.

# SIDE PROJECT 10: COMPUTERS

# [Option 2: CC:Tweaked]

# Objective 16: Larger Storage

***NOTE:*** *Setup references the ME System from AE2*

**NOTE:** At least 1 x ME Controller Required

As many 16K Storage Cells you can afford – don’t bother going any higher.

8 x *Black Hole Controllers*

Each with 12 x *Black Hole Units*

8 x ME Storage Buses

1 x Animal Feeder

1 x Animal Baby Separator

1 x Mob Slaughter Factory

1 x Adult Filter (for Maximum Output)

6 x Gold Nuggets

2 x Plastic Sheets

1 x Egg

= Pink Slime (Liquid)

= Pink Slimeballs (See Notes)

= Fluid Sieving Machine

**NOTES:**

* To make Black Hole Controller, you will need Pink Slime Ingots.

1. Pink Slime Ingots are made from Pink Slime (Liquid) and Iron Ingots in an Industrial Foregoing “Fluid Sieving Machine”.
2. To make an Fluid Sieving Machine, you’ll need to kill a Pink Slime for a Pink Slimeball.
3. To spawn a Pink Slime, pour Pink Slime (Liquid) into a 1x1 Hole.
4. To make Pink Slime (Liquid) you’ll need to use an Industrial Foregoing “Mob Slaughter Factory”.
5. To prevent loss of mobs for future use, make 2 adjoining pens. In the middle of one side of one pen, add an Industrial Foregoing “Animal Feeder” facing inwards to the other pen, with max Range Addon for the pen. Then, in the middle of the adjoining fence, facing outwards, add an IF “Animal Baby Separator”. Again, on the outside of the 2nd pen, add the Mob Slaughter Factory, with 2 Drums to collect the Pink Slime (Liquid) & Liquid Meat as by products

**TIP:** To control EnderIO Fluid Conduits, collect a bucket of said Liquid and RClick it onto the Fluid Conduit – it will have a line of colour matching that liquid and will Filter it

1. Requires mostly Gold and Emeralds of note.

If you have trouble following this, Search YouTube for:

“Industrial Foregoing - PINK SLIME FLUID + Animal Feeder Baby Separator Slaughter”

1. Use Storage Buses on Black Hole Units/Controllers. They must connect to ME Glass Cables – Fluix, not ME Conduits.

**NOTE:** 1 Me Controller face required

1. Before setup, add one item you want to store into a Black Hole Unit, then Click the Padlock Icon – and it will prevent any other item from being stored in it should the current item run empty.
2. Then RClick another of the same item into the ME Storage Bus on the Black Hole Controller you will place the Unit into.
3. Then place the Unit inside the Controller.
4. If no other of said item is in your ME System, the system will automatically store that item in these Units inside your Controllers’ location – a different item in 12 Units inside 8 Controllers on a ME Channel and 32 Controllers on a Dense Channel – totaling 96 (12x8) and 384 (12x32) items storing 2.14B units of each item respectively.
5. Use Cable Anchors to keep lines of ME Glass Cable – Fluix from touching
6. *ME Systems* store items in the first place they find, meaning if you have Stone (for example) in your system already, it *will not* default to the Unit. You must first remove the Stone from your system before telling the system to send it to the Unit.
7. ME Export Buses can be used to completely move Stone (for example) from your system, into a Unit – This device only works one way, so doing so will remove the Stone from your system.
8. *ME Import Buses* can be used to completely move Stone (for example) from a Chest, Unit, etc… into your system – *This device only works one way and will not store items into a Chest, DSU, etc…*
9. *ME Storage Buses* work both ways in that it both stores and sends items to and from ME Systems and Storage devices.

# OBJECTIVE 17: UNLIMITED RESOURCES

# [Option 1: Mystical Agriculture & Mystical Aggraditions x IndustrialForegoing & IntegrationForegoing]

**CRYSTALS:**

**Infusion Crystal (1,000 Durability):**

4 Prosperity Shards

4 x Inferium Essence

1 x Diamond

**Master Infusion Crystal** **(Unlimited Durability):**

4 x Prosperity Shards

4 x Supremium Essence

1 x Diamond

**ESSENCES:**

**Inferium:**

Obtained through: Ore, Mob Drops, Inferium Crops

**Prudentium:**

4 x Inferium Essence

1 x Any Infusion Crystal

**Intermedium:**

4 x Prudentium Essence

1 x Any Infusion Crystal

**Superium:**

4 x Intermedium Essence

1 x Any Infusion Crystal

**Superemium:**

4 x Superium Essence

1 x Any Infusion Crystal

**Insanium:**

4 x Supermium Essence

1 x Any Infusion Crystal

**TOOLS & ARMORS:**

Each level of Essence has its own Tool & Armor Version.

