Pruquest

4

ALL IN ONE

Semester-I

PruQuest

4

ALL IN ONE

Semester-I

Content Developed by

A Team of Authors and Subject Consultants

- English Course Book
- English Grammar & Composition
- Mathematics
- Science
- Social Studies
- General Knowledge

HOLY FAITH INTERNATIONAL (P) LTD.

HOLY FAITH INTERNATIONAL
an imprint of MBD Group

Published by:
MANIK JUNEJA
HOLY FAITH INTERNATIONAL (P) LTD.
MBD House, Gulab Bhawan, 6, Bahadur Shah Zafar Marg,
New Delhi-110 002

Printed at:
M. GULAB SINGH & SONS (P) LTD.
B-5/14, Site IV, Industrial Area, Sahibabad (U.P.)

New Delhi: MBD House, Gulab Bhawan, 6, Bahadur Shah Zafar Marg
Ph. 61312345, 23318301
Mumbai: A-683, T.T.C. Industrial Area, M.I.D.C. Off. Thane-Belapur Road,
Navi Mumbai Ph. 32996410, 27780821, 8691053365
Chennai: No. 26 B/2 SIDCO Estate, North Phase, Pataravakkam Ambattur
Industrial Estate, Ambattur Ph. 26359376, 26242350
Chennai: Plot No. 3018, Old Y Block, 3rd Street, 12th Main Road, Anna Nagar West,
Chennai Ph. 23741471
Kolkata: Satyam Building, 46-D, Rafi Ahmed Kidwai Marg Ph. 22296863, 22161670
Jalandhar City: MBD House, Railway Road Ph. 2458388, 2459046, 2455663
Bengaluru: 124/31, 1st Main, Industrial Town (Near Chowdeshwari Kalyan Mantap),
West of Chord Road, Rajajinagar Ph. 23103329, 23104667
Hyderabad: Plot No. 41, Road No. 6, IDA, Mallapur, Uppal Mandal,
Near Bharat Electronics Ltd. Ph. 9985820001
Ernakulam: Surabhi Building, South Janatha Road, Palarivattom
Ph. 2338107, 2347371
Nagpur: Plot No. 231, Lendra Park, Behind Krims Hospital Ramdaspeth
Ph. 2447306, 2447330, 7410017938
Gandhinagar: B-114/115 Sector 25, GIDC Gandhinagar
Ph. 079-29655442, 7600024563, 7600024542
Cuttack: Badambadi, Link Road Ph. 2367277, 2367279, 2313013
Guwahati: Chancellor Commercial, Hem Baruah Road, Paan Bazar Ph. 7637014051
Lucknow: 173/15, Dr. B. N. Verma Road, Old 30 Kutchery Road
Ph. 4010992, 4010993
Patna: Ist Floor, Annapurna Complex, Naya Tola Ph. 2678732, 2678994
Bhopal: Plot No. 137, 138, 139, Sector-I, Special Industrial Area, Govindpura
Ph. 2581540, 2601535
Goa: MBD Group, H. No. 1644, Plot No. 100, Kranti Nagar, H.B. Colony,
Nr. Nana Nani Park, Porvorim Ph. 2413982, 7028912261
Jaipur: C-66A, In front of Malpani Hospital, Road No. 1, V.K. Industrial Area,
Sikar Road Ph. 4050309, 4020168
Raipur: Behind Aligarh Safe Steel Industries, Vidhan Sabha Road, Avanti Bai Chowk,
Lodhi Para Pandri Ph. 2445370, 4052529
Karnal: Plot No. 203, Sector-3, HSIDC, Near Namaste Chowk, Opp. New World
Ph. 2220006, 2220009
Shimla (H.P.): C-89, Sector-I, New Shimla-9 Ph. 2670221,2670816
Jammu (J&K): MBD, Khasra No. 417, Industrial Area, Gangyal,
Near SICOP Office Ph. 9419104035
Ranchi (Jharkhand): Ph. 7260813703 (BM), 7260813710 (ASM), 7260813715 (ASO)
Sahibabad (U.P.): B-9 & 10, Site IV, Industrial Area Ph. 3100045, 2896939
Dehradun (Uttarakhand): Plot No. 37, Bhagirathipuram, Niranjanpur,
GMS Road Ph. 2520360, 2107214

DELHI LOCAL OFFICES:

Delhi (Shakarpur): MB 161, Street No. 4 Ph. 22546557, 22518122
Delhi (Daryaganj): MBD House, 4587/15, Opp. Times of India Ph. 23245676
Delhi (Patparganj): Plot No. 225, Industrial Area Ph. 22149691, 22147073

H0362A6755

Contents

English Course book

English Grammar & Composition

Mathematics

Science

Contents

Social Studies

General Knowledge

English

A communicative, integrated-skills course

Coursebook

CLASS-4 ✦ SEMESTER-I

1 Vigilant Vikram

vigilant alert or watchful for possible signs of danger

Karan, my younger brother, and I were alone in our apartment. My parents had gone out for a meeting and had left me in charge of the house. I was doing my homework, while my younger brother was watching television. Suddenly the doorbell rang. My younger brother rushed to the door thinking that our parents had come home. He had asked them to bring him his favourite vegetable sandwich. He unlocked the door and opened it. A salesman, selling storybooks, stood on the doorstep. Karan told him politely that our parents were not home and asked him to call at another time. He came back inside and told me about the salesman, who had a huge bag full of books. I started to laugh. 'It's a pity he wasn't selling vegetable sandwiches!' I said.

'I know,' said Karan. 'I'm really hungry!'

'I'll get you something to eat,' I said.

I went to the kitchen to get some cookies and milk for Karan. Immediately I noticed a foul smell throughout the kitchen. Straightaway I knew that it was a gas **leak**. I recalled that Mum had told me about the foul smell that comes if there's a gas leak. She had even told me about what precautions should be taken in such a situation. 'If you smell gas,' she had said, 'don't switch on the light in the kitchen; open all the windows and doors to **ventilate** the room, and let the **accumulated** gas escape outside. Then check the **regulator** valve and the

leak a liquid or gas escaping in or out through a hole
ventilate to allow fresh air to circulate through a room
accumulated gathered or collected
regulator a device to control the pressure of gas or liquid

stove knobs, and turn them off well if they were left on.' She had also warned me not to use an open flame to detect the leak. As the smell grew worse, I remembered Mum's advice. She had said that it is wise to **evacuate** the house if you still smell gas in the kitchen.

I was scared at first, but I knew that it was my responsibility to take care of the house and my brother. So I called Karan. I asked him to open all the windows and doors while I checked the regulator valve and the stove knobs. The regulator valve was turned off, but one of the stove knobs was on. I turned it off and waited for ten minutes. However, the odour was still spreading all over the house. Soon the foul smell was everywhere. I was scared as our parent's office was a long way from our house.

evacuate to move from a place of danger to a safe place

I decided that I had better call someone from the neighbourhood for help. I found the number of Ms Kritika, our neighbour. 'Good Afternoon, Ms Kritika. I'm really sorry to bother you but there is some gas leakage in our house and our parents are not home.'

'Are you and your brother all right?' asked Ms Kritika.

'Yes,' I replied. 'We have opened all the windows and checked the stove knobs and turned them off. Could you come here and take a look?'

'OK, Vikram,' Ms Kritika said, 'Don't worry at all. I will be there shortly, but first I will call the gas authority and let them know about the gas leak.'

