



**BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI-110034**

**SUBJECT :- MATHEMATICS**

**CLASS :- VIII**

WEEK : 12 October to 17 October 2020

NO. OF BLOCKS : 3

TOPIC : Data Handling (Chapter -5)

### **GUIDELINES**

Dear Students

Kindly refer to the following notes/video links related to the chapter -“DATA HANDLING”( PART 2 ) and thereafter do the questions in your Mathematics notebook.

**NOTE-** You can download the NCERT textbook using the following link:

<http://ncert.nic.in/textbook/textbook.htm?hemh1=0-16>

### **SUBTOPICS**

- Pie chart
- Probability

### **Teaching aids used**

- Presentation by screen sharing
- White board or register with marker
- Web white board

### **Learning Outcomes**

Each student will be able to

- Organize data in tabular form
- Represent data through Pie Chart
- Interpret the data given in Pie Chart
- Define probability, experiment, and its outcomes
- Find probability of a given event

## Day 1

### LESSON DEVELOPMENT

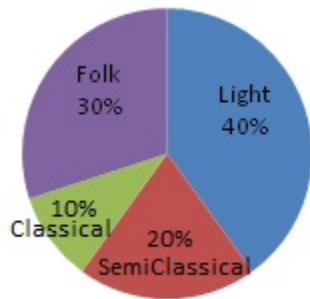
#### Circle Graph or Pie Chart

A circle graph, or pie chart, shows the relationship between a whole and its parts.

- o A circle is divided into sectors.
- o The size of each sector is proportional to the activity or information it represents. For example, daily routine of a student is represented below.



**Problem:** A survey was made to find the type of music that a certain group of young people liked in a city. Adjoining pie chart shows the findings of this survey.



Referring to the pie chart, answer the following:

- If 20 people liked classical music, how many young people were surveyed?
- Which type of music is liked by the maximum number of people?
- If a cassette company were to make 1000 CD's, how many of each type would they make?

**Solution:**

(i) 10% of total is 20. or  $(10/100) \times \text{Total} = 20$

Therefore Total =  $100 \times 20 / 10 = 200$  people

Hence, 200 people were surveyed.

(ii) Light music is liked by the maximum number of people.

(iii) CD's of classical music =  $10 \times 1000 / 100 = 100$

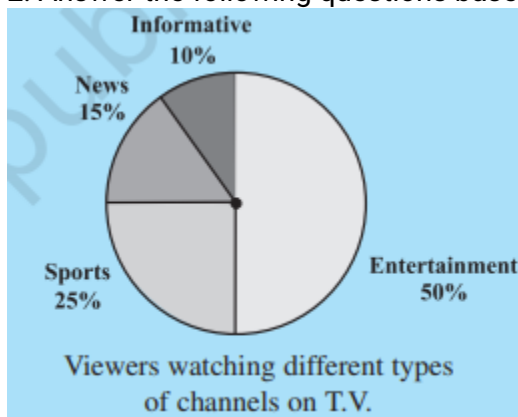
CD's of semi-classical music =  $20 \times 1000 / 100 = 200$

CD's of light music =  $40 \times 1000 / 100 = 400$

CD's of folk music =  $30 \times 1000 / 100 = 300$

**Following questions will be discussed during the session**

2. Answer the following questions based on the pie chart given (Fig 5.6 ).



(i) Which type of programmes are viewed the most?

(ii) Which two types of programmes have number of viewers equal to those watching sports channels?

### IMPORTANT LINKS FOR REFERENCE

Introduction of pie chart

[https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-14/Maths\\_Data\\_Handling\\_part\\_14\\_\(Drawing\\_Pie\\_charts\)\\_CBSE\\_Class\\_8.htm](https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-14/Maths_Data_Handling_part_14_(Drawing_Pie_charts)_CBSE_Class_8.htm)

Interpretation of pie chart

[https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-15/Maths\\_Data\\_Handling\\_part\\_15\\_\(Interpretation\\_of\\_Pie\\_chart\)\\_CBSE\\_Class\\_8.htm](https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-15/Maths_Data_Handling_part_15_(Interpretation_of_Pie_chart)_CBSE_Class_8.htm)

some examples

[https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-16/Maths\\_Data\\_Handling\\_part\\_16\\_\(Questions\\_:\\_Pie\\_chart\)\\_CBSE\\_Class\\_8.htm](https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-16/Maths_Data_Handling_part_16_(Questions_:_Pie_chart)_CBSE_Class_8.htm)

## Day 2

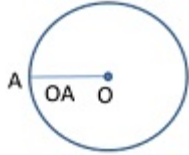
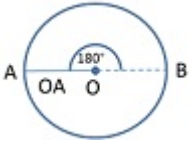
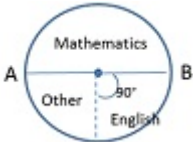
### LESSON DEVELOPMENT

#### Drawing a pie chart

If a table is presented with data, convert it into percentage as below. Since the angle at the center of a circle is  $360^\circ$ , all the data is calculated in fractions and tells how much angle they cover.

