

Probability

Lesson Summary

This lesson will take probability and use 0, $\frac{1}{2}$, and 1 whole to help students determine the probability of an outcome: Impossible (0), Certain (1), or likely ($\frac{1}{2}$)

Major Topic and SOL

Math SOL (2009) 4.13.b

Length of Unit

1 class session

Student Objectives

In Mathematics the student will be able to:

- represent probability as a number between 0 and 1 and tell how likely the event is to occur
- demonstrate understanding of key probability concepts
- investigate and describe the concepts of probability as chance and list possible results of a given situation

In Language the students will be able to:

- use terms of probability, corrections fractional language in discussion

21st Century Skills

- Critical-Thinking and Problem Solving
- Communication
- Creativity and Innovation

Assessment Evidence

- At this point assessment is listening to the discussion and questioning students.
- The final written information will show who has an understanding and who does not.
- The teacher should be actively engaged in what the students are discussing and making notes of misunderstanding.

Supplies/Materials/Technology

- One to Zero from Fabulous Fractions or number line with 0 to 1 shown: (see attached)
- Promethean Board <http://www.prometheanplanet.com/en-us/Resources/Item/86881/2011-probability>
- Skittles Worksheet

- Skittles
- Brown lunch bag 1 per group of students.

Lesson Plan

Motivation & Building Background:

- Refer to prior knowledge by asking relevant questions pertaining to contest entries and probability for predicting occurrences of wins and losses.
- Informally define probability as the chance of something occurring.
- Use the 2011-probability promethean activity to make finding probability more fun.

Presentation

- Review the game from fabulous fractions of one to zero. (I added a $\frac{1}{2}$ in there for likely.)
- Using the promethean game we spin and discuss how to write the probability as a fraction.
- Once done we then look at the zero to one number line and determine where the fraction falls. (Since they do not have to be exact students feel more comfortable taking risks.)
 - As the students place their fraction on the number line discuss why they made that determination.
 - If someone is wrong do not immediately tell them. Let them determine the correctness by discussion.
 - Always let them explain their reasoning.
- Continue until you feel that the students have an understanding of outcomes, then divide into pairs and give each pair a brown lunch sack and 10 skittles of random colors.

Practice/Application

- Each pair receives 10 skittles, 1 lunch bag and 1 hand out.
- Have the students write the probability of selecting each color
- The students will then determine from zero to one how likely it will be to pull a certain color.
- Now the students place the skittles in the bag and take turns pulling out one skittle and make a tally mark on their worksheet each time they pull out a color.
 - They will select one skittle and record the color pulled.
 - They will do this 10 times.
 - At the end they will write a fraction for each color showing the amount of times that color was selected.
 - They will then determine if the probability was accurate or not.

- This is when the teacher needs to be monitoring the discussion because some will be closer than others.
- By the time the students are done they should have come to the conclusion on their own that probability means a chance and there is no guarantee.
- The entire class will discuss their findings.
- The students will write in their math journals about what happened during the lesson and what they discovered.

Skittle Probability

Look at your 10 skittles and write the probability as a fraction for each color. Then tell if it is unlikely, likely, certain, or impossible to select color.

Color	Probability	Unlikely, likely, certain Impossible
Red		
Purple		
Yellow		
Orange		

Now take your 10 skittles and place in the lunch bag. Draw one out and make a tally mark for the color picked. Put the skittle back into the bag. Continue for 10 total picks. Now write the fraction showing the number of times each color was picked.

Color	Tally	Fraction
Red		
Purple		
Yellow		
Orange		

Answer the following questions on the back of your paper.

1. Did your selections match what you wrote for the probability? Explain why they matched or why not.
2. What does probability mean?

Between 0 and 1

