THE NATIONAL ANTHEM

Jana-gana-mana adhinayaka jaya he
Bharatha-bhagya-vidhata,
Punjab-Sindh-Gujarat-Maratha
Dravida-Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga
Uchchala-Jaladhi-taranga
Tava subha name jage,
Tava subha asisa mage,
Gahe tava jaya gatha.
Jana-gana-mangala-dayaka jaya he
Bharatha-bhagya-vidhata,
Jaya he, jaya he, jaya he,
Jaya jaya jaya jaya he!

PLEDGE

India is my country. All Indians are my brothers and sisters.
I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it.
I shall give my parents, teachers and all elders respect, and treat everyone with courtesy.
To my country and my people, I pledge my devotion. In their well-being and prosperity alone lies my happiness.
Foreword

Dear children,

We had been playing some games with the computer till last year. But, is the computer just a toy? Not at all. The computer can be used for more serious matters too. Preparing letters, viewing scenes of the sky, analyzing mathematical concepts and so on .... Activities like these are carried out this time. These are only a few activities from the unlimited possibilities offered by computers that are acknowledged as the machines of the era. Try to do all the activities in this book. Surely it will help you in learning all subjects

With best wishes,

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You might by this time be familiar with the poem *Malayalam* written by Vallathol Narayana Menon, describing the natural beauty of Kerala.

Many pictures might come to your mind when you recite this poem. Which are they?

- Mountain ranges covered with clouds
- Rivers with dancing waves
- ............................................................
- ............................................................

Can you draw these pictures that come to your mind?

Let’s try to do this activity using the software *KolourPaint* in our computer.

Let’s begin to picturise the description of nature in the poem.

**Activity 1.1**

**Let’s prepare the Frame**

Open *KolourPaint* software in the order given below.
When you open *KolourPaint*, you will see at first a canvas screen to draw pictures (Figure 1.1). Now, place the mouse pointer on each tool in the toolbar. Have you understood what these tools are? The tools of *Tux Paint* which you became familiar with earlier can also be seen in *KolourPaint*.

Should we use the whole canvas for the picture? Isn’t it more artistic to draw the picture inside a particular frame?

Select **Rectangle** tool from the tool box. Now try to click on the canvas and drag it. Don’t you get a rectangular-shaped frame? (Figure 1.2)

Your picture needs to be saved. Save this to your class folder with the help of your teacher. Don’t forget to give the picture a title!

Won’t we lose what we drew if the computer accidentally shuts down?

You only need to save it.
Activity 1.2

Let’s draw mountains and valleys

How can we picturise the hills described by the poet in the frame that we created?

Let’s examine how to use the **Line Tool** to draw

- Take **Line Tool** from the tool box.
- Click on one side of the frame, drag and draw a line.
- To draw mountains (Figure 1.3, Figure 1.4), click on the canvas, drag and draw as in the picture.

![Figure 1.3, Figure 1.4 – The stages in drawing mountains and valleys](image)

Did you go wrong? Don’t worry, it can be erased.

Mistakes can be erased using the **Eraser tool**.

*All your work will be erased if you double click the eraser tool. So be careful ....*

*But it can also be retrieved by clicking on the Undo icon.*
At each stage, save what you’ve drawn.

Fields, valleys and rivers can now be drawn. Use the **Pen Tool** for this. (Figure 1.5).

![Figure 1.5 Drawing fields, valleys and rivers](image)

You might have finished drawing. Now let’s apply colours.

**Activity 1.3**  
**Applying colours**

Using **Flood Fill Tool** choose appropriate colours from **Colour Palette** to fill colours in drawings of the mountains, the sky and the plains by clicking as required. (Figure 1.6).

![Colour palette]

![Figure 1.6 Filling colours](image)

Shall we draw a coconut tree using **Brush tool**? Isn’t **Brush tool** convenient?
You have completed the picture. Don’t you want to keep the picture safe? Save it.

**Using polygon tool**

Is it difficult to draw a coconut tree using Brush Tool? Then, use the **Polygon Tool** click points, and draw.

---

**Let’s assess**

1. Which tools will you need to draw our National flag with *KolourPaint* software? (Use **Circle Tool** and **Line Tool** to draw the Ashoka Chakra).

