

Name: _____ Date: _____

Tree Diagrams

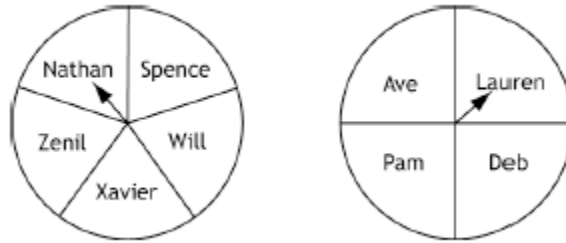
A tree diagram is a way to represent all possible combinations of a situation.

1. Below is a Create-A-Sandwich menu. Create a Tree Diagram that shows all possible combinations (on a separate sheet of paper- MAKE IT NEAT!)

BREAD	MEAT	CHEESE
White	Ham	American
Wheat	Turkey	Swiss
	Beef	Provolone
		Muenster

2. How many total combinations of sandwiches are there? How did you figure that out?
3. What is the probability that you will select a sandwich with white bread?
4. What is the probability that you will select a sandwich with American cheese?
5. What is the probability that you will select a sandwich on wheat bread with ham and any cheese?
6. What is the probability that you will select a sandwich on white bread that has either beef or turkey and has Provolone cheese?
7. What is the probability that the sandwich will be any bread, Turkey and American or Swiss cheese?
8. What is the probability that you will select a sandwich with neither beef nor Muenster cheese?
9. What is the probability that you will select a sandwich with Ham given you selected white bread?
10. What is the probability that you select a sandwich with white bread given it has swiss cheese?
11. What is the probability that you select a sandwich and it does not have beef?
12. What is the probability that you select a sandwich that does not have provolone given it is on wheat bread?

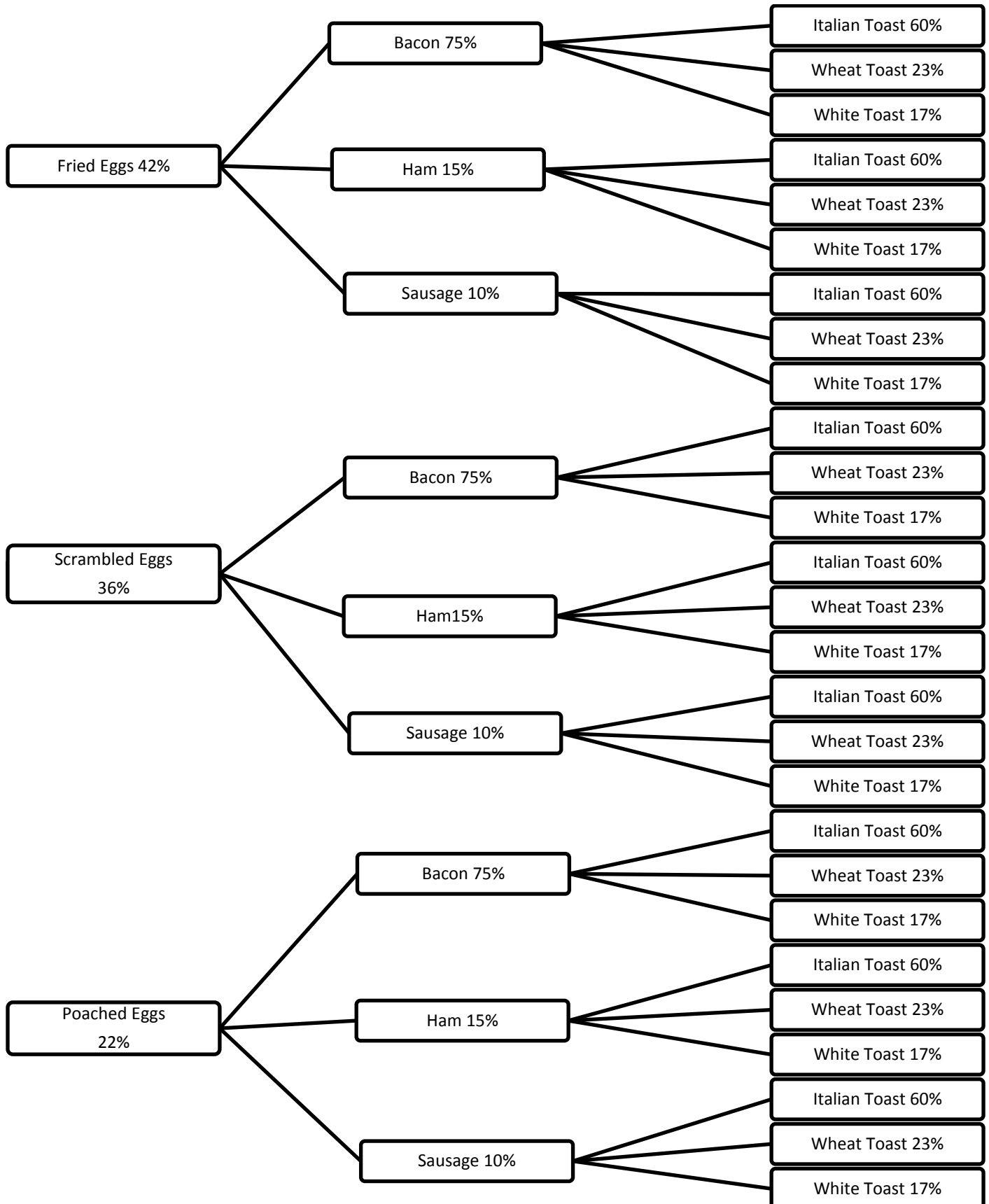
Mr. Kelly is going to pick 1 boy and 1 girl to represent Sprayberry to the local newspaper. Five boys volunteered and 4 girls volunteered. Mr. Kelly wanted to avoid bias so he put the names down on equal spinners to determine who would go. Below are the spinners.



