**ML #2: Tree Diagrams (Probability Unit – Math 7 and 7 Plus)**

**Vocabulary:** Compound Event tree diagram Independent Event

 Dependent Event

Tree Diagrams are used to find \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ events

Step 1: Determine all events and list on top

Step 2: Determine how many outcomes there are per event. This determines how many branches to draw. Put this number next to each event.

Step 3: Determine outcomes for each event and list next to each event

Step 4: Draw branches according to number of outcomes for event

Step 5: List Outcomes at end of each branch

Step 6: Repeat steps 4-5 for each event.

**Finding a Probability of a Compound Event using a Tree Diagram**

**EXAMPLE 1:** If three coins are tossed, what is the probability of getting exactly 2 heads?

Event 3:

Flipping 3rd coin

(2 H/T)

Event 2:

Flipping 2nd coin

(2 H/T)

Event 1:

Flipping 1st coin

(2 H/T)

All possible outcomes

H

T

H

T

HHH

HHT

List of outcomes

H

T

Answer: P(exactly 2 heads) = $\frac{number of tosses withh 2 heads}{number of possible out comes }$ **=**

**EXAMPLE 2:** You want a sandwich and you have two choices of bread- wheat or Rye, 3 choices of cheese – Swiss, America, cheddar, and 2 choices of meat- ham or turkey. What is the probability of making a sandwich with ham? What is the probability of making a sandwich with American Cheese?

**EXAMPLE 3:** You roll a die and flip a coin. What’s the chance that you will roll an odd number and flip a tail?