Complete sets of these Armors grant additional bonuses dependent on which level was used *[e.g.: Supremium Armor has Creative Flight built into the complete set]*. They also have their own upgrading system called Charms via a Tinkering Table.

If you have trouble following this, Search YouTube for:

“Sky Factory 4 - How to Use a Tinkering Table”

**BASIC CRAFTING SEEDS:**

**Base Crafting Seed:**

4 x Prosperity Shards

1 x (Wheat) Seed

**Tier 1 Crafting Seed:**

4 x Inferium Essence

1 x Base Crafting Seed

**Tier 2 Crafting Seed:**

4 x Prudentium Essence

1 x Tier 1 Crafting Seed

**Tier 3 Crafting Seed:**

4 x Intermedium Essence

1 x Tier 2 Crafting Seed

**Tier 4 Crafting Seed:**

4 x Superium Essence

1 x Tier 3 Crafting seed

**Tier 5 Crafting Seed:**

4 x Supermium Essence

1 x Tier 4 Crafting Seed

**Tier 6 Crafting Seed:**

4 x Supremium Essence

1 x Tier 5 Crafting Seed

**CRAFTING MOD DROP CHUNKS:**

To Obtain Chunks from Mobs, use either a Soulium Dagger, or make Soulium Parts for Tinkers Construct Weapons

**Tier 1 Mob Chunk:** Smelt Zombie Chunk

**Tier 2 MobChunk**: 1 x Tier 1 Chunk, 2 x Prudentium Essence or Smelt any Tier 2 Mob Chunk

**Tier 3 Mob Chunk:** 1 x Tier 2 Chunk, 2 x Intermedium Essence or Smelt any Tier 3 Mob Chunk

**Tier 4 Mob Chunk:** 1 x Tier 3 Chunk, 2 x Superium Essence or Smelt any Tier 4 Mob Chunk

**Tier 5 Mob Chunk:** 1 x Tier 4 Chunk, 2 x Supremium Essence or Smelt any Tier 5 Mob Chunk

**CROPS:**

Any crop requires:

4 x the Material you want to grow (most Mods are compatible)

4 x the Essence level required to craft

1 x Crafting Seed of the level required to craft

**VANILLA RESOURCE EXAMPLES:**

**Stone Seeds:**

4 x Stone

4 x Inferium Essence

1 x Tier 1 Craft Seed

**Coal Seeds:**

4 x Coal

4 x Prudentium Essence

1 x Tier 2 Crafting Seed

**Iron Seeds:**

4 x Iron Ingot

4 x Intermedium Essence

1 x Tier 3 Crafting Seed

**Gold Seeds:**

4 x Gold Ingots

4 x Superium Essence

1 x Tier 4 Craft Seed

**Diamond Seeds:**

4 x Diamond

4 x Superemium Essence

1 x Tier 5 Crafting Seed

**VANILLA MOB DROP EXAMPLES**

**Zombie Chunk:** 8 x Rotten Flesh, 1 x Tier 1 Chunk or Mob Drop with Soulium Dagger/TiCon Part

* **Zombie Seeds:** 4 x Zombie Chunk, 4 x Inferium Essence, 1 x Tier 1 Crafting Seed

**Cow Chunk:** 2 x Leather, 2 x Raw Beef, 1 x Tier 2 Chunk or Mob Drop with Soulium Dagger/TiCon Part

* **Cow Seeds:** 4 x Cow Chunk, 4 x Prudentium Essence, 1 x Tier 2 Crafting Seed

**Spider Chunk**: 2 x String, 2 x Spider Eye, 1 x Tier 3 Chunk or Mob Drop with Soulium Dagger/TiCon Part

* **Spider Seeds:** 4 x Spider Chunk, 4 x Intermedium Essence, 1 x Tier 3 Crafting Seed

**Enderman Chunk:** 2 x Ender Pearl, 1 x Tier 4 Chunk or Mob Drop with Soulium Dagger/TiCon Part

* **Enderman Seeds:** 4 x Enderpearl, 4 x Superium Essence, 1 x Tier 4 Crafting Seed

**Wither Skeleton Chunk:** 2 x Wither Skeleton Skull, 1 x Tier 5 Chunk or Mob Drop with Soulium Dagger/TiCon Part

* **Wither Skeleton Seeds:** 4 x Wither Skeleton Chunk, 4 x Supremium Essence, 1 x Tier 5 Crafting Seed

