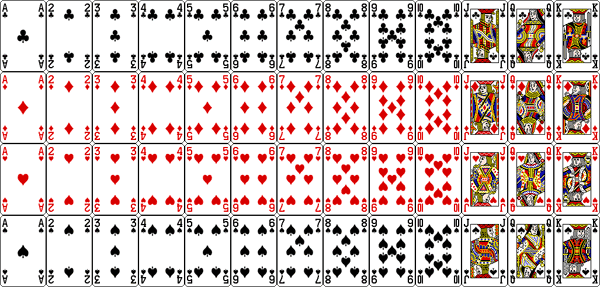
Understanding probability using a deck of cards- Teacher

**Directions**: This activity is to familiarize your students with a standard deck of cards. Have your students get into groups of 2 or 3 and walk them through the beginning part. You can chose to have your students simplify each probability as a fraction or round to the thousandths place. Hopefully the students will see that all of the probabilities they find will always be between 0 and 1 inclusive.

**Materials:** This worksheet (the first page will need to be in color or you could give each group a deck of cards instead), a calculator and pencil.

Below are all the cards in a standard deck of cards. There are four suites: clubs, diamonds, hearts and spades.



Let’s answer some questions based on the cards that we see.

1. How many cards are in a standard deck of cards? **52**
2. How many red cards are there in a standard deck of cards? **26**
3. How many black cards are in the standard deck of cards? **26**
4. How many cards are in each suite? **13**

Okay, now that we have identified the cards in our standard deck, let’s look at some probability of choosing specific cards.

Theoretical probability can be represented as  .

In our case, the total number of possible outcomes for a standard deck of cards would be the total number of cards in our deck or **52.**

The probability of selecting a king would be



Now you find the probability of:

1. Find the probability of selecting a four.



1. Find the probability of selecting a diamond.



1. Find the probability of selecting a number less than 5.



1. Find the probability of selecting a green card.



1. Find the probability of selecting a queen.



1. Find the probability of selecting a card that is not a queen.



1. Take the answers you found in question 9 and 10 and add them together. What do you end up with? Why do you think you got this answer?



We get an answer of 1 since we have included every card in our deck or 52/52 = 1.

1. Find the probability of selecting a club.



1. Find the probability of selecting a card that is not a club?



1. Add the answers you found in 12 and 13. Does it equal the same number you found in question 11?



Yes, it is the same answer we got in question 11.

1. What do you think are the lowest and highest possibilities of probabilities based on your answer from questions 5-14? Can you explain why?

The lowest possible probability would be 0 and the highest probability would be 1. If the event does not occur, it would always be 0/52 or 0 and if the probability is guaranteed to occur we would have 52/52 or 1.

The probability of an event occurring is between **0** and**1**, inclusive. The larger the probability, the more likely it will occur. The smaller the probability the more likely it will not occur. We call events 0.05 or less unusual events.