

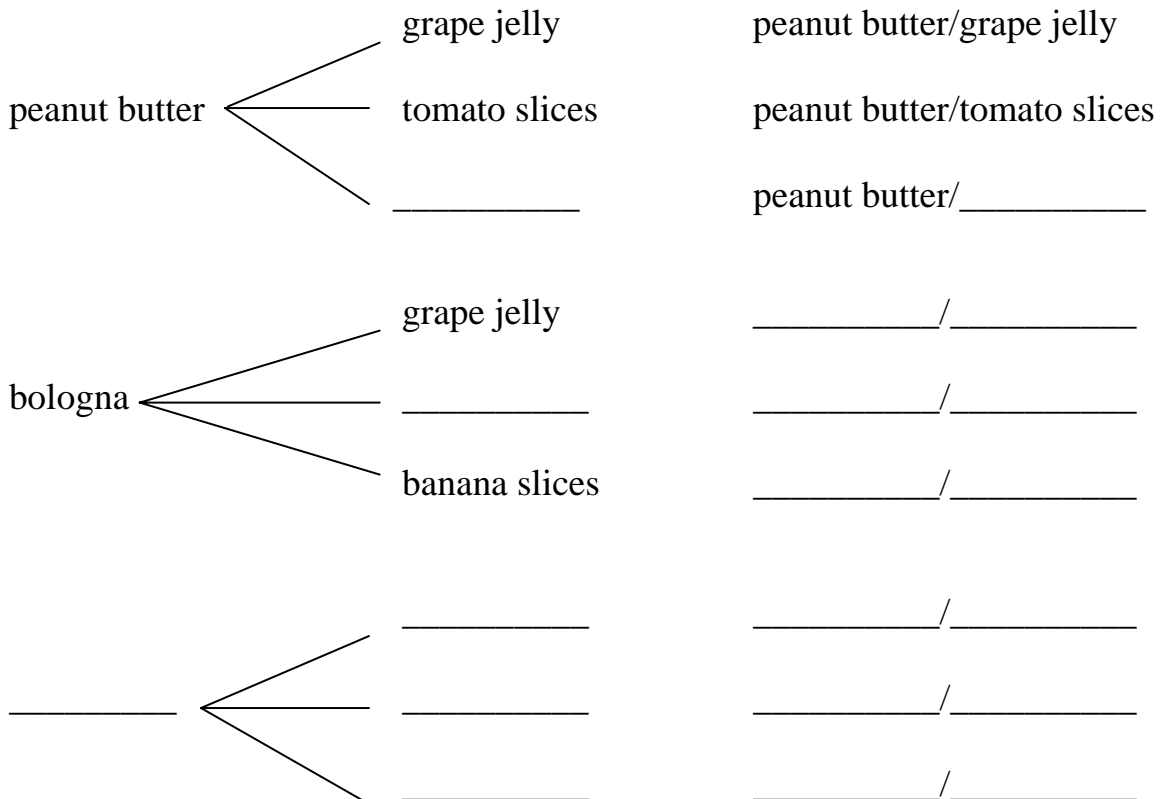
Makin' PB&Js Activity

Scenario: You and your best friend have been hired as assistant camp counselors. Part of your job is to make Peanut Butter and Jelly sandwiches for all of the campers. You each have three ingredients to put on your slice of bread to make the sandwich. At your workstation, you have bologna, peanut butter, and tuna fish. At your friend's station, there is grape jelly, banana slices, and tomato slices.

Activity: Spin Spinner A once and Spinner B once. (Put your pencil through the end of the paper clip/bobby pin and anchor the point to the center of the spinner.) Record your results in the table. See example. Repeat this procedure for 50 sandwiches.

QUESTIONS FOR STUDENTS:

1. What do you think your graph will look like if you made 100 sandwiches? 200 sandwiches? 1000 sandwiches?
2. If you have 3 ingredients and your friend has 3 ingredients, how many possible sandwiches can be made?
3. List the possible sandwiches that can be made.
4. Complete the tree diagram below:



5. What is the theoretical probability that you will make a PB&J sandwich?
6. What is the theoretical probability that you will make a peanut butter and banana sandwich?
7. Are the outcomes equally likely? Why or why not?
8. How does the experimental probability compare with the theoretical probability?
9. If you and your friend randomly picked an ingredient, what is the chance that you would make a PB&J sandwich?
10. If you and your friend made 36 random sandwiches, how many of them would be PB&Js?
11. If 100 sandwiches are made, what percent should be PB&J?
12. Suppose you just randomly made 3 PB&Js in a row. What is the probability that your next sandwich will again be a PB&J?
13. PB&Js are in high demand at camp. How can you change the spinners to make more PB&Js while still making all of the other sandwiches?
14. If you made 50 sandwiches using these new spinners, how would the graph compare to your original graph?
15. The cafeteria just ran out of tuna! Now, what is the probability of making a PB&J?
16. On the second day of camp, the cook brings out 2 types of bread, 3 ingredients for your workstation, and 4 ingredients for your friend's workstation. How many possible sandwiches can be made? Explain how you got your answer.

ASSESSMENT OPTIONS: Your mom packed your suitcase for camp. In it she put 3 t-shirts (red, green, and blue) and 3 pairs of shorts (khaki, black, and white). How many possible outfits can be made? What are they? Draw the tree diagram showing this situation. If you got dressed in the dark, what is the probability you will be wearing the green shirt and the black shorts?

EXTENSIONS: The camp chef adds pickles to your best friend's workstation. Draw a new tree diagram showing your new sandwich options. How will this change your graph? Is there any sandwich that is more likely to be made? Is it as likely that you will make a PB&J as it was before? If you randomly made sandwiches for all 336 campers, how many of them would get a PB&J? Explain how you got your answer.