Game Design Challenge

Student Notebook

The engineering design cycle explained:

Define the Problem
- What am I trying to make or do?
- What are the criteria for success?
- What are my constraints?

Collect Information
- How long do I have to make this?
- What materials are available?
- How does the current system work?

Brainstorm and Analyze Possible Solutions
- Draw sketches and explain ideas.
- Compare ideas to the criteria for success.
- Choose one possible solution for creation.

Build a Model
- Create a working model of your idea.

Test and Evaluate Your Model
- Does it work as expected?
- What works and what doesn't?
- Does it fulfill all the success criteria?

Refine the Design
- What changes should be made to improve this design?
- Redesign and build a new model

Evaluate and Share the Solution
- What are the key features of your design?
- How well does your design work?
- Include data to support your evaluation.

Define the Problem

- What am I trying to make or do?
- What are the criteria for success?
- What are my constraints?

- **Create a game that can be played by a child**

- **Must include at least one 3D printed part.**

- **Must work in your team and share tasks**
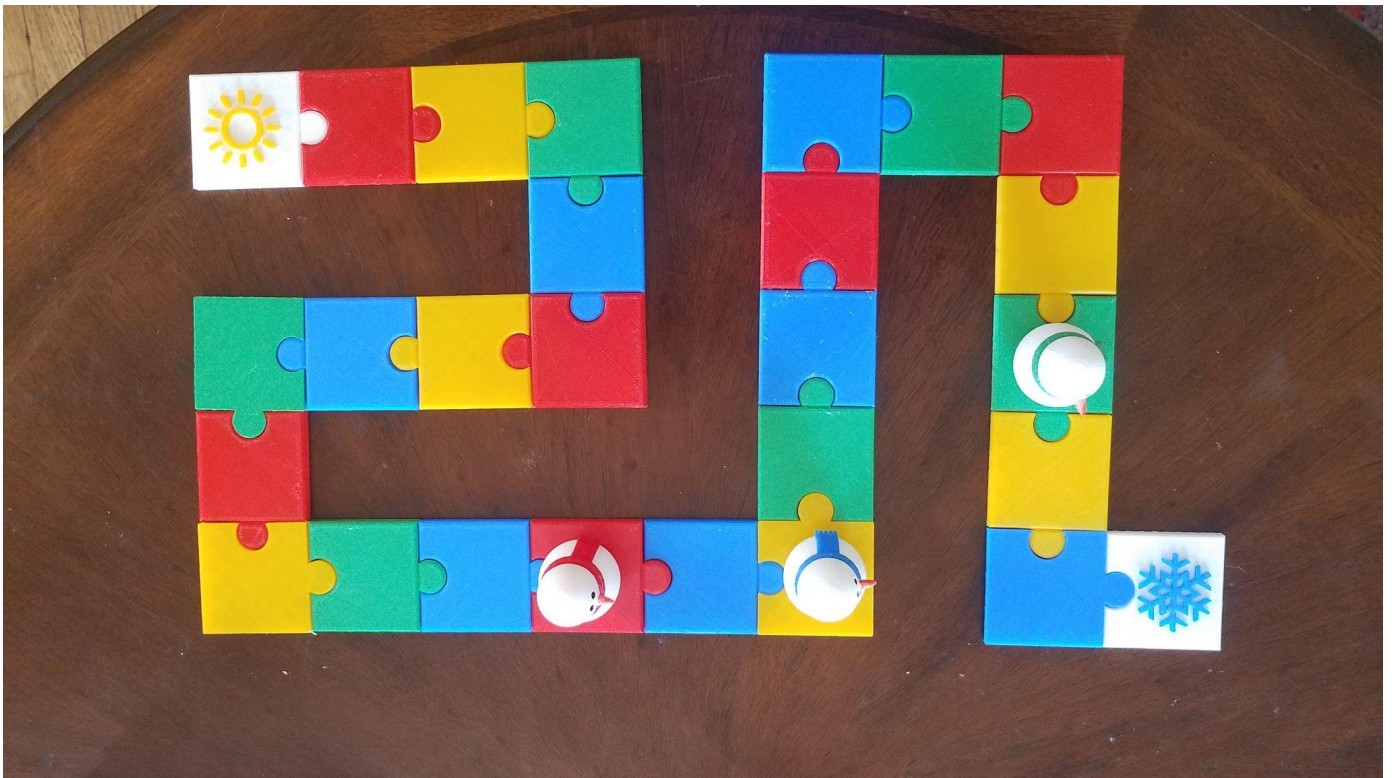
Collect Information

- How long do I have to make this?
- What materials are available?

How does a good game work?

- **You will have 10 class periods to complete and evaluate this game.**
- **You may use the classroom art supplies and the 3D printer**.

Copy down the "Good Game Criteria" That the class decided upon here:

Brainstorm and Analyze Possible Solutions

•Draw sketches and explain ideas.

Game Idea #1

General idea summary:

Rules and game play summary:

What will the game board and pieces look like? Draw detailed sketches of each.

General idea summary:

Rules and game play summary:

What will the game board and pieces look like? Draw detailed sketches of each.

Game evaluation for_____

Overall Game Idea	basic and lack creativity. There is little thought put into the overall concept.	shows some creativity but could be expanded upon or improved.	well-developed and show a good level of creativity.	Highly creative and innovative, demonstrating a deep understanding of game design principles.
Physical Design of the Board	simple and uninteresting. The layout and aesthetics need significant improvement.	somewhat functional, but the layout and aesthetics could be enhanced.	well-executed, with a clear and visually appealing layout.	exceptional, with a highly polished and visually stunning layout that enhances the gameplay experience.
Physical Design of the Pieces	The game pieces are basic and lack attention to detail. Their design does not complement the overall game.	The game pieces are functional, but their design could be more thoughtful and cohesive with the game.	The game pieces are well-designed and contribute to the overall aesthetic of the game.	The game pieces are beautifully crafted, with a high level of attention to detail and a perfect fit with the game's theme and design.
Rules	unclear or overly complex, making the gameplay difficult to understand.	somewhat straightforward but could be refined to improve the overall gameplay experience.	well-defined and easy to understand, ensuring a smooth and engaging gameplay experience.	exceptionally well-crafted, balancing complexity and simplicity to create a highly engaging and strategic gameplay experience.
Game Storage	basic and does not effectively protect or organize the game components.	functional but could be improved to better protect and organize the game components.	well-designed and effectively protects and organizes the game components.	exceptional, with a highly innovative and thoughtful design that enhances the overall user experience.

Brainstorm and Analyze
Possible Solutions

Build a Model

• Create a working model of your idea.

Using TinkerCad, create a 3D model of your design and send it to the printer. **Take a screenshot of the CAD and insert here.**

Test and Evaluate Your Model

- Does it work as expected?
- What works and what doesn't?
- Does it fulfill all the success criteria?

Have your classmates play your game and evaluate it.

What works well?	
What doesn't work well?	
What areas could be improved?	

Refine the Design

- What changes should be made to improve this design?
- Redesign and build a new model

Evaluate and Share the Solution

- What are the key features of your design?
- How well does your design work?
- Include data to support your evaluation.

Include a photo of your final design and a brief description of the key features.

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