**ML #5: Independent vs Dependent Events (Probability Unit – Math 7 and 7 Plus)**

**Vocabulary:** Compound Event Independent Event Dependent Event

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| In your own words, describe what the word “independent” means to you. | In your own words, describe what the word “dependent” means to you. |

**Independent vs. Dependent Events**

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| **Independent Event**  The outcome of one event DOES / DOES NOT  affect the outcome of the \_\_\_\_\_\_\_\_\_ event.  Ex: spinning a spinner and picking a card  P(A and B) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **Dependent Event**  The outcome of the first event  DOES / DOES NOT affect the outcome of the \_\_\_\_ event.  Ex: picking a card, not replacing it then picking another card  P(A and B) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Example:**  A bag contains 5 pink, 3 green, 4 orange, and 8 yellow gumballs. Find the probability of randomly selecting a green gumball, and then a yellow gumball if the first gumball is replaced. | **Example:**  A bag contains 5 pink, 3 green, 4 orange, and 8 yellow gumballs. Find the probability of randomly selecting a green gumball, and then a yellow gumball if the first gumball is not replaced. |

**Fundamental Counting Principal**

If you want to perform a series of events and the first event can be done in x ways, the second can be done in y ways, the third can be done in z ways, and so on, then all the events can be done in x · y · z · … ways to represent how many possible outcomes.

Example 1: You go a restaurant to get some breakfast. The menu says pancakes, waffles, or home fries. And for drink, coffee, juice, hot chocolate, and tea. How many different choices of food and drink do you have?

Example 2: Six books need to be placed on a shelf. You randomly arrange the books on the shelf from left to right.

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| **A fun sized bag of M&M’s contains the following twelve candies of different colors.** | | | |
| **Find the probability for each event if the M&M candy is replaced.**   1. Red candy twice 2. Yellow candy then a green candy | | **Find the probability for each event if the M&M candy is not replaced.**   1. Red candy twice 2. Yellow candy then a green candy | |
| **A bag contains 12 airheads: 2 apple, 4 cherry, and 6 mystery. Katey picks one airhead, replaces it, and then picks a second airhead. Find the probability of the following.** | | | |
| P(apple, cherry) | P(cherry, mystery) | P(not cherry, mystery) | P(cherry, not cherry) |
| **Fredrick places the eleven cards below into a bag. He draws one card, does not replace it, and then draws another card. Find the probability of each event.** | | | |
| P(M, M) | P(C, S) | P(A, not H) | P(I, M, S) |

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| **Tell whether each event is independent or dependent.** | |
| 1. Luis choosing one card from a deck then choosing a second card without replacing the first. | 1. Adriana picks a flower out of a big bouquet. She doesn’t like the one she picked, so she put it back and picked again. |
| 1. Ivy’s mother lays out 6 shirts and 4 skirts for Ivy to choose from. Ivy picks a shirt at random and then picks a skirt at random. | 1. You are making your class schedule. You pick one core class for 1st period and then another core class for 2nd period. |
| 1. One student in your class is chosen for a project. Then another student in the class is chosen. | 1. Ryan spins a spinner and rolls a number cube. |

Practice Page for ML #5 Probability Unit