2. Draw the given figures with *KolourPaint* using the tools you know and save your drawing.

---

**Extended Activities**

- Picturise the ideas in the poem *BhoomiSanadhayanu* in the Malayalam textbook using *KolourPaint* software.
- Observe and draw a sunset.
Let’s read a diary entry written by Vinayan who had witnessed the Solar Eclipse in 2010.

15 January 2010

Reached Thiruvananthapuram in the morning. We waited at the Kanakakunnu Palace grounds with the solar telescope and x-ray film spectacles to view the solar eclipse.

The Solar eclipse began at 11.15 am.
It came to a climax around 1.15pm.
The noon appeared as if it was late evening. Birds chirped strangely.

The solar eclipse was over by 3 pm.
The experience left an indelible impression on my mind. How wonderful is our world!

You would have understood the different types of solar eclipses from the lesson *Celestial Shadow Sights* in your Basic Science text. Have you ever seen a solar eclipse? Would you like to see an eclipse?

Let me help.
I can simulate the views of the sky.

What kind of solar eclipse did Vinayan see?
Various software are available to simulate scenes from the sky on the computer screen. The following activities are based on the software *Stellarium* installed in our computer.

**Activity 2.1**

**Eclipse in the classroom**

Let us discover more about the type of solar eclipse visible on 15 January 2010 in Thiruvananthapuram, using the software *Stellarium*. Let us try the following steps.

**Open the software Stellarium**

1. Applications → Science → Stellarium

Observe the window as the *Stellarium* opens (Figure 2.1)

![Figure 2.1 Stellarium window](image)

Move the scroll wheel of the mouse to and fro to zoom in and zoom out the views of the sky.

If the mouse pointer is brought to the left or to the bottom of the screen, the toolbars are seen.

Click and drag on the screen. Different parts of the sky can be viewed in the screen.
Let us adjust the place

To see the scenes of the sky over Thiruvananthapuram, the place has to be set as Thiruvananthapuram on Stellarium. For that,

- Click on the tool to get Place window. (Figure 2.2)
- Type Thiruvananthapuram in the search box near the symbol on the Location window.
- A line ‘Thiruvananthapuram, India’ will appear. Click on that line.
- Close the window.

Finding the sun

Click on the tool. Type ‘sun’ on the window (Figure 2.3) and press ‘Enter key’. Can you see the sun appearing at the centre of the screen?

Setting date and time

Click on the tool. Set date 2010/01/15 (year/month/date) and time as 11:15:00 on the window (Figure 2.4). Move the mouse scroll wheel forward and zoom in on the screen. Can you see the sun near the moon? Click on the symbol above the ‘minute’ on the time window to set the time forward, and complete the table 2.1.
Activity 2.2

Eclipse in different places at the same time

Does the eclipse happening at the same time appear alike in different places?

Setting Kasaragod as the location, observe the eclipse again.

Which among the following pictures is similar to the eclipse? Mark it.

Is there any difference between the eclipses seen in Thiruvananthapuram and Kasaragod?

Activity 2.3

Different Eclipses

Set the place and time given in table 2.2 using the Stellarium software. Then complete the table.
Which among the following is a total solar eclipse? Find out with the help of Stellarium software.

a) Kalpetta, India - 21-9-1992 From 7:50 to 9:50
b) Mananjary, Madagascar - 4-9-2100 From 13:30 to 16:10

Let’s observe the Lunar eclipse. Can you observe the lunar eclipse with the help of Stellarium software? Set the following data in Stellarium and observe the moon.

- Angamaly, India - 28-07-2018 from 00:05 to 3:30
- Kolkata, India - 17-07-2019 from 01:45 to 4:15

Find the planets Mercury, Venus and Mars with the help of the Search window in the Stellarium software.

Find the planet Jupiter in Stellarium software. Zoom in to identify and name its satellites.

