Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Theoretical Probability – Simple Event

**Activity**

**At a school fair, you have a choice of spinning Spinner A or Spinner B. You win an MP3 player if the spinner lands on a section with a star in it. Which spinner should you choose if you want a better chance of winning?**

**Spinner A: 8 sections with 3 stars Spinner B: 16 sections with 5 stars**

**A – Complete the table**

|  |  |  |
| --- | --- | --- |
|  | **Spinner A** | **Spinner B** |
| **Total number of outcomes** | **8** | **16** |
| **Number of sections with stars** | **3** | **?** |
| **P(winning) =** **Sections with stars****Total outcomes** | **3****8** | **?** |

**B – Compare the ratios for Spinner A and Spinner B.**

**The ratio for Spinner \_\_\_\_\_\_\_ is greater than the ratio for Spinner \_\_\_\_\_\_\_. I should choose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for a better chance of winning.**

**Vocabulary:**

Theoretical Probability – is the probability that an event occurs when all of the outcomes of the experiment are equally likely

**Theoretical Probability**

**A bag contains 6 red marbles and 12 blue ones. You select one marble at random from the bag. What is the probability that you select a red marble?**

**Step(1): Find the number of ways the event can occur, that is, the number of red marbles: 6**

**Step(2): Add to find the total number of equally likely outcomes.**

**Number of red marbles + Number of blue marbles = Total number of marbles**

 **6 + 12 = 18**

**Step(3): Find the probability of selecting a red marble**

**P(red marble) = number of red marbles = 6**

 **total number of marbles 18**

**The probability that you select a red marble is 6/18 = 1/3**

1. **You roll a number cube one time. What is the probability that you roll a 3 or 4? Write your answer in simplest form.**
2. **How is the sample space for an event related to the formula for theoretical probability?**
3. **A spinner has 11 equal-sized sections marked 1 through 11. Find each probability.**
4. **You spin once and land on an odd number**
5. **You spin once and land on a number greater than 2**
6. **You roll a number cube once. What is the theoretical probability that you roll a 3 or 4?**
7. **Find the probability of each event. Write each answer as a fraction in simplest form:**
8. **You spin a 6 section spinner that has 4 blue sections and the rest is yellow. What is the probability of landing on yellow?**
9. **A jar contains 4 cherry cough drops and 10 honey cough drops. You choose one cough drop without looking. The cough drop is cherry.**
10. **You pick one card at random from a standard deck of 52 playing cards. You pick a black card.**
11. **There are 12 pieces of fruit in a bowl. Five are lemons and the rest are limes. You choose a piece of fruit without looking. The piece of fruit is a lime.**
12. **You choose a movie disc at random from a case containing 8 comedy discs, 5 science fiction discs, and 7 adventure discs. The disc is not a comedy.**
13. **You roll a number cube. You roll a number that is greater than 2 and less than 5**