**Project Triumph**

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Version 1.0.0

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# Game Overview

### Target Learning Objective (LO)

* [4-PS3.A-2: Forms of Energy Movement](https://drive.google.com/file/d/1maKdtaHiZjOe2KlV4SXdg3tUdEZfIr1l)

### Demographics - Target Audience

* Ages 8-11 (Grade School)

### Genre / Theme / Setting

* Puzzle Game – Players must place the correct elements into its proper chamber, while also manipulating the contraption to allow energy to flow. Think in terms of rubrics cube, turning gears, and pipes.
* Energy Spirits and Mechanical Artifacts – The game will have a fairy-tale aesthetics, but still show real world physical effects.
* Fantastical Landscape – The world in the game appears bleak and colorless at first, but is then filled with colors and brightness as the player solves the mechanical artifact.

### Core Gameplay Summary

The game consists of three parts: Visual/Interactive Lesson, Mechanical Puzzle, Victory Marching Band. Most of the game happens during the mechanical puzzle. Whenever there’s a new type of energy introduced, the visual/interactive lesson takes place before the puzzle. The victory phase will occur once the puzzle is solved, where the marching band grows in numbers as the game progress.

#### Visual/Interactive Lesson

The game will explain one or more energies, and how they interact in the environment. The player is then presented with a simple mechanical artifact to interact and place an energy to verify the explanations.

#### Mechanical Puzzle

The goal of the puzzle is to fully power up the mechanical artifact such that it emits sounds to form a melody. The player places different energy in their respective chamber. Along with placing the energies, the player must manipulate the mechanical parts such that the energies can power up the entire artifact.

In order to make the game more interesting, the way the player interacts with the artifact will vary based on how they are visualized. i.e., interacting with the mechanisms feel like you are actually manipulating it, rather than through an abstract UI.

The learning in the game happens when the player understands the interaction between energies as they are placed into the artifact. The player will understand how energies move, interact, and generate power, as they solve the puzzle correctly.

#### Victory Marching Band

Once the mechanical artifact is fully powered, it will descend into the land where it will arouse the creatures into action. These creatures will band together to follow the artifact, playing a tune along. This part of the game is simply a visual victory for the players to enjoy before they move on to the next lesson/puzzle.

### Look and Feel

* Energy Spirits – In order to draw in players to learn about the types of energies, each energy is represented as a spirit with its own quirky personality.
* Mechanical Artifacts – The style will be that of steampunk with all the gears and pipes. Much like the sketches found in the early 1600-1700’s. They will also have a certain organic feel to them so that they do not appear too “boxy”.
* Landscape – Much like that of fairy tales in two contrasts: ominous and colorful. Shifting from ominous to colorful in order to give that sense of accomplishment.

### Target Platform(s)

* WebGL with iPad support – Since the game is completely mouse driven, there should be no issue with playing the game in any platform that supports mouse or touch input.

# Game Flow

## Part 1 - [Name of this Portion of the Game]

### L.O. Concept(s) Covered

* List the concept(s) covered during this part of the game.

### Summary

Questions to consider:

* Indicate the gameplay goals. This is supposed to be fun, after all!
* What is the flow of the gameplay?
* What is the flow of the academic content?
* How will students/players be held accountable for understanding the academic content?
* Note: it is okay if the game becomes progressively more difficult from a gameplay/academic standpoint. It’s good to challenge the student, as long as it is at the appropriate level for the target age!

### Mechanics

* What are the controls for these physical movements?
* What are the physics of the movement through the game?
* What “skills” will the player need to play this game?
  + Examples: puzzle solving; manage resources; strategy; memory; drag and drop; tap on screen; rearranging pieces; platform jumping; etc.

### Losing Gameplay / Incorrect Concept Understanding

* What happens if a student loses a level or fails a mission / puzzle?
* How do they learn from their mistake(s)?
* If the student loses due to not understanding the academic content, how will the game help them learn from their mistakes?

### Mockups

* Show images of this part of gameplay here. Important items to show would be gameplay with the academic concepts integrated; the “losing gameplay” where students learn from their mistakes; and a good view of the mechanics

## Part 2 - [Name of this Portion of the Game]

### L.O. Concept(s) Covered

### Summary

### Mechanics

### Losing Gameplay / Incorrect Concept Understanding

### Mockups

## Part 3 - [Name of this Portion of the Game]

………

## Etc.

# LO Concept Coverage

### Academic Concepts

|  |  |
| --- | --- |
| **concept** | **weight** |
| Electrical current transmits energy through moving electric charges. | Core |
| Motion is the change in position of an object. | Peripheral |
| Energy can be moved from place to place by sound. | Core |
| Sound transmits energy through vibrations in materials. | Core |
| Light transmits energy through electromagnetic waves. | Core |
| Energy can be moved from place to place by light. | Core |
| Energy can be moved from place to place by electric currents. | Core |
| Energy can be moved from place to place by moving objects. | Core |
| The energy transmitted by mechanical processes, light, sound, and electrical current can be used in many common applications. | Core |
| Moving objects contain energy. | Peripheral |
| The energy of motion is a kind of mechanical energy. | Peripheral |
| Waves transmit energy from one location to another, but they do not transmit matter. | Peripheral |
| The energy of motion is called kinetic energy. | Peripheral |

# Legends of Learning Required Content Practices

### Checklist Overview

[Google Doc Reference](https://docs.google.com/document/d/10yED8ZwFXOWjwvroqZxaHn1A6utMDncaFwmyc8dqc-g/edit?usp=sharing)

|  |  |
| --- | --- |
| **ITEM** | **COVERED** |
| Players should learn and be held accountable through gameplay-based problem solving and experience. Players should not be learning primarily through text-based instruction or assessment items. |  |
| Game does not include multiple choice assessment items. |  |
| All instruction is scientifically and mathematically correct. |  |
| Confirm that the game is linked to 2/3 or 5 main concepts of the total, whichever is greater. Confirm that the linked main concepts are correctly covered in the game. |  |
| All on-screen words spelled correctly and grammatically correct. |  |
| Vocabulary and reading level appropriate for the lowest grade level within the target audience and grade band. |  |
| Game does not include material that is inappropriate for school. This includes, but is not limited to: violence, firearms, bombs, knives, daggers, blood, gore, smoking, vaping, drug use, any mind-altering substances, alcohol, harm to human-looking characters, harm to animals, insinuating killing or death, ideally they’re always chased away rather than eliminated. If there is conflict with an enemy in game, they are chased away rather than eliminated or killed. (There can be death if it is in the context of the learning objective – ex. The food chain) If you have any questions about this policy and your game, please ask us. |  |
| Game avoids any stereotypic presentation of gender, race, region, or culture. |  |
| Characters are diverse in gender, race, culture, and ability. |  |
| Players cannot simply click through and complete the game without learning. Players should be prompted to re-learn and re-do portions of the game where they had poor results due to less understanding of the academic material. Avoid the word “FAIL” if the student incorrectly understands academic material. |  |
| Academic problems are not consistently repeated. Players are presented with different problems to solve. |  |
| Gameplay mechanic reinforces the academic material, rather than being completely separate from instruction. I.e, there is a focus on academic reasoning rather than concept / question repetition. |  |
| Gameplay is intuitive and a player in the target age range can navigate the game and beat it with enough effort. |  |
| Games should be fun and interesting, designed as non-educational games are designed, with design to encourage players to keep playing. |  |
| Game is between 5 and 25 minutes in duration. |  |
| All text must be large, clear and concise with font sizes that can be read on a small Chromebook screen. |  |

### Connection Between Gameplay and Learning

* Expand on how the concepts are learned *as part of the gameplay mechanic.*
* Show mockups.

### Role of Text in Learning

* Texts will be used to introduce the player to the world, as well as instructions.
* Each of the lesson will be accompanied with a brief scientific explanation of the energy and their functionality.
* To alleviate the use of texts, most of it will be in a form of a dialog speaking directly to the player. This will allow for a better engagement with the learning.

### Characters - Diversity

* Describe the characteristics and appearance of the characters in the game.
* If the characters are human-like, are students/players able to customize?
  + NOTE FOR DEV: If using human characters in the game experience (not representing the player), please make sure:
    - Characters are diverse in gender, race, culture, and ability.
    - Stereotypes are avoided.
    - If you have any questions about this policy and how it might impact your game submission, please email us and we can help.
* Show mockups.
* [OPTIONAL] What are the characters’ relevance to the story?
* [OPTIONAL] What are the personalities of the characters?

# Technical

### Development Hardware/Software

* All development will be done in Windows 10.
* iPad 6 for tablet testing.
* Browsers: Firefox, Edge, Chrome, and Safari (via iPad 6)
* Game Engine: Unity 2022.3+

### Asset Summary

* Simple bullet point list
* Differentiate if WebGL only, mobile only, or both
* You may link to an exterior spreadsheet if it is easier to categorize / show in that format.

### Music and Sounds

* Simple bullet point summary [No sample needed]

# Art Style

### Mockups

* Show a few examples

# Schedule for Development + Delivery

* You may link to another document / spreadsheet if you like
  + If you do, just make sure viewing permissions are available :)

# Story / Narrative

### Back Story

* If you would like to share this, present in any format you like

### Plot Elements

* If you would like to share this, present in any format you like