---

### Extended Activities

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Place</th>
<th>Date</th>
<th>Time</th>
<th>Time of the Solar eclipse at its maximum</th>
<th>Type of eclipse (Total/Ring/Partial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kottayam, India</td>
<td>21/05/2031</td>
<td>11:10</td>
<td>15:00</td>
<td>13:15</td>
</tr>
<tr>
<td>2</td>
<td>Chennai, India</td>
<td>12/09/2053</td>
<td>15:15</td>
<td>17:25</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Kozhikode, India</td>
<td>26/12/2019</td>
<td>8:00</td>
<td>01:10</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Kilifi, Kenya</td>
<td>16/02/1980</td>
<td>12:30</td>
<td>15:30</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2 solar eclipses seen in different places at different time
Games with fraction cards

Prepare twenty fraction cards to begin the game. Write fractions like \( \frac{1}{2}, \frac{1}{3} \) etc.. on ten of these cards and draw pictures indicating the same fractions in the remaining ten.

Now shuffle the cards and divide them between the two players. The first player has to draw a card. If the other player puts up the equivalent card, he can have both the cards. If the game advances like this, the player with more cards will win. You like such games, don’t you?

Games like these are available in our computers too. Let’s learn one such game.

Activity 3.1
Finding pairs

Let’s open Fractions in the game Fraction Matcher using the PhET software.
Start the game selecting suitable levels from the window (Figure 3.1) that opens.

**Figure 3.1 Level window**

Drag the equivalents (pairs) from these to the scales of the balance.

**Figure 3.2 Fraction Matcher window**
Six pairs are to be found at each level. If the correct pairs are selected, they will move to the top of the column. (Figure 3.3)

If a mistake is made, click the Try again button (Figure 3.4) and drag down the picture/fraction in the scales replacing them with the right ones to continue the game.

Click ‘Show Answer’ button (Figure 3.5) to find the next pair if you go wrong again.

If played carefully…
Two points will be awarded if you win at the first try. Only one point for the second try.

Complete as many of the levels as possible in the game Mixed Numbers in Fraction Matcher.
Varsha had gone to see the doctor with her mother. It was then that she saw certain notices on hygienic habits pasted on the wall. Why not paste one such notice in my classroom, she wondered.

What sentences can I have in the poster? She thought.

- I wash my hands before and after I eat
- ..............................................
- If the words of a word tree are arranged properly, they will become sentences...

If the words of a word tree are arranged properly, they will become sentences...
Have you made a list of the hygienic habits that we should adopt?

Look at the notice prepared by Varsha.

What are its features?

- Headline is in bold letters.
- It is underlined.
- ..........................................................
- ..........................................................
- ..........................................................

What are the steps to be followed to prepare such a notice using the computer?

- There should be space for typing.
- Words should be typed out.
- ......................................................

Do you remember how you had typed using the computer in your previous classes.

Let’s familiarize ourselves with software that helps us to prepare letters, words, etc., as we wish. *LibreOffice Writer* is one such software.

**Activity 4.1**

**Let’s open Word Processor**

*LibreOffice Writer* can be opened in the above order.
Can't you see a vertical black line shining in the word processor window? That is the cursor. The letters that we type appear where the cursor is.

**While using keyboard...**

- Make it a habit to place your fingers correctly on the keys of the keyboard while typing. Observe the colours of the keys on the keyboard and the colours of the finger nails in Figure 4.2.

- Use the thumb to press the space bar.

**Figure 4.2 The right way of using the keyboard**

![Keyboard illustration](image-url)
**Activity 4.2**

**Start typing**

Let’s type the words and sentences of the notice. Look at the heading ‘Hygienic Habits’. What should be done to get the letter H in the upper case? Space bar can be used to insert space between words.

**Activity 4.3**

**Let’s add more lines**

Have you typed the heading? Isn’t the cursor now at the end of the title Hygienic Habits? If the next word is typed, won’t it be at the spot where the cursor stands?

Press ‘Enter’ key to bring the cursor to the next line.

What will you do if the letters are typed wrong? ‘Delete’ and ‘Backspace’ keys can be used to erase letters typed incorrectly.
Activity 4.4

Enlarging the heading

In order to increase the font size, select the word and change the font size. (figure 4.3).

![Figure 4.3 Font size tool](image)

How can the heading be aligned to the centre?

Activity 4.5

Let’s Align the heading

In order to align the heading to the centre, place the cursor anywhere on the word and click on the ‘Centre’ tool in the toolbar. (Figure 4.4).

Find the tool to be used to align the heading to the left or the right.

While writing the heading….

