Inquiry-Based Activity

Team 8 Members: Mary
Cindy Johnston
Joyce Housley
Julie Schlabaugh
Donna Massey

Activity Topic: Complementary Events

Previous Vocabulary Learned: Theoretical probability
Outcomes
Event
Sample space

Previous Concepts Learned: The probability of all possible outcomes of a specific event is equal to one.

Activity Title: “Will it (or won’t it) Happen?”

Part I:

There are six equally likely outcomes on a colored spinner. The colors are red, green, yellow, blue, purple, and orange.

List each outcome and its’ theoretical probability below:

1. ______________  _____
2. ______________  _____
3. ______________  _____
4. ______________  _____
5. ______________  _____
6. ______________  _____

What is the probability that red, green, yellow, blue, purple, or orange will be spun?

What is the probability that yellow or blue will be spun?

What are the choices if yellow or blue is not spun?

What would be the probability of not spinning yellow or blue?
Part II:

Your mother just filled the pantry with lots of cans of yummy vegetables. She bought 20 cans of corn, 24 cans of green beans, 10 cans of peas, and 8 cans of carrots. You’re supposed to randomly select a can of vegetables for dinner tonight.

1. What is the probability that you will pick corn, green beans, peas, or carrots?

2. What is the probability of picking peas for dinner tonight \([P(\text{peas})]\) ?

3. What is the probability of not picking peas for dinner tonight \([P(\text{not peas})]\) ?

4. How did you calculate the answer to question #3?

5. Could you use the symbols \(P(\text{peas})\) and \(P(\text{not peas})\) to come up with a formula for these “complimentary events?” Show your work (formula) below.

Part III:

Solve the following problems. Use your formula when appropriate.

1. What is the probability of selecting a correct or incorrect answer?

   When taking the proficiency test, what is the chance of selecting the correct answer on a multiple choice question with four choices?

   What is the probability of selecting an incorrect answer?

2. Twenty-six cards are labeled, each with a letter of the alphabet. What is the probability of not choosing a vowel (assuming that the letter y is not a vowel)?

3. Sports analysts say that Ohio State University has a 40% chance of winning the NCAA basketball tournament. What is the probability that OSU will not win the tournament?

4. Weather forecasters are predicting a 60% chance of precipitation for the Tribe’s home opener on April 12th. What is the probability that there won’t be any precipitation?

5. Write a sentence, in your own words, describing complimentary events. Then, give at least three examples of complimentary events.