Before long, Ms Kritika and two **technicians** arrived at our house. It didn't take the technicians long to fix the gas leak. They praised me for being observant and attentive and told me that I am a responsible child. They even praised our parents.

'It's great that your parents had told you what to do,' the head technician said as he closed his tool box.

technicians people who are trained or skilled to do a particular work

By that time, our parents had come home. We told them about the gas leak. My parents were thankful that we were not hurt. They thanked Ms Kritika for helping us and the technicians for fixing the gas leak.

'Thank goodness nobody got hurt,' said my mum.

'The boys knew exactly what to do,' said Ms Kritika.

Dad hugged me. 'Yes, but always remember to call us if something like this happens again,' he **scolded** me gently. Then he smiled. 'Well done, though. I'm proud that you remembered the correct safety measures to take. You certainly acted responsibly.'

'Well,' I replied, 'you and Mum always taught us to be aware of our surroundings, and this time we certainly were!'

(1) What food did Vikram want to get for Karan?

(2) What did Vikram notice when he went into the kitchen?

(3) What safety precautions had Vikram's mother advised him to take in the event of a gas leak?

(4) How did Ms Kritika help them?

(5) What was the reaction of Vikram's mother and father when they came home?

scolded spoke angrily

Reading 2 LS HOTS

(1) Ms Kritika helped Vikram and Karan when their parents were not home.

Neighbours should help each other. Discuss this statement with a partner.

(2) Discuss the importance of neighbours with your class.

Grammar

Subject and Predicate

Look at these sentences from the story:

My younger brother was watching television.

Subject | Predicate

Who was watching television?

My younger brother = subject

What was the subject doing?

was watching television = predicate

(2) The regulator valve was turned off.

Subject | Predicate

In the sentences above, *my younger brother* and *the regulator valve* tell us about who or what the sentences are about . This is called *the subject*. The *predicate* is the part of the sentence which tells us what the subject does or is. The predicate starts with a verb. Thus a sentence has two parts: the subject and the predicate.

Subject	Predicate

Subject

(a) The subject of a sentence is the person or thing we are speaking about.

(b) It tells us who or what the sentence is about.

Predicate

(a) The predicate is the sentence part which tells us what the subject does or is.

(b) It tells us what the sentence says about a person or thing.

Avantika	lives in Bangalore.
The plant	needs water, air, soil and sunlight.
The elephant	ate bananas.
He	is a dancer.

Underline the subject and circle the predicate in each sentence. The first one has been done for you.

(1) A teacher teaches in a school.

(2) A plumber repairs pipes.

(3) A baker bakes bread.

(4) A barber cuts people's hair.

(5) A carpenter repairs wooden objects.

(6) A nurse looks after sick people.

(7) A cobbler mends people's shoes.

Vocabulary

Alphabetising the Third Letter of the Word

You know that words are arranged in alphabetical order in the dictionary. It is necessary to alphabetise words that have identical letters.

To write a list of fruits in alphabetical order, we start with fruit names that begin with the letter A, then add fruit names that begin with B, and so on.

Example:

First letter of the word	
apple	
banana	
cherry	

If more than one word begins with the letter A, we put them in order based on the second letter.

Example:

Second letter of the word	
apple	
avocado	

If the first two letters of the words are the same, we put them in order based on the third letter.

Example:

Third letter of the word	
apple	
apricot	

Arrange the following words in alphabetical order based on the third letter of the word and write them in the table below.

thermometer thank thousand thumb thin throw

S. No.	Words
(1)	
(2)	
(3)	
(4)	
(5)	
(6)	

Listening and Speaking SL

We all want good neighbours. Having good relations with your neighbours has various benefits. Firstly, the neighbourhood will be a friendlier place. Secondly, it will also be safer, as your neighbours can check on your house if you are away. Here are a few things you can do to have a good relationship with your neighbours.

(1) Smile and greet each other whenever you meet.

(2) Communicate with your neighbours by sharing news about the neighbourhood that is of interest to you both.

(3) Be aware of your surroundings, as well as theirs.

(4) Offer to check on their house if they are away on holiday.

(5) Invite them to tea or coffee.

(6) Discuss problems in the area and talk about ways in which they could be resolved.

(7) Offer to help your neighbours if they need assistance with something.

Work in groups of four or five. Talk about what kind of relationship you share with your neighbours. Have you put any of the above points into practice? Talk about that too.

Writing

Writing a Paragraph

A paragraph is a distinct piece of writing. It deals with only one idea. A paragraph begins with a topic sentence which makes that single idea clear. The sentences which follow are arranged in a logical order and convey and support the single idea.

Essentials of a good paragraph:

(1) Title: Give a suitable title to the paragraph.

(2) Topic Sentence: It is the opening sentence of a paragraph and has the main idea of the paragraph.

(3) Supporting Sentences: These sentences give details about the topic sentence.

(4) Closing Sentence: The last sentence closes the paragraph. It tells the reader that the paragraph is finished.

You were alone in the house, waiting for your parents who had gone shopping. Suddenly, the bell rang, and you found a strange-looking salesman standing at the main door. Write a paragraph describing what happened next.

In your paragraph, describe the following:

(1) What the salesman looked like

(2) What you did

(3) How you felt

(4) How you tackled the situation

2 Best Friends

Ginni and Poshi were best friends. They loved to play together. They played games, solved puzzles, read storybooks and even studied together. They were in the same school and in the same class, and they went to school on the same bus. Their houses were opposite each other's. They were best **buddies**.

Ginni's mother worked in an office. Normally, she didn't return home from work until five o'clock. Because of this, Poshi's mother usually collected Ginni from school. Whenever her grandparents were not home, Ginni would wait at Poshi's house after school. Poshi's parents always took good care of her. Ginni's mother was delighted. She knew that Poshi's parents took care of her as if she was their own daughter. Ginni and Poshi were inseparable and spent all their time together.

One day, Poshi was studying in his room. His mother came in.

'I just talked to Ginni's mum on the phone,' she said.

Poshi looked up. 'Is everything all right?' he asked.

buddies close friends

'Ginni's family is moving to Mumbai,' his mother replied. 'Her father has been transferred to the Mumbai branch of the bank that he works for.'

'Mumbai!' said Poshi. 'But that's so far away!'

He started to cry.

'What about Ginni?' he asked his mom. 'Will Ginni have to leave Delhi too?'

'Yes, Poshi,' his mother replied. 'She will move with her parents. How can she live without her family?'

Poshi was upset. He put down his pen. 'I'm going to see Ginni,' he said. He ran all the way to her house. 'Is it true, Ginni?' he asked when she came to the door. My mom told me that your family is moving to Mumbai.'

'Yes, Poshi,' said Ginni, walking back inside. 'My mom told me yesterday. My father has been transferred to the Mumbai branch.' Poshi was silent. He could feel tears welling up in his eyes. After a few moments, he said, 'You can't leave in the middle of the year. How will you manage your studies?'

'My father has already requested the principal of a high school in Mumbai that I be admitted to the same standard,' Ginni answered. Poshi blinked hard. 'Don't worry, Poshi,' said Ginni. 'We will be in touch with each other all the time. We will be able to discuss our studies, our friends, our games, everything. You can come and stay with us for a holiday.' Ginni sat down beside Poshi. 'We can write letters and email each other.' She smiled at him. 'We will write letters to each other and discuss everything. Poshi, you are my best friend and we will always remain friends.' Poshi felt better.

