10   Selection
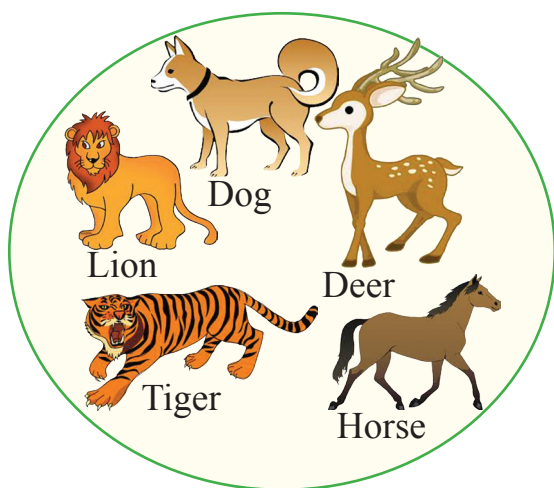
By studying this lesson, you will be able to,

- separate items in a collection into groups that have common characteristics and
- name the group according to the common characteristics of the group.

Most of the things we know can be separated into groups, which have common characteristics that have been identified.

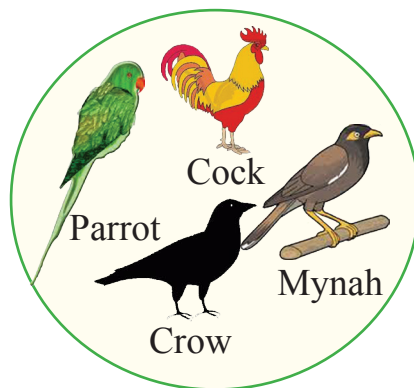As an example, let us consider the following collection of animals.

The animals in this figure can be grouped in various ways. A way of separating these animals into two groups is given below.

Group 1

Group 2

A common characteristic of the animals in this group is that they each have four feet.

Therefore, this group can be named as "Four-footed animals in this collection of animals".

A common characteristic of the animals in this group is that they all can fly. Therefore this group can be named as "Birds in this collection of animals".

Another common characteristic is that they each have only two feet. Therefore, this group can also be named as "Two-footed animals in this collection of animals".

These animals can also be separated into three groups named Herbivores, Carnivores and Omnivores based on what they eat.

Example 1

(i) Separate the numbers 2, 5, 3, 8, 11, 4, 7, 9 and 6 into two groups based on a common characteristic and write them down.

(ii) What is the characteristic which is common to each group?

(iii) Propose a suitable name for each group based on the common characteristic.

For free distribution

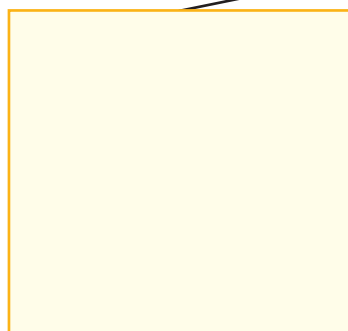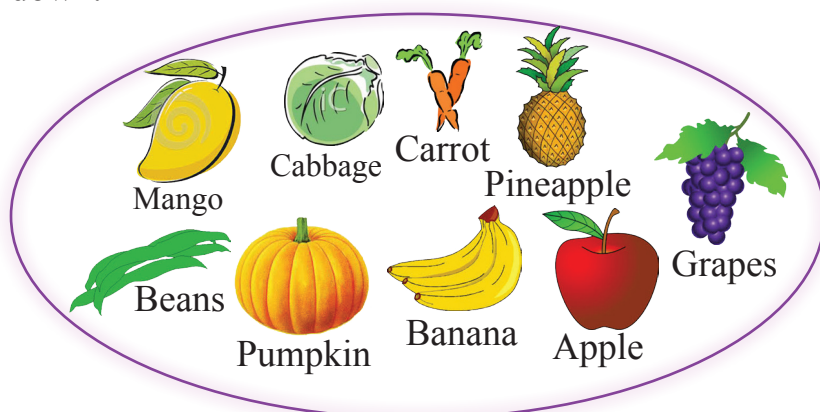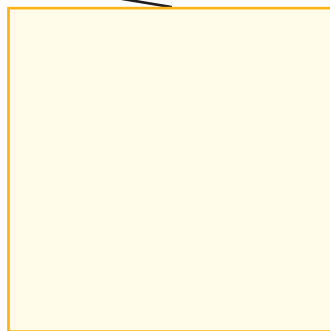| 2 4 6 8	3 5 7 9 11
Common characteristic is that these numbers can be divided by two without a remainder. Proposed name – Even Numbers in this collection	Common characteristic is that these numbers have a remainder of 1 when divided by two. Proposed name – Odd Numbers in this collection