Wouldn’t it get instant attention if the heading is made larger or typed in bold?

To select …

Bring the cursor to the point before the sentence to be selected and select by dragging. Selection can also be done by bringing the cursor before the sentence and by pressing the shift key and the arrow key.

Figure 4.4 Alignment tool
Activity 4.6

Bolder heading…

Select the text and click on the first tool in the toolbar to make the heading bold.

![Fig. 4.5 Style tool](image)

<table>
<thead>
<tr>
<th>Tools</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>![bold]</td>
<td>To make the letter bold</td>
</tr>
<tr>
<td>![underline]</td>
<td></td>
</tr>
<tr>
<td>![italic]</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.1 Letter formatting

Activity 4.7

Save the notice

You have learnt in the previous chapter how to save a picture to the computer. With the help of your teacher, save the notice to the home folder of your class folder.

While saving a file...

Create a folder in your name in the class folder in ‘Home’ and save the file in it.

Has not the font been changed? Now complete Table 4.1.

How can we save a file after typing it?
More such tools are available in the *LibreOffice Writer* which you will use in higher classes.

### Let’s assess

1. As part of Green Club activity, type the following sentences to be displayed on the premises of your school.
   - AVOID PLASTICS
   - Please Don’t Waste Water
   - This is your area
     KEEP CLEAN

2. Match the following words to make meaningful sentences and type accordingly.

<table>
<thead>
<tr>
<th>My</th>
<th>house</th>
<th>is</th>
<th>big</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>small</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>red</td>
</tr>
<tr>
<td>shirt</td>
<td></td>
<td></td>
<td>green</td>
</tr>
</tbody>
</table>

3. For Hiroshima Day, prepare a placard, “NO WAR, NO MORE WAR”, to be used in the anti-war rally.

### Extended Activities

- Prepare a notice using *LibreOffice Writer* on the precautions to be taken against diseases during the monsoon.
- Prepare an address slip showing your name, class and school.
- Type out a notice to be displayed in your school in connection with the inauguration of the English Club.
Chapter 5
Circular Figures

Observe the floral Onam carpet prepared by the mother hen for its chicks

Aren’t there a few geometrical shapes in the floral carpet? Can you identify them?

- Circle
- Triangle
- ......................................
- ......................................

The circle is an integral shape of a floral design, isn’t it?

You might have learnt about the characteristics of circles and how to create them in the chapter on \textit{Circles} in your Mathematics textbook.

Look at the circles drawn for floral designs. (Figure 5.1). What are their special features?

Figure 5.1 Outline for floral design
Shall we draw these circles using the computer?

*GeoGebra* is a software which helps to construct geometrical figures. Various geometrical figures and patterns can be created with this software.

**Activity 5.1**

**Circles within a circle**

- Let’s open the *GeoGebra* software

Applications  ➔  Education  ➔  GeoGebra

- Grids can be drawn in the window that opens(Figure 5.2)

- Click *Show or Hide grid tool* in the tool panel to use grids in *GeoGebra*. Observe what happens if the tool is clicked twice.
Let’s draw circles with the same centre and different radii using *GeoGebra software*

- Select the tool (Circle with Center and through Point) Figure 5.3.

![Figure 5.3 Window to select tool](image)

- Click on any point on the surface for the centre of the circle. It can be drawn with accuracy if the point intersects with the grid.
- Click on another suitable point through which the circle can pass.
- Draw circles with different radii without changing the centre point.(Figure 5.4)

![Figure 5.4 Circles with the same centre](image)
Find the radius and diameter of the circles you have drawn and list them. (Table 1.1)

<table>
<thead>
<tr>
<th></th>
<th>Radius</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>First circle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1.1 Radius and diameter of the circles

What is the relation between the radius and diameter of the circle?

.................................................................................................................................

Activity 5.2

Mathematical Floral Carpet

Now we can design the floral carpet by means of circles. (Figure 5.5)

What are the features of these circles?

__________________________________________________________________________

__________________________________________________________________________

The following method can be used to draw circles to create this design.

