Data Handling: Exercise 5.3

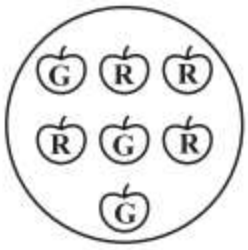
Q.1 List the outcomes you can see in these experiments.
(a) Spinning a wheel (b) Tossing two coins together

Sol. (a) For spinning a wheel experiment, the possible outcomes: A, B, C and D.
(b) For tossing the two coins together experiment, the possible outcomes: (Head, Tail) HT, (Tail, Head) TH, (Head, Head) HH and (Tail, Tail) TT.

Q.2 When a die is thrown, list the outcomes of an event of getting
(i) (a) a prime number (b) not a prime number.
(ii) (a) a number greater than 5 (b) a number not greater than 5.
Sol. For throwing a dice experiment, the possible outcomes: 1, 2, 3, 4, 5, and 6
(i) (a) The possible outcomes of event getting a prime number: 2, 3 and 5
(b) The possible outcomes of event not getting a prime number: 1, 4 and 6

(ii) (a) The possible outcomes of event getting a number greater the 5: 6
(b) The possible outcomes of event not getting a number greater than 5: 1, 2, 3, 4 and 5

Q.3 Find the.
(a) Probability of the pointer stopping on D in (Question 1-(a))?
(b) Probability of getting an ace from a well shuffled deck of 52 playing cards?
(c) Probability of getting a red apple. (See figure below)



Sol. (a) For spinning the wheel experiment, total possible outcomes: 5 (i.e. A, A, B, C, and D)
So, the possibility of pointer stopping on D = 1

Thus, the probability of the pointer stopping on D = $\frac{No.\ of\ possible\ outcomes}{Total\ no.\ of\ outcomes} = \frac{1}{5}$

(b) A deck has total 52 cards. So, total number of possible outcomes = 52
In 52 cards, 4 cards are ace. So possibility of getting ace card = 4

Thus, the probability of getting an ace from a deck = $\frac{No.\ of\ possible\ outcomes}{Total\ no.\ of\ outcomes} = \frac{4}{52} = \frac{1}{13}$

(c) In given figure, there are total 7 apples. So, total number of possible outcomes = 7

Only 4 red apples are in figure. So, the possibility of getting a red apple = 4

Thus, the probability of getting a red apple = $\frac{No.\ of\ possible\ outcomes}{Total\ no.\ of\ outcomes} = \frac{4}{7}$

Q.4 Numbers 1 to 10 are written on ten separate slips (one number on one slip), kept in a box and mixed well. One slip is chosen from the box without looking into it. What is the probability of?
(i) Getting a number 6?
(ii) Getting a number less than 6?
(iii) Getting a number greater than 6?
(iv) Getting a 1-digit number?

Sol. Since, there are total 10 slips in the box. So, total number of possible outcomes = 10

(i) Possibility of getting a number 6 written in slip = 1

Thus, the probability of getting a number 6 = $\frac{1}{10}$

(ii) Possibility of getting number less than 6 = 5 (i.e. slips 1, 2, 3, 4 and 5)

Thus, the probability of getting a number less than 6 = $\frac{5}{10} = \frac{1}{2}$

(iii) Possibility of getting number greater than 6 = 4 (i.e. slips 7, 8, 9 and 10)

Thus, the probability of getting a number greater than 6 = $\frac{4}{10} = \frac{2}{5}$

(iv) Possibility of getting a 1-digit number = 9 (i.e. slips 1, 2, 3, 4, 5, 6, 7, 8 and 9)

Thus, the probability of getting a 1- digit number = $\frac{9}{10}$

Q.5 If you have a spinning wheel with 3 green sectors, 1 blue sector and 1 red sector, what is the probability of getting a green sector? What is the probability of getting a non-blue sector?

Sol. Since, total number of sectors = 3 (green) + 1 (blue) + 1 (Red) = 5.

So, total possible outcomes = 5.

And, number of green sectors out of total 5 sectors = 3 sector

Therefore, the probability of getting a green sector = $\frac{3}{5}$

Now, total number of non-blue sector out of 5 sectors = 4

Therefore, the probability of getting a non-blue sector will be = $\frac{4}{5}$

Q.6 Find the probabilities of the events given in Question 2.

Sol. Since, for throwing a dice experiment, total number of possible outcomes = 6 (i.e. 1, 2, 3, 4, 5, and 6)

(i) (a) Number of possible outcomes of event getting a prime number = 3 (i.e. 2, 3 and 5)

Thus, probability of getting a prime number will be = $\frac{3}{6} = \frac{1}{2}$

(b) Number of possible outcomes of event not getting a prime number = 3 (i.e. 1, 4 and 6)

Thus, probability of not getting a prime number = $\frac{3}{6} = \frac{1}{2}$

(ii) (a) Number of possible outcome of event getting a number greater the 5 = 1 (i.e. 6)

Thus, probability of getting a number greater than 5 = $\frac{1}{6}$

(b) Number of possible outcomes of event not getting a number greater than 5 = 5 (i.e. 1, 2, 3, 4 and 5)

Thus, probability of not getting a number greater than 5 = $\frac{5}{6}$