Subject	Liked By Students	In fraction	Fraction of $360^\circ$
Mathematics	20	20/40	$\frac{20}{40}$ of $360^\circ = 180^\circ$
English	10	10/40	$\frac{10}{40}$ of $360^\circ = 90^\circ$
Science	5	5/40	$\frac{5}{40}$ of $360^\circ = 45^\circ$
Hindi	5	5/40	$\frac{5}{40}$ of $360^\circ = 45^\circ$

Following steps are used to draw a pie chart:

Step No.	Step	Diagram
1	Draw a circle of any radius with center O and a radius OA.	
2	The angle for Mathematics is 180°. Use protractor to draw $\angle AOB=180^\circ$ .	
3	Continue making the remaining sectors	

The favourite flavours of ice-creams for students of a school is given in percentages as follows:

Flavours	Percentage of students Preferring the flavours
Chocolate	50%
Vanilla	25%
Other flavours	25%

Let us represent this data in a pie chart.

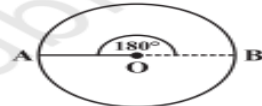
The total angle at the centre of a circle is 360°.

Flavours	Students in per cent preferring the flavours	In fractions	Fraction of $360^\circ$
Chocolate	50%	$\frac{50}{100} = \frac{1}{2}$	$\frac{1}{2}$ of $360^\circ = 180^\circ$
Vanilla	25%	$\frac{25}{100} = \frac{1}{4}$	$\frac{1}{4}$ of $360^\circ = 90^\circ$
Other flavours	25%	$\frac{25}{100} = \frac{1}{4}$	$\frac{1}{4}$ of $360^\circ = 90^\circ$

1. Draw a circle with any convenient radius.  
Mark its centre (O) and a radius (OA).



2. The angle of the sector for chocolate is  $180^\circ$ .  
Use the protractor to draw  $\angle AOB = 180^\circ$ .

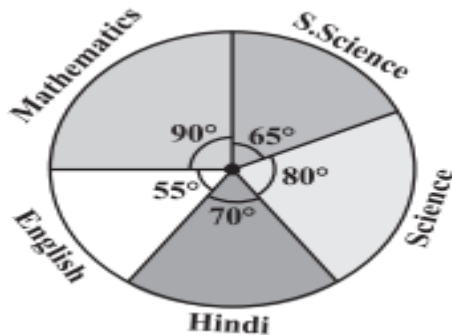


3. Continue marking the remaining sectors.



Following questions will be discussed during the session:

1. The adjoining pie chart gives the marks scored in an examination by a student in Hindi, English, Mathematics, Social Science and Science. If the total marks obtained by the students were 540,



answer the following questions.

- (i) In which subject did the student score 105 marks?
- (ii) How many more marks were obtained by the student in Mathematics than in Hindi?
- (iii) Examine whether the sum of the marks obtained in Social Science and Mathematics is more than that in Science and Hindi.

2. The number of students in a hostel speaking different languages is given below. Display the data in a pie chart.

Language	Hindi	English	Marathi	Tamil	Bengali	Total
Number of students	40	12	9	7	4	72

## ASSIGNMENTS

- A) From NCERT textbook the following questions are to be done:  
Exercise 5.2, Q 2 and Q3

### Day 3

## LESSON DEVELOPMENT

### Chance and Probability

**Chance** is something that is taken in everyday life. **Probability** is the study of chance of occurring of a particular event. For example,

- o Taking raincoat on a cloudy day because there are chances of rain.
- o Preparing for a topic in exams because the chance of it coming is more.
- o Buying wait listed train ticket because the chance of it confirming is high.



ExamFear.com



Chance of rain, question in exam and confirmation of a ticket

### Practical usage of probability

- o Exit Polls during elections - Here a few voters are asked whom they voted for and then a probability is predicted to know which party is winning.



- o Meteorological Department - Based on wind, clouds, heat etc., they form a

probability for every day's weather.

### Terms used in Probability

Following are the terms used in probability:

1. **Random experiment** - An experiment which can result in a set of possible **outcomes**. An outcome is the result of the experiment. Example, bowler bowling a ball in cricket. It can result in batsman hitting it, wicket, no-ball, wide etc.



1. **Event** - Each outcome of an event or a collection of outcomes make an event. Example, tossing of coin results in getting a Head which is an event. Getting a tail is also an event.
2. **Equally likely outcomes** - When the probability of all the outcomes in a random experiment is almost equal. Example, tossing of coin. It can either result in heads or tails, so the two outcomes are equally likely.