'We will write to each other, and I will learn how to video-call using Dad's mobile phone. Then we can chat every Sunday. But I will miss you, Ginni,' he added. 'I will miss you too, Poshi,' Ginni replied.

The following month, everyone from the neighbourhood gathered for a farewell party for Ginni's family. Poshi made a greeting card for his best friend. It said, 'I will miss you.' Poshi carried a huge blue box full of gifts. He asked Ginni to open the box. To Ginni's surprise, the box contained a collage of all their old photographs. Also, in the box were all the presents that Ginni had given Poshi right from the time they first knew each other. There were coloured marble stones, a **punctured** football, storybooks, colouring books and a new letter pad with sketch pens.

Ginni was surprised. 'You have kept all the gifts and photographs that I have given you, Poshi,' she said, with tears glistening in her eyes.

'Yes, Ginni' Poshi replied. You are my best friend, and I will miss you so much. He held up the collage of photographs. 'Put this collage on your bedroom wall,' he said, 'and it will remind you of all the fun we have had together.' Ginni hugged her dear friend and promised that she would always treasure the gifts in the box.

The following day, Ginni went to Mumbai with her parents. Poshi and Ginni wrote and emailed each other regularly. They remained best friends for the rest of their lives.

punctured with a small hole that results in air escaping

Reading 1

(1) Where did Ginni sometimes stay after school?

(2) Whom did Ginni's mum call?

(3) What city did Ginni's family move to?

(4) Why was Poshi upset?

(5) How did Ginni make Poshi feel better?

(6) How did Poshi surprise Ginni at the farewell party?

Reading 2 LS HOTS

'A true friend will always be there for you.' Discuss this statement with your partner.

Grammar

Gerunds

Look at these sentences:

Brushing your teeth is important.

Brush + ing

(Base form of the verb + *ing*)

Eating unhealthy food is harmful.

Eat + ing

(Base form of the verb + *ing*)

The words *brushing* and *eating* are subjects. Even though *brushing* and *eating* look like verbs in the *-ing* form, they function as nouns here.

Gerund of most verbs has the following form: base form + *-ing*.

Gerunds are used as nouns and end with *-ing*.

Usage of Gerunds

Gerunds can function as the subject of the sentence, as the object of the sentence and as the complement of the verb.

Look at the following examples.

(1) The gerund as the subject of the sentence:

Reading helps you learn English.

(2) The gerund as the object of the sentence:

I enjoy *reading*.

(3) The gerund as the complement of the verb:

My favourite hobby is *reading*.

The word *reading* is used as the subject, as the object and as the complement in the above sentences.

Read the sentences below. Rewrite each sentence below using the gerund in the given sentence as the object.

(1) Swimming is my favourite activity.

.....

(2) Jogging is good exercise.

.....

(3) Playing tennis is my hobby.

.....

(4) Dancing is my hobby.

.....

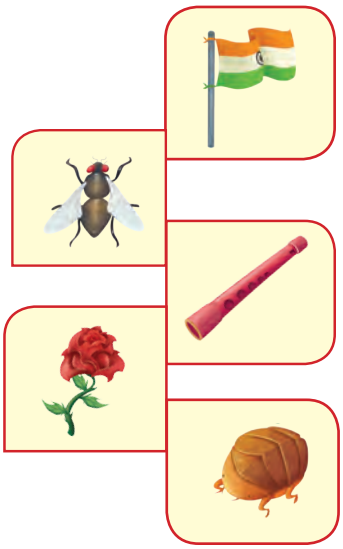
(5) Painting is relaxing.

.....

Alphabetical Order – Third Letter of the Word

Name each picture. Then write the names in alphabetical order. Find a word in the dictionary that will follow each of these words.

(1)	
(2)	
(3)	
(4)	
(5)	



Listening SL

Make two teams and have them stand parallel to each other. Invite one student from each team to come to the teacher's desk. Whisper a sentence to each one. Then ask the student to go back and whisper the sentence to his/her teammates. The team must then form a sentence which rhymes with the whispered sentence. Look at the sentences below for help.

True friends always look after you.

True friends always make you smile.

True friends will always listen to you.

Writing

Writing a Paragraph

Write a paragraph about your father's or mother's job. Use the framework below to help you.

(1) My mother/father is a .....

(2) He/she works with .....

(3) He/she leaves for work every morning at ..... o'clock.

(4) He/she returns home at ..... o'clock.

(5) The best thing about his/her job is .....

Speaking SL

Look at the gift box. Name the items in the box. Use each of the named items in a sentence.

Mom, You Are My Angel!

Angels don't always wear white
And don't have a glowing light.
There is one in my life too
She remains beside me all through.

She always guides my way
Like sunshine she lights my day.
She is like a friend to me
Even when I'm sad or grumpy.

She helps me with my studies
And plays with me like my buddies.
She makes me yummy dishes
And gives me hugs and kisses.

Like an angel you are always there
It's a special bond that we both share.
Thank you for everything you do
Mom, I will always love you.

Reading 1

(1) Angels don't always wear .....

(a) blue (b) white

(2) Who is an angel on earth?

(3) How does the angel light up the day?

(4) The angel on the earth is similar to whom?

Reading 2 HOTS

What does a mother do?

Activity

It is said that mothers are angels on earth.

Paste a picture of your mother and write a short paragraph describing her.

3 Cookie Blog

blog a shared online magazine where people can post diary entries about their personal experiences, hobbies, etc.

Dheer loved holidays. It was his favourite time. He liked spending time with his family. He could play with his friends and watch movies. However, the biggest reason Dheer loved the holidays was that it gave him plenty of time for his favourite hobby, cooking. He would learn different recipes from his sister, Dhani, and then prepare them for his friends and family. Everyone enjoyed Dheer's cooking. He loved baking cookies as well and often helped his sister bake.

'Didi, I want to bake some cookies for my friends,' Dheer said to his sister one day. 'But I'd like to learn some new recipes. Grandma loves sour-cream cookies. I'd like to bake those too. Can you help me?'

Dhani smiled at him. 'Dheer,' she said, 'I only know one recipe for cookies, but we can always get some good ones from the **Internet**.'

'The Internet? Really?' said Dheer. 'I didn't know that you could find good recipes there.'

Internet a computer network that connects us to the world

Dhani took out her laptop and clicked on the **Internet icon**. She then typed 'special cookie recipe' in the **search box**. As soon as she pressed 'Enter', a page opened, showing the results of the search. The first result was for Ms Archana's Cooking Blog. 'Dheer, this is Ms Archana's blog. She's a very famous chef. I'm sure we can find some good recipes here,' Dhani said. Dheer looked at the blog. There was a search box at the top. He typed 'sour-cream cookies' in it, and a recipe popped up. Dheer started writing it down. 'You can also watch a video here,' said Dhani.

'That's great,' said Dheer. 'I'll watch this video first. Then I'll make a list of all the things I need.'

Later, Dheer went out with his mother to buy all the ingredients that he needed. They bought a cookie press. It was like a tube. Dhani filled it with dough and squeezed it tightly. Out came a cookie!

Dhani and Dheer baked cookies in the shape of trees, stars, bells and candies. Then Dheer put frosting on them.

The frosting was blue for the stars. It was green for the trees. The candies were pink. While putting the frosting on the cookies, Dheer asked, 'Didi, do you think I could have my own blog? I'd love to put my recipes on it.'