Exercise 10.1

(1) Separate the collection of items in each of the figures given below into two groups according to the given characteristics and write them down.
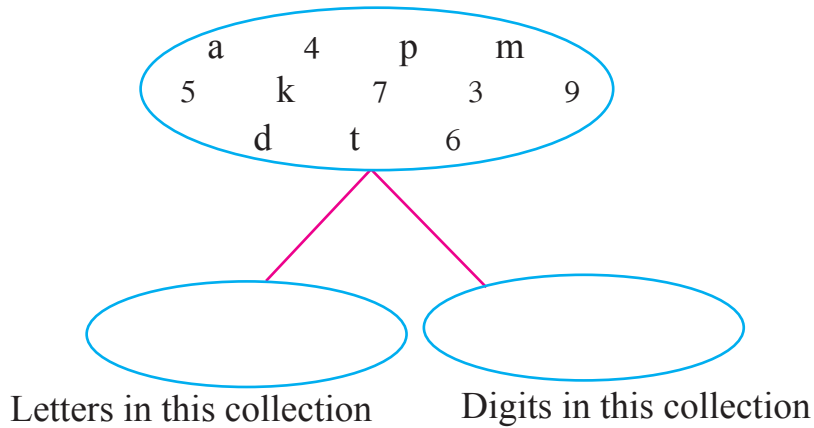
(i)

Mango, Cabbage, Carrot, Pineapple, Grapes, Beans, Pumpkin, Banana, Apple

Vegetables in this collection

Fruits in this collection

(ii)

a 4 p m

5 k 7 3 9

d t 6

Letters in this collection   Digits in this collection

(2) Separate the following items into three groups based on their common characteristics and write down their names. Write a suitable name for each group.
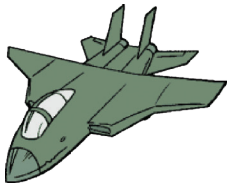
(i)

Bus

Ship

Lorry

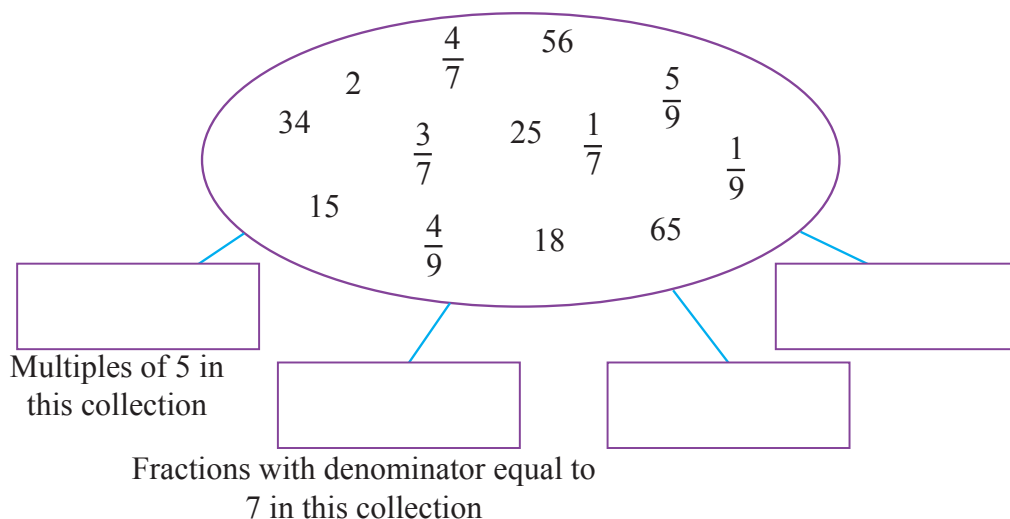Motorboat   Three wheeler   Motor Cycle

Jet   Helicopter   Sailboat

(ii)

27	1453	61	795
2015	149	460	3333
97	606	9532	12
893	7995	80	

(3) Two of the common characteristics that were used to separate the following numbers into four groups are given. Identify a common characteristic for each of the other two groups. Give a suitable name to each group and then separate all the given numbers appropriately into the four groups and write them down.

Numbers in the collection:
34, 2, $\frac{4}{7}$, 56, $\frac{5}{9}$, 15, $\frac{3}{7}$, 25, $\frac{1}{7}$, $\frac{1}{9}$, $\frac{4}{9}$, 18, 65

Groups:
- Multiples of 5 in this collection
- Fractions with denominator equal to 7 in this collection

Summary

- A collection of items having certain characteristics can be separated into groups based on their common characteristics.

- Groups of items having common characteristics can be named based on their common characteristics.