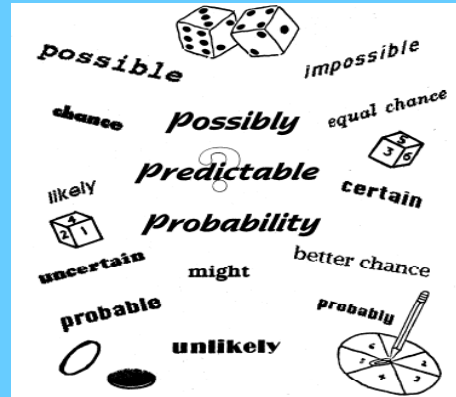


The Education Fund



IMPACT II IDEA PACKETS
Developed by
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Overview

- To provide opportunities for students to use their imaginations and real-life experiences when considering the predictability of events.
- Create a learning environment that motivates students by presenting challenges involving predicting outcomes of events.
- Through working with probability concepts, students can build upon their own number sense, use basic numerical reasoning and enhance their critical thinking and problem solving skills.

Goals

- To provide opportunities for students to build their own number sense and to use basic numerical reasoning.
- To provide opportunities for students to use their imaginations and real-life experiences when considering the predictability of events.
- To motivate and enhance students' interest in mathematics through the use of meaningful hands-on materials and activities.
- To reinforce and enhance students' critical thinking and problem solving skills.

Probability Activities

- Probability of an Event
- Events or Outcomes
- Certain/Uncertain
- Impossible
- Likely/Unlikely
- Sample Space
- Randomness
- Fair/Unfair
- Independence of Events

Background Information

- Probability simply stated is the chance of an event occurring.
- Odds is the way of stating probabilities.
- To find the probability of an outcome, write the ratio of favorable/actual outcomes to the total number of outcomes.

$$\frac{\text{Number of actual outcomes}}{\text{Total number of outcomes}}$$

Background Information

For example:

- When tossing a coin, there are two outcomes: heads and tails.
- If the desired outcome is heads, there is one favorable outcome, heads and one unfavorable outcome, tails.

$$\frac{\text{Number of favorable outcomes}}{\text{Total number of outcomes}} = \frac{1}{2}$$

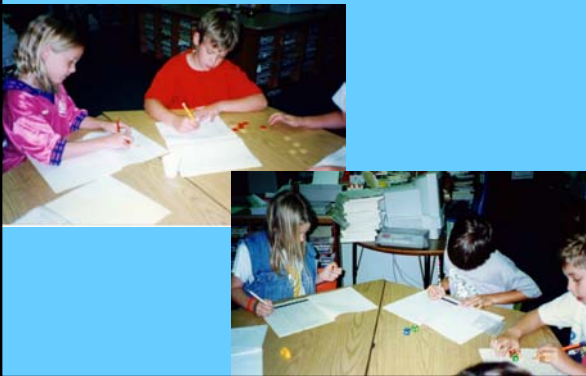
Probability Sense

Judge the following as:

CERTAIN IMPOSSIBLE MAYBE

- It will rain tomorrow.
- Drop a rock in water and it will sink.
- Trees talk to us in the afternoon.
- The sun will rise tomorrow morning.
- Three students will be absent tomorrow.

Investigating the Probability



Mystery Set

Directions:

- Reach into the bag and remove 1 item only.
- Record what you picked.
- Place the item back in the bag.
- Repeat Steps 1-3 for a total of 10 picks.
- Record each item picked.
- After the last pick, predict how many of each item there are in the bag.
- Record your prediction.
- My prediction of what is in the bag:

Recording Sheet

Pick 1 _____	Pick 6 _____
Pick 2 _____	Pick 7 _____
Pick 3 _____	Pick 8 _____
Pick 4 _____	Pick 9 _____
Pick 5 _____	Pick 10 _____

Shake, Spill and Count

- Give each student 6 two-color counters and the Shake, Spill, and Count worksheet.
- Have students place the 6 counters in their hands and shake then up. Let the counters spill on to the table. Have students sort the counters by colors.
- Using tally marks, have the students record how the counters fell next to the appropriate row on their worksheet.
- Have students repeat steps 3-5 for a total of 20 times, recording each "spill".
- Make a class tally of the results. After students have completed their 20 shakes and spills have them record their results on the large class tally chart.
- Discuss the results. Which combination occurred more or less frequently? Remind students that when there are two colors, one color is about as likely to land up as the other color that is why 3R + 3Y occurred more often.

Recording Sheet

#R	
5R + Y	
4R + 2Y	
3R + 3Y	
2R + 4Y	
1R + 5Y	
6Y	



Color Probability

Directions:

PREDICT

- Which color do you think you will roll most often?
- Which color do you think you will roll the least?

ROLL

- Roll the color cube 25 times.

RECORD

- Using tally marks, record the color that you roll.

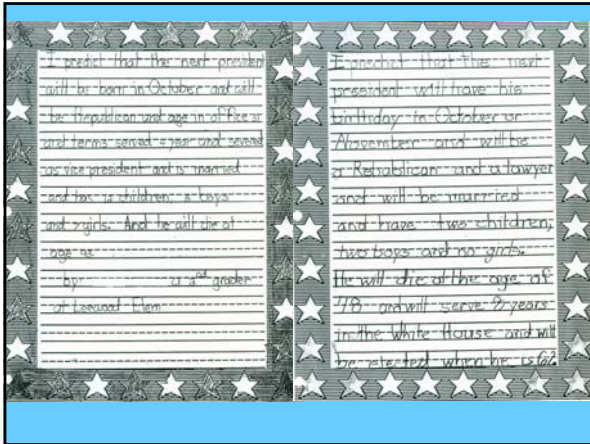
CONCLUSION

- What color did you roll most often?
- What color did you roll the least?

EXPLAIN YOUR THINKING

Recording Sheet

COLOR	TALLY	TOTAL ROLLS
Red		
Orange		
Yellow		
Green		
Blue		
Purple		



Additional IMPACT II Projects Developed by Dr. Karol L. Yeatts

- **Manipulatives: Motivating Mathematics**
- **Geometric Connections**
- **Stories Students Can “Count” On!**
- **“Sensing” Science**

IMPACT II Adaptor Grant

- The application for an Adaptor Grant is located in each Project Packet.
- The application is available on-line at:
<http://www.educationfund.org/apply.html>