

EXAMPLE

We can use a tree diagram to help us solve counting problems!



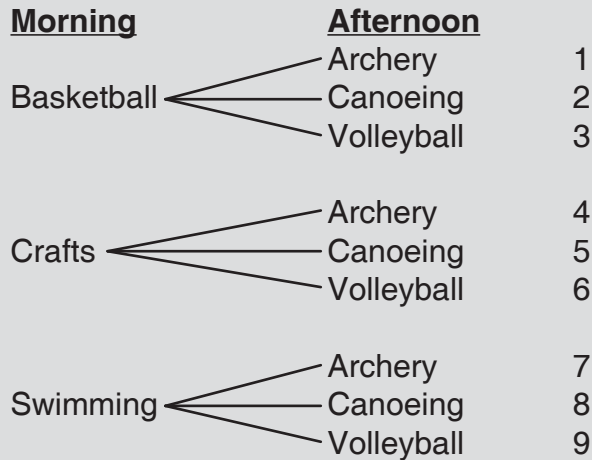
Every day at summer camp, Will chooses one morning activity and one afternoon activity from the list below. How many different combinations of one morning activity and one afternoon activity can Will choose?

Activities

Morning: Basketball, Crafts, or Swimming

Afternoon: Archery, Canoeing, or Volleyball

We create a tree diagram to show all of the possible combinations. For example, the first combination on the list is basketball/archery:



Will can choose one of **9** different combinations of activities.

PRACTICE

Create a tree diagram to help you answer the question below.

- 28.** At Frosty's Ice Cream Shop, there are four ice cream flavors: vanilla, chocolate, mango, and berry. There are two topping choices: caramel and sprinkles. How many different single-scoop one-topping ice cream cones are available at Frosty's?

28. _____

COUNTING

Tree Diagrams

PRACTICE

Create a tree diagram that will help you answer each question below.

- 29.** Ms. Q. assigns each student in her class a special code. The code includes an **odd** digit inside a shape. There are 3 available shapes: triangle, square, and circle. For example, one code is (7). How many different codes are possible? **29.** _____
- 30.** Bridget's basketball team is choosing team jerseys. They can choose one of three mascots: Lions, Tigers, or Bears. They can also choose a jersey color: red, orange, blue, or green. How many different choices of jersey does Bridget's team have? **30.** _____

PRACTICE

Create a tree diagram that will help you answer each question below.

- 31.** If Kamal flips a coin **three** times and records the results, how many possible sequences of heads and tails are possible? For example, one possible sequence is heads-tails-heads.

31. _____

- 32.** Alex's dad is shopping for a car. The car he wants comes in five different colors: red, grey, green, blue, and black. He can choose either 2 or 4 doors. For a little extra money, he can get a sunroof installed. How many different versions of the car are available?

32. _____

COUNTING

Tree Diagrams

PRACTICE

Use the information below to answer the questions that follow.

Grogg is making a sandwich. He has three types of bread: white, wheat, and rye. He has both Swiss and cheddar cheese, and both ham and bologna.

- 33.** Draw a tree diagram below to show all of the possible sandwiches that use one type of bread, one cheese, and one meat. How many sandwich options are there? **33.** _____
- 34.** How many of Grogg's sandwich options **do not** have rye bread? **34.** _____
- 35.** How many of Grogg's sandwich options **do not** have Swiss cheese? **35.** _____
- 36.** If we add salami to Grogg's list of meat choices, how many different sandwich options are available? **36.** _____