**MODDED RESOURCE EXAMPLES:**

**Silicon Seeds:**

4 x Silicon

4 x Prudentium Essence

1 x Tier 2 Crafting Seed

**Bronze Seeds:**

4 x Bronze Ingot

4 x Intermedium Essence

1 x Tier 3 Craft Seed

**Dark Steel Seeds:**

4 x Dark Steel Ingot

4 x Superium Essence

1 x Tier 4 Crafting Seed

**Draconium Seeds:**

4 Draconium Ingot

4 Supremium Essence

1 x Tier 5 Crafting Seed

**NOTE:**  Some Resources like Awakened Draconium require an item called a Crux underneath the dirt block of each Crop to grow

**OBTAINING RESOURCES FROM ESSENCES:**

* Each Crop will produce a crafting ingredient call Essence (eg: Gold Essence).
* This Essence must be crafted into their respective resources – and each has a different crafting layout (Most Ingot’s layout is a chest pattern, meanwhile Diamond’s is a Block)

**AUTOMATION VIA @INDUSTRIALFOREGOING:**

* Industrial Foregoing is your friend here – the **Plant Interactor** and the **Hydrator *[SEE: OBJECTIVE 11 (OPTION 2) ]*** both work on this Mod *[via Quark Config]!*
* The **Plant Interactor** simulates a RClick on the Plants without breaking the Seed; harvesting the drops in the process
* The **Hydrator** speeds up Plant growth
* And add a **Speed Upgrade Tier I & II** from **@TeslaCoreLib** to each **Hydrator** and **Plant Interactor** to seriously boost the operational capacity!!
* For Crafting Automation I used an **@ExtraUtilities2**’s **Mechanical Crafter** for each Resource, piped via **@EnderIO**’s **Item Conduits**, with separate input from the Interactor and output to an **@EnderStorage**’s **Ender Chest** linked to input directly into my **@AppliedEnergistics2 ME System**; while using a **@ExtraUtilities2 Trash Can** to destroy anything other than (Blacklisted on Item Filter) the Essences produced by each setup

# OBJECTIVE 17: UNLIMITED RESOURCES

# [Option 2-Part 1: Auto-Processing Ores]

**NOTE:** At least one ME Controller required. You should already have one…

26 x Sag Mills

8 x Alloy Smelters

15 x ME Interfaces – 2 rows

Item Conduits

Dense ME Conduits

ME Conduits

***13 x Sag Mill ME Interfaces:***

[Max 8 Targets per Interface – Including Dark Steel Balls]:

1. **[2 Sag Mills] Gold:** (MC), Compressed, Nether, End (OC), Underworld (LiC)

(5 Targets)

1. **[2 Sag Mills] Iron:** (MC),Compressed, Nether, End (OC), Stygian (W), Underworld (LiC)

(6 Targets)

1. **[2 Sag Mills] Coal:** (MC),Compressed, Nether, End (OC)

(4 Targets)

1. **[2 Sag Mills] Lapis:** (MC), Compressed, Nether, End (OC)

(4 Targets)

1. **[2 Sag Mills] Redstone:** (MC), Compressed, Nether, End (OC)

(4 Targets)

1. **[2 Sag Mills] Copper:** (TF), (IC2), Plain, Compressed, Nether, End (OC), (PR)

(7 Targets)

1. **[2 Sag Mills] Tin:** (TF), (IC2), Plain, Compressed, Nether, End (OC), (PR)

(7 Targets)

1. **[2 Sag Mills] Silver:** (TF),Plain, Compressed, Nether, End (OC), (PR)

(6 Targets)

1. **[2 Sag Mills] Lead:** (TF), (IC2), Plain, Compressed, Nether, End (OC)

(6 Targets)

1. **[2 Sag Mills] Aluminum:** (TF), Plain, Compressed, Nether, End (OC)

(5 Targets)

1. **[2 Sag Mills] Special:** Nickel (TF) (LC), Mixed (OC), Dark Steel Balls

(4 Targets)

1. **[2 Sag Mills] Special 2:** Certus Quartz, Charged Certus Quartz (AE2), Cobalt, Ardite (TC), Monazit (MFF)

(5 Targets)

1. **[2 Sag Mills] Gem:** Nether Quartz(MC), Amethyst: Plain, Compressed, Nether, End (OC), Naquadah (SG), Mystic (C)

(7 Targets)

***2 x Alloy Smelter ME Interfaces***

[Max 8 Targets per Interface]:

1. **[4 Alloy Smelters]** Pulverized: Gold, Iron, Diamond: Nether, End (OC), Emerald: Nether, End (OC)

(6 Targets).

