

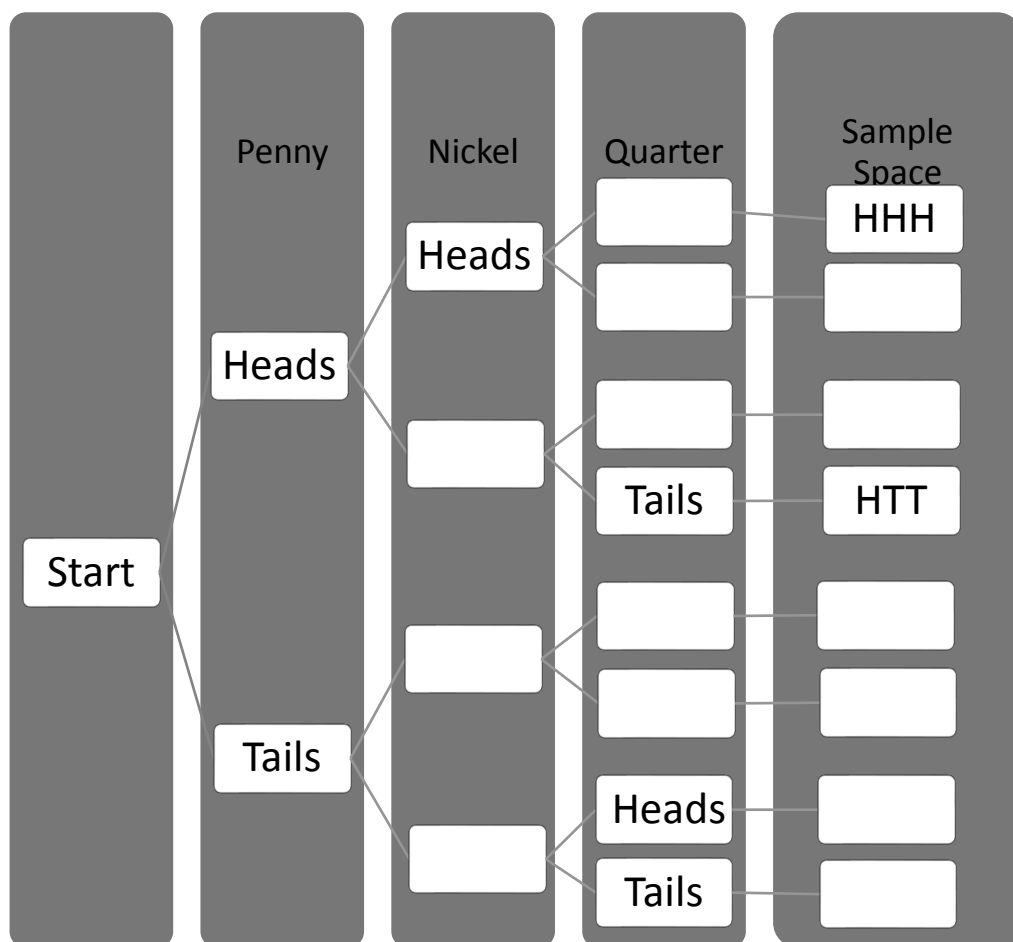
## Probability: Tree Diagrams

### Objectives:

- Using tree diagrams
- Finding possible outcomes and probability

### Exercises:

1. What is the sample space of flipping a penny?
2. Finish filling in the tree diagram to show all the possible outcomes in an experiment when we flip three coins: a penny, a nickel, and a quarter.



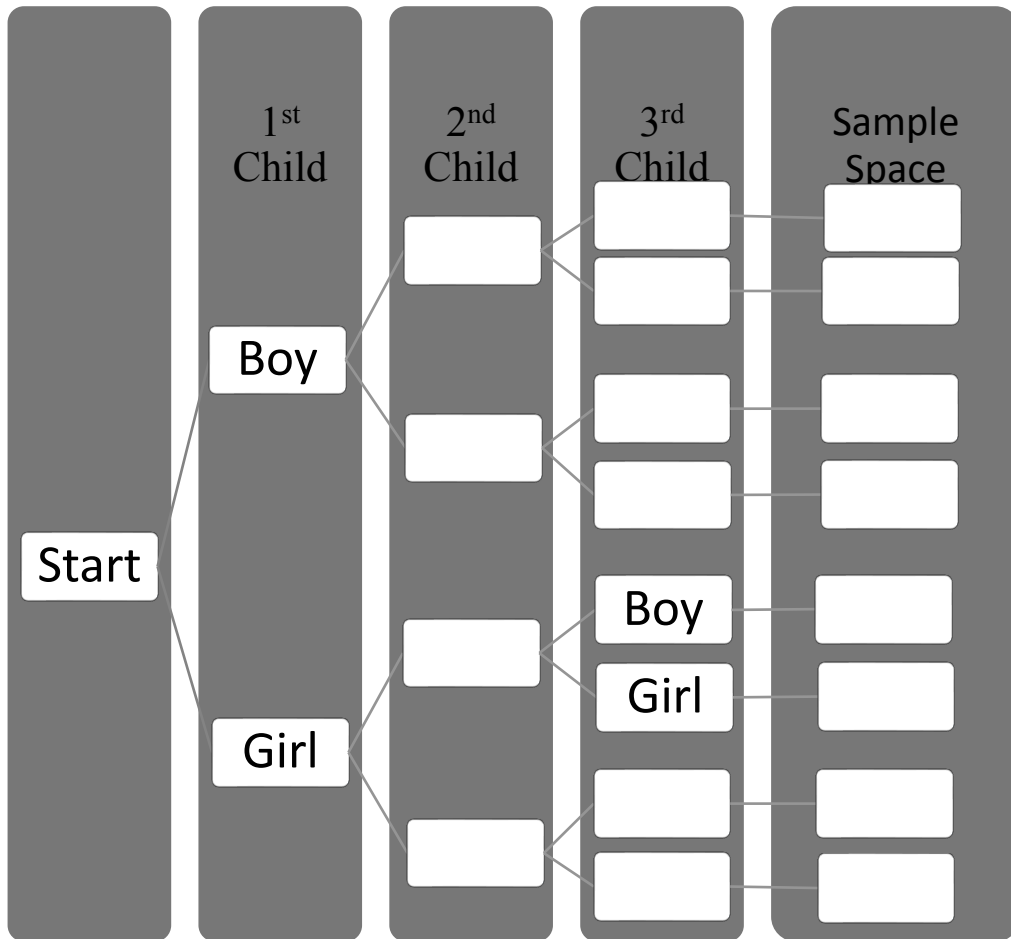
a. How many outcomes are possible? List all the outcomes.

b. What is the probability you get 3 tails?

c. What is the probability you get 2 tails?

- d. What is the probability you get at least 2 tails?
- e. What is the probability you get at most 1 head?
- f. What is the probability you get 4 heads?

3. Finish filling in the tree diagram that represents the birth of three children.



- a. How many outcomes are possible? List all the outcomes.
- b. What is the probability you get at most 2 girls?
- c. What is the probability you get all boys?
- d. What is the probability you get at least 1 boy?
- e. What is the probability you get 4 girls?

**Answers:**

1.  $S = \{H,T\}$

2a. 8; HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

2b.  $\frac{1}{8}$

2c.  $\frac{3}{8}$

2d.  $\frac{1}{2}$

2e.  $\frac{1}{2}$

2f. 0

3a. 8; BBB, BBG, BGB, BGG, GBB, GBG, GGB, GGG

3b.  $\frac{7}{8}$

3c.  $\frac{1}{8}$

3d.  $\frac{7}{8}$

3e. 0