Math at Work 10
Project #1 (may be done individually or in pairs)
Spatial Reasoning
Games & Puzzles

Part 1: Existing Game or Puzzle Analysis (2 pages typed, double-spaced)

Must include:

- Explanation of the rules and gameplay.
- A screenshot (or diagram) showing what the game looks like.
- Explain *two different strategies* on how to win or be successful at this game or puzzle
    - Ex: (guess and check, a pattern, a systematic list, draw or model, eliminating possibilities, simplifying the original problem, working backwards, alternative approaches)
- Challenges of the game/puzzle
    * What did you do when you got stuck playing the game?
- Any possible flaws of the game/puzzle?
- Link to math?
- What you liked about the game/puzzle.
- Rating out of 10.

Part 2: Game Creation

- Create a game of your own that requires spatial reasoning to solve/play.

Must include:

- A Name
- Explanation of the rules and gameplay.
- Game board and/or sheet(s) - will vary depending on the game/puzzle
- Answer key to one level or version of game or puzzle.
- Explain the winning strategy(s) to your game or puzzle. (hints on how to be successful)
- 2 reviews from other groups
- One modification made after getting feedback from another group (or if you did not make any changes - what did the other groups like about your game/puzzle?)

Spatial Reasoning Video
https://www.youtube.com/watch?v=e2jSNzcGq4U

Puzzles Given Out in Class (Hashiwokakero, Suraromu, Slitherlink, Extended Tic-Tac-Toe)

Tower of Hanoi
https://www.mathsisfun.com/games/towerofhanoi.html

Tangrams
http://www.mathplayground.com/tangrams.html

Sliding Block
http://www.mathplayground.com/slidingblock.html

Pentominoes
http://www.neok12.com/games/pentominoes/pentominoes.htm

Blocks
http://www.coolmath-games.com/0-blocks

Chess
http://www.sparkchess.com/

Bloxorz
http://www.coolmath-games.com/0-bloxorz

Flow Free
http://html5games.com/Game/Flow-Free/8557fc8f-26b3-4bc1-a770-d4fa798a30ca

Junior Frogs
http://nrich.maths.org/6282

Nim
http://www.archimedes-lab.org/game_nim/play_nim_game.html

Other Games & Puzzles

Artistetris
Pigstacks
B-Cubed
Nextu
Flip and Slide
Sprouts
Four in a line
Dots and Boxes

- You may choose a different game, but you must check with me first.

Possible sites to help you:

mathisfun.com
nrich.maths.org
coolmath-games.com

Game/Puzzle: _____ Reviewer (s): _____

Author (s) : _____

1. Are the instructions/rules clear for this game or puzzle? In other words, did you have any problems figuring out how to play? Explain.

2. Did you find any flaws in the puzzle or game?

3. What did you like about the game/puzzle?

4. What about the game/puzzle was challenging?

5. What suggestions do you have that could make the game/puzzle better? Is it math related?

Math at Work 10 - Project #1 Scoring Guide

Student(s): _____
Game Analyzed: _____
Game Created: _____

CRITERIA	Points
Part 1 - Game/Puzzle Analysis - The student(s) includes everything that was required. - The game/puzzle is relevant. - Communication: spelling, grammar, detailed answers - Presentation: clear, neat, properly formatted - Length (2 pages double-spaced)	/ 20
Part II - Game Creation - The student(s) includes everything that was required. - The game/puzzle is relevant. - Communication: spelling, grammar, detail in rules - Presentation: rules, gameplay, & winning strategies/ hints are clear, neat, and creative.	/ 20
Self-Evaluation Reflection and mark out of 5. - What you learned. - Challenges. - Liked/Disliked about the project.	/ 5
Overall Effort The final product shows that the student(s) took the project seriously and put a lot of work into the assignment. This also includes productivity level during class time given to work on the project.	/ 5

TOTAL: / 50

Comments

Reflection Time!

Name: _____ Date: _____

It is time to reflect on the work that you completed for this project.

* What you learned.
* What difficulties came up? How did you manage these problems?
* What you accomplished.
* What you liked or disliked about the project.
* Self-evaluation - Mark out of 5

Self Evaluation

_____

5