Jason McNaughton

ITGM MA Grad Review (Winter) 2024 *V.10.1*

Growth Goals

Past, Present & Future

What is your undergrad degree on? B.F.A. in Animation (2D focus) from SCAD
What it's your area of interest right now? Environment Art and Visual Development
What do you want to do in the industry? I would like to grow from my current role working as a 3D artist on educational games into a more senior position. I also would like to continue teaching adjunct at the college level.

6 Past Works

First Past Work

Past Work ITGM 740
Game Art: Direction/Look Dev

Lean-to

Created with Maya, Unreal, Substance Painter, and Photoshop

Second Past Work

Past Work ITGM 720
Game Art: Virtual World Build

Stable’s Saloon: A Place You Can Go To Hold Your Horses

Created with Maya, Unreal, Substance Painter, Substance 3D Sampler and Photoshop

Third Past Work

Past Work ITGM 754
Game Design: Pro Production

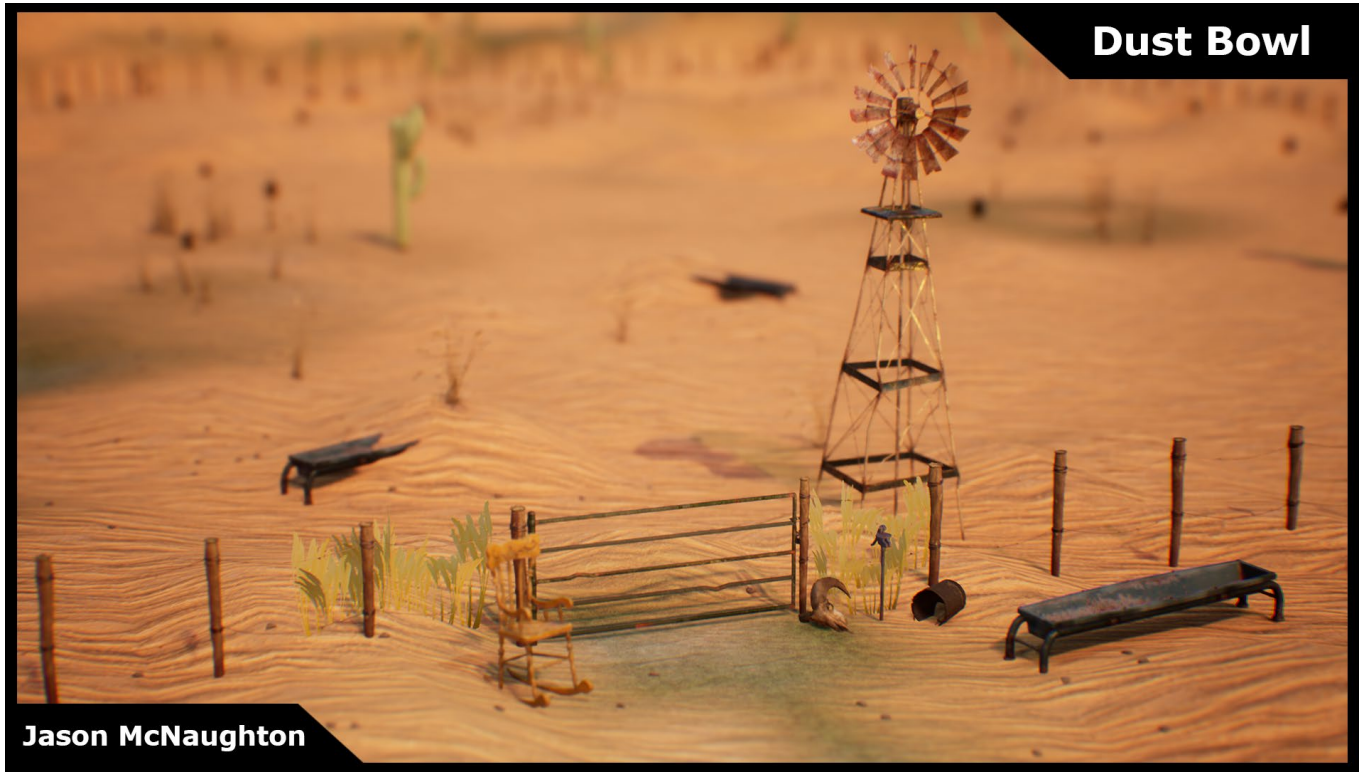
Dog Water

Completed demo: responsible for game pitch, character concepts, dialog writing, level design, collectible assets, props and environment assets

Fourth Past Work

Past Work ITGM 505
Game Art Methods

Dust Bowl

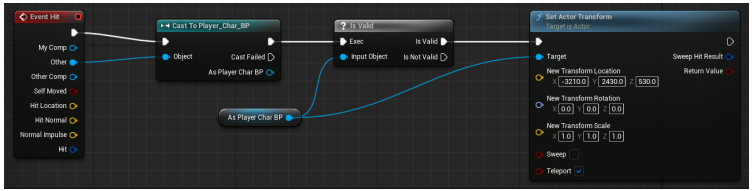


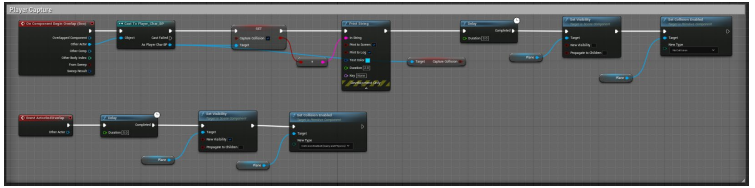
Created with Maya, Unreal, Substance Painter, Substance Designer, Photoshop

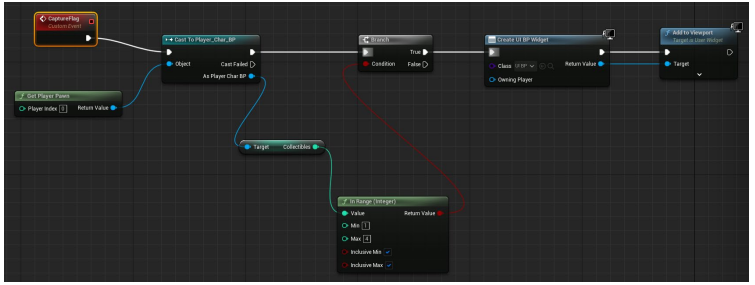
Fifth Past Work

Past Work ITGM 710
Game Art: Engine Pipeline and Practices

Capture the Flag



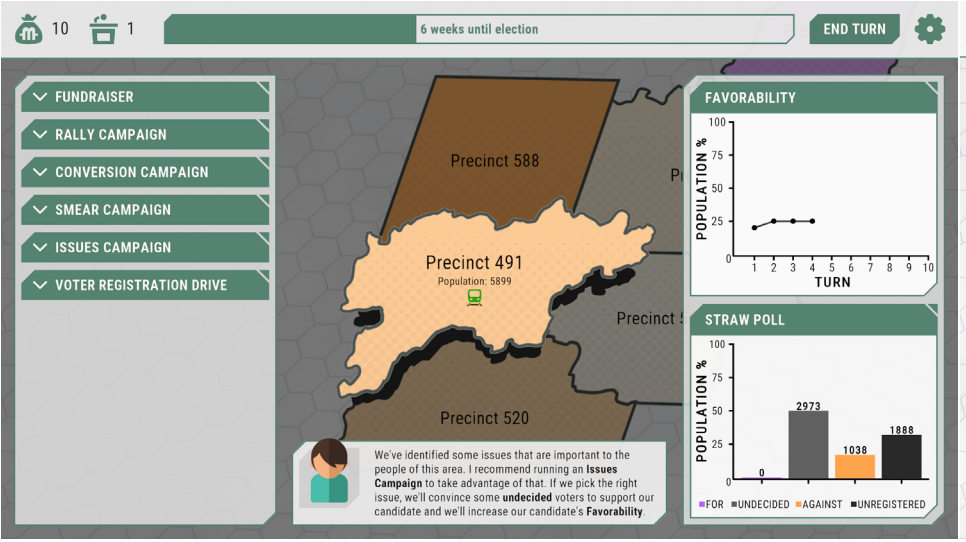


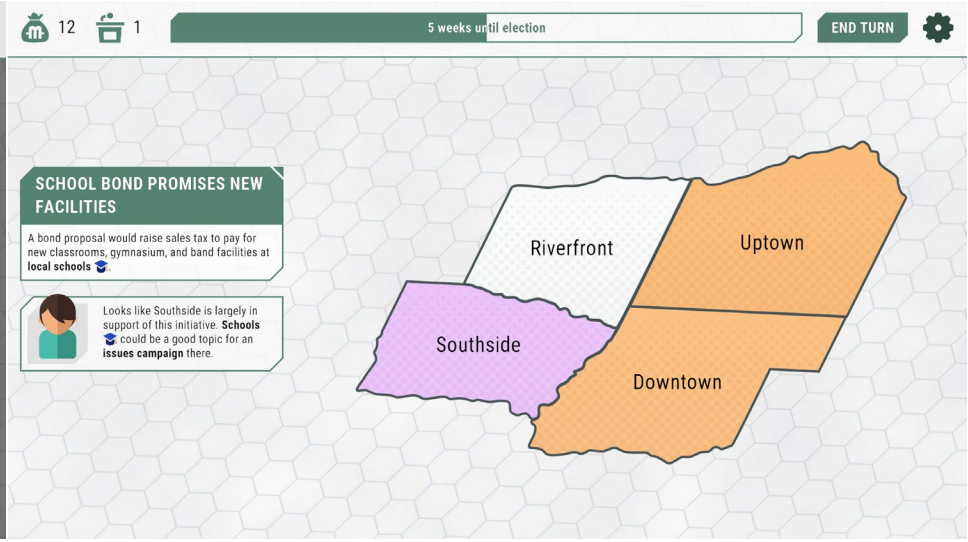


Sixth Past Work

K20 Center
OPERATION: ELECT

OPERATION: ELECT





Responsible for map design, UI, graph layout, icon design (Game is not yet completed and in production)

Growth Goals

Problem / Design Challenge

(GAME Students)

Create an environmental based experience that teaches the user the 4 stages of wheat growth to create agriculture career awareness.

Scope

This 10 Week project will include one environment with a small field section. The user will then have to interact with the environment to help see the wheat to each stage. The environment will be stylized to clearly show each stage. There will be tilable assets and a few larger hero assets in the environment. There will be painted textures, and lighting included in the scene. Although it will be minimal, the environment will have UI and must be navigateble. This could be used a template or proof of concept for multiple crops farmed across the world.

Gameplay Scope

This experience should only take the user a few minutes to complete. The user will start in the environment and be given simple instructions to go and search for things that will help the wheat grow. The user will interact with seeds, water, fertilizer, and the sun. The user must interact with these elements in the right order for the wheat to grow. When the user goes up to the right part of the environment, a UI widget will appear with an entertaining statement about how it will help see the wheat to the next stage of growth. Once they leave that part of the environment, the UI will be removed, and the wheat will be replaced with the next stage of growth. Then the user will have to find the next correct section of the environment and the loop will repeat until the final stage of growth is reveal.

Game actions that can be taken per wheat stage

Approach Area

You must approach each area in the right order for it to trigger the correct event

UI Information

A short but fun statement about the area and the equipment there will appear in a UI widget

Move Away

You must move away from the area for the UI widget to disappear

Wheat Stage Update

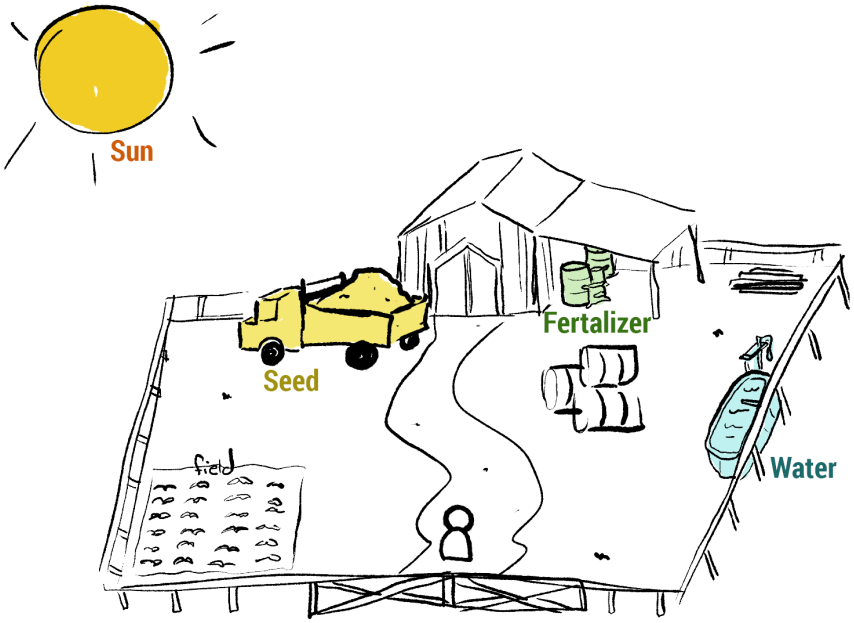
The wheat in the field will update to the new stage. A UI icon will also mark that the next stage was reached.

Find Next Area

Try to explore and find the next area to complete the loop.

Rough Environment Layout

This is a rough top-down layout of the environment to see all areas that can be explored. The game will be from a first-person view.



Secondary Collectible System

The secondary collectible system will just be a series of objects in the environment that the user can walk up to. Once the user gets close enough, a UI widget will be trigger that give the player an entertaining message about how the items are import in farm use. These items will not progress the user through the level, but serve to let the user explore more while teaching them about farming careers.

- *Haybales*
- *Fence*
- *Feedbags*
- *Salt Block*
- *Windmill*
- *Tractor*
- *Gas*
- *Barbed wire*

Final Project Goals

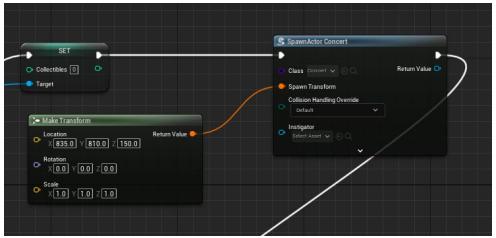
With the aid of an environmental focused experience, the user will be able to identify the four stages of growth for wheat after the experience.

Process

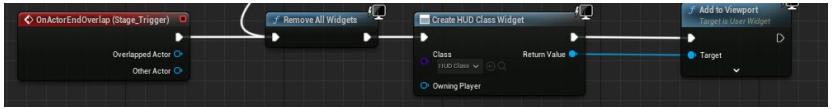
The pipeline will use Agile, and scope will be scalable as needed. The artist will report with a SCRUM every day before class. The project will start with preproduction focused on UE blockout. Then the artist will move into production for modeling modular and hero assets to be added in the blockout. The postproduction will include lighting and QA testing to ensure product will be ready for stakeholders.

Process

For the UE blockout the artist will have to create a blueprint that updates the field to a new stage once an area has been visited. This mechanic will be what progresses you through each stage of wheat to accomplished the experience.



A spawn actor blueprint to spawn in the new stage of wheat to the field.



A UI Widget trigger to pop up UI with the instructional information.

Process

The environment will be stylized to clearly showcase the wheat stages and other instructional visuals to the viewer. There will be modular assets with some unique hero assets for each area that needs to be visited.

https://assetstore.unity.com/packages/3d/environments/fantasy/stylized-farm-174490

https://www.renderhub.com/warkarma/farm-prop-pack-stylized

https://sketchfab.com/3d-models/low-poly-3d-farm-547c628c0940448a8394d32d17789a06

Process – Workflow - Pipeline

Blockout

Create working blockout in Unreal

UI & Revise Blockout

Design UI and add to blockout & Fix and revise all issues with blockout so they are ready for assets to be added in

Model Modular Assets

Create and UV all modular assets for scene

Model Hero Assets

Model and UV all hero assets needed for scene

QA & Revise

Import and replace all newly created assets with blockout assets in scene

Texture & Light

Paint and create textures and add to models & Light scene

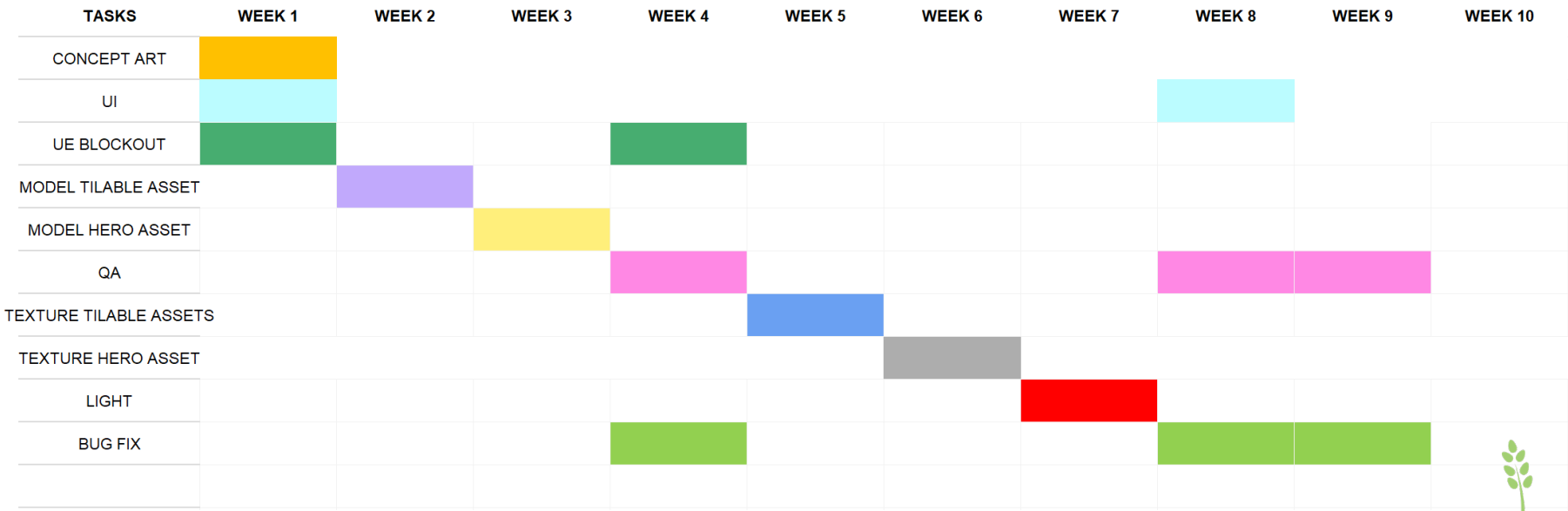
Evaluation – Success Criteria

- *If all deliverables for the environment itself are met. (I want the piece itself to be instructional, but I also want a major focus of the piece to be on creating good environment art.)*
- *If the users have a better understanding of the stages of growing wheat.*

Deliverables

.exe, walkthrough video, and process doc

Timeline



Schedule timeline for projected completion of the written and visual components as a Gantt Chart.

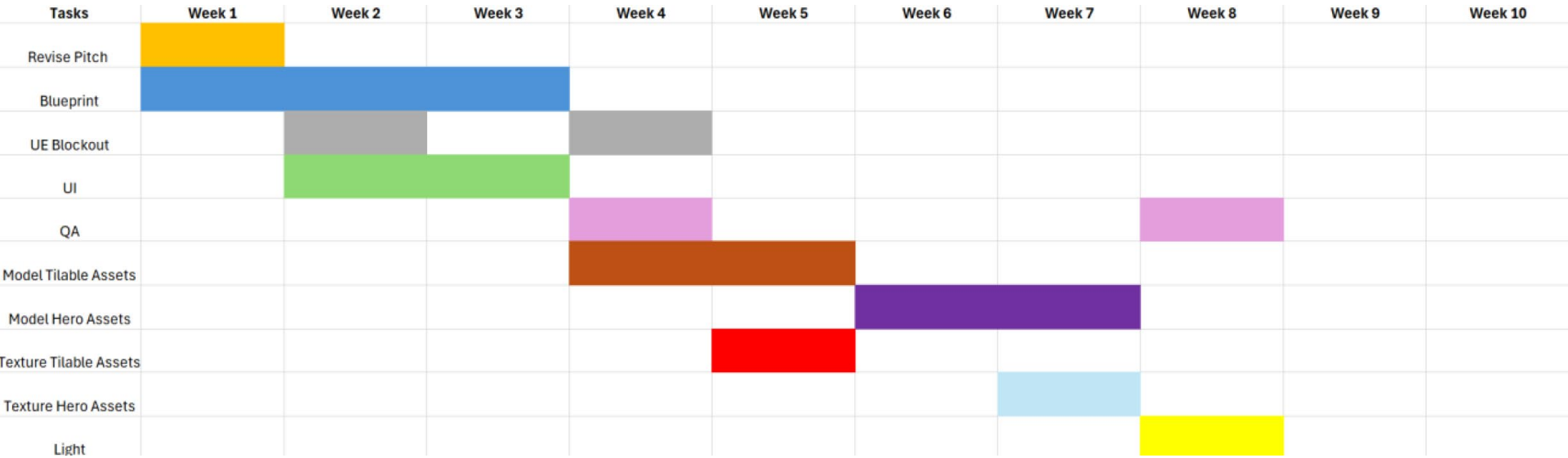
Bibliography

- Interactive/Game References: Quiver, The Pique Lab, Seed Survivor, Field Day
- Educational Impact of Ag in Oklahoma: Oklahoma Ag Classroom, Oklahoma Farm Report, Wheat Crop Overview
- Impact of Ag across the world: United Nations
- Impact of Ag in the United States: Stats

Portfolio Website

https://www.jasonmcnaughton.com/

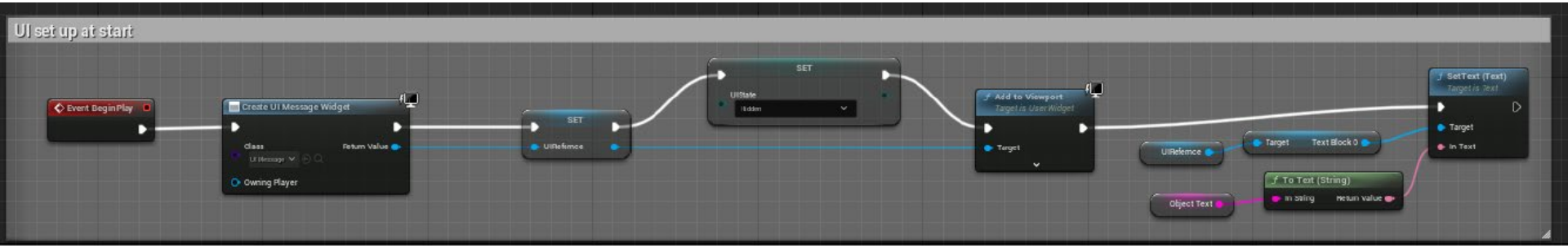
Production

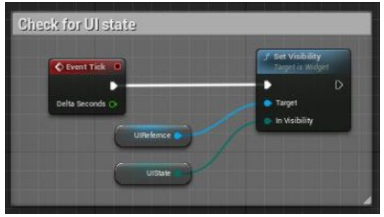


Above is my revised schedule. It has been changed to focus more on getting the blueprints done by the midterm. It also fits more into 8 weeks. If there is more time after week 8, the time will be spent revising and testing the experience.

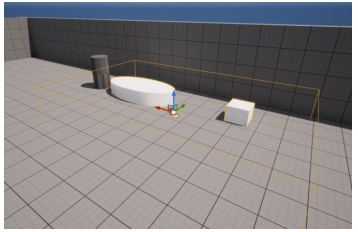
Blue Printing

To start we have a set up for the UI. This is so that all the UI is turned off and not displaying at all times unless at the correct location. It also organizing each check point 0-4 so that there is a correct order they much be found in



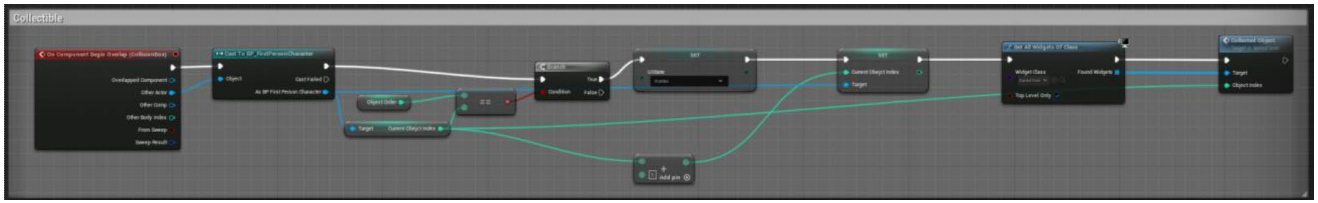


This is a check that is looking to see if the player is in the right location to trigger the UI message.



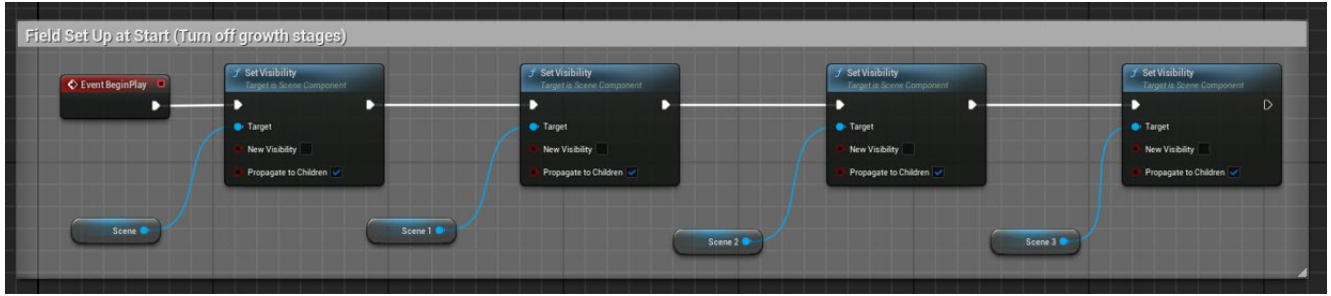
Blue Printing

The next blueprint check for when the player overlaps the correct area and trigger the UI display, and the badge for the wheat growth. It then advances to the next value to make sure that the player can only go to the next trigger if it is in the right order.



Finally, when the player leaves the trigger, the UI message will disappear.

Blue Printing



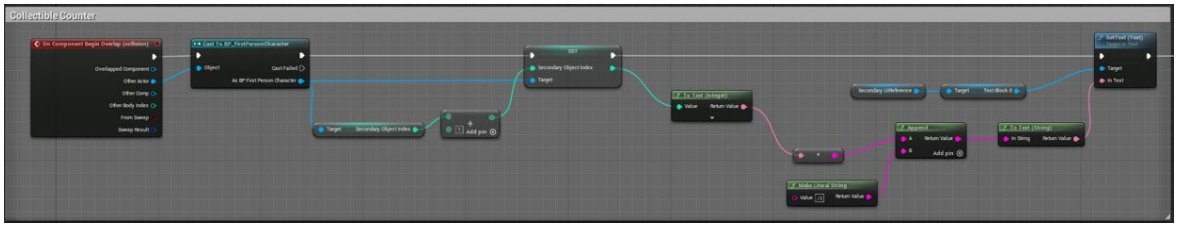
To create the field that grows to each stage as the user explores the area, I created a blueprint that hides each stage of growth until it is triggered in the correct order.

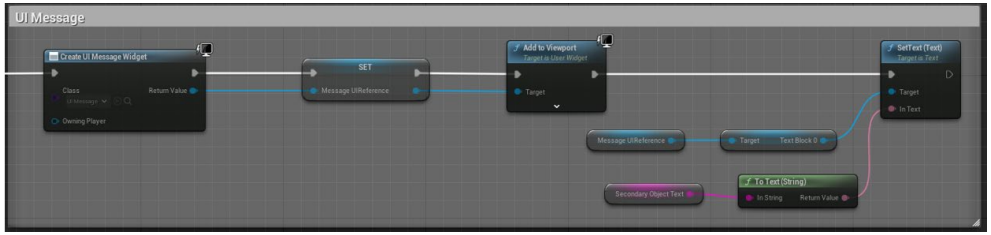
To begin each stage of growth is turned off.

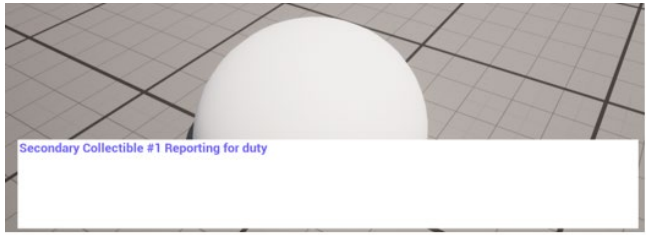
Once the correct stage is triggered it loads in the correct model for the field to show the stage of growth. The other stages remain off. As the user explores the area then next stage of growth will be triggered once the correct area is found.

Secondary Collectible

This blueprint is the collectible counter. This will be a counter on screen that shows how many collectibles there are total and how many the user has found.



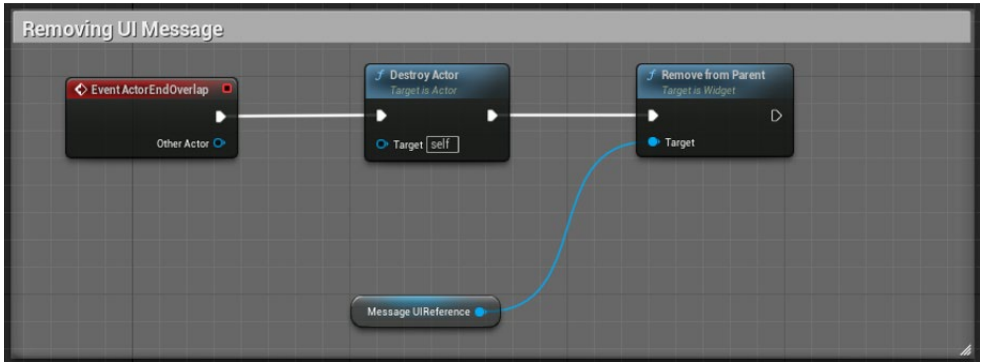




The next part of the blue print is the UI message that pops up at the bottom of the screen that gives information about how that object is important within an agricultural career.

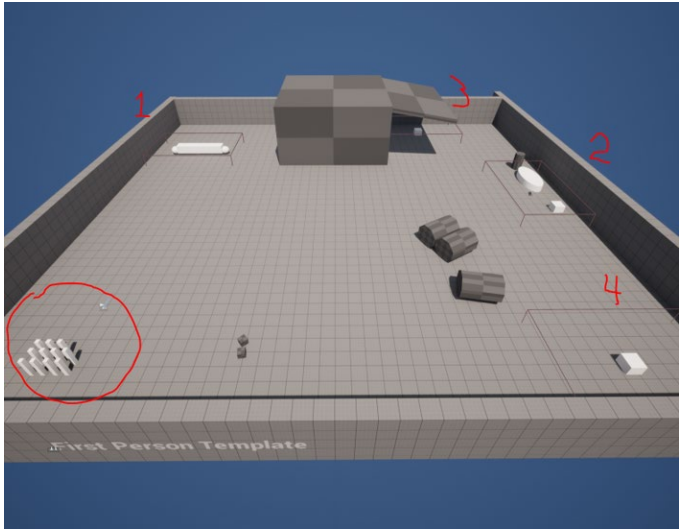
Secondary Collectible

The final part of the blueprint is removing the UI message. When the player moves away from the secondary collectible the UI message disappears and the collision box is destroyed so that it can't be collected again.



Block Out

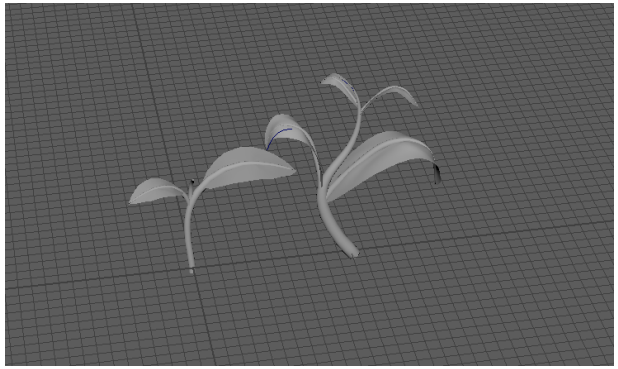
Below is a rough outline of the explorable area with the check points numbered in order that you must find them in your exploration. Circled at the bottom left is the section that the field will be. This block is still rough and subject to change.



With the information and progress given above. I believe that for a proof of concept, the completion of this project is completely achievable. Most all major mechanics are blueprinted into the scene already. The informational content needs to be injected into the level and then the secondary collectible system. After that, all updates will mostly aesthetics are art creation and implementation. The next main milestone is to have all blueprinting by week 4 and then begin its first round of testing shortly after.

Wheat Stages

Tilering, Stem Extension, Heading, Ripening



Shown are in progress models of the tilering and stem extension stages.

Instructional Content

The next thing that was implemented into the project was injecting content into the text boxes that will actually reflect what will be in the final experience. With this content in, I will finally be able to text with users to track if they are learning the 4 stages of wheat.

I will include in this document the content of the 4 major collectibles for growing your field. The goal for the content is to informational, but also entertaining.

Stage #1 (Seed Planter): This is a seed planter that tractor pulls. This plants the seeds so that the wheat can sprout to the **Tilering Stage**. Don't let these sprouts fool you, most wheat is engineered to grow in the winter. So these tough little guys can endure some really tough elements. Go to your field and check to see if the seeds have sprouted.

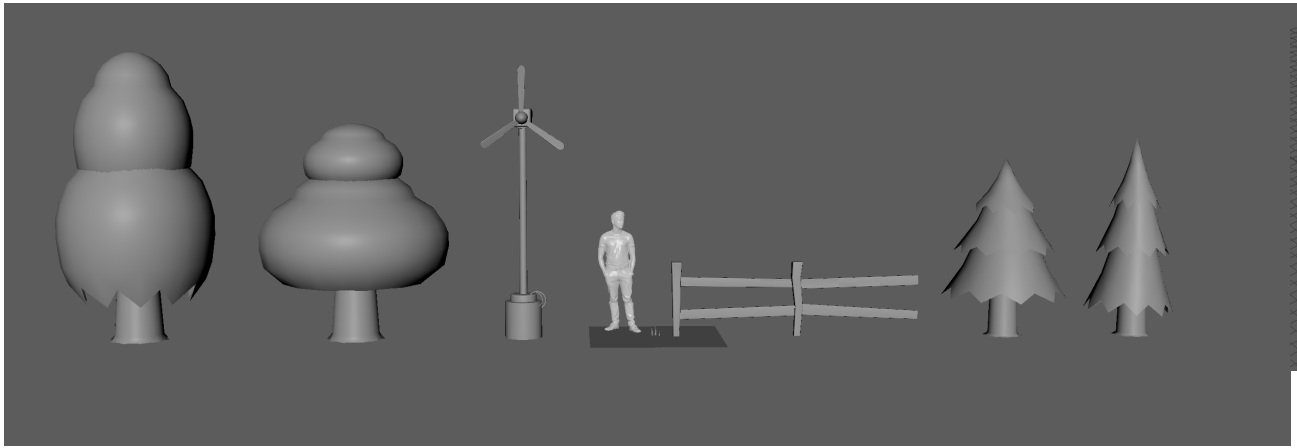
Stage #2 (Water Well): This is a water well. The wind blows the windmill and it turns it pumps the water out of the ground. You better hope for rain after the wheat sprouts. It takes some good moisture to grow the wheat from the Tilering Stage to the **Stem Extension Stage**. Check your field out again before finding a way to grow the wheat to the next stage.

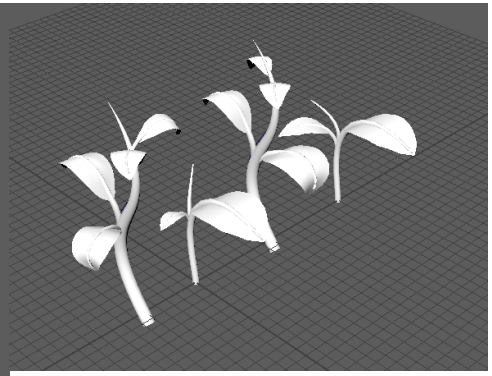
Stage #3 (Fertilizer): Right here is some fertilizer. You can fill tons of this in large drums to be pulled and dispersed by a tractor. Some farms use natural fertilizer or liquid fertilizer. Either way, it doesn't hurt to give the wheat a little something to help it reach the **Headeing Stage**. The Heading Stage is where the head of the wheat sprouts up and is almost ready to harvest. Your field is almost to the final stage!

Stage #4 (Wind Turbine): This is a wind turbine, and you better hope this thing is spinning before you harvest. In the **Ripening stage**, you want your wheat to be as dry as possible before you harvest. I know it's the opposite than when your wheat is tilering, but waiting for the wheat to be as dry as possible before harvesting stops it from getting gross and moldy. Your wheat is at the final stage and ready to be harvested!

Modular Assets

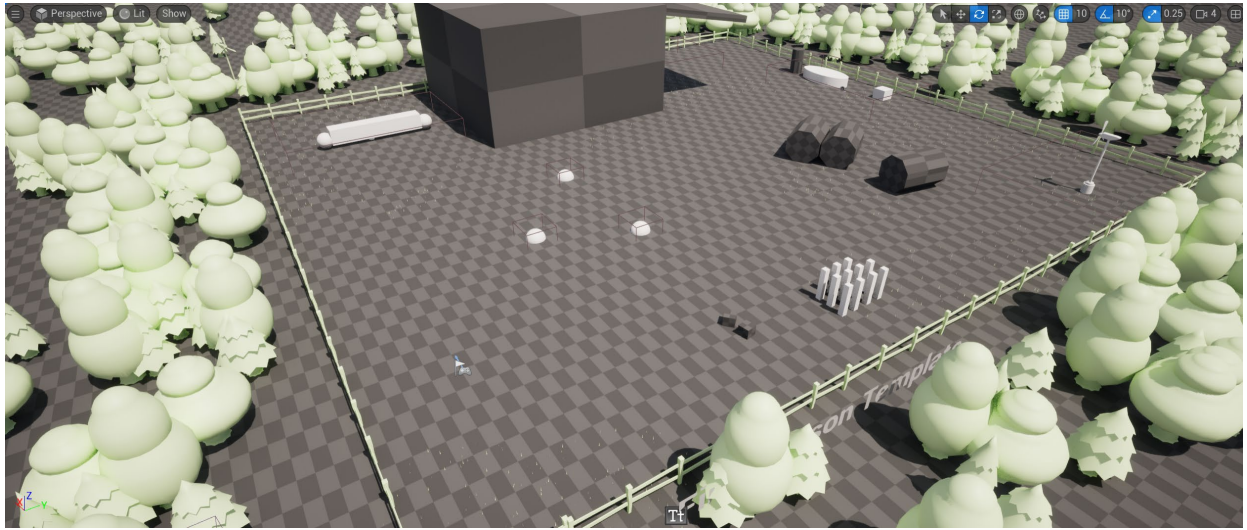
I began the modeling process by creating all the modular assets. This included, trees, windmills, fence, grass, and the wheat stages in the field.





Beta

Current state of the beta. User is able to get through all stages of wheat growth and gather secondary collectibles. Testing has begun and beta has already shown that user are learning stages of wheat growth through the experience.



What’s next

Most all blueprinting is done. The main things that are needed is mostly beautification. A majority of tilable assets are in the game, but there are a few left to work on. Then the creation of the hero assets. The texture and lighting are needed.

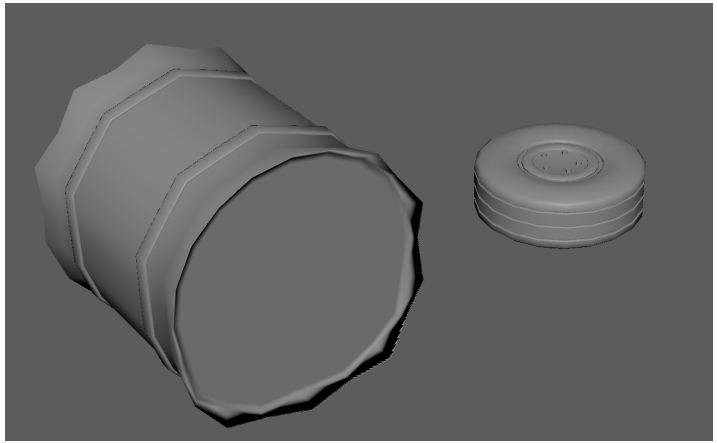
- Finish tilable assets
- Model hero assets
- Texture all assets
- Light scene
- Second round of testing
- Set Dressing
- Design UI

Research Journal Pt. 3

This research journal consisted of modeling the major hero assets and set dressing the environment. I also create the UI that will be used in game and wrote out the information given in the secondary collectible system.

Models

Completed wheat stage models

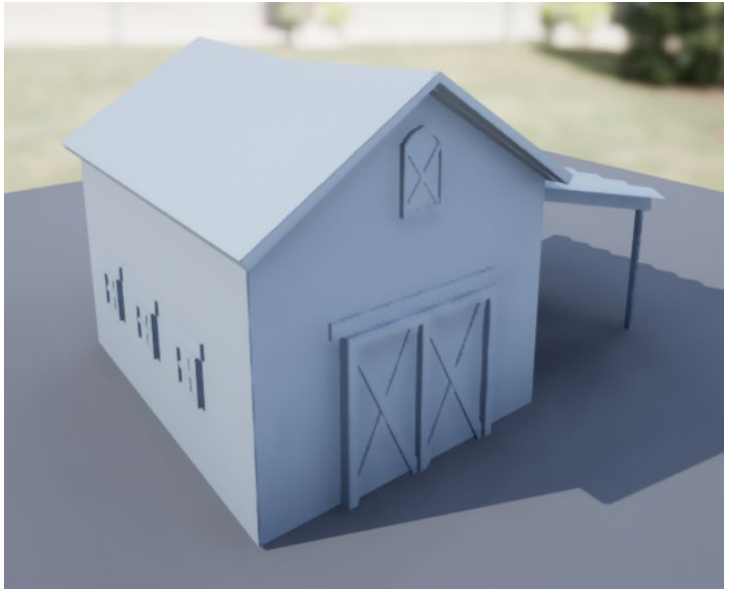


Haybale and tire

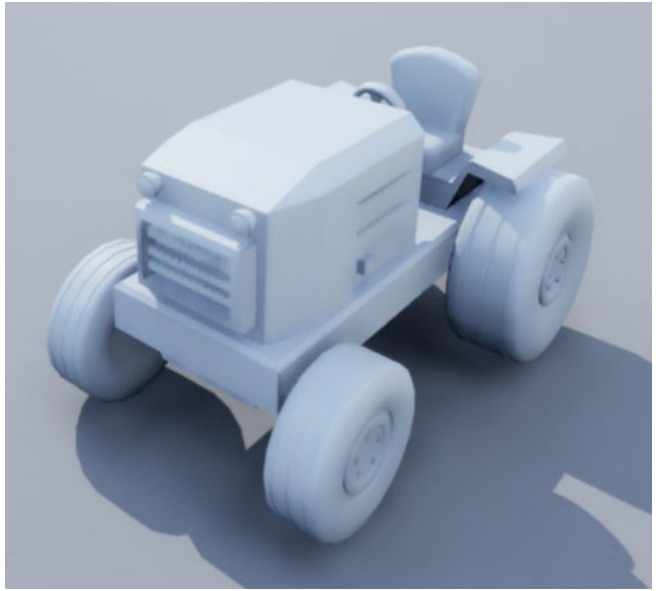
Silo

The models are a simple, stylized and low poly approach. Keeping them this simple will allow a variety of communities and schools to use the experience without having to deal with heavy files. Most schools only have chrome books or old computers. This helps keep the project lighter so it may be more easily ported to lighter platforms.

Models

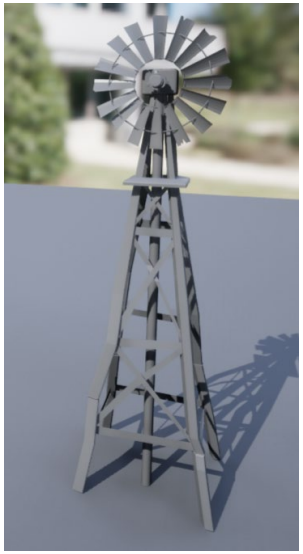


Barn



Tractor

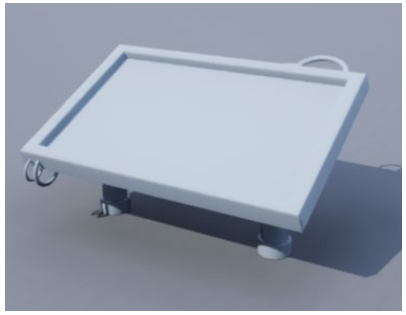
Models



Windmill

Feedbag

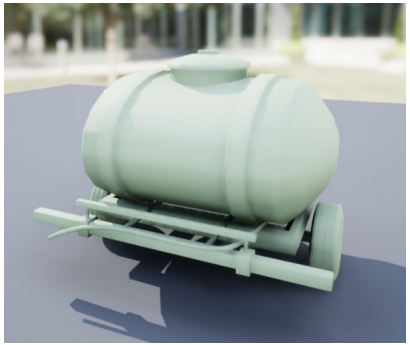
Combine



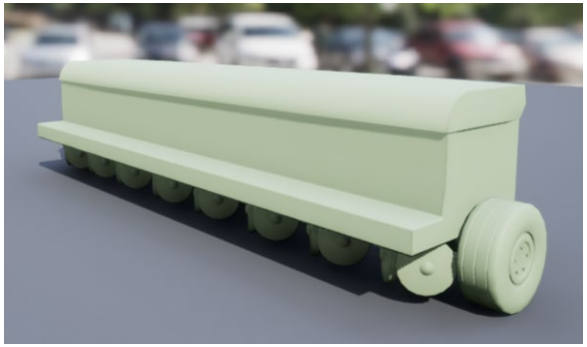
Solar Panel

These are examples of what secondary collectibles could be. Points of interest that could have helpful information, but do not advance the growth of the wheat. They also help populate and give more personality to the environment.

Points of Interest

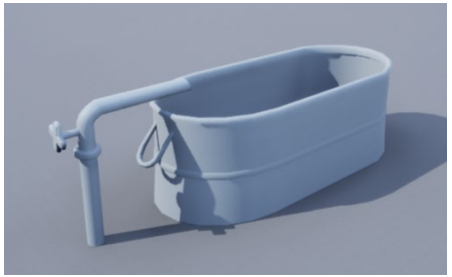


Fertilizer



Seed Planter

Wind Turbine

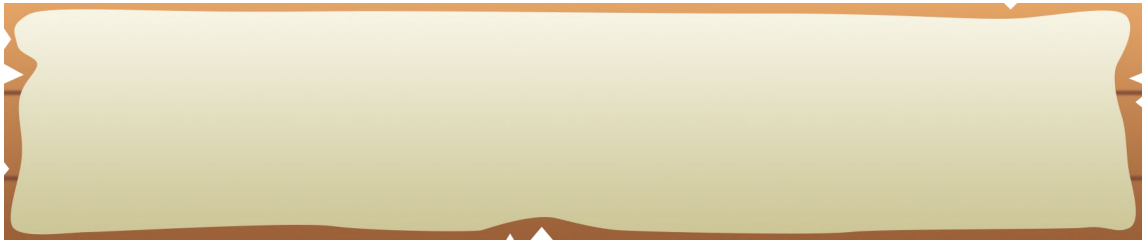


Water Well

These models serve as the points of interest that give the “growth badges” to the player as they are exploring.

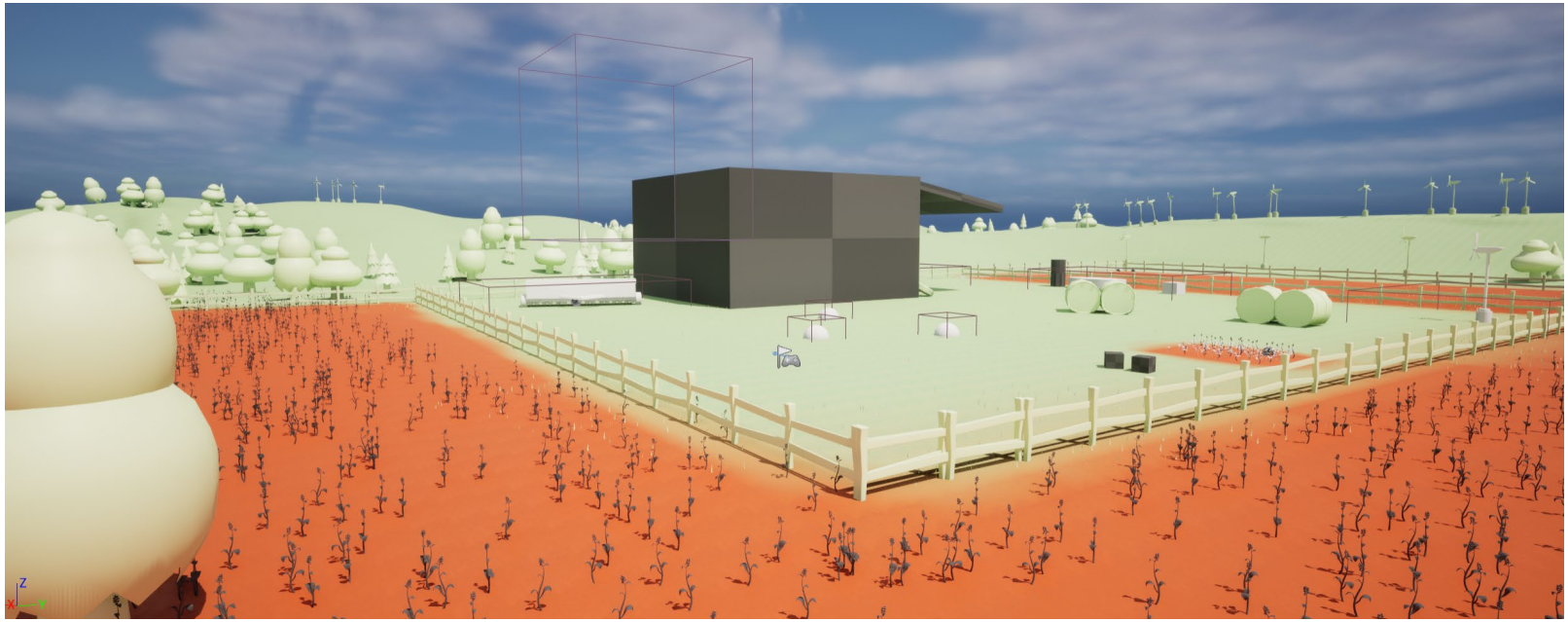
UI

Wheat Stage Badges



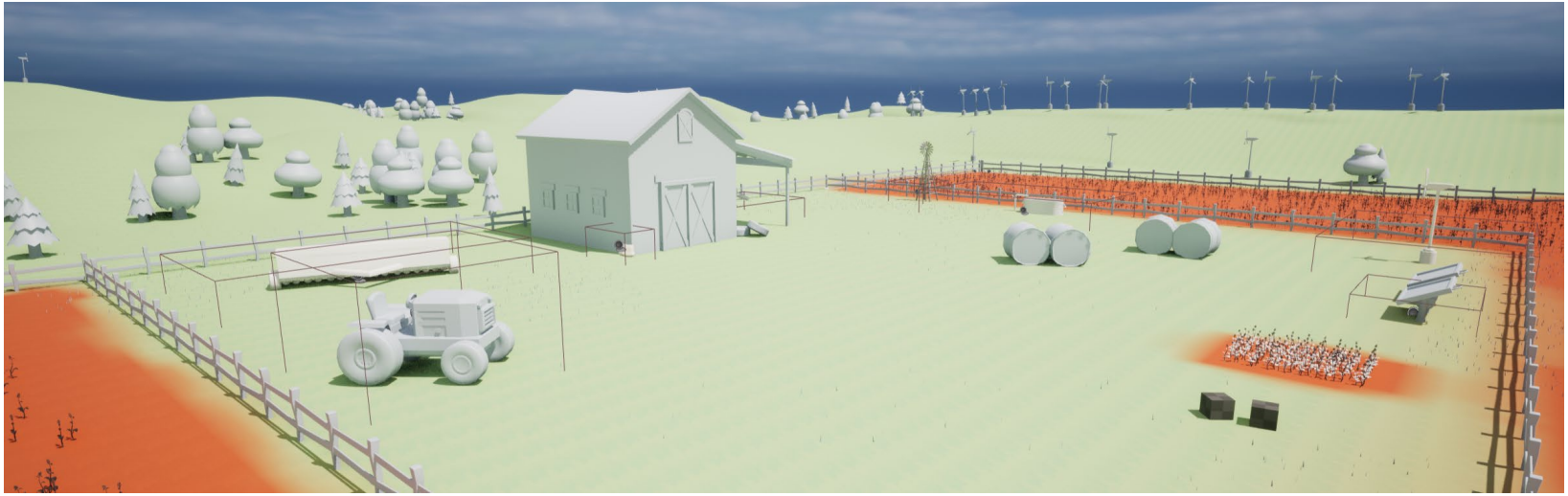
Text box

Terrain Revisions

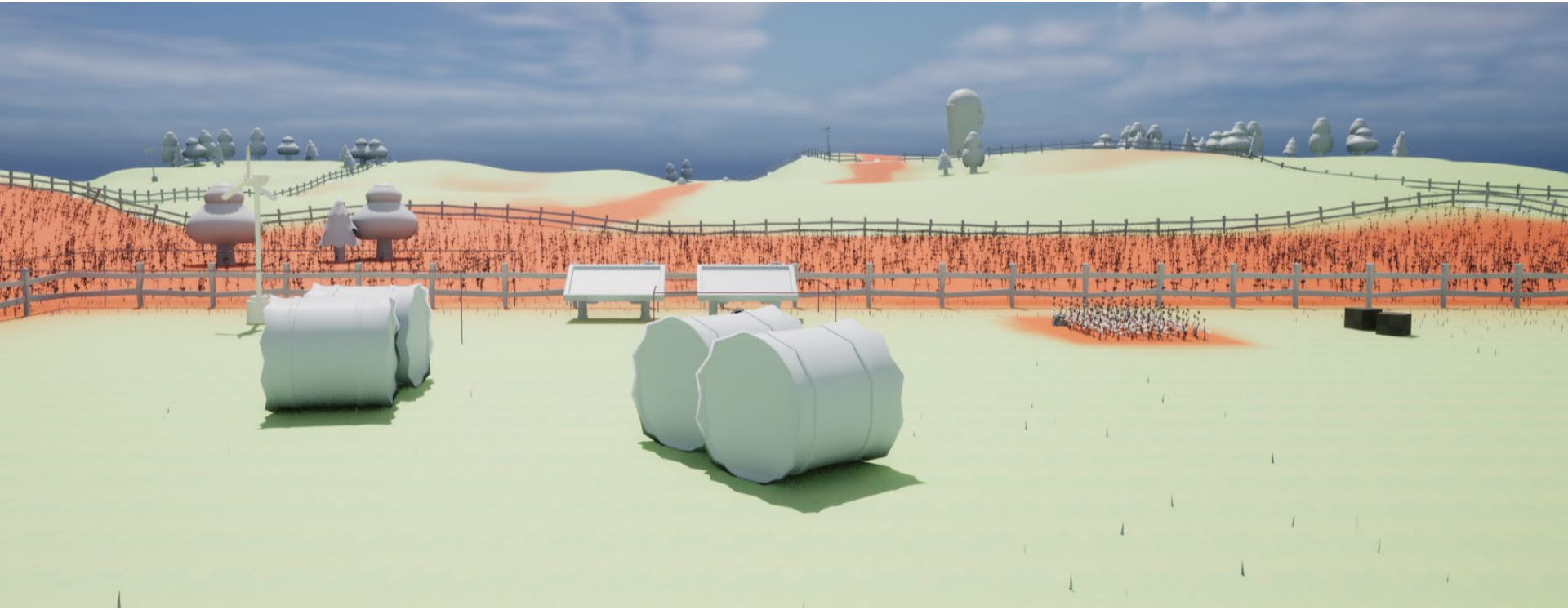


Terrain revised to be more flat and have rolling hills to simulate a more realistic and farm in the plains.

Terrain Revisions

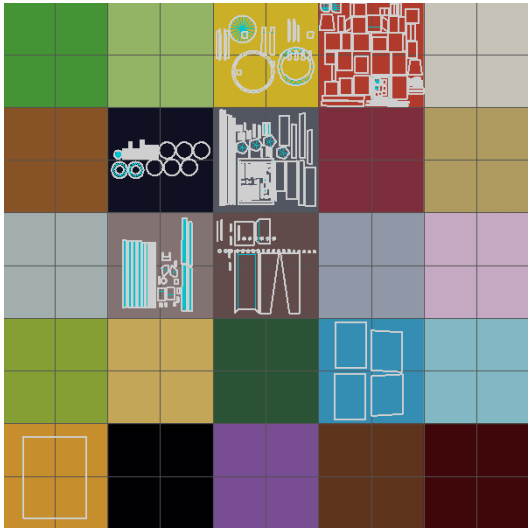


Terrain Revisions



Texture

Atlas



UV

An atlas is being used to help keep the game lighter to possibly be used on less powerful platforms that may be in schools. This allows there to only be one texture and one material to be used in engine. It may be less detailed, but it will save on space and effort for the final product and production while still maintaining a stylized look.

Textured Environment

Atlas material implemented into engine.