Name _____ Date _____

Simulate Compound Events #3

A **simulation** is an experiment that represents a real-world situation. You can run a simulation with multiple trials to find experimental probabilities.

Directions > Read the text below. Then answer the questions to design and run a simulation and find the experimental probability of the compound event. You will need a coin or a six-sided die to run the simulation.

Jackson's dog, Lulu, is having puppies. The veterinarian said that Lulu will have three puppies and each will have either yellow or brown fur. The probability of each puppy having either color fur is the same. Jackson wants to know how likely it is that all of Lulu's puppies will have the same color fur.

1. What is the probability of one of the puppies having yellow fur? *Write your answer as a fraction in simplest form and as a percent.*

$$\frac{1}{2} \text{ or } 50\%$$

2. Design a simulation using either a coin or a six-sided die to determine the probability that all three puppies will have the same color fur.

   a. Explain how you could use either a coin or six-sided die to simulate the color of each puppy's fur.
   Sample answer: I could let the coin landing on heads represent a puppy with yellow fur and the coin landing on tails represent a puppy with brown fur.

   b. Explain how you would run each trial in your simulation.
   Sample answer: For each trial, I would flip the coin three times to represent the colors of the three puppies.

3. Run the simulation you designed above using a coin or six-sided die. Run 20 trials.

   a. Record the results of each of your trials in the table below. **Data will vary.**

Trial 1:	Trial 2:	Trial 3:	Trial 4:	Trial 5:
Trial 6:	Trial 7:	Trial 8:	Trial 9:	Trial 10:
Trial 11:	Trial 12:	Trial 13:	Trial 14:	Trial 15:
Trial 16:	Trial 17:	Trial 18:	Trial 19:	Trial 20:

   b. Based on your simulation, what is the probability that all three of Lulu's puppies will have the same color fur? *Write your answer as a fraction in simplest form and as a percent.*

   Answers will vary.

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