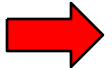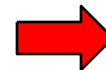# **Probability**

- Tree Diagrams

Tree Diagrams

u **Shows all possible outcomes**

– Total amount of choices from a group of items

– How many of a particular item out of all the possible choices

PROBLEM:
How many options are there of picking a number from 1 to 5 and choosing the color red, white, or blue

u First write a list down the paper of the first item, in this case 1 to 5
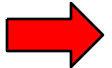
1

2

3

4

5

PROBLEM:
How many options are there of picking a number from 1 to 5 and choosing the color red, white, or blue
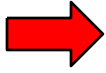
u Now determine how many options there are for the second item
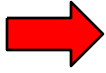
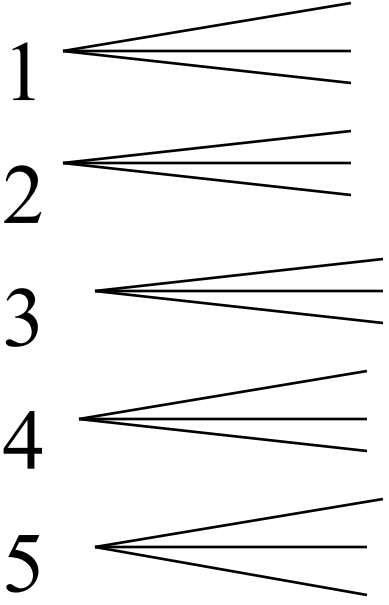There are 3 options:

Red

White

Blue

PROBLEM:

How many options are there of picking a number from 1 to 5 and choosing the color red, white, or blue

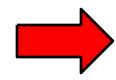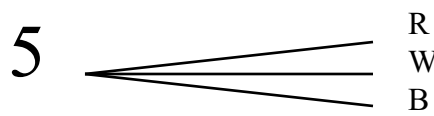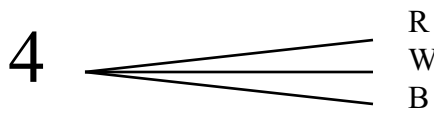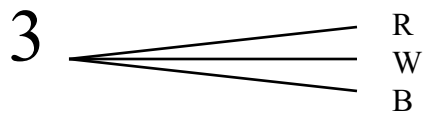u Draw "branches" off of each number. One for each second item, in this case 3.
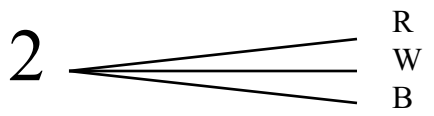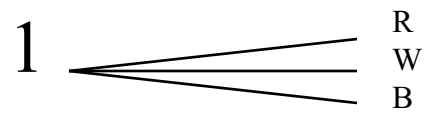
1

2

3

4

5

PROBLEM:
How many options are there of picking a number from 1 to 5 and choosing the color red, white, or blue

u At the end of each branch, write one of the three options from the 2nd items given.

1
R
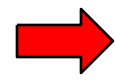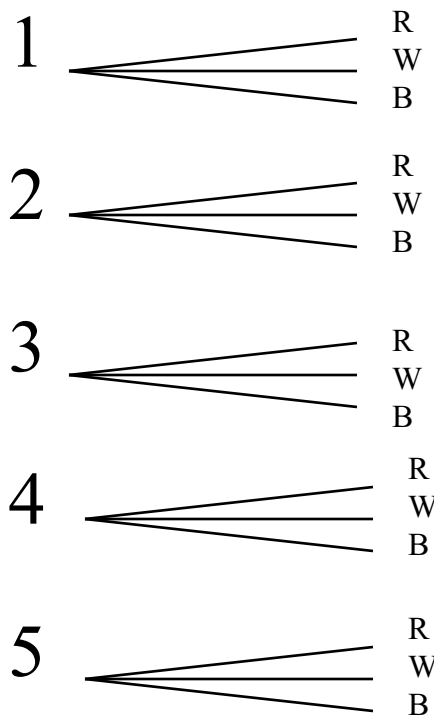W
B

2
R
W
B

3
R
W
B

4
R
W
B

5
R
W
B

PROBLEM:
How many options are there of picking a number from 1 to 5 and choosing the color red, white, or blue

u Go to the last column of the tree diagram and count how many options are listed.

1 — R
    W
    B

2 — R
    W
    B

3 — R
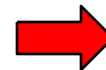   W
    B

4 — R
    W
    B

5 — R
    W
    B

PROBLEM:
How many options are there of picking a number from 1 to 5 and choosing the color red, white, or blue

u There are a total of 15 total choices listed

PROBLEM:
What is the chance of choosing the color red?

u There are five different times the color red could be chosen from all 15 options

u The chance of having the color red is 5/15 or reduced is 1/3

Your turn!

1. Give the total number of outcomes of choosing a hamburger, hot dog, or chicken and potato salad, coleslaw, or beans. Use a tree diagram.

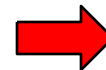2. What is the chance of having a hot dog? Write in fraction form.
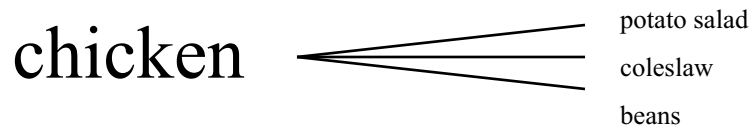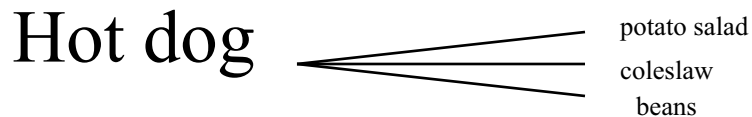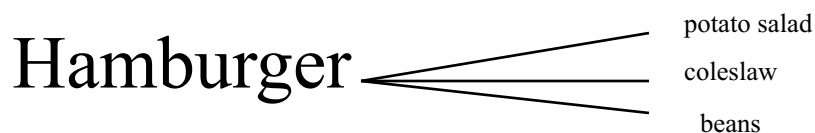
H E L P!

PROBLEM:

1. Give the total number of outcomes of choosing a hamburger, hot dog, or chicken and potato salad, coleslaw, or beans. Use a tree diagram.

u **Answer:**

Hamburger
- potato salad
- coleslaw
- beans

Hot dog
- potato salad
- coleslaw
- beans

chicken
- potato salad
- coleslaw
- beans

PROBLEM:

2. What is the chance of having a hot dog? Write in fraction form.

u **Answer:**

- First find out how many total options there are. Here there are a total of nine choices. This is your denominator.

- Next find out how many options have a hot dog. Here there are a total of three choices. This is your numerator.

- Finally, put the fraction in simplest form.

u The answer is 3/9 and then simplified is 1/3

STOP