

Investigation 2.4 – Winning the Bonus Prize

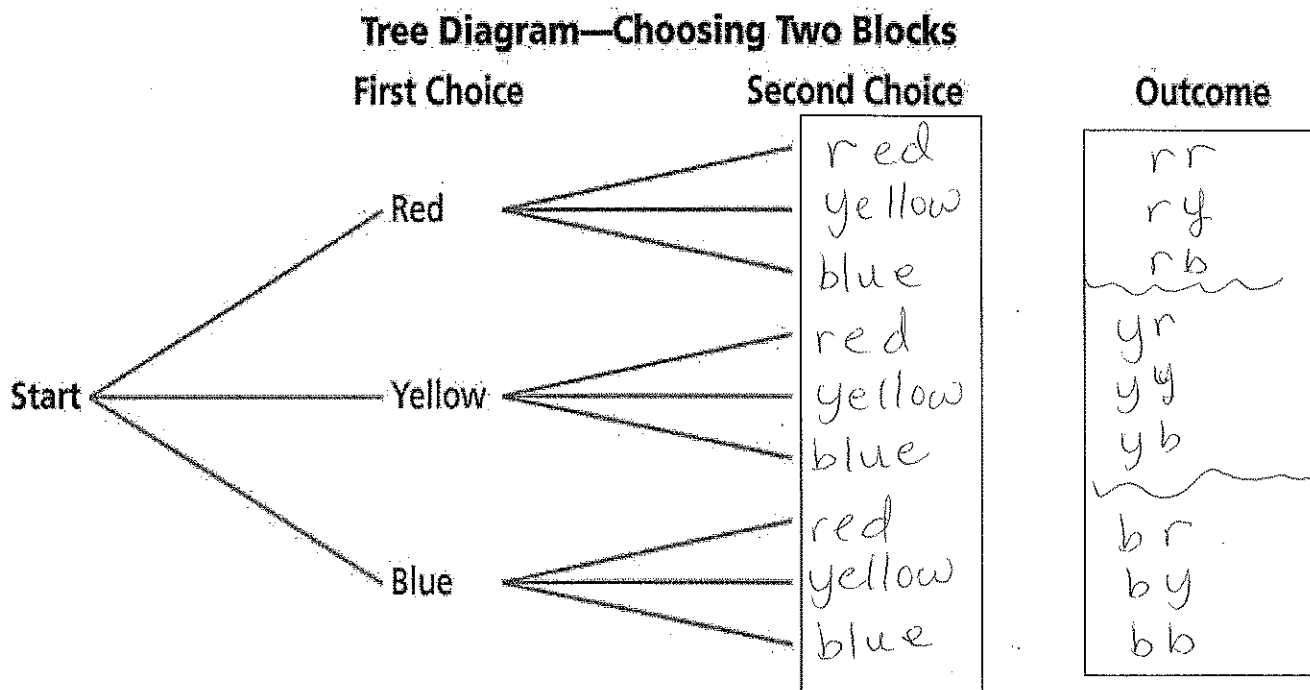
A. The Gee Whiz Everyone Wins bonus prize has two bags, each containing one red, one yellow, and one blue block. Each contestant chooses one block from each bag.

1. Conduct this experiment, with your partner, filling in the attached table.

Use the key below when filling in the table.

KEY- Red(R), Yellow (Y), Blue (B)

B. Using the tree diagram below find all the possible pairs that can be chosen.



1. Are these outcomes equally likely? Explain your reasoning?

Yes they each have a $\frac{1}{9}$ chance of happening.

2. Find the theoretical probabilities of choosing each pair of colors.

$\frac{1}{9}$

3. How do the theoretical probabilities compare with your experimental probabilities?

Explain any differences.

Answers will vary.

- C. 1. Brelynn and Akimi change the rules of the game. Each contestant must predict which color combination will result from choosing a block from each bag. Brelynn and Akimi make the following predictions for the game.

Akimi: I predict 2 reds.

Brelynn: I predict 1 blue and 1 red, in either order.

- a. Who has the better chance of winning? Explain.

Brelynn will most likely win because she has a $\frac{2}{9}$ chance of winning versus Akimi's $\frac{1}{9}$ chance.

2. Remember the contestant must be able to predict the color they will pick from each bag in order to win the prize.

- a. Does a contestant have a chance to win the bonus prize? Explain

Yes, each contestant has a $\frac{1}{9}$ chance of winning.

- b. Is it likely a contestant will win the bonus prize? Explain.

No, a contestant is more likely to lose. $\frac{8}{9}$ chance of losing.