Select this tool (Circle with Centre and Radius) (Figure 5.6)

Figure 5.5 Floral carpet

Figure 5.6 Window for circle with radius
- Click on the surface to draw a circle of the required radius. (Figure 5.7)

![Figure 5.7 Window displaying the measurement of the radius](image1)

- Now click on any point in the circle and give the same radius again (Figure 5.8)

![Figure 5.8 Second circle drawn by clicking on the circle](image2)

- Draw a circle of the same radius at the point of intersection of the two circles. (Figure 5.9)

![Figure 5.9 Another circle with the intersection points of the first two circles at the centre](image3)
Draw all the circles and complete the figure. (Figure 5.10)

Figure 5.10 Mathematical floral design

Save the pictures drawn, to your folder.

Adding colour to circles

Right click on the circle and select Object Properties

Make it attractive selecting suitable colours, clicking on the Colour Tab

Methods of drawing circles

GeoGebra shows many ways to draw circles.

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle with Center through Point</td>
<td>Using the centre and the point through which the circle passes</td>
</tr>
<tr>
<td>Circle with Center and Radius</td>
<td>Giving centre and radius</td>
</tr>
<tr>
<td>Compass</td>
<td>Giving centre and length of radius</td>
</tr>
<tr>
<td>Circle through 3 Points</td>
<td>Using three points through which the circle passes</td>
</tr>
</tbody>
</table>

Many such activities based on mathematical logic are possible with GeoGebra. We will learn more in higher classes.
Let’s assess

♦ Draw a circle with radius 5 cm. Draw another circle that passes through two points of this circle.
♦ Draw two circles that pass through the centres of each other.
♦ Draw the pictures given below.

![Circular Figures]

**Extended Activities**

Draw these diagrams using GeoGebra.

![Drawings using GeoGebra]

Select Object Properties of the circle, use the color tab to increase Opacity and draw these figures.
Cutting down one tree after the other, he moved to the last remaining tree to take rest under it. Placing the axe under that tree he rested there for a while. The tree gave him shade though it knew it would be the next target.

Don’t you want to preserve the trees that provide shade even to the person who cuts it down?

In what ways are trees helpful to us?

What means would you use to spread awareness among your friends about the importance of planting and preserving trees?

♦ Notice

♦ ..................

How about preparing a poster too?

“What messages shall we include in the poster?

“എനാണു എനാണു” can be a slogan, then.
Shall we include the lines given below?

“എന്ന നോവിക്കാടെ
ഇന്നാക്കിയാണ്”

Prepare a poster using these lines to highlight the significance of preserving trees.

The Libreoffice Writer that is already familiarised, can be used to type the sentences in the poster.

How shall we type in Malayalam?

Look at the picture given below.

Figure 6.1 will help you to use the keyboard in the right manner.

Open the tree.ott from the School Resources in the home folder and start typing.

Open word processor and click on the File - Open option. Select and open tree.ott from the School Resources folder in the home folder. Don’t forget to save the opened file.
Keyboard Indicator

Click on keyboard indicator at the top of the desktop panel. Keyboard layout can be changed to Malayalam when you click and select Malayalam.

![Keyboard Indicator Image]

Figure 6.2 Keyboard indicator

Activity 6.1
Familiarising the Malayalam keyboard

Which keys are to be used to type നേ ഓണ്‍ മൊണ്‍?

Compare the keyboard layout with Figure 6.1 to find the method of pressing the keys. In order to select the top letter of each key, press the shift key and type. Press the space bar to put a space in between the words.

Now let’s type the lines given below.

ഞൾ കട ക്ഷൂതമാതി
ഞള കടതി ക്ഷൂത്തു
How to type letters ‘noticed, noticed’

Friend of compound letters
The key D is used to combine two letters.

\[
\text{noticed} + \text{noticed} = \text{noticed noticed}
\]

Activities 6.2
Let’s Type ‘Chillaksharangal’

Let’s see how to type ‘chillaksharangal’ like noticed, noticed, noticed, noticed (Table 6.1).

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>noticed</td>
<td>noticed</td>
</tr>
<tr>
<td>noticed</td>
<td>noticed</td>
</tr>
<tr>
<td>noticed</td>
<td>noticed</td>
</tr>
<tr>
<td>noticed</td>
<td>noticed</td>
</tr>
</tbody>
</table>

Table 6.1 Forming ‘chillaksharangal’

Activity 6.3
Adding pictures to a poster

Choose a suitable picture from the Environment segment in the Gallery by clicking in the order:

Insert – Media – Clip Art Gallery. The process will be complete when the picture (Figure 6.3) is dragged to the poster.
Activity 6.4

Saving a Poster

Do you remember the method of saving notices mentioned in the previous chapter.

Save the poster prepared to your class folder in the home folder.

Let’s assess

♦ Prepare suggestions on Water Conservation to be displayed at various water outlets (Select font size 40, center alignment, etc.).

♦ Use Word Processor to prepare a collection of proverbs.

♦ Prepare a poster relating to the protection of our historical monuments. (Bold letters, font size 24. Include a picture too.)

Extended Activities

♦ 14 December is observed as Energy Conservation Day. Prepare a poster to create awareness among the children on the conservation of energy using the sentence given below. Include a suitable picture too.

Energy Conservation is as good as Energy Creation

♦ Prepare a poster on the programme Kaviparichayam to be conducted by ‘Vidyarangam Kala Sahityavedi’. Include a poem by Kunjunni Master.

♦ Draft the notice for a traffic awareness programme to be conducted by the Student Police Cadets in connection with Road Safety Week. Road safety rules should be included in the notice.
Haven’t you heard the story of the monkey who helped to divide a piece of bread and tricked two cats?

You too share snacks with your friends, don’t you?

While dividing, some portions may become big, some small.

Let’s examine the pictures given below. (Figure 7.1)

Activity 7.1

Let’s compare

Fig 7.1 Diagrams of portions

Which pictures (shaded ones) are equal?

................................................          .................................................
Write the fractions of these pictures.

Shall we familiarise ourselves with a similar game in the computer?

The *JFractionLab* software in our computer has a set of games that include fractions. Let’s open the software.

Select the game ‘**Comparing Fractions**’ from the window that opens. (Figure 7.2)
Compare the fraction on the left side of the window (Figure 7.3) with that given on the right side. If the fraction on the left side is greater, click ‘>’, if the fractions are equal click ‘=’ and if the fraction is less click the symbol ‘<’.

**Activity 7.2**

**When fractions combine**

Look at the pictures given (Figure 7.4). Write the fraction that represents the shaded area.

![Figure 7.4 Let's write the fraction](image)

Now, let’s examine Figure 7.5 and complete it by shading. Write the fraction also.

![Figure 7.5 The sum of fractions](image)
The *JFractionLab* also contains games that help us to find the sum of fractions. Examine the game ’Adding fractions’in *JFractionLab*. (figure 7.6).

![Figure 7.6 JFraction Lab - Main menu](image)

![Figure 7.7 Add the Fraction Window](image)

We gave to find the sum of two fractions in the window that opens (Figure 7.7). How do we find the sum?

- Make the denominators of the fractions equal.
- Add suitable numerators.
- ....................................................
- ....................................................

Play the game with the help of the keyboard. Use the number keys and Enter key.
Familiarise yourselves with more games relating to fractions in JFractionLab.

Let’s assess

Let’s complete the table.
Examine the colour discs prepared by Abu, Aji and Alice of Standard VII for the Science exhibition. Now, complete the table given below.

![Discs](image)

<table>
<thead>
<tr>
<th>Name</th>
<th>Total number of divisions</th>
<th>Number of divisions in blue</th>
<th>Fractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu</td>
<td>12</td>
<td>3</td>
<td>3/12</td>
</tr>
<tr>
<td>Aji</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alice</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Open JFractionLab and play the game ‘Finding Fractions’.

Extended Activities

- Examine the chapters ‘Equal Sharing’ and ‘Part Number’ in your Mathematics textbook. Which exercises in these chapters can be applied in JFractionLab? Present your findings in class.
You have learned about rivers in India in the chapter ‘Our India’ in your Social Science textbook. As an extended activity related to this chapter, shall we know more about the Ganga which originates at the Himalayas?

Teacher, how can I find the states through which the Ganga flows?

You can find it using the atlas, a map or a software that help us to learn Geography.
**KGeography**

There are several software solutions to help us learn geography. *KGeography* is one such. You can get a lot of information, such as international boundaries, national flags, names of states and their capitals using this software. It also has some games that help us to learn by ourselves.

