Notes – Finding all Outcomes

Name: Key

Tree Diagrams, Lists, Area Models, FCP

Sample Space – **The set of all possible outcomes of a probability experiment.**

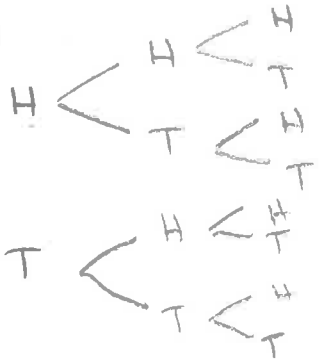
Use the different methods to find the sample space and the total number of outcomes.

Tree Diagrams	You choose one item from each category: Soup: Tomato and Chicken Noodle Sandwich: Turkey, Ham or BLT	Tomato → turkey, ham, BLT Chicken Noodle → turkey, ham, BLT
Lists	You draw a card from a set of 3 cards labeled "A", "B", "C" and then roll a die.	A1 A2 A3 A4 A5 A6 B1 B2 B3 B4 B5 B6 C1 C2 C3 C4 C5 C6
Area Models	You roll two fair number cubes (1-6) and find the sum of the two results. What is the probability that you will have a sum greater than or equal to 5? $\frac{30}{36} = \frac{5}{6} = 83\frac{1}{3}\%$	

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

Use any method above to model the sample space and determine the number of outcomes.

1. Flipping three coins.



2. Flipping a coin and rolling a fair number cube.

	1	2	3	4	5	6
H	H 1	H 2	H 3	H 4	H 5	H 6
T	T 1	T 2	T 3	T 4	T 5	T 6

3. Spinner A: Red, Green, Blue, Red, Red, Yellow. Spinner B: Green, Blue, Red.

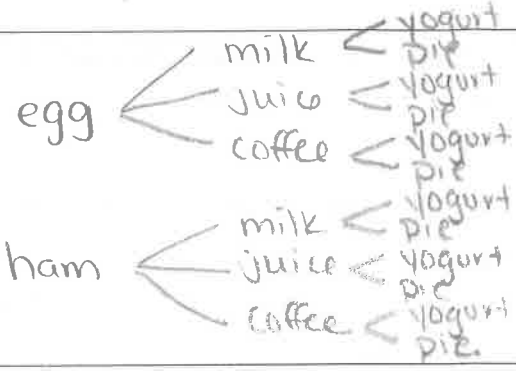
	Blue	Green	Red
Red	RB	RG	RR
Green	GB	GG	GR
Red	RB	RG	RR
Yellow	YB	YG	YR
Red	RB	RG	RR
Blue	BB	BG	BR

Practice – Finding all Outcomes Name: _____

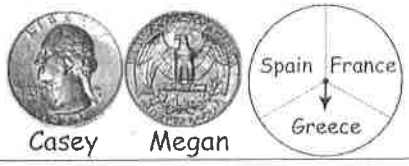
Tree Diagrams, Lists, Area Models, FCP

Use any method to model the sample space and determine the number of outcomes for each event.

1. A café has a lunch special consisting of an egg or a ham sandwich; milk, juice, or coffee; and yogurt or pie for dessert.



2. You are planning a summer vacation for you and a friend. You will flip a coin to decide which friend you are bringing and spin a spinner for the location.



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	Spain	France	Greece
heads (Casey)	Casey Spain	Casey France	Casey Greece
tails (Megan)	Megan Spain	Megan France	Megan Greece

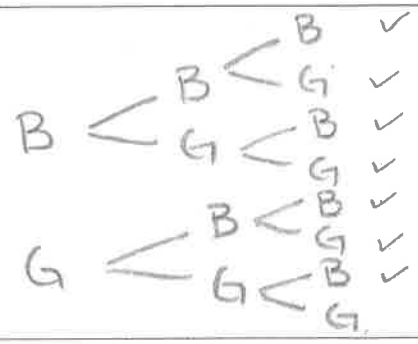
3. Rachel is flipping a coin and then spinning a spinner with the colors red, blue, green and yellow.

What is the probability that she will flip heads and then spin a blue or a green on the spinner? $2/8 = 1/4$

	Red	Blue	Green	Yellow
Heads	HR	HB ✓	HG ✓	HY
Tails	TR	TB	TG	TY

4. What is the probability of a family consisting of 3 children having at least one boy?

$$\frac{7}{8} = 87.5\%$$



5. Ricky is rolling a fair number cube (1-6) and then spinning a spinner with the numbers 5, 10, 15, 20. He then finds the sum of the number cube and spinner result.

What is the probability that his result will be an even number? $12/24 = 1/2 = 50\%$.

	5	10	15	20
1	6 ✓	11	16 ✓	21
2	7	12 ✓	17	22 ✓
3	8 ✓	13	18 ✓	23
4	9	14 ✓	19	24 ✓
5	10 ✓	15	20 ✓	25
6	11	16 ✓	21	26 ✓