'Sure, you can put your recipes on your blog,' said Dhani. 'You can even **upload** pictures onto it. We can start a blog today,' she said.

Internet icon a symbol on the computer screen on which you click to open the Internet

search box a box in which we write whatever we want to search for Click & Go

upload to transfer information from the computer to the Internet

Dheer was very excited. He continued baking. For some cookies, they used a cookie cutter. This was not easy. They had to roll out the dough. Then they pressed the cutter down into the dough. The shape came out. They made snowflakes that way. The frosting was white for snowflakes.

They also made sour-cream cookies. They were like little fluffy cakes. They were Grandma's favourite.

Dheer's friends came for tea. He served them cookies with milk. While his friends were busy **gorging** on delicious cookies, Dheer went to Dhani to talk about the blog.

She showed Dheer how to create a blog and helped him post his recipes on it. They took photographs of all the different types of cookies that Dheer had made. Then Dhani showed him how to upload them. Dheer named his blog *Cookie Blog*.

gorging eating a lot of something

Reading I

(1) Tick the correct option for each. Write it on the blank line.

(a) Dheer liked to ……..

(i) dance

(ii) sing

(iii) bake

(b) The frosting for the snowflakes was ……..

(i) pink

(ii) blue

(iii) white

(2) From where did Dheer get the recipe for sour-cream cookies?

(3) Write the steps that Dhani took to find Ms Archana's Cooking Blog.

(4) What did Dheer do while his friends gorged on the delicious cookies?

(5) What did Dheer name his blog?

Reading 2 LS HOTS

Why do you think Dheer asked his sister to help him create the blog? Do you need your parents' permission to use the computer? Why do you think it is important to have somebody supervise and help you?

Grammar

Subject-Verb Agreement

A sentence has three parts:

Subject: what or whom the sentence is about

Verb: what the subject did or is

The Rest: everything else in the sentence

There are some rules to remember when forming a sentence.

Rule 1: The subject and verb must agree in number.

Singular subjects require singular verbs.

Plural subjects require plural verbs.

Examples: *The bird sings a song.*

The birds sing a song.

Singular verbs end with -s, but plural verbs do not.

Rule 2: If two subjects are joined by *and*, they require a plural verb.

Example: *Swati and I <u>are</u> going out to play.*

Rule 3: Do not get confused by the words that come in between the subject and the verb. They do not affect the agreement.

Examples: *The girl, who is eating grapes, <u>is</u> my sister.*

The girls, along with their teacher, <u>are</u> going to the museum.

Rule 4: Singular pronouns take singular verbs and plural pronouns take plural verbs.

Singular Pronouns	Plural Pronouns
someone	few
somebody	both
everyone	many
everybody	all
everything	some
anyone	

Rule 5: The verb should agree with the noun that is closer to the verb when the subject has both a singular noun or pronoun and a plural noun or pronoun connected by *or*.

Examples: *The dog or the cats <u>need</u> milk.*

The cats or the dog <u>needs</u> milk.

Rule 6: Some subjects involve more than one person but are themselves singular. They are known as collective nouns. Words like *group*, *team*, *committee*, *class*, *band* and *family* are singular and usually require a singular verb.

Examples: *The team <u>meets</u> tomorrow.*

His family <u>is</u> very caring.

Identify the subject by circling it and choose the correct verb for it.

(1) Daisy and I (am/are) playing with a ball.

(2) My mother, along with her friends, (have/has) organised a party.

(3) The dog (was/were) barking at the strangers.

(4) The book and the pens (is/are) on the table.

(5) The pens or the book (is/are) on the table.

(6) Everybody (like/likes) cookies.

(7) Both the girls (has/have) finished their work.

(8) The band (is/are) practising for tomorrow.

(9) My brother and his friend (are/is) dancing on the stage.

(10) The girls (are/is) planning a party for their teacher.

Vocabulary

Suffix *-able*

Let's Recall.

When we add the suffix *-able* to a word, the word becomes an adjective.

Word	+	able	=	to be able to

Read the following sentence:

These fruits are *perishable*. (able to be perished)

The suffix *-able* is added to *perish* to get a new word, *perishable*. *Perishable* means something that spoils easily.

Drop the e: When the suffix *-able* is added to a root word ending in a silent e, drop the e.

Replace the *y*: When the suffix *-able* is added to a root word in which a consonant comes before the ending *y*, replace the *y* with *i*.

(1) Form adjectives by adding the suffix *–able* to the following words:

remark + able = ...

value + able = ...

comfort + able = ...

respect + able = ...

consider + able = ...

predict + able = ...

rely + able = ...

vary + able = ...

envy + able = ...

enjoy + able = ...

(2) Use any five of the adjectives formed in sentences of your own.

Writing

Biography

A biography is a text written to inform readers about a person's life. We can write anybody's biography.

Think of a person you really admire. It could be your mother, your father, a grandparent, your teacher, a friend or anyone you want to write about. Talk to your chosen person about his/her life. Gather all the information and then write a biography.

Early Life

……..

……..

……..

……..

……..

Name

……..

Date of Birth

Character Traits (Adjectives)

……..

……..

……..

……..

……..

What are they famous for?

……..

……..

……..

……..

Picture

Fun Facts

……..

……..

……..

……..

……..

Listening SL

Your class can create its own blog wall outside your classroom. Carefully listen to the steps and work with your classmates to prepare your own blog wall. Every student can prepare something to contribute to posting on the blog wall and present it to the class.

ENGLISH
GRAMMAR & COMPOSITION

Easy to teach and easy to learn

A child-friendly book like no other

Strictly within the child's mental range

CLASS-4 ✦ SEMESTER-I

- Words
- Phrases
- Sentences
- Prepositional and other Phrases
- Arranging Words into Sentence

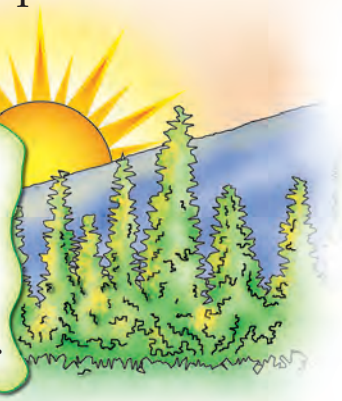
1 WORDS, PHRASES AND SENTENCES

➢ A **word** is a single unit of language which means something.

➢ A **phrase** is a group of words which makes *sense*, but *not complete sense*.

➢ A **sentence** is a group of words that makes complete sense.

For example :



'morning' is a **word**.

'in the morning' is a **phrase**.

'The sun rises in the morning.' is a **sentence**.

Look at the following groups of words :

1. She sang a sweet song.
2. Aarav is my best friend.
3. Boys are going to school.
4. Please lend me your book.

➢ Each of the above group of words makes complete sense. Thus they are all sentences.

➢ Sometimes, a sentence comprises of just one word :

1. Stop!
2. Look!
3. Sit.
4. Come.

➢ Thus we can have one-word sentences and also very long sentences running over many lines.

Now look at the following groups of words :

1. *on* the table
2. *after* an hour
3. *in* the morning
4. *with* my brother

➢ These groups of words make *sense*, but *not complete sense*. Thus they are all *phrases*, not sentences. A phrase doesn't have a verb.