*KGeography* is a software which helps us to learn Geography. Shall we find out the states through which the Ganga flows, using this software? The course of the Ganga is given in figure 8.1.

![Figure 8.1 Map of India which shows the course of the Ganga](image)

**Activity 8.1**

Let’s find the states through which the Ganga flows.

Follow these steps.

- Open the *KGeography* software.

The map of India appears on the screen. (Figure. 8.2)
- Examine the map (Figure 8.1) and identify each state through which the Ganga flows, using the KGeography software to click on them.
- Write your findings below.

**States through which the Ganga flows**

Uttarakhand, ................................, ................................, ................................, .................................

You have learnt how to find the names of Indian states using KGeography software. Now we will examine the names of the capitals of states.

**Activity 8.2**

**Let’s find the names of the capitals of Indian states**

Using KGeography, find the capitals of the states that are given in blue in the map given below (Figure 8.3) and complete the table. (Table 8.1)

For this
- Examine the states that are marked in Figure 8.3.
- Open KGeography software and click on these states one by one.
Figure 8.3 Map of India on which some states are marked

- Complete Table 8.1 on the basis of what you observed with the help of the software.

<table>
<thead>
<tr>
<th>State</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uttarakhand</td>
<td>..........</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>..........</td>
</tr>
<tr>
<td>Chattisgarh</td>
<td>..........</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>..........</td>
</tr>
<tr>
<td>Kerala</td>
<td>..........</td>
</tr>
<tr>
<td>Assam</td>
<td>..........</td>
</tr>
</tbody>
</table>

Table 8.1 States and their capitals

You have now used *KGeography* software to identify Indian states, their capitals and their location.
Now, shall we find the neighbouring countries of India, as suggested in your Social Science textbook?

**India - Location and neighbouring countries**

We have earlier discussed the continents. Can you identify the continent to which India belongs?

Find out India's neighbouring countries from the map of Asia. You may use the atlas or wall maps for this.

---

**Activity 8.3**

**Let’s find out the neighbouring countries of India**

Using *KGeography* software, we can find the names of our neighbouring countries.

For this,

- Open *KGeography*.
- Click on each of the neighbouring countries of India.
- Observe their names and write them down.

**Neighbouring countries of India**

Pakistan ...........................................
...........................................
...........................................
...........................................

You can identify the names of continents with the help of *KGeography* software in the same way that you examined India and her neighbouring countries.
Activity 8.4
Let’s examine our continent

Using KGeography software, write the names of any five countries in Asia in the table (Table 8.2).

For this

♦ Open KGeography software.
♦ Click the button ‘Open Map’ and select Asia (Figure 8.5).
♦ Complete the table after observing the names of various countries by clicking on them.

You have now understood how to examine the location and boundaries of our country, its states, their capitals, our neighbouring countries, the continent of Asia, etc., using KGeography software. Let’s learn a game to identify what we have found out.

<table>
<thead>
<tr>
<th>Serial no.</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
</tr>
<tr>
<td>2</td>
<td>...............</td>
</tr>
<tr>
<td>3</td>
<td>...............</td>
</tr>
<tr>
<td>4</td>
<td>...............</td>
</tr>
<tr>
<td>5</td>
<td>...............</td>
</tr>
</tbody>
</table>

Table 8.2 Countries in Asia

Figure 8.5 Window selecting Asia
Activity 8.5
Let’s play the game ‘Test Yourself’

For this

❖ Open KGeography.
❖ Click the button ‘Locate States and Union Territories’ in the section ‘Test Yourself’.
❖ Arrange the number of questions in the window that opens.
❖ Examine the name of the state that appears at the bottom on the left side and click on the same on the KGeography map.
❖ If what you have clicked is correct, the section ‘Correct Answer’ will appear in green and if wrong, it will appear in red. Your score will also be shown.
❖ After this, the name of the next state will appear. Continue the activity.
❖ Continue the activity until all the questions are over.

You can play other such games too

Let’s assess

1. Complete the table given below with the help of KGeography software.

<table>
<thead>
<tr>
<th>Serial no.</th>
<th>State</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Karnataka</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>Itanagar</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Bhopal</td>
</tr>
<tr>
<td>4.</td>
<td>Himachal Pradesh</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Andhra Pradesh</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td>Aiswal</td>
</tr>
</tbody>
</table>
2. Identify the names of states which are bounded by the Indian Ocean using KGeography software.