1. **[4 Alloy Smelters]** Pulverized: Copper, Tin, Silver, Lead, Aluminum, Nickel, Platinum

(7 Targets).

# OBJECTIVE 17: UNLIMITED RESOURCES

# [Option 2-Part 2: RF Tools “Builder” (Quarry)]

1 x Builder

1 x Shape Card (Silk Quarry)

=1 x Shape Card:

=1 x Shape Card (Quarry):

1 x Diamond Pickaxe

1 x Diamond Shovel

=1 x Shape Card (Silk Quarry):

1 x Nether Star

4 x Dimension Shard (makes 8)

3 Diamonds

**NOTES:**

* Requires 1 x Portal to Mining Location/s: Nether, Deep Dark, etc…
* Will harvest/destroy everything inside its range and replace it with dirt!
* Import all mined ores into ME System via Dimensional Transceiver (Ender IO) or Privatized Ender Chest set then into an ME Interface for Auto-Processing.

# OBJECTIVE 18: @WOOT

***[Lag Free Mob Farm]***

1 x Woot Guide *[Book & Rotten Flesh] [****Guide-API*** *Dependant]*

1 x Ya Hammer *[Crafting]*

1 x The Intern *[Assembling]*

**NOTE:** Shows the Required Items to build the Factories

**NOTE:** Can Build the Mob Farm for you

1 x Stygian Iron Anvil

* 1 x Block of Stygian Iron, 2 x Stygian Iron Ingots, 4 x Obsidian

Stygian Iron Ore *[Can only be Smelted]*

* 1 x Iron Ore/2 x Iron Ingots, 1 x Netherrack, 1 x Soul Sand and Ya Hammer

1 x Factory Controller per Farm

* 1 x Ender Shard – Hit the Mob you want to farm, then kill it
* 1 x Stygian Iron Plate *[Dropped near Stygian Anvil]*
* 1 x Nether Quartz *[R-Clicked onto Stygian Anvil]*
* R-Click Anvil with Ya Hammer

Shard Die *[Reusable] [Dropped near Stygian Anvil]*

* Eye of Ender *[R-Clicked onto Stygian Anvil]*

1 x Controller Core

* 1 x Stygian Iron Plate *[Dropped near Stygian Anvil]*
* 1 x Redstone *[R-Clicked onto Stygian Anvil]*

1 x Core Die *[Reusable] [R-Clciked onto Stygian Anvil]*

1 x Prism Dropped near Stygian Anvil]

1 x Stygian Iron Plate *[Dropped near Stygian Anvil]*

1 x Factory Base

1 x Stygian Iron Plate

4 x Soul Stone

2 x Cobblestone

1 x Soul Dust *[Makes 2]*

Ya Hammer

Soul Sand

Smack with Ya Hammer = Tier 1 Mob Specific Factory Controller

**TIER 1 FACTORY:**

* 1 x Factory Layout – Place underneath the centre of your desired Mob Farm location to show build layout *[unneeded if you use The Intern]*
* 1 x Factory Heart – Place on top of the centre of your desired location
* *[then hold shift-right click on the Heart with The Intern to build it for you or use the Factory Layout as a guide to built it manually]*
* 1 x Tier 1 Factory Controller
* 10 x Factory Flesh Casing
* 14 x Factory Bone Casing
* 2 x Factory Upgrade Base
* 2 x Factory Tier 1 Cap

**Tier 1 Factory Remote Structure:**

* 1 x Exporter Bottom level *[under Factory Heart] [Connect to storage area for drops]*
* 1 x Importer *[Above Exporter]*
* 1 x Power Cell *[Above Importer] [Connect your base power to this]*

**NOTES:**

* Use a Lever on the Factory Heart to turn on/off
* Factories learn over time what Mobs drop which items, wait if you’re not receiving your desired drop

**Basic Tier 1 Stat Example:**

1 Zombie/320 ticks @ 100RF/tick

**Upgrade Descriptions:**

Rate: Faster Spawning

Looting: More Drops

XP: Consumable XP

Mass: Simultaneous Spawning

Decapitate: Mob Heads/Skulls

Efficiency: Decreases Power Consumption

**Upgraded Tier 1 Stat Examples:**

+Rate I Upgrade

+Looting I Upgrade

*1 Zombie/256 ticks @ 325RF/tick*

+Rate I Upgrade

+ Mass I Upgrade

*2 Zombies/256 ticks @ 350RF/tick*

+Rate I Upgrade

+Efficiency I Upgrade

*1 Zombie/256 ticks @ 193RF/tick*

**TIER 2 FACTORY:**

Shift right click The Intern to change ‘Tiered’ Build Modes

* 10 x Factory Flesh Casing *[Tier 1]*
* 14 x Factory Bone Casing *[Tier 1]*
* 35 x Blaze Casing
* 4 x Factory Upgrade Base *[Tier 1 has 2]*
* 2 x Factory Tier 1 Cap
* 4 x Factory Tier 2 Cap