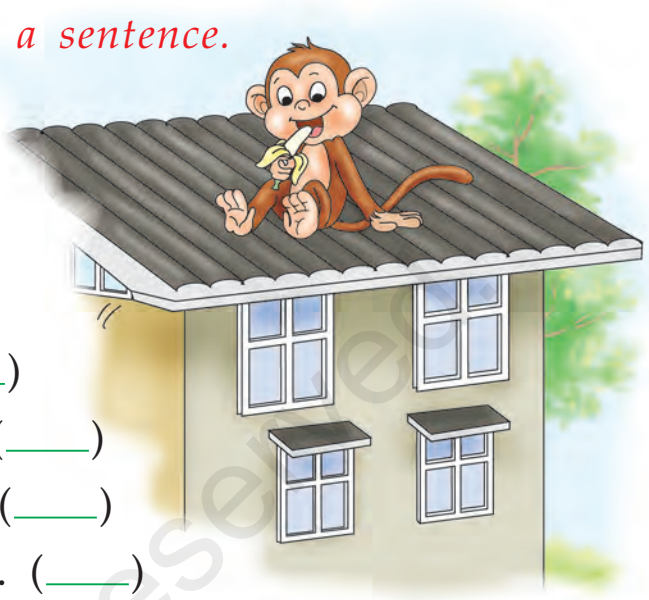
➢ A *phrase* often begins with a *preposition :*
(*in, after, on, with, at, for, to, of, from,* etc.)

- But there can be all kinds of *phrases;* as—

1. the green car.
2. my elder brother.
3. the man with a cap.
4. the day of her marriage.

Test Yourself

I. Put (P) for a phrase and (S) for a sentence.



1. On the roof. (____)
2. She is dancing. (____)
3. Never on Sundays. (____)
4. Nancy wrote a letter. (____)
5. With a piece of chalk. (____)
6. The girls plucked flowers. (____)
7. We should buy this book. (____)
8. The tallest girl of our class. (____)

II. Below are given some jumbled words. Rearrange them into meaningful sentences.

1. kites Boys flying are.
2. the milking He cow is.
3. in the west The sets sun.
4. his shoes He polishing was.
5. father me My a watch gave.
6. at four o'clock is The train next.
7. a meaningful sentence not This is.
8. of the town They at the other side live.

III. Form phrases beginning with each of the given preposition.

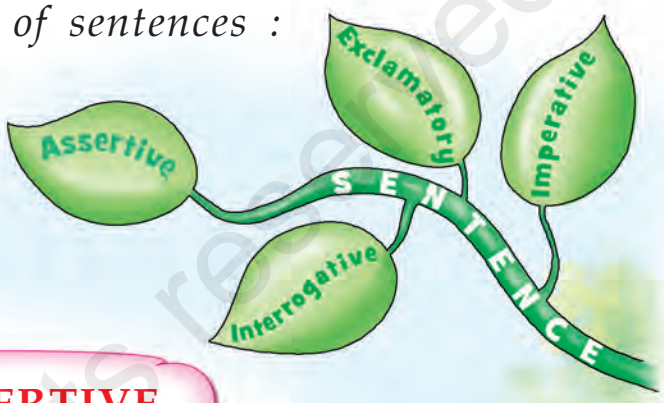
1. in : *in the class* _____
2. at : _____
3. on : _____
4. to : _____
5. of : _____
6. for : _____
7. from : _____
8. with : _____

- Kinds of Sentence
- Assertive
- Interrogative
- Exclamatory
- Imperative
- Transformation of Sentences

2 KINDS OF SENTENCES

➢ *There are four different kinds of sentences :*

1. Assertive
2. Interrogative
3. Exclamatory
4. Imperative



1. ASSERTIVE

➢ An *assertive* sentence makes a *statement*.

It can be of two kinds :

(a) Affirmative
(b) Negative

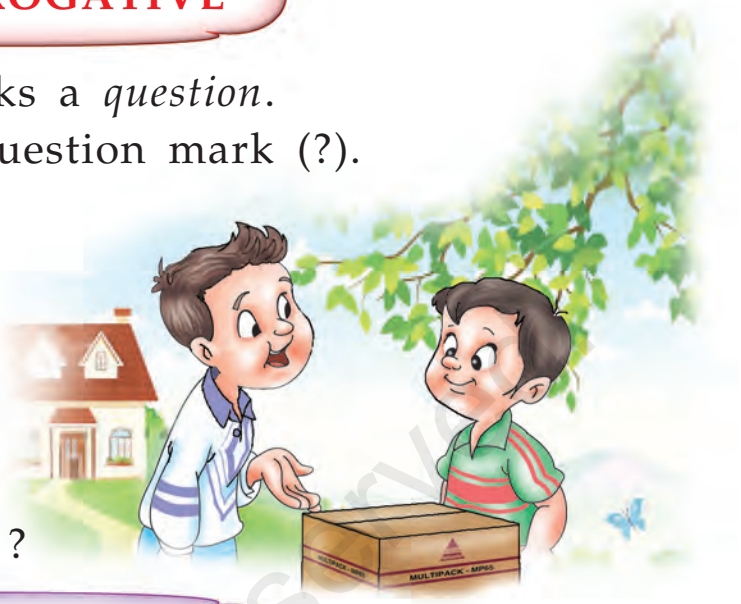
➢ *Study the following statements :*

Affirmative	Negative
1. She is late.	1. She isn't late.
2. The sun has risen.	2. The sun hasn't risen.
3. Misha ran fast.	3. Misha didn't run fast.
4. He lives in Delhi.	4. He doesn't live in Delhi.
5. Anu can speak English.	5. Anu can't speak English.

2. INTERROGATIVE

➢ An *interrogative* sentence asks a *question*.
Such a sentence ends with a question mark (?).

1. What is your father ?
2. Do you play cricket ?
3. Can you lift this box ?
4. Where are you going ?
5. Did Namya sing a song ?



3. EXCLAMATORY

➢ An *exclamatory* sentence expresses a strong feeling, such as *pleasure, anger, surprise,* etc.
Such a sentence ends with a sign of exclamation (!).

1. What a shame !
2. How wonderful !
3. How foolish he is !
4. What a lovely flower !

4. IMPERATIVE

➢ An *imperative* sentence is a *command, advice* or *request*.

1. Shut the door.
2. Help the poor.
3. Never tell a lie.
4. Please give me water.

Test Yourself

State whether the following sentences are assertive, interrogative, exclamatory or imperative.

1. Polish your shoes. (*Imperative*)
2. She sang a song. (_____)
3. Finish your homework. (_____)
4. The boys flew kites. (_____)
5. What is your name? (_____)
6. Show me your purse. (_____)
7. What a lovely child! (_____)
8. How foolish you are! (_____)
9. Were you happy there? (_____)
10. What a beautiful night! (_____)
11. Reema does not like sweets. (_____)
12. Does he live in your house? (_____)

NEGATIVES & INTERROGATIVES

Study the following sentences:

(a) 1. Sam *lives* in Singapore. (*Positive*)

2. Sam *doesn't live* in Singapore. (*Negative*)

3. *Does* Sam *live* in Singapore? (*Positive Interrogative*)

4. *Doesn't* Sam *live* in Singapore? (*Negative Interrogative*)

(b) 1. Rohit *went* to school. (*Positive*)

2. Rohit *didn't go* to school. (*Negative*)

3. *Did* Rohit *go* to school? (*Positive Interrogative*)

4. *Didn't* Rohit *go* to school? (*Negative Interrogative*)

(c) 1. Mini *can go* now. (*Positive*)

2. Mini *can't go* now. (*Negative*)

3. *Can* Mini *go* now? (*Positive Interrogative*)

4. *Can't* Mini *go* now? (*Negative Interrogative*)

Test Yourself

I. Rewrite each sentence as a question.

(a) 1. Raman is a cunning boy.