<table>
<thead>
<tr>
<th>Indian Ocean</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerala</td>
<td></td>
</tr>
<tr>
<td>Arabian Sea</td>
<td></td>
</tr>
<tr>
<td>Bay of Bengal</td>
<td></td>
</tr>
</tbody>
</table>

3. Do the following activities with the help of KGeography and write down the facts in your notebook.

- Find the states where harbours can be built.
- Find the states which do not have a coastal line.
- Find the country that shares the largest boundary area with India.

Extended Activities

1. With the help of KGeography, find the Indian states which share their boundary with Bangladesh. Then type the names of these states in LibreOffice Writer.

2. With the help of KGeography identify the Indian states which share their boundary with our neighbouring countries and prepare notes on these.
Once, a farmer came to see a king. He presented the king with the best of his harvest. The king was very pleased. He decided to reward the farmer with a suitable gift. He gave him a 200 metre long rope and said, “Stretch this rope to its maximum in the shape of a rectangle. You are welcome to measure and take that much land for yourself.”

Can you construct a rectangle with a perimeter of 20 cm?

Did you read the story?
How can the farmer acquire the maximum land using his rope?
Let us help the farmer. Let us use 20 cm instead of 200 m for this activity.
Threads of 20 cm length are given to all.
If you construct rectangles using threads of 20 cm each, what would be the perimeter of each rectangle?

..........................................................................................................................
The children take up the task with great enthusiasm. They construct different rectangles with their threads.

This is Appu’s rectangle

How many rectangles of this kind can be constructed? Find the length and breadth of these rectangles. Complete the table. (Table 9.1)

<table>
<thead>
<tr>
<th>Table 9.1 Length and breadth of the rectangles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Let’s find the area of the rectangles in the table.

**Activity 9.1**

**Area and Perimeter of rectangles**

Hope you remember how we constructed rectangles from squares in the lesson ‘Area’. The software Area Builder in PhET will help us to do this activity on our computers. Let us familiarize ourselves with how to operate this software.

♦ Let’s open Area Builder.
Click the option ‘Explore’ on the window.

- Let’s know more about *Area Builder* Window. (Figure 9.1)

![Figure 9.1 Area Builder Window](image)

- Let’s fill the grid by placing small squares from the bowl given below and construct rectangles. (Table 9.1)

- Click the tool for deleting the squares created earlier.

- To compare 2 rectangles created at the same time, turn this button to the right.

- Now try to construct the two rectangles. Figure 9.2.
Find the measurements of the rectangles using Area Builder and complete the table. (Table 9.2)

<table>
<thead>
<tr>
<th>Length</th>
<th>Breadth</th>
<th>Perimeter</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>3</td>
<td>20</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 9.2 Measurements of rectangles

Which rectangle has the greatest area in the table given above? Note your findings below.

<table>
<thead>
<tr>
<th>Length</th>
<th>Breadth</th>
<th>Perimeter</th>
<th>Area</th>
</tr>
</thead>
</table>

Now find the measurements of the rectangle the farmer needs to create to acquire the maximum possible land?

<table>
<thead>
<tr>
<th>Length</th>
<th>Breadth</th>
<th>Perimeter</th>
<th>Area</th>
</tr>
</thead>
</table>

Let’s assess

Construct a rectangle having an area of 20 sq.cm using Area Builder. Fill the table given below with the proposed numerical values of length and breadth.

<table>
<thead>
<tr>
<th>length</th>
<th>breadth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.......</td>
</tr>
<tr>
<td>2</td>
<td>.......</td>
</tr>
</tbody>
</table>

Construct a rectangle with perimeter 24 cm and breadth 5 cm. Note down its length and area in your notebook.
Construct the above picture using Area Builder.

Find the areas of the small and the large rectangles. Find how these are related to the area given by the software.

**Extended Activities**

Construct a rectangle with an area of 15 sq.cm. using Area Builder and do the following activities.

- Create figures with less area without changing the perimeter.
- Create figures with less area, increasing the perimeter.
- Without changing the area, form other shapes by increasing the perimeter.