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| Math 8 Unit Overview – Probability | | |
| Unit Name: | Probability | |
| Duration: | 2.5 Weeks | |
| Project Idea: | Students will create an original probability game that incorporates independent events. The game will be featured in a **probability carnival.**  Two rules for the game: -Must test for independent events   * Must incorporate at least one simple machine. | |
| IRP Standards: | Solve problems involving the probability of independent events | |
| 21st Centuary Skills Assessed and taught  (will be used for effort assessment) | - Creating art by use analyzing design and mathematics  - Critical Thinking  - Collaboration | |
| Major Products and Performances | Group: | As a class, students will create a probability carnival for students in younger grades. The carnival will take place during a school day afternoon. Students may wish to work with a partner of their choosing to create a game |
| Individual: | All students will need to hand in the probability reflection outlined in Appendix B |
| Entry Events/Lessons | Day 1 | Direct teach probability and dependent events  Assign homework from the textbook.  Students will then have time to work on their math homework |
| Day 2 | “Homework Quiz” - One question dealing with probability and dependent events that will be marked in class.  Direct teach probability and independent events  Assign homework from the textbook.  Students will then have time to work on their math homework |
|  | Day 3 | “Homework Quiz” - One question dealing with probability and independent events that will be marked in class.  Reveal project (Appendix A) and explain in detail learning outcomes and deliverables  Show previous years’ probability carnivals and reflect on what worked and what didn’t |
|  | Day 4-12 | Students get time to work on their game.  At some point, students need to reflect on their game and show how they have met the project criteria. See Appendix B |
|  | Probability Fair Day | Students will present their game to younger students.  Some Ss will help rubric and score the games |
| Reflection methods | - Students will fill out appendix B | |

# Appendix A - The Assignment as Posted on the Wikipage

Probability and Independent Events  
We are going to have a **Probability Carnival!!!!**

In this probability carnival you and a partner are to make a probability game that will include these criteria:  
  
  
1. When a person plays your game, there is less than 50% chance of winning. It's best to have the chance between 30-49% chance.  
2. Each time the game is played, it is an independent event. Thus, to win, students must play the game at least TWICE with scores added and each event being independent  
3. Look AMAZING!  
4. Be fun to play  
5. Involve at least one simple machine. More would be better

6. Fill out the reflection criteria BEFORE the probability carnival  
  
You will also need one A4 or A3 poster that has your name game and the rules.  
  
The carnival will be played on June 13th!   
  
The marks assigned for this will be out of 7-10 marks.  
  
Bonus marks will involve having the nicest looking carnival game and having more than one simple machine  
  
Good luck.

**Appendix B – Reflections**

Notes: You and your partner must separately fill this out. Please do not share your answers with your partner as I would like to understand how well each of you understands the rules and the probability of your game.

1. What is your game called and what are the rules?
2. What simple machines did you use?
3. Please explain fully how your game uses independent events? This should be answered in three or more sentences.
4. Play your game 20 times. What is the probability of winning? How many times did you win? Is it between 30-49 percent? If not, how can you ensure that it will be for the probability carnival?
5. IF you had a partner, please explain what you did and what your partner did. What percent of the work do you think you did?
6. Please fill out the rubric assigned to this unit.
7. Is there any way you make your game better. Please explain.

**Appendix B – Probability Fair Rubric**

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|  | Not Yet Meeting | Minimally Meeting | Meeting | Exceeding Expectations |
| The Math | Instructions may be lacking. Many parts are confusing. May show little effort in creation  Does not include examples of what happens while you're playing within the writing. Confusing  Group does not explain the object of the game.  Not an independent events game. Answers the reflection sheet with little to no effort  There is no simple machine present in the game  No mention of winning probability to be found in any of the documentation found | Instructions are somewhat understandable. Many parts are confusing. May show little effort in creation  Includes some examples of what happens while you're playing within the writing. May be confusing in parts  Group explains the object of the game. Maybe confusing  On the reflection sheet, the game explains that independent events are used. Answers the reflection sheet with little effort  There is one simple machine present in the game  Difficult to say what the winning probability | Instructions are understandable. Some parts are a little confusing  Includes some examples of what happens while you're playing within your writing.  Group explains the object of the game. Maybe a little confusing  On the reflection sheet, the game explains that independent events are used. Answers the reflection sheet with some effort  There are two simple machines present in the game  Game winning probability is within 20-30% or 50 to 60% | Instructions are clear and easy to follow.  Includes examples of what happens while you're playing within your writing.  Group explains the object of the game.    On the reflection sheet, the game clearly explains that independent events are used. Answers the reflection sheet with great effort  There are three or more simple machines present in the game  Game winning probability is within 30-49% |
| The Design | The game looks poorly constructed  The poster and explanation show little effort. Explains very little | The game looks ok  The poster and explanation show little effort. Explain some things that are needed to play the game | The game looks great and is well designed  The poster and explanation show some effort and clearly explain most things that are needed to play the game | The game looks amazing and is well designed  The poster and explanation show effort and clearly explain everything that is needed to play the game |