Game TODO List:

- Misc.:
  - Message Options
  - RoomStateTextReader needs an option to draw in the center of the screen. This feature is made use of during a Veran cutscene to show Link on the bottom and possessed Queen Ambi on the top.
- Unit:
  - Improve UnitTool (Sword & shield)
    - Make it into an entity?
    - Make collision box based on unit's center position
- Monsters
  - Burning monsters need to track/transform ember seed's fire entity (to not spawn two fires at once, ex: the player can't shoot an ember seed while a monster is burning from a previous one)
- Player:
  - Change swing direction in minecart
  - Underwater
    - In OOA, player will move up slightly upon falling in water after resurfacing
- Physics:
  - PhysicsFlag for not allowing other entities to check collisions with owner?
- Graphics:
  - Sword should draw below the player
- Tiles:
  - More puzzle event tiles
  - Better check for tiles that can fall in holes
  - Pushable blocks and moving platforms interactions (done already??)
  - Improve TileManager
- Weapons:
  -
- Sounds
  - Change when hurt sound plays for Player Room Death
- Resource Scripts & File Formats:
  -
- Debugging Interface
  - Debugging menu

Editor TODO List:

- General

- ○ Starting editor should open same world as was opened when the editor was last closed
- ○ Ctrl+Tab should switch between latest levels??
- ○ Ignore hotkeys when typing (like 's' or 'm')
- ○ Hotkey for toggle buttons.
- ○ Method for refactoring property names and updating it in files
- ○ Migrate to an eraser tool to delete things?
- ○ Create a subfolder in the scripts folder that will list all scripts with errors.
- ● Script Editor
  - ○ Improve autocomplete
  - ○ Don't show script name for hidden scripts
  - ○ Delete hidden scripts for events when deleting tiles.
- ● Object Editor
  - ○ Dynamically update object's properties when UI controls change
  - ○ Remember properties upon opening form (for reverting changes)
  - ○ Each control has event to update
  - ○ Better Organization
  - ○ Synchronize Raw Properties with other controls.
  - ○ Controls pertaining to more tile Types, including Event Tiles
- ● Tile Display
  - ○ UI button to open room properties (I included double click to open properties)
  - ○ Code to draw different tile types based on their properties
  - ○ A more natural way to edit multiple layers
  - ○ Zoom in feature
  - ○ Efficient drawing (only draw what's necessary when things change)
- ● Tools
  - ○ Unify tools (work on fill and square tools)

BUG List:

- ● Somaria block can be moved to interfere with the paths of moving blocks. I believe if a block moves into a somaria block, the somaria block should be destroyed
- ● TilePath fails to pause tile if the pause action is right before a repeat.
- ● Player
  - ○ State Issues:
    - ■ Player entering a room directly ontop of a hole can interfere with the respawn state by swinging his sword preventing any actions afterwards. Takes a little bit of fiddling to reproduce.
    - ■ Pushing doesn't activate against a Roller if you walk into it after collision dodging. How to reproduce. Goto roller room. Collision dodge the right

coconut on the top right corner and keep walking forwards, pushing won't activate, and the player won't even play a walking animation.
- ○ Movement Issues:
  - ■ Player jumps almost a diagonal tile in distance when pushing and fiddling with rollers. It's difficult to reproduce but it happens when facing near the edge of them and pushing them or them returning.
- ○ Player can swim from water to lava and won't die (or from water to ocean)
- ○ Somaria block can be spawned on top of certain entities that do not allow it.
- ○ Somaria block does not get destroyed when crushed by Thwomp (Should only be crushed when moving)
- ○ When swimming (or other slippery movement), moving diagonally against a wall, then straight again will make you move laterally against the wall
- ● Monsters
  - ○ MonsterSpikeRoller seems to use a different hitbox for the sword in the real game than what is used for the player.
- ● Editor
  - ○ Script names get out of sync with their dictionary keys (temp fix = reload level)
  - ○ Hover box around large tiles doesn't match the location of the tile if it is not at the origin. (Minor)
  - ○ Tile size doesn't update room's tile grid when changed in the property grid. (Which in turn, affects selection of the tile)
  - ○ Clicking away from the property grid while typing does not save changes.
- ● Conscript Designer
  - ○ Part of the text in the output console is sometimes missing.

Debug Keys:

1	Speed up the game (calls to Update)
2	Slow down the game (calls to Update)
G	Display a test message
Insert	Fill all ammo
Delete	Remove all ammo
Home	Give the player max health
End	Set the player's hearts to 3
T	Change tunic
H	Hurt the player in a random direction

M	~~Player some music~~
N	~~Set the Master Volume to 1.0~~ Toggle player noclip mode
Q	Spawn a random rupees collectible
Y	Cycle visual collision debug information mode
K	Spawn a heart collectible
B	Spawn a bomb collectible
J	Spawn an arrow collectible
0 or Numpad +	Spawn a Test Monster
Numpad 8456	Move the Test Monster
Numpad 7	Shoot a projectile from the Test Monster
Numpad /	Equip/unequip a sword for the Test Monster
F5	Pause gameplay
F6	Step gameplay by one frame
Ctrl+R	Restart the game
Ctrl+Q	Quit the game
Ctrl+S	Run the debug script
C	Toggle color barriers
Ctrl+Y	Cycle zone for the current room (permanent)
Ctrl+U	Toggle underwater for the current room
Ctrl+I	Toggle side-scrolling for the current room
Ctrl+T	Toggle console window
L	Level-up item in menu (Wraps to level 1 after max)
Ctrl+L	Level-up all obtained items to max level
Ctrl+Shift+Arrows	Instantly transition to an adjacent room
Middle Mouse	Sample a tile in the room, to be placed later
Ctrl+Shift+Left Mouse	Place the sampled tile in the room

Editor:
- Panels:
  - Menu Bar
  - Button Bar
  - Status Bar
  - Properties Editor (for tiles, world, levels, and rooms)
  - Level display view (main view)
  - Level selector (TreeView
    - Rename levels (F2)
    - Right click on levels
    - Rearrange levels
  - Tileset (tiles and entity/objects)
    - Button/dropdown to change tileset
    - Smoothly fade between zones for tileset
    - Tileset for objects (Bushes, Rocks, Monsters, NPCs, Rewards, Signs, etc.)
- Button Bar Buttons:
  - Open
  - Save
  - Save As
  - Add New Level
  - ☑ Play Animations
  - Run World
- Tools:
  - Pointer Tool
    - OnLeftMousePress: select a tile, display its properties on the side
  - Place Tool
    - OnLeftMouseDown: place/replace a tile on the current layer
  - Selection Tool
    -
  - Eyedrop Tool
    - OnLeftMouseRelease: change to Pointer Tool
  - Fill Tool
- Forms/Windows:
  - New World
  - Add New Level
  - Script Editor
  - Minimap editor
  - Custom Property Editors:
    - Chests
    - NPCs

- - - Monsters
    - Rooms (zone, transitions, music)
    - Dungeons
    - Warp Points
- Misc Features:
  - Zoom
  - Grid
  - Multiple layers
  - Tiles larger than 1x1 (turnstile)
  - Placing Objects snapped to an 8x8 grid instead of 16x16 (for moving platforms)
  - Light up tiles with modified properties
  - Spacing between rooms
  - Change tileset
  - Change zone (per room basis and per level basis)
  - Show/hide objects (monsters, NPCs)
  - Palette to put tiles in for drawing multiple tiles at once.
  - Keyboard shortcuts for navigating the tileset
  - Tile animations?
  - Room boundary "Error" checking. (Highlights collision inconsistencies between rooms.)
  - Save individual levels so they can be imported into other worlds.
  - Filter which layers are visible
  - Run the level (and be able to return to editor)
    - Run world from specific player position.
  - Hotkeys:
    - 'E' to rotate tile counter-clockwise
    - 'Q' to rotate tile clockwise
    - Ctrl+Tab to switch between levels
    - PageUp/PageDown to cycle current layer.
    - WASD to move level view
    - Hold Alt with selection tool to entire rooms at a time.
  - Option to select from all layers
  - Selecting with eyedrop changes tool back to Place Tool
  - Undo/Redo
  - Editor metadata in World File for things like folders in level view.
  - Custom Resources for worlds

Types of Events Tiles:
- WarpEvent - OnPlayerTouch (spite based on warp type)
  - warp_type
  - warp_destination
- NPCEvent (sprite based on npc id)

- ○ paths
- ○ enum - activity (face player horizontally/vertically/both,
- ○ int - face_player_distance (default = diamond tile shape - 2 tiles out) tile occupy based on player center
- ○ bool - face_player_on_talk
- ○ string - text
- ○ animation - animation
- ● MonsterEvent - OnRoomStart (sprite based on monster type)
- ● TrackIntersectionEvent
- ● LavaHardenEvent
- ● PuzzleEvent
  - ○ ColorTilePizzle (moving blocks, jump tiles)
    - ■ Source location
    - ■ Destination location
  - ○ ColorGelPuzzle?
  - ○ TilePathPuzzle
- ● Logic:
  - ○ Condition?
  - ○ Relay?
  - ○ Script?

Overworld Tileset List:
- ● Landforms (Cliffs, Land, Water, Trees?)
- ● Town (Buildings, Man-Made Structures, Castle Walls)
- ● Special (Special, rarely-used tiles like dungeon entrances)

Interior Tileset List:
- ● House (Interior House, Shop stuff)
- ● Dungeon
- ● Cave
- ● Castle Interior

Overworld Zone List:
- ● Normal
- ● Spring
- ● Summer
- ● Autumn
- ● Winter
- ● Graveyard
- ● Forest
- ● Present
- ● Past
- ● Subrosia?

- Overworld Blue
- Maku/Deku Tree palette

Interior Zone List:
- House New
- House Old
- Subrosian House
- Cave
- Cave Blue
- Ages Dungeons
- Seasons Dungeons
- Ambi's Castle

Types of Property Editors
- Default:
    - Strings
    - Integers
    - Floats
    - Booleans
- Resources:
    - sprite (Preview sprite image)
    - animation (Preview animation playing)
    - collision_model (Show an image of the collision model's rects)
    - sound (Play sound)
    - zone (preview image of example room using zone)
    - reward (Show reward image)
- Enums:
    - enum_warp_type
- text_message (Preview text in the game's text box)
- tile_flags (Lots of checkboxes w/ images, + support for ledge direction)
- script (Code editor, syntax highlighting)
- direction (Arrow boxes with each direction)
- angle (Arrow boxes with each angle)
- Level Reference
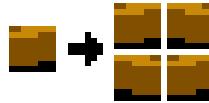- id (reference to another tile's id)
- level
- room

Tile Properties:
- WarpEvent
    - enum warp_type
    - level destination_level

- ○ id destination_warp_point
- ○
- ○ string - warp_type - *{"tunnel", "stairs", "entrance"}*
- ○ string - destination_level - *ex: "dungeon_1"*
- ○ string - destination_warp_point - *ex: "warp_entrance_a"*

8x8 Tilesets:
- Single sprites represent 4 possible sprites based on the position in the 16x16 grid.
  - ○ Cliff Example:

Tileset Stuff:
- Image (Varients)
  - ○ SpriteSheet
    - ■ Tileset
    - ■ Tileset Varients
      - TileGroup (Defined from tilesets)

Tileset Groups:
- Overworld
- House
- Cave
- Dungeon

Custom Tileset Packs:
- Add variants to existing tilesets
- All resources have the tileset pack name prefixed to it:
  - ○ Example: "customtileset.ztp" customtileset_tileset_name
- Add new animations
- Automatic palette coloring option
- File Format:
  - ○ Define all images and variants
  - ○ Define all sprite sheets
  - ○ Define all animations
  - ○ Define all tilesets

Projectiles:
- CarriedTile
  - ○ OnLand: Collide with Monster, Create break effect, destroy
- DroppedSeed

- ○ OnLand: Collide with Monster, Create seed effect, destroy
- Arrow
  - ○ OnCollideMonster: Trigger Arrow interaction
  - ○ OnCollideTile: Crash effect, destroy
- SwordBeam
  - ○ OnCollideMonster: Trigger SwordBeam interaction
  - ○ OnCollideTile: light cling effect, destroy
- RodFire
  - ○ OnCollideMonster: Trigger RodFire interaction
  - ○ OnCollideTile: Create fire, destroy
- SeedProjectile
  - ○ OnCollideMonster: Trigger Seed interaction
  - ○ OnCollideTile: Create seed effect & destroy
- Boomerang
  - ○ OnCollideMonster: Trigger Boomerang interaction
  - ○ OnCollideTile: cling effect, begin return
  - ○ OnCollideCollectible: grab collectible, begin return
- SwitchHook
  - ○ OnCollideMonster: Trigger SwitchHook interaction
  - ○ OnCollideTile: Tile.OnSwitch, begin return
  - ○ OnCollideCollectible: grab collectible, begin return

Custom Collision Check
- My CollisionBox
- Their CollisionBox
- Their Flags condition
- Z-Position condition

Collision Checks
- Monsters → Player
- Player → Entities
- Projectiles → Monsters
- Projectiles → Player
- Boomerang → Collectibles
- SwitchHook → Collectibles
- Fire → Monsters
- Bomb → Tiles
- BombExplosion → Monsters
- BombExplosion → Player
- Player → Tiles

Depth Order (back to front):

- Tiles
- Collectible (OnGround)
- Player Submerged
- Effect - Water Splash
- Effect - Shovel Dirt
- Effect - Leaves
- Effect - Scent Seed Pod
- Effect - Mystery Seed
- Effect - Somaria Block Poofs
- MONSTERS
- Effect - Monster Explosion
- Effect - Fire
- Effect - Falling Object
- Effect - Owl Sparkles
- Projectile - Boomerang
- Projectile - Bombchu
- Projectile - Arrow
- Projectile - Magic Rod Fire
- Projectile - Switch Hook
- PlayerItem - Sword / Swinging Weapon
- PLAYER & NPCs
- Projectile - Sword Beam
- In-Air Seed
- In-Air Monsters
- In-Air Player
- In-Air Collectibles
- Projectile - Beam
- Projectile - Bomb
- Effect - Sprint Puff
- Projectile - Carried Tile
- PlayerItem - Seed Shooter
- Effect - Cling
- Effect - Mon
- ster Burn Flame
- Effect - Bomb Explosion
- Effect - Pegasus Seed Sprint Powder

** Newer entities draw BELOW older entities.

Graphics not being drawn by Graphics Components (Unhandled depths):
- Monster - Burn Effect - [[Parented/Attached entity?]]
- Player - Tool Animation [[Unit Tool]]
- Entities out of room:

- - PlayerCarryState - Carried Entity
    - Boomerang - Collectible
    - PlayerSwitchHookState - Hooked Entity
    - Switch Hook - Links & Collectible

Unit Tools:
- Player:
  - Sword
    - Hold Sword
    - Swing Sword
    - Spin Sword
    - Swing Big Sword
  - Shield
    - Shield
  - Visual:
    - Seed Shooter
    - Slingshot
    - Cane of Somaria
    - Magic Rod
- Monster:
  - Sword
  - Shield

Swing a Sword
- Equip Tool
- Play Animation
- OnAnimationDone - Unequip tool
-

Shield
-

Hold Sword
- Set Animation

Unit Tool Properties
- Is Enabled
- Collision Box
- Events:
  - OnCollide with Entity
    - Monster
    - Player
    - Collectible

- - OnCollide with other Tool
    - Sword hit Shield
    - Sword hit Sword
    -
- Graphics:
  - Draw Offset
  - Depth Layer
  - AnimationPlayer

Unit to other Unit
    Check hit other item first

Player Sword Tool
- Collide with
  - Monsters
  - Collectibles

Monster Sword Tool
- Collide with
  - Player

Monster Projectiles
- Arrow - *Moblin, Darknut, Shrouded Stalfos*
- Rock - *Octorok*
- Bone - *Stalfos*
- Boomerang - *Moblins*
- Fireball - *River Zora, Goponga Flower*
- Beam - *Beamos*
- Magic - *Wizzrobe*
- Spear - *Lynel*

Order of TODO
- Editor: Tileset Panel work - Event Tiles
- Monster Interactions
- New Monster Spritesheets
- Monster projectiles

👍

Game Mechanics Debate:

All game mechanics that either have no existing implementation due to Ages/Seasons crossover, etc will be decided on here.

- **Swim Stroking Mechanic:** Press arrow keys to stroke, or press A to stroke?
  - Seasons uses A to stroke, and allows B for weapons when underwater
  - Ages uses arrow keys to stroke, and allows A/B for weapons while underwater in side scrolling, or just A while underwater in Top-down (with B to resurface)
- **Roller Speed + Power Gloves:** Should they get a speed increase?
  - No: Roller's already have a decent movement speed.
  - Yes: Would facilitate speedruns. (Not really something we'd ever need to worry about though)
- **Armos Arrow Reaction:** Deflect or take damage and how much?
  - Damage2: in LA, arrows kill armos in one shot.
  - Deflect/Damage1 for Blue: Arrows are too easy of a kill.

List of Unofficial Tiles/Sprites:

Temple of Seasons + Pillar (Restored), Ages Trees /w Dirt Background