**Notes:**

* Tier 2 has 4 Upgrade Bases.
* Your Upgrade Bases can now have stacks from xxxx I Upgrades on top of it with xxxx II Upgrades above that *[Totems]*

**Upgraded Tier 2 Stat Examples:**

+Mass I & II Upgrades

+Rate I & II Upgrades

+Efficiency I & II Upgrades

+Decapitate I & II Upgrades

*4 Zombies/160 ticks @ 1,084RF/tick*

**NOTES:**

* Follow this guide to upgrade further into Tier III & Tier IV
* Make multiple Factories for different Mobs
* Mob Tier Restriction Examples:
* Tier I: Zombie, Blizz, Creeper & Cow
* Tier II: Blaze & Ghast
* Tier III: Elder Guardian, Wither Skeleton, Villager & Enderman
* Tier IV: Wither & Ender Dragon!!!
* As long as you get the Ender Shard programmed with your desired mob
* Lag free Mob Farms due to the mob not actually being physically spawned.

**WITHER MOB FACTORY STAT EXAMPLES**

Requires:

+ 4 x Soul Sand

+ 3 x Wither Skeleton Skulls

Added via storage on Importer block underneath Factory

*1 Wither/1200 ticks @ 620RF/tick*

**ENDER DRAGON MOB FACTORY STAT EXAMPLES**

+ 4 x End Crystal (1 x Nether Star, 1 x Ghast Tear, 7 x Glass Panes)

Added via storage on Importer block underneath Factory

*1 Ender Dragon/12,000 ticks @ 520RF/tick*

# OBJECTIVE 19: DRACONIC EVOLUTION & DRACONIC ADDITIONS

***[Over Powered/End Game Tools and Weapons]***

**BASICS:**

**Draconium Ore:**

* Rare Ore Spawn, though more common in Nether than Overworld and Plentiful in the End. Drops 1-4 dust when mined (Fortune affected)

**TIP:** Use silk touch and a Sag Mill (Ender IO) for best results (8 dust guaranteed with a 40% chance of an extra 4 + 15% chance of an additional 4 again). You will need a LOT of this!

**Draconic Evolution Information Tablet:**

* 8 x Stone 1 x Draconium Dust

**Base Crafting Items:**

* Draconium Ingot: Smelt Draconium Dust
* Draconic Core: 4 x Draconium Ingot, 4 x Gold Ingot, 1 x Diamond
* Wyvern Core: 4 x Draconium Ingot, 4 x Draconic Core, 1 x Nether Star
* Awakened Draconium Ingot (Fusion Crafted): 6 x Draconic Core, 1 x Dragon Heart (Ender Dragon Drop) + 4 x Draconium Block (36 Ingots) & 350M RF
* Awakened Core (Fusion Crafted): 4 x Wyvern Core, 5 x Awakened Draconium Ingot + 1 x Nether Star & 9M RF
* Chaotic Core (Fusion Crafted): 4 x Awakened Draconium Ingot, 4 x Awakened Core + 1 x Chaos Shard & 800M RF
* Wyvern Energy Core: 4 x Draconium Ingot, 4 x Block of Redstone, 1 x Draconic Core
* Draconic Energy Core: 4 x Awakened Draconium Ingot, 4 x Wyvern Energy Core, 1 x Wyvern Core
* Chaotic Energy Core (Fusion Crafted): 4 x Large Chaos Shard, 4 x Block of Redstone + Awakened Energy Core & 8B RF

**Wyvern Tier Equipment:**

* 2 x Draconium Ingot, 1 x Wyvern Core, 1 x Wyvern Energy Core + Diamond Version of the equipment for what you want to make (eg: Diamond Sword, Diamond Chestplate or Vanilla Bow)