2. Piku was on time today.

3. We shall go to the park now.

4. They have finished their work.

5. Noni will get good marks this year.

(b) 1. Cows live on grass.

2. He sits on the front bench.

3. Mosquitoes spread malaria.

4. Lazy boys fail in the examination.

5. They wear warm clothes in winter.

(c) 1. Misha comes here daily.
2. The lion rules the forest.
3. The sun rises in the east.
4. She loves dancing and singing.
5. Deepawali comes after Dussehra.

(d) 1. Manu told him the truth.
2. You taught them grammar.
3. He told a lie to his parents.
4. The peon rang the bell on time.
5. She got up very early this morning.

II. Rewrite each sentence as—

(i) a negative

(ii) a negative question.

(a) 1. The bus was late.
2. Jim has a new ball.
3. They have gone out.
4. Girls were in the class.
5. They are working hard.
6. Binny can speak Bengali.

(b) 1. I come here daily.
2. You go to school by bus.
3. They play a match every Sunday.
4. Boys do their homework regularly.
5. Girls waste their time in the canteen.

(c) 1. He lives with his uncle.

2. She respects her teachers.

3. Misha speaks good English.

4. Her father works in a factory.

5. The gardener waters the plants daily.

(d) 1. Richa ran very fast.

2. She gave you her book.

3. He won the first prize.

4. Somya helped her friends.

5. They finished their work in time.

III. Rewrite each sentence as—

(i) a negative

(ii) a question

(iii) a negative question.

1. He speaks the truth.

   (i) He doesn't speak the truth.

   (ii) Does he speak the truth?

   (iii) Doesn't he speak the truth?

2. You forgot his name.

3. He earns a lot of money.

4. He has finished his work.

5. The clerks are typing letters.

6. The teacher was angry with him.

- Parts of Speech
- Nouns and Pronouns
- Adjectives, Verbs and Adverbs
- Prepositions and Conjunctions
- Interjections

3 PARTS OF SPEECH

➢ When we speak, we use different kinds of words.

➢ They are called **parts of speech**.

➢ Words can be of eight kinds.

➢ They are—

1. noun	5. adverb
2. pronoun	6. preposition
3. adjective	7. conjunction
4. verb	8. interjection

1. A **noun** is the name of a person, place or thing; as—

- Akbar was a great king.
- The sun rises in the east.
- Mumbai is a big city.

2. A **pronoun** is a word used in place of a noun; as—

- Rohan hasn't come; he is ill.
  (he=Rohan)
- Mini worked hard; she got good marks.
  (she=Mini)
- Girls were not singing; they were dancing.
  (they=girls)

3. An **adjective** tells the quality of a noun or pronoun; as—

- Mehak is a tall girl.
- They are brave boys.
- Many boys are absent today.

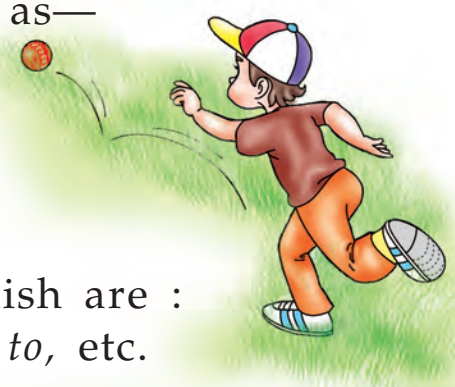
4. A **verb** expresses the state or the action done by the subject; as—

- Aanya looks beautiful.
- Cherry lives in Delhi.
- The lion killed the goat.

5. An **adverb** tells us *when, where* or *how* an action takes place; as—

- Ram came here yesterday. (when?)
- Look! It is raining outside. (where?)
- The girl was crying loudly. (how?)

6. A **preposition** comes before a noun or pronoun to show the *time, place* or *position* of something; as—



- The boy ran after the ball.
- A little girl stood under a tree.
- There was a cow in the garden.

The most common prepositions in English are : *in, at, on, of, into, for, from, by, with, to,* etc.

7. A **conjunction** is used to join words or sentences; as—

- Sam worked hard, but failed.
- Mini and Pinky are good friends.
- The baby was crying because it was hungry.

8. An **interjection** expresses some strong or sudden feeling; as—

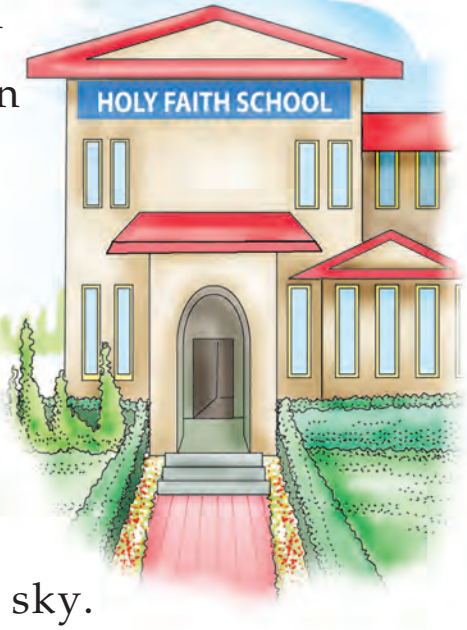
- Hurrah! We have won.
- Alas! His mother is dead.
- Ah! You are again late today.
- Oh, Tony! How foolish you are!

Strictly speaking, the interjection is not a part of speech. It is a mere sound. It is not connected with other words in the sentence. It stands by itself. It is added to a sentence to express some sudden feeling.

Test Yourself

I. Give two examples for each of the following.

1. Verb
2. Noun
3. Adverb
4. Pronoun
5. Adjective
6. Preposition
7. Conjunction
8. Interjection



*II. Supply a suitable **noun** for each blank.*

1. Misha is my best _____.
2. I go to school by _____.
3. Our _____ has fifty rooms.
4. The _____ is shining in the sky.
5. She gave me a _____ on my birthday.

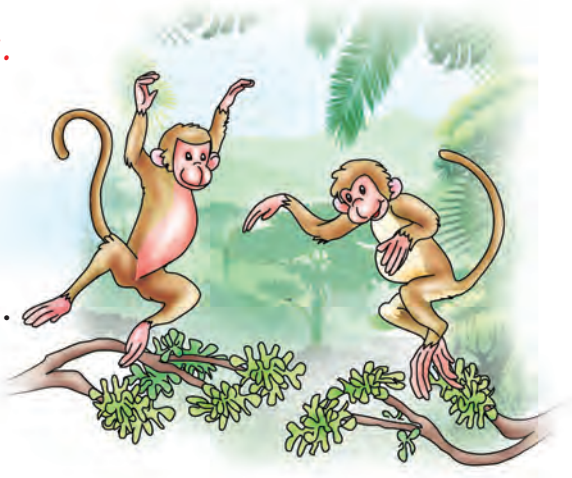
III. *Supply a suitable **adjective** for each blank.*

1. Nanny is a _____ girl.
2. Don't play with _____ boys.
3. These oranges are very _____.
4. She was wearing a _____ frock.

IV. *Supply a suitable **pronoun** for each blank.*

1. Nandu is a farmer. _____ has an ox.
2. Rohan has a kite. _____ is a big kite.
3. _____ am in Standard Four. And _____ ?
4. Ms Mala is a teacher. _____ teaches Hindi.