13. Create a tree diagram that shows all the possible combinations of who will be picked. (*On a separate sheet of paper- MAKE IT NEAT!*)
14. How many combinations are 1 boy and 1 girl are there?
15. What is the probability that Nathan will be picked? (leave answer as a percent)
16. What is the probability that Pam will be picked? (leave answer as a percent)
17. What is the probability that Xavier and Lauren will be chosen together? (leave answer as a percent)
18. What is probability that Will or Zenil will get picked? (leave answer as a percent)
19. What is probability that neither Will nor Zenil gets picked? (leave answer as a percent)

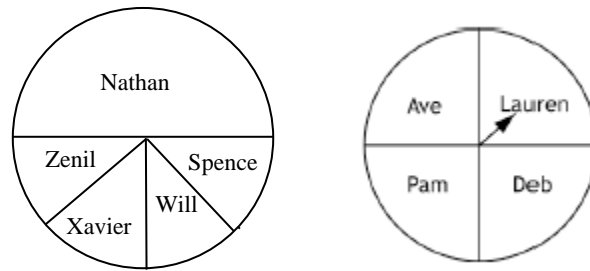
WEIGHTED TREE DIAGRAMS:

Sometimes there is not an equal chance of all outcomes happening. Every Friday a local diner does a “Mystery Plate” breakfast sandwich. For only \$3.99 you get eggs, a meat and a piece of toast. They do this to sell off whatever they have extra at the end of the week. That means that not every item has an equal chance of being selected.



1. How many outcomes of breakfast are there?
2. What is the probability of getting poached Eggs?
3. What is the probability of getting poached eggs, bacon and white toast?
4. What is the probability of getting scrambled eggs, ham and any bread?
5. What is the probability of NOT getting fried eggs, ham and Italian Toast?
6. What is the probability that you will get sausage or ham?
7. What is the probability of not getting poached eggs?

Remember back to when Mr. Kelly was choosing students to represent Sprayberry. Nathan has done a lot of community service for the school so Mr. Kelly thought he should have a greater chance of being selected. Below are the new spinners. Nathan has a 50% and Zenil, Xavier, Will and Spence all have a 12.5%



1. Create a WEIGHTED tree diagram that shows the combinations AND probabilities in this new circumstance. (on a separate sheet of paper- MAKE IT NEAT!)
2. What is the probability of Nathan being chosen? How does that compare to the first set of spinners? (better probability or worse?)
3. What is the probability that Pam will be picked? How does that compare to the first set of spinners? (better probability or worse?)
4. What is the probability that Xavier and Lauren get picked? How does that compare to the first set of spinners? (better probability or worse?)
5. What is probability that Will or Zenil will get picked? How does that compare to the first set of spinners? (better probability or worse?)
6. What is probability that neither Will nor Zenil gets picked? How does that compare to the first set of spinners? (better probability or worse?)
7. Who benefits from the change in probabilities? Who has a disadvantage in the change from probabilities? Who is not affected?