Equally Likely Outcomes



Coin flip can result in heads or tails



Rolling of dice can result in 1,2,3,4,5 or 6

$$P(A) = \frac{\text{Number of Favourable Outcome}}{\text{Total Number of Favourable Outcomes}}$$

\* A teacher chooses a student at random from a class of 30 girls. What is the probability that the student chosen is a girl?

Probability: Since all the students in the class are girls, the teacher is certain to choose a girl. Therefore probability of the student chosen is a girl is 1.

Such an event is called a **sure event**.

A spinner has 4 equal sectors coloured yellow, blue, green, and red. What is the probability of landing on purple after spinning the spinner?





Probability: It is impossible to land on purple since the spinner does not contain this color. Therefore, the probability of landing on purple after spinning the spinner is 0 .

Such an event is called **impossible event**.

- If event A is impossible, then  $P(A) = 0$ .
- If event A is certain, then  $P(A) = 1$ .
- $0 \leq p(E) \leq 1$

**A standard deck of 52 playing cards**, which consists of 4 suits: hearts, clubs, diamonds and spades. Each suit has 13 cards - ace, deuce, three, four, five, six, seven, eight, nine, ten, jack, queen, and king. Picture cards include jacks, queens, and kings.



Experiment 3: A single card is chosen at random from a standard deck of 52 playing cards. What is the probability that the card chosen is

- (i) A Queen card ?

$$P(\text{Queen card}) = 4/52 = 1/13$$

- (ii) A red card ?

$$P(\text{red card}) = 26/52 = 1/2$$

**Problem:** 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?

**Solution:**

- (i) The outcome of getting a number 6 from ten separate slips is one.

Therefore, probability of getting a number 6 =  $1/10$

(ii) Numbers less than 6 are 1, 2, 3, 4 and 5 which are five. So there are 5 outcomes.

Therefore, probability of getting a number less than 6 =  $5/10 = 1/2$

(iii) The number greater than 6 out of ten that are 7, 8, 9, 10. So there are 4 possible outcomes.

Therefore, probability of getting a number greater than 6 =  $4/10 = 2/5$

(iv) One digit numbers are 1, 2, 3, 4, 5, 6, 7, 8 and 9 out of ten.

Therefore, probability of getting a 1-digit number =  $9/10$

**Following questions will be discussed during the session:**

Q1. List the outcomes you can see in these experiments.



(a) Spinning a wheel

(b) Tossing two coins together

Q2. When a die is thrown, what is the probability of getting

(a) a composite number ?

(b) a odd number ?

(C) a number greater than equal 3?

(D) a number not greater than 3 ?

Q3. 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

(iii) getting a number 6?

(iv) getting a number less than 6?

(v) getting a number greater than 6?

(vi) getting a 1-digit number?

## **ASSIGNMENTS**

A) From NCERT textbook the following questions are to be done in Mathematics notebook

Exercise 5.3 Q3 , Q5 and Q6

## **IMPORTANT LINKS FOR REFERENCE**

Introduction of probability

[https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-17/Maths\\_Data\\_Handling\\_part\\_17\\_\(Probability\)\\_CBSE\\_Class\\_8.htm](https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-17/Maths_Data_Handling_part_17_(Probability)_CBSE_Class_8.htm)

Sure event and impossible event

<https://www.youtube.com/watch?v=HUrS9xoCgYY> ( only first 2: 20min)

Some examples

[https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-18/Maths\\_Data\\_Handling\\_part\\_18\\_\(Probability\\_Examples\\_: Dice, playing\\_cards\)\\_CBSE\\_Class\\_8.htm](https://www.examfear.com/free-video-lesson/Class-8/Maths/Data-Handling/part-18/Maths_Data_Handling_part_18_(Probability_Examples_: Dice, playing_cards)_CBSE_Class_8.htm)

## **ASSESSMENT QUESTIONS**

- Which of the following is the probability of an impossible event?
  - 0
  - 1
  - 2
  - None of these
- Which of the following is the probability of a sure event?
  - 0
  - 1
  - 2
  - None of these
- A coin is tossed. Which of the following is the probability of getting a head or tail?
  - 0
  - 1
  - $\frac{1}{2}$
  - None of these
- A bag has 4 red balls and 4 green balls. What is the probability of getting a red ball randomly?**
  - $\frac{1}{4}$
  - $\frac{1}{8}$
  - $\frac{1}{2}$
  - 0

5. If a die is thrown in air, the probability of getting even numbers is:

i)  $\frac{1}{2}$

ii)  $\frac{1}{6}$

iii)  $\frac{1}{3}$

iv)  $\frac{2}{3}$

**Online Practice assignment (only to practice online)**

1. <https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:data-handling/xa9e4cdc50bd97244:pie-charts/e/plotting-pie-charts?modal=1>

2. <https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:data-handling/test/xa9e4cdc50bd97244:data-handling-unit-test?modal=1>