V. *Supply a suitable **verb** for each blank.*



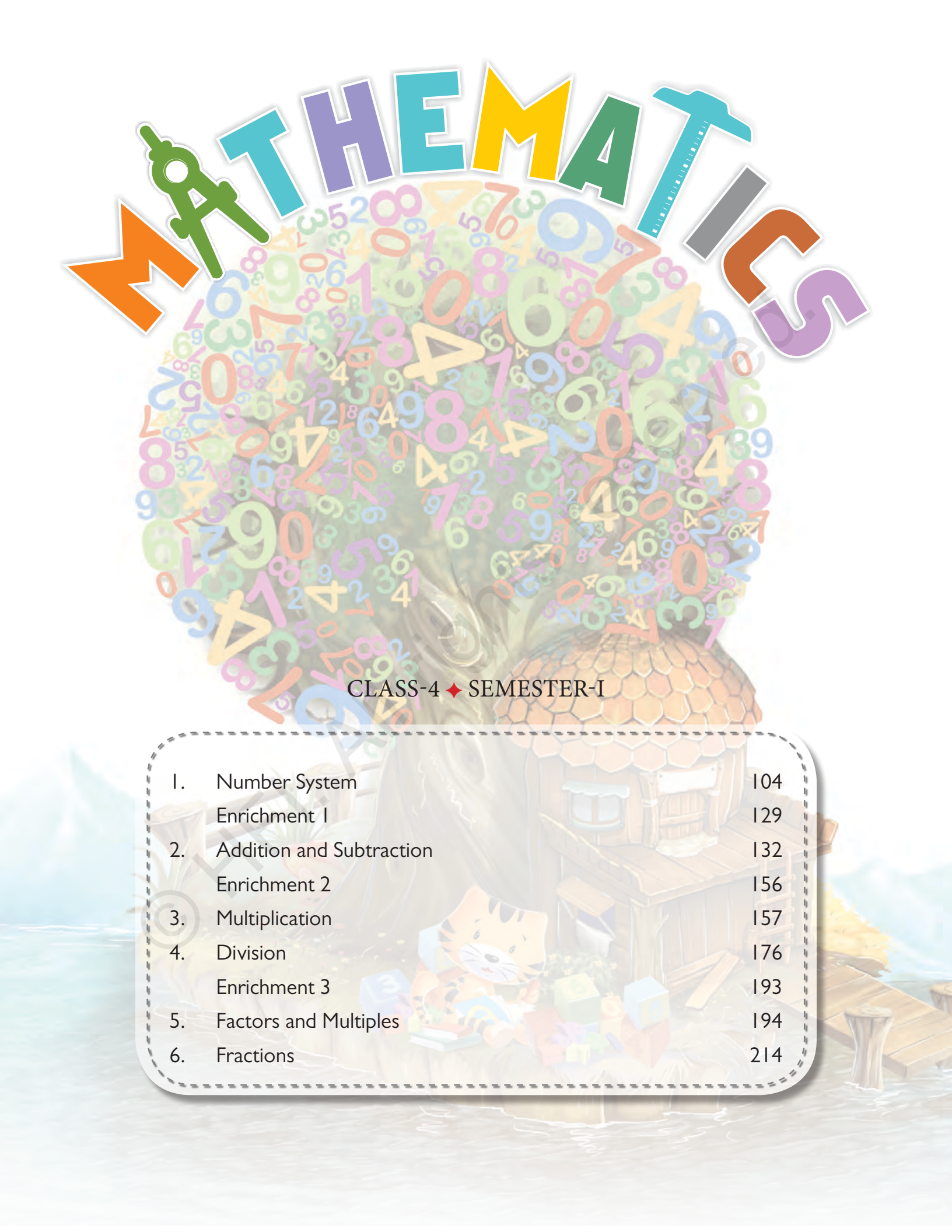
1. Monkeys _____ in trees.
2. The cow _____ us milk.
3. The sun _____ in the west.
4. Children _____ sweets.

VI. *Choose a suitable **adverb** for each blank.*

1. It was raining _____.
2. I can solve this sum _____.
3. The sun was shining _____.
4. The old man walked _____.

easily
slowly
heavily
brightly

MATHEMATICS



CLASS-4 ✦ SEMESTER-I

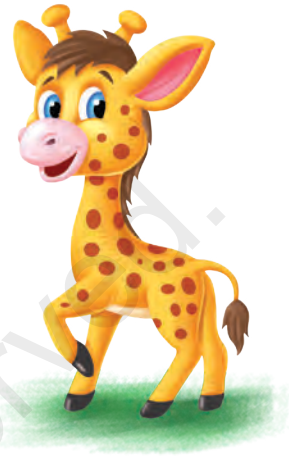
CHAPTER 1

Number System

Learning Objectives

- Read and write five-digit numbers
- Read and write six-digit numbers
- Find place value of a digit in a five-digit and a six-digit number.
- Write expanded form and short form of a five-digit and a six-digit number
- Compare five-digit and six-digit numbers
- Arrange numbers up to six-digits in increasing or decreasing order
- Make five-digit and six-digit numbers
- Round off five-digit and six-digit numbers

Let's Recollect



(1) Write the number name for each of the following:

(a) 3495 _____

(b) 6732 _____

(2) Write the place value of 3 in 2437.

(3) Write the expanded form of the number 2405.

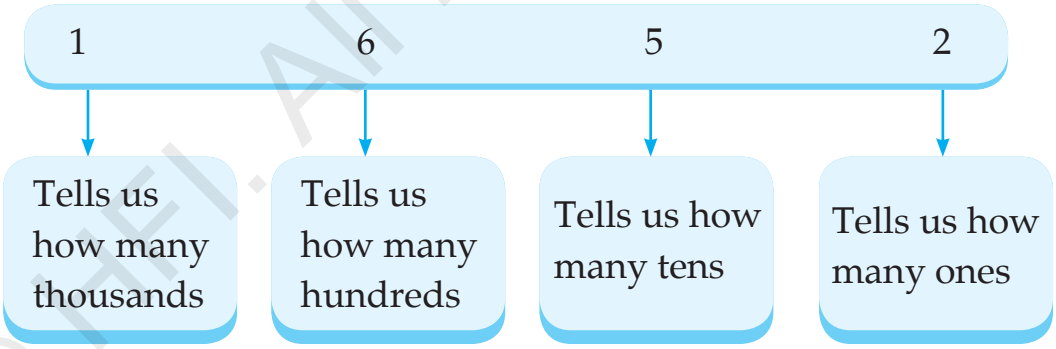
(4) Round off 1327 to the nearest 10.

(5) Write the following numbers in ascending order:

7127, 7217, 7712, 7715, 7267

Remember

- A four-digit number is read according to the place of each digit in the number.



- The number 1652 is read as one thousand six hundred fifty two.
- The place value of each digit in a number is the value of the digit in the number according to its place in the number.
- The smallest three-digit number is 100, and the greatest three-digit number is 999.
- The smallest four-digit number is 1000, and the greatest four-digit number is 9999.

Five-Digit Numbers

The greatest three-digit number is 999.

999 + 1 = 1000

When we add 1 to the greatest three-digit number, we get the smallest four-digit number.

Now, the greatest four-digit number is 9999.

When we add 1 to it, we get the smallest five-digit number.

That number is *ten thousand*.

