

Name: _____ Date: _____



Probability Area Model Activity Companion

Objective: Students will develop a probability area model and use it to find probabilities of events.

Materials: Masking tape, dry-erase markers, plastic cups/containers, assorted colored candies or marbles

Directions:

- 1.) Label one cup as “Container 1” and a second cup as “Container 2.”
- 2.) Randomly choose **3** pieces of candy and put them into Container 1. Then, randomly choose **4** pieces of candy and put them into Container 2 (it’s o.k. to have more than one of the same color).
- 3.) Using your masking tape, construct a large square on the surface of your table or desktop.
- 4.) Using your markers, label the left column of the square “Container 1” and the top column of your square “Container 2.”
- 5.) Use a marker to complete your area model by creating **3** rows and **4** columns since there are 3 choices in Container 1 and 4 choices in Container 2.
- 6.) Fill in each box inside the area model using capital letters to represent each combination. For example, **RY** would represent choosing Red first and Yellow second.
- 7.) Move onto the challenge questions on the next page once you have completed your area model.

Guided Questions

- 1.) Identify the capital letter abbreviations for each of the following outcomes:

Red First, Yellow Second: _____

Pink First, Orange Second: _____

Pink First, Pink Second: _____

- 2.) After building your area model, identify the TOTAL number of possible outcomes there are in this scenario.

There are _____ possible outcomes in total because...

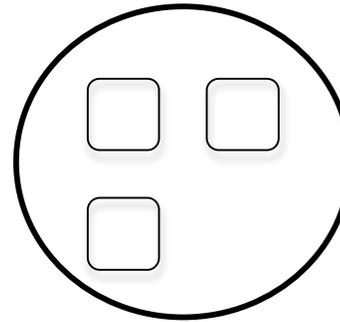
- 3.) Identify one outcome with a probability of $\frac{1}{12}$: _____

- 4.) Identify one outcome with a probability of $\frac{1}{6}$: _____

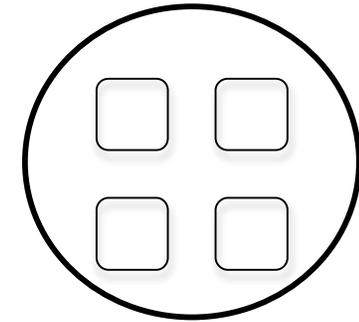
- 5.) Identify one outcome with a probability of $\frac{1}{4}$: _____

- 6.) Identify one outcome with a probability of 0: _____

Container 1



Container 2



Container 2

Con
tain
er 1

Challenge Questions (if you are using the same colors as the VLOG example)

- 1.) What is the probability of getting at least one pink? _____
- 2.) What is the probability to getting zero yellows? _____
- 3.) Describe one way you could change this scenario to ensure that every outcome includes a Pink.

- 4.) Describe what you think would happen if you were to randomly swap a piece of candy from Container 1 with a piece of candy from container 2. Would the outcomes change?

BONUS: (Writing Prompt) On a separate piece of paper, explain why or why not it reasonable to assume that orange is the least popular flavor based on the sample size and results of your model.

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Challenge Questions (if students are randomly choosing their own colors)

1.) What is the probability of getting at least one _____?
insert color of your choice

2.) What is the probability to getting zero _____(s)?
insert color of your choice

3.) Describe one way that you could change this scenario to ensure that every outcome includes a _____ candy?
insert color of your choice

4.) Describe what you think would happen if you were to randomly swap a piece of candy from Container 1 with a piece of candy from container 2. Would the outcomes change?

BONUS: (Writing Prompt) On a separate piece of paper, explain why or why not it reasonable to assume that one particular color is the least popular flavor based on the sample size and results of your model.

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