# 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.

Penny	Nickel	Quarter	Sample Space
			HHH
	Heads		
Heads			
		Tails	HTT
Start			
	Tails	Heads	
		Tails	
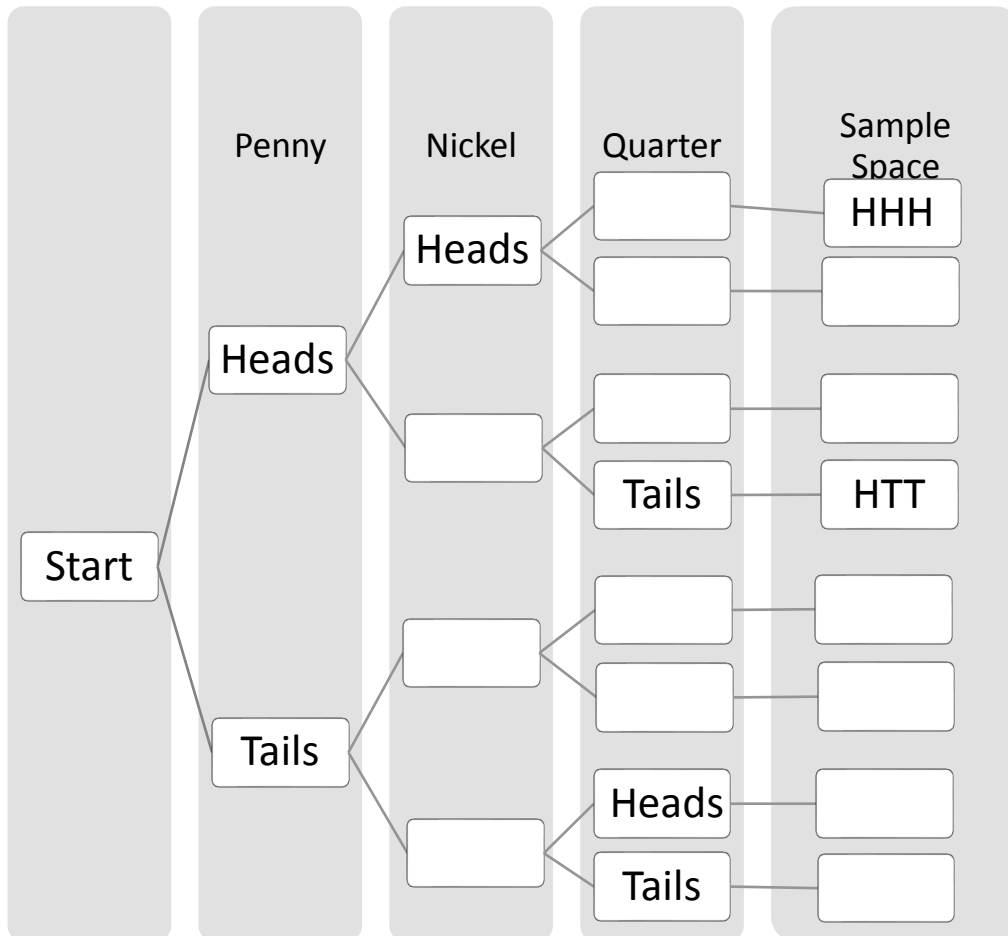
a. How many outcomes are possible? List all the outcomes.

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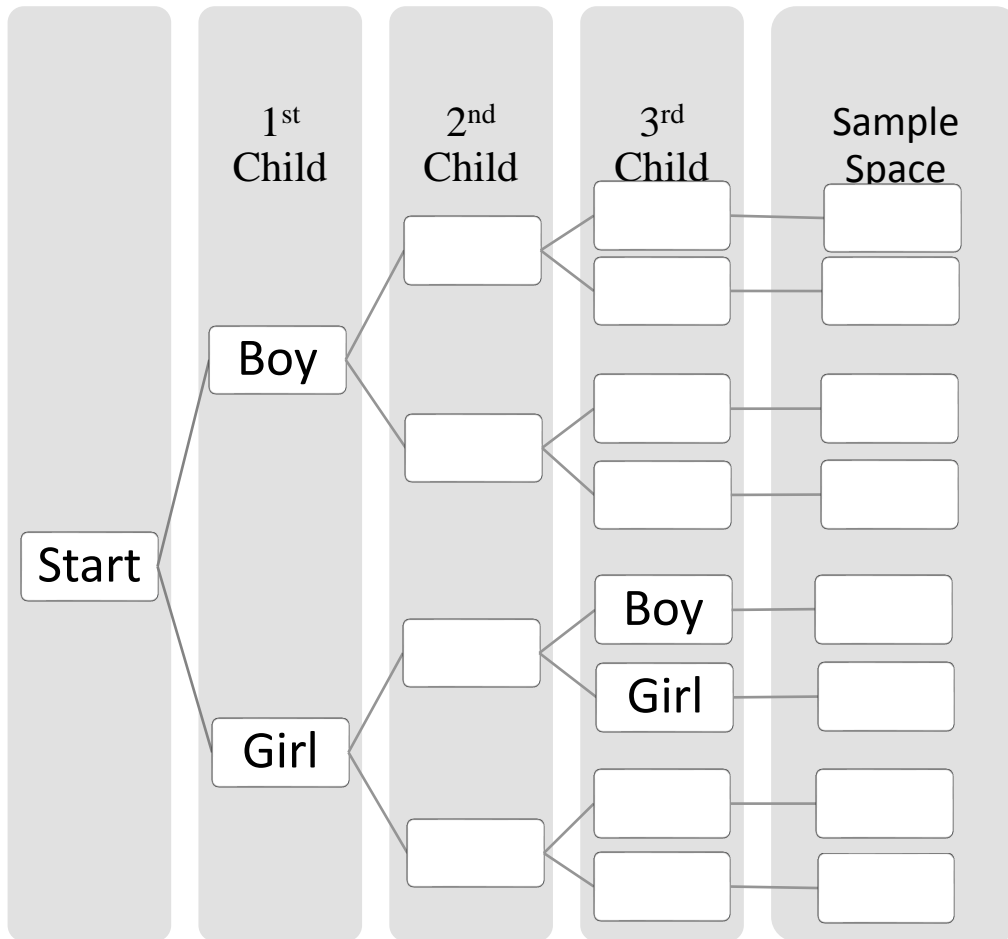
a. How many outcomes are possible? List all the outcomes.

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