LARGEST AND SMALLEST NUMBERS		
	Smallest	**Largest**
One-digit	1	9
Two-digit	10	99
Three-digit	100	999
Four-digit	1000	9999
Five-digit	10000	99999

This is ten thousand.

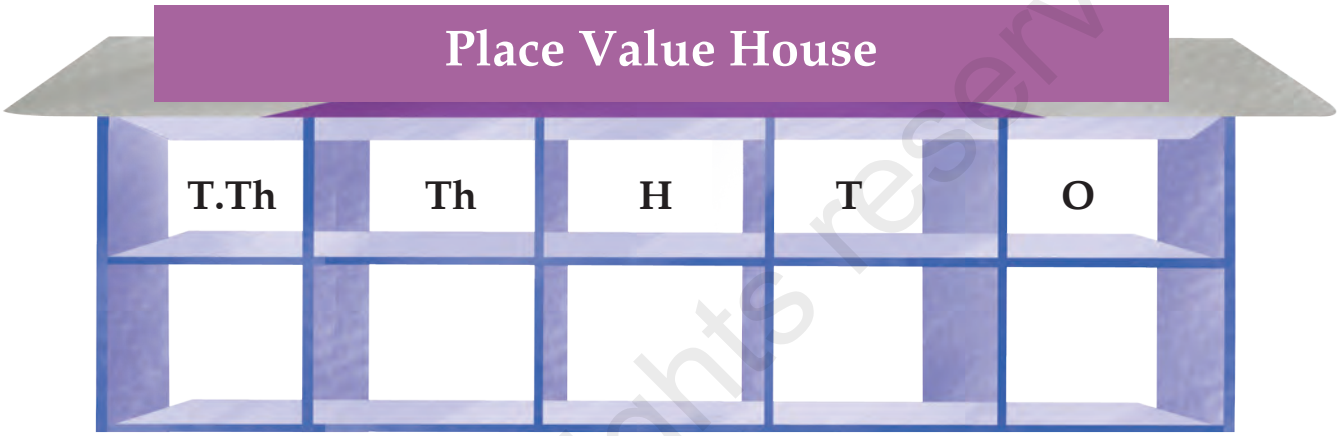
Let us make some more five-digit numbers.

10000 + 1	= 10001	Ten thousand one
10001 + 1	= 10002	Ten thousand two
10002 + 1	= 10003	Ten thousand three
10099 + 100	= 10199	Ten thousand one hundred ninety nine
10999 + 1	= 11000	Eleven thousand
11000 + 1	= 11001	Eleven thousand one
50000 + 1	= 50001	Fifty thousand one
50001 + 1	= 50002	Fifty thousand two
99998 + 1	= 99999	Ninety nine thousand nine hundred ninety nine

Place Value

When we add 1 to 9999, the largest four-digit number, we get 10000, the smallest five-digit number. This adds a new place in the place value chart called the *ten thousand*.

Remember the place value house. To add a new place value, we add a room in the place value house.



We have studied the place value house in the previous grade. The place value house shows the place value of a digit in a number.

(1) The place value of a digit in a number is the value of the digit according to its position in the number.

(2) It is obtained by multiplying the digit by the value of its position in the place value house.

(3) The face value of a digit in a number remains the same no matter what the position of the digit is.

(4) The place value of a digit in a number changes with the change in the position of the digit in the number. For example, the place value of the digit 6 in the numbers 6, 65, 654 changes with its position as follows:

H	T	O	Place Value
		6	6
	6	5	60
6	5	4	600

Place Value Chart

A table that shows the place value of each of the digits in a number is called a *place value chart*. The place value chart is divided into various groups. Each group is called a period.

The place value chart for a five-digit number is as follows:

PERIODS

THOUSANDS		ONES		
Ten Thousands	Thousands	Hundreds	Tens	Ones
T.Th	Th	H	T	O

Places

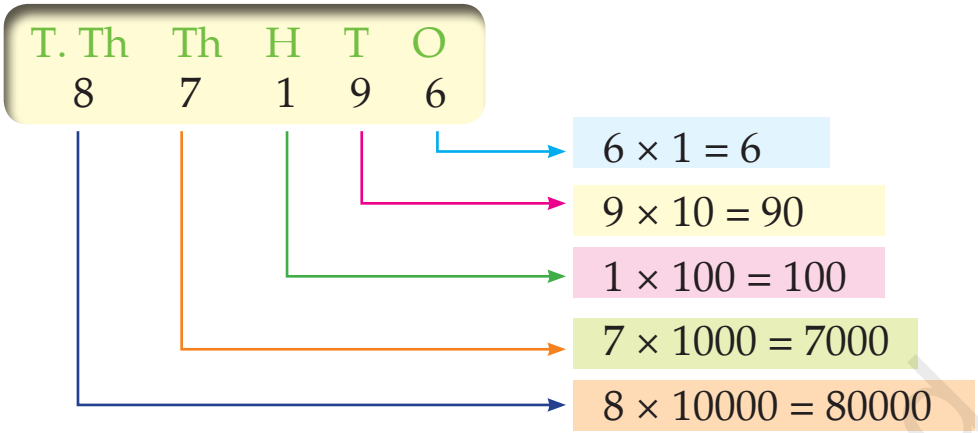
The place value chart for a five-digit number is divided into two periods: thousands and ones.
The places thousands and ten thousands together make the period thousands.
The places ones, tens and hundreds together make the period ones.

Let us learn how to write a five-digit number in place value chart and how to identify the place value of a digit in the number. We will also be able to write the number name of a number using the chart.
Let us write 87196 in the place value chart.

THOUSANDS		ONES		
Ten Thousands	Thousands	Hundreds	Tens	Ones
T.Th	Th	H	T	O
8	7	1	9	6

What is the place value of 7 in 87196?
From the place value chart, we can see that the position of 7 in the number is thousands.
Thus, the place value of 7 is 7000.

The place value of a digit is the digit multiplied by the value of its position.
Therefore, the place value of 7 is 7 × thousand = 7 × 1000 = 7000.



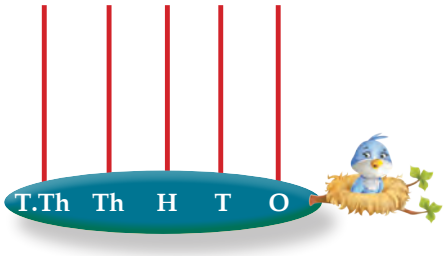
Let us try writing 45907 in the place value chart.

THOUSANDS		ONES		
Ten Thousands	Thousands	Hundreds	Tens	Ones
T.Th	Th	H	T	O
4	5	9	0	7

What is the place value of 7 in this number?

Representing a Five-Digit Number on an Abacus

We can also represent a five-digit number on an abacus. We have already studied about the abacus with four spikes. Now, one more spike for ten thousands is added to the abacus.

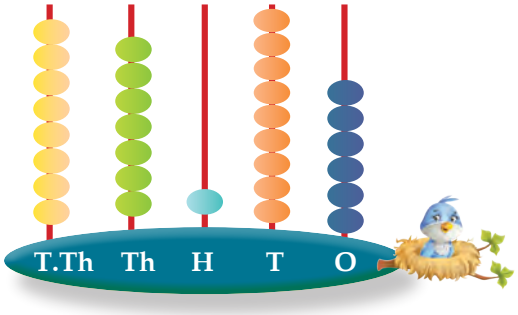


We have learnt to write five-digit numbