

Fractions

Syllabus: Karnataka State Board

Subject: Math

Grade: 5

Textbook Name: Karnataka State Board

Chapter Number & Name: 5. Fractions

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

Objective

- To understand the concept of fractions.
- Writing in fraction form
- Comparing fractions
- Meaning of equivalent fractions and writing in its simpler form
- Locating fractions on number line

Prerequisite Concept

- Fractions
TIK_MATH_G4_CH9_Fractions and Decimals

Content Index

*Kindly Note: Activities marked with * are mandatory*

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

2. LEARN

2.1 KEY POINTS

2.2 LEARN MORE

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Activity 1: Fraction shapes using sticks

3.2 CONCEPT INTRODUCTION ACTIVITIES

CONCEPT OF FRACTIONS

Activity 2: To understand the concept of fractions

FRACTION FORM

Activity 3: Writing in fraction form

Activity 4: Writing in fraction form - 2

COMPARING FRACTIONS

Activity 5: Comparing fractions

EQUIVALENT FRACTIONS

Activity 6: Meaning of equivalent fractions and writing in its simpler form

FRACTIONS ON NUMBER LINE

Activity 7: Locating fractions on number line

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

4. EXERCISES & REINFORCEMENT

4.1 PRACTICE EXERCISES

HOMEWORK PROBLEMS

Activity 8: Homework problems

4.2 IMPORTANT GUIDELINES*

Exercise Reading

Perform Textbook Activity

Provide Homework

name : Fractions

run : 2019

org : VisionEmpower

number: VE_TIK_M_G5-05

user: geetha@visionempowertrust.org

2. LEARN

2.1 KEY POINTS

- Fraction: A part of a whole. A common fraction is made up of a numerator and a denominator. The numerator is shown on top of a line and is the number of parts of the whole. The denominator is shown below the line and is the number of parts by which the whole has been divided.
- Equivalent fraction: Equivalent fractions can be defined as fractions with different numerators and denominators that represent the same value or proportion of the whole.

2.2 LEARN MORE

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Activity 1: Fraction shapes using sticks

Materials required: Broomsticks/long sticks/ice cream sticks

Prerequisites: Fraction

Activity Flow

Ask the students to take a long broomstick, break them into equal pieces and ask them to count the total number pieces they have got. Later ask them to make shapes using those pieces. Then ask the students to tell that in fraction.

Example: If there are 12 pieces of sticks from one complete long broomstick. We have used 3 sticks to make a triangle. Hence, we have used $\frac{3}{12}$ sticks and remaining sticks are $\frac{9}{12}$.

3.2 CONCEPT INTRODUCTION ACTIVITIES

CONCEPT OF FRACTIONS

Activity 2: To understand the concept of fractions

Materials required: A4 Sheet

Prerequisites: Fraction

Activity Flow

- *Ask the students to take Sheet of paper and fold it into half then make one more fold, so the single sheet is divided into four parts.*
- *Now, ask the students to tear the sheet into 4 parts according to the folds.*
- *Let them arrange the individual 4 parts and make one single A4 sheet.*
- *Ask the students to take out one piece out of 4, and then ask what the total number of pieces left out and also ask them to tell it in fractions.*

Answer: $\frac{3}{4}$

- *Similarly, ask them to take out 2 pieces and then ask what the total number of pieces left out.*

Answer: $\frac{2}{4}$ or if we are taking two pieces then it is the half sheet that we are removing

from the full sheet. Hence, $\frac{2}{4} = \frac{1}{2}$

FRACTION FORM

Activity 3: Writing in fraction form

Materials required: Lego blocks

Prerequisites: To write in fraction

Activity Flow

- *We have different sizes of Lego blocks having 1, 2, 4, 8 and 12 dots respectively.*
- *Let students touch and can attach Lego blocks with single dots on a Lego block having 4 or 8 dots.*
- *Example 1: Give them the Lego block with 8 dots and ask them to place 2 Lego blocks having single dots or one single block with two dots. Then ask the students, out of 8 dots, how many dots have been covered?*

Answer: 2 dots have been covered out of 8 dots. I.e. $\frac{2}{8}$.

- *Example 2: Ask the students to put Lego blocks having 4 dots and 1 dot on 8 dots and see how many dots have been covered?*

Answer: 5 dots out of 8 dots. I.e. $\frac{5}{8}$.

- *Similarly, teachers can ask the students to learn fractions or solve fraction problems which are there in the textbook.*

Activity 4: Writing in fraction form - 2

Materials required: Cardboard egg crate box, plastic balls.

Prerequisites: To write in fraction

Activity Flow

- *Give Egg crates and balls to the students. Depending on the number of holes in the crate, students can place balls in each hole and ask them, how many holes have been filled out of the total number of holes in an egg crate?*

Answer: Similar to the activity 1, it could be 3 out 10 holes are filled or 4 out of 7 are filled.

- *Note: We can also use different seeds or pulses like Channa, Ground nut, Big beans etc.*
- *And suppose, if you place at least 4 varieties of seeds in an egg crate which has 12 holes and ask the student, which part of an egg cart is filled with Ground nuts?*

Answer is $\frac{3}{12}$, since only three holes are filled with ground nuts out of 12 holes.

- Hence, in general a fraction is a part of the whole group. This is written in such a way that, the number in the numerator represents the selected portion out of the total portion which is written in the denominator.
- I.e. The number of equal parts into which the whole is divided forms the denominator and the number of equal parts selected or shaded forms the numerator.

COMPARING FRACTIONS

Activity 5: Comparing fractions

Materials required: Foam fraction kit

Prerequisites: To compare fractions

Activity Flow

Give them the foam fraction kit and ask them to represent the fractions $\frac{3}{4}$ and $\frac{2}{4}$

Then ask them, among them which of the fraction is bigger and smaller. And how do they compare on what basis?

Similarly, ask them to compare the following fractions by arranging the foam fraction parts and give the reason for the answer they give.

1. $\frac{7}{9}$ and $\frac{5}{9}$
2. $\frac{11}{16}$ and $\frac{14}{16}$
3. $\frac{8}{10}$ and $\frac{9}{10}$
4. $\frac{2}{6}$ and $\frac{3}{6}$

EQUIVALENT FRACTIONS

Activity 6: Meaning of equivalent fractions and writing in its simpler form

Materials required: Tactile graph sheet, Stickers (Bindi), Tactile equivalent graph sheet.

Prerequisites: Concept of fraction and comparing fraction

Activity Flow

- Give graph sheets and stickers to the students and ask them to represent the following fractions in a graph sheet by placing stickers in each square corresponding to each problem.

a. $\frac{3}{7}$

b. $\frac{6}{9}$

c. $\frac{1}{2}$

d. $\frac{4}{8}$

e. $\frac{5}{11}$

- Example: For problem 1, they have to select a region having 7 squares out of which they have to place only 3 stickers in it and show it to the teacher.
- Show them the tactile equivalent fraction sheet and explain the concept.
- Show them practically that $\frac{1}{2}$ is the same as $\frac{4}{8}$ and $\frac{3}{6}$. I.e. since the number in the denominator is a multiple of the number in the numerator, we can divide it and it will be reduced to its simplest form $\frac{1}{2}$.
- Pictorially, placing 1 sticker in one of the 2 squares is the same as placing 4 stickers in 4 squares out of 8 squares, which is exactly half of the whole group.
- Ask them to give the examples for equivalent fractions in the graph sheet using bindis. Also ask them to write in a taylor frame and solve the problems given in the textbook.
- Ask them to write the simpler form for the following given fractions.

$$\frac{3}{12}, \frac{5}{25}, \frac{18}{20}, \frac{7}{49}.$$

To make equivalent fraction sheet:

Materials required: Paper strips, Glue, Stickers, Sheet of paper, Fevicol.

Show them the tactile equivalent fraction sheet and explain the concept of equivalent fraction. Also try to make one tactile fraction sheet in class with the students.

FRACTIONS ON NUMBER LINE

Activity 7: Locating fractions on number line

Materials required: Taylor frame

Prerequisites: Fractions

Activity Flow

Ask them to write numbers from 1 to 10 on a Taylor frame. Then give them the following fractions to be located on the Taylor frame in its proper place.

$$\frac{1}{4}, \frac{2}{3}, \frac{3}{6}, \frac{2}{4}, \frac{5}{5}, \frac{9}{10}.$$

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

- EATING OUT: Have you ever gone out to eat with a group of friends but the waitress brings only one check? To divide up the bill, you'll need to use fractions.
- GROCERY SHOPPING: You set aside your grocery budget and made your list. Sales tax and coupons all use fractions.
- MEAL PREP FOR THE FAMILY: Cooking for 4 people but the recipe serves 10? You'll need to use fractions to divide the ingredients.
- CONTRACT WORK: Buying a car? Signing a lease on an apartment? Making your own jewelry and working with a supplier? For all of these things (and many others) you'll need to use fractions when negotiating the contract rates.
- JEWELRY: 24 karats is pure gold, and 18 karats is $\frac{18}{24}$ which equals 75% gold. Using fractions to understand jewelry purity could save you money!
- PAY: Did you recently get a raise? Does a quarter of your pay go towards healthcare? How much should you invest in retirement? Fractions will determine how much you actually take home.
- HOMEWORK ASSIGNMENTS: Your child got $\frac{38}{51}$ questions correct. A solid understanding of fractions will help you determine if the child should be rewarded or grounded.
- PHOTOGRAPHY: Shutter speed is calculated using fractions of a second.
- PRESCRIPTIONS: Whether you, your child, or your pet is sick, medicine dosages are often determined with a fraction of parts to weight. Different body sizes require different dosages.
- TIME: An hour and a half. A quarter of an hour. Time is commonly measured in fractions.

4. EXERCISES & REINFORCEMENT

4.1 PRACTICE EXERCISES

HOMEWORK PROBLEMS

Activity 8: Homework problems

Materials required: None

Prerequisites: Fractions

Activity Flow

Write each of the following as a fraction.

1. Half
2. Two-third
3. Five-seventh
4. Two-fifth
5. Eight-ninth

Write each of the fraction in words.

- a) $\frac{2}{5}$
- b) $\frac{3}{7}$
- c) $\frac{4}{5}$
- d) $\frac{8}{10}$

Write the greater fraction between the two fractions

- a) $\frac{3}{7}$ and $\frac{4}{7}$
- b) $\frac{11}{15}$ and $\frac{8}{15}$
- c) $\frac{5}{19}$ and $\frac{11}{19}$
- d) $\frac{4}{7}$ and $\frac{4}{5}$

Write the next three equivalent fractions.

- a) $\frac{2}{5}, \frac{4}{10}, \text{---}, \text{---}, \text{---}$
- b) $\frac{3}{8}, \frac{6}{16}, \text{---}, \text{---}, \text{---}$
- c) $\frac{4}{6}, \frac{8}{12}, \text{---}, \text{---}, \text{---}$

Are the two fractions equivalent?

- a) $\frac{3}{5}$ and $\frac{18}{30}$

b) $\frac{12}{17}$ and $\frac{8}{20}$

c) $\frac{2}{7}$ and $\frac{7}{21}$

d) $\frac{5}{11}$ and $\frac{25}{55}$

Reduce each of the following fractions into its lowest form.

a) $\frac{8}{16}$

b) $\frac{4}{20}$

c) $\frac{12}{18}$

d) $\frac{24}{56}$

4.2 IMPORTANT GUIDELINES*

Exercise Reading

It is very important that the children practice their learnings as well as their reading. Hence have the children read out the newly learned concepts from their textbooks or other available resources.

Perform Textbook Activity

It is good practice to have the children perform the textbook activities. Your textbook activities might not be accessible hence go through this resource to learn how to make textbook content accessible

Provide Homework

To evaluate their understanding and to help the student revise and implement the new learnt concept ensure to provide them with homework. Students should perform one or two of the questions mentioned above or from the textbook exercises with the teacher in Class and the remaining may be given for homework. Also, ensure that the student knows their special skills linked to independently using their accessible books as it will be critical to doing homework independently

End of Document