**EXAMPLES:**

Base Durability: 4M RF

Durability (+ Upgrade Keys): 32M RF

Base Sword Damage: 15

Sword Damage (+ Upgrade Keys): 22.5

Base Armor Durability: 4M RF

Armor Durability (+ Upgrade Keys): 32M RF

Base Armor Set Shield Bonus: 256

Armor Set Shield Bonus (+Upgrade Keys): 768

Base Capacitor (Energy Bauble) Durability: 64M RF

Capacitor (Energy Bauble) Durability (+ Upgrade Keys): 160M RF

**Draconic Tier Equipment (Fusion Crafted):**

* 1 x Awakened Core, 1 x Awakened Energy Core, 2 x Awakened Draconium Ingot + Wyvern Tier equipment you want to upgrade & 64K RF

**Examples:**

Base Durability: 16M RF

Durability (+ Upgrade Keys): 256M RF

Base Sword Damage: 35

Sword Damage (+ Upgrade Keys): 61.25

Base Armor Set Shield Bonus: 512

Armor Set Shield Bonus (+Upgrade Keys): 2048

Base Capacitor (Bauble) Durability: 256M RF

Capacitor (Bauble) Durability (+ Upgrade Keys): 768M RF

**Staff of Power (Fusion Crafted):**

* 5 x Awakened Draconium Ingot, 1 x Awakened Core, 1 x Draconic Shovel, 1 x Draconic Sword + 1 x Draconic Pickaxe & 128K RF
* Mines, Digs and Attacks

**Examples:**

Base Durability: 48M RF

Durability (+Upgrade Keys): 768M RF

Base Damage: 60

Damage (+Upgrade Keys): 105

**Chaotic Staff of Power (Fusion Crafted):**

* 4 x Large Chaos Fragment, 1 x Chaos Core, 1 x Chaos Energy Core + Staff of Power & 96M RF
* Mines, Digs, Attacks

**Examples:**

Base Durability: 60M RF

Durability (+ Upgrade Keys): 1.92B RF

Base Damage: 120

Damage (+ Upgrade keys): 240

Base Armor Set Shield Bonus: 1024

Armor Set Shield Bonus (+Upgrade Keys): 5120

**Upgrade Keys:**

* Generally each Upgrade Key requires: 4 Lapis, 2 Draconic Cores, 2 Draconium Ingot and another Item depending on the Upgrade Key you want (eg: RF Capacity Key requires a Wyvern Energy Core, while an Arrow Damage Key requires an Arrow & 1 x Gold Ingot – replacing 1 x Lapis)
* To add these Keys to your Equipment, you must Fusion Craft them on in stages:
  + Basic: 2 x Gold Apples, 2 x Diamond, 2 x Eye of Ender 1 x Draconic Core, Your Key + Your Equipment & 256K RF
  + Wyvern: 2 x Nether Star, 2 x Draconic Core, 2 x Emerald, 1 x Wyvern Core, Your Key + Your Equipment & 4.096M RF
  + Draconic: 2 x Nether Star, 2 x Wyvern Core, 2 x Block of Emerald, 1 x Awakened Core, your Key + Your Equipment & 256M RF
  + Chaotic: 2 x Wyvern Core, 2 x Awakened Core, 2 x Dragon Egg, Chaotic Core, Your Key + Your Equipment & 2.048B RF

**NOTE:** Each Tier Equipment can not possess a higher Tier Upgrade Key

*[Wyvern Equipment = Max Wyvern Key, etc..]*

**NOTE:** Also Your Upgrade Keys are reusable – it only consumes the other ingredients

**Fusion Crafting:**

* Requires insane amounts of power in the end stages.
* To get started, craft a Fusion Crafting Core: 4 x Lapis Lazuli Block, 4 x Diamond, 1 x Draconic Core
* Each Item involved with the Fusion Crafting requires it own Fusion Crafting Injector *[I recommend building 10]*. Each Recipe Tier cannot exceed the Injector Tier, but you can set up different tiers simultaneously *[as long as the Tier of Injector being used matches your Fusion Crafting recipe Tier]*

**Basic:**

* 2 x Diamond, 1 x Draconic Core, 5 x Stone, 1 x Block of Iron
* The rest are Fusion Crafted as well

**Wyvern:**

* 1 x Wyvern Core, 2 x Draconic Core, 1 x Draconium Block, 4 x
* Diamond + 1 x Basic Fusion Crafting Injector & 256K RF

**Draconic:**

* 4 x Diamond, 2 x Wyvern Core, 1 x Awakened Draconium Block +
* Wyvern Fusion Crafting Injector & 1.792M RF

**Chaotic:**

* 4 x Diamond, 1 x Chaotic Core, 1 x Dragon Egg + 1 x Draconic
* Fusion Crafting Injector & 48M RF

**Fusion Crafting Setup:**

* This setup can nearly be a large as you want. Place the Core in the middle of your setup.
* Each Injector can be placed any direction (left, right, forward, backwards) from the Core as well as above or below.
* But each Injector must be:

1. Facing in the direction of the Core

**TIP:** Place them while facing away from the core

1. A minimum gap of 1 block away from the core. And,
2. Can only be offset by a single block *[e.g.: a 3x3 area with the Core aligned in the centre]*
3. Power this setup from behind the Injectors with your favorite Energy Conduit – although with some extra setup, I’d recommend using Thermal Dynamics’ Cryo-Stabilized Fluxduct *[Infinite RF/t transfer, limited only by the connection capacity of the Machine]*

**Energy Storage Multi-Block:**

There are 8 Tiers of Storage Capacity but each will require:

* 1 x Energy Core: 6 x Draconium Ingot, 2 x Wyvern Energy Core, 1 x Wyvern Core
* 2 x Energy Pylon *[makes 2]*: 4 x Draconium Ingot, 1 x Eye of Ender, 2 x Emerald, 1 x Draconic Core, 1 x Diamond
* 2 x Glass
* 4-36 x Energy Core Stabilizer *[Depending on Tier]:*
* 4 x Block of Redstone, 4 x Blaze Rod, 1 x Draconic Core + 4 x Diamond
* 0-786 x Draconium Block *[Depending on Tier]*
* 0-328 x Redstone Block *[Depending on Tier]*
* 378 x Awakened Draconium Block *[Tier 8 only]*

**Tier 1 (45.5M RF):**

* 4 x Energy Core Stabilizer:

**Tier 2 (273M RF):**

* 4 x Energy Core Stabilizer:
* 6 x Draconium Block

**Tier 3 (1.64B RF):**

* 4 x Energy Core Stabilizer:
* 26 x Draconium Block

**Tier 4 (9.88B RF):**

* 4 x Energy Core Stabilizer:
* 54 x Draconium Block
* 26 Block of Redstone

**Tier 5 (59.3B RF):**

* 36 x Energy Core Stabilizer:
* 90 x Draconium Block
* 80 x Block of Redstone

**Tier 6 (356B RF):**

* 36 x Energy Core Stabilizer:
* 150 x Draconium Block
* 178 x Block of Redstone

**Tier 7 (2.14T RF):**

* 36 x Energy Core Stabilizer:
* 210 x Draconium Block
* 328 x Block of Redstone

**Tier 8 *[9.22Q RF]*:**

* 36 x Energy Core Stabilizer:
* 786 x Draconium Block
* 378 x Awakened Draconium Block

**Core Setup:**

* Place the Energy Core in the centre of your setup, remember to leave enough room for the extra blocks if going higher tiers
* RClick it and set the Tier *[Tier 1: skip this |Tiers 2-8, read on]*. This allows you to press the Guide Button that shows a ghost image of the potential Monstrosity you need to build. Simply fill it in with the correct blocks.

**Stabilizer Setup:**

* Place the Stabilizers Left, Right, In Front and Behind the Core *[in line with the Energy Core]* between 2-16 Blocks away
* Tier 5-8: Do the same thing, except your making a 3Hx3W wall of them with the centre Stabilizer in line with the Energy Core

**TIP:** The Stabilizers will change to a Circle when done correctly

**NOTE:** Once the Core and 1 Stabilizer is complete, ensure you disable any Build Guides!

**NOTE:** Once built correctly, you can RClick the Stabilizer and activate the core *[this will change the appearance to a ball shape]*

**Energy Pylon Setup:**

* While both Energy Pylons are the same, you can use one to insert energy wirelessly into your Core, and one to extract energy from it.

**TIP:** RClick the blue ball above or below each Pylon to change its

function

* Place each Pylon either above or below the Core.

**NOTE:** If placed above the Core, the Glass block needs to be underneath

the Pylon

**NOTE:** If the Pylon is placed underneath the Core, place the Glass above

the Pylon

**TIP:** Attach the Glass to the Pylon - it will turn into the blue ball

mentioned before if done correctly

**TIP:** Place these Pylons a minimum of 3 blocks apart –otherwise the

Glass block in between them will affect them both – rendering the

second Glass block invisible and untouchable

**NOTE:** The maximum transfer rate of each Pylon per side is: 2.14B RF/t

# OBJECTIVE 20: SPACE TRAVEL

***[Option 1: @AdvancedRocketry]***

**Ores:**

Copper

Tin

Aluminium

Dilithium

Rutile

Iridium

**Early Processing:**

Place Obsidian in ground

Place a Small Plate Presser facing towards the Obsidian, with a Button to Activate it

*[Crafted with a Piston and 3 x Iron Ingots]*

* Ores will grant 2 x Dusts (Except Rutile)
* Blocks of Metal will grant 4 x Plates

**Crafting Process:**

Use the plates to make an Optical Sensor

* 3 x Glass Planes
* 1 x Glowstone Dust
* 1 x Gold Plate

Use the Optical Sensors to Craft a Holo-Projector

* 2 x Optical Sensors
* 3 x Redstone Dust
* 1 x Iron Plate

Use this with Shift+RClick in empty air to present a GUI to build all the mulitblock structure machinery for the Mod

Selecting a Machine and hovering over it afterwards will show you the Ingredient List required for the build

**NOTE:** While Crafting your Components, keep in mind that the better materials (like the Coils for example – Copper is 100%, Gold is 111%, Aluminium is 125%, Titanium is 133% and Iridium is 200%) will improve the overall performance of the machine

**Electric Arc Furnace:** Provides 1 x Iron and 1 x Charcoal Recipe for Steel Ingots

# OBJECTIVE 20: SPACE TRAVEL

***[Option 2: @WarpDrive]***

***BEST Y LEVEL FOR ORE SPAWN:***

***[Overworld]***

**Ore Type: Y Level Spawn Range [Best Y Level]**

Coal: 1-128 [64]

Aluminum (TF): 40-75 [55]

Copper (TF): 40-75 [55]

Tin (TF,LC): 20-55 [37]

Copper (LC): 0-75 [37]

Iron: 2-64 [32]

Certus Quartz (AE2): 12-74 [31]

Lead (TF,LC): 10-35 [22]

Emerald: 4-32 [18]

Silver (TF,LC): 5-30 [17]

Gold: 1-32 [16]

Osmium (LC): 10-32 [16]

Uranium (LC): 8-24 [16]

Platinum (TF): 5-25 [15]

Iridium (TF): 5-25 [15]

Lapis: 1-28 [14]

Nickel (TF,LC): 5-20 [12]

Palladium (LC): 2-18 [9]

Titanium: 4-14 [9]

Dwarf Star Alloy (LC): 2-18 [9]

Redstone: 1-16 [8]

Diamond: 2-16 [8]

Iridium (LC): 3-12 [7]

Vibranium (LC): 3-12 [7]

Draconium (DE): 1-8 [Less than 8]

**Note:** Charge Certus Quartz in a Machine with power to make Charged Certus Quartz

# [MAP OF WORLD SEED:](http://mineatlas.com/?levelName=921936285&seed=921936285&mapCentreX=-976&mapCentreY=-520&mapZoom=14&pos=&Player=true&Spawn=true&Likely+Villages=true&Ocean+Monuments=false&Jungle+Temples=false&Desert+Temples=true&Witch+Huts=false&Slime+Chunks=false)

Go to<http://mineatlas.com> and either paste your world seed or upload your save data to see the entire Minecraft World Map – including locations of Villages and Temples.

# STARGATE ADDRESSES:

Spawn: 0AI8-EF8-9F

Alpha Site: 4S8U-A7R-E5

Jungle:

Dessert:

Swamp:

Cold Tiaga:

**Other Dimension Gates:**

Nether: QAZT-JT1-6F

End: G44H-8U1-C4

Deep Dark:

Twilight:

Hunting:

Between:

Void:

# MINECRAFT COMMANDS:

/gamemode <*creative*/*survival/adventure*> - switch gamemodes

/gamerule <*rule name*> <*true/false*> - changes in game rules

keepInventory - set whether to keep inventory on death

/give <*player*> <*item*> [*amount* (default: 1)] – give player item

/locate <*StructureType*> – locates nearest structure type

EndCity

Fortress

Mansion

Mineshaft

Monument

Stronghold

Temple

Village

/op <*player*> – grants operator status

/publish – open to lan

/seed – see world seed (not a cheat)

/setspawnpoint <*player* [optional]> <*x, y, z* [optional]> – sets options for spawn points

/spreadplayers <*x, z* [starting co-ords – eg: 0 0]> <*spreadDistance* [eg: 200]> <*maxRange* [from starting co-ords – eg: 500>

<*respectTeams* [true/false]> <*player/s...* [for all players use @a> - randomly spread players across world

/timeset <0 to 2147483647, day or night>

/tp <*target player*> <*destination player*> - teleports one player to another

/tp <*target player*> <*x y z* [use waypoint]> - teleports one player somewhere

/xp <*amount* [-2147483647 to 0 to 2147483647] [if L is added on end, adds levels instead] <*player* [if not yourself]> – gives or removes xp