

Project Requirements

1. The game shall be played on a device that meets certain hardware requirements.
 - 1.1. The device must be able to receive input from a keyboard.
 - 1.2. The device must be able to receive input from a mouse or trackpad.
 - 1.3. The device must be able to render images to a screen display.
2. The game shall incorporate 4th grade math problems into gameplay.
 - 2.1. The game shall allow the player to choose which 4th grade math concept to focus on, such as addition, subtraction, multiplication, or division.
3. The game shall have tower defense mechanics.
 - 3.1. The player shall defend a clutch of eggs from endless waves of predators.
 - 3.1.1. Predators shall travel along a track to reach the player's eggs.
 - 3.1.2. Predators shall damage and consume the player's eggs once they reach them at the end of the track.
 - 3.1.3. The game shall end when the player loses all their eggs to predators.
 - 3.2. The player shall cast spells to defeat predators at the cost of mana.
 - 3.2.1. The player shall gain mana passively at a fixed rate.
 - 3.2.2. The player shall gain mana actively by solving math problems.
 - 3.2.3. Spells shall enter a cooldown state after they have been casted.
 - 3.3. The player shall be rewarded with berries for surviving waves of predators.
 - 3.3.1. Berries shall be used to upgrade spell strength, cooldown, and mana cost.
 - 3.4. Predators shall be varied in terms of health, strength, and speed.
 - 3.4.1. Health shall be the measure of how hardy a predator is against spells.
 - 3.4.2. Strength shall be the measure of how quickly a predator can consume eggs.
 - 3.4.3. Speed shall be the measure of how fast a predator can travel along a track.
 - 3.4.4. Small-sized predators shall have low health, low strength, and high speed.
 - 3.4.5. Medium-sized predators shall have moderate health, moderate strength, and moderate speed.
 - 3.4.6. Large-sized predators shall have high health, high strength, and low speed.
 - 3.5. The game shall keep track of how many waves of predators the player has survived.
 - 3.5.1. The game shall become more difficult as the player survives waves.
 - 3.5.2. The game shall display the number of waves the player has survived alongside their greatest record after they lose all their eggs to predators.
 - 3.5.3. The game shall record the greatest number of waves the player has survived across sessions.
4. The game shall provide guides that help the player learn how to play it.
 - 4.1. The game shall display a how-to-play guide when the player launches the game for the first time.

- 4.2. The game shall provide helpful hints during gameplay to help the player improve their skills.
- 5. The game shall display an engaging user interface that is suitable for 4th grade students.
 - 5.1. The user interface shall present information that can be easily understood at a 4th grade reading level.
 - 5.2. The user interface shall consist of prompts and menus that are large enough to be read by a 4th grade student.
 - 5.3. The user interface shall be free of clutter to avoid overwhelming the player.
 - 5.4. The user interface shall be stylized to match the whimsical feel of the game.
- 6. The game shall play music that invokes the emotion of whimsy in the background.
 - 6.1. The game shall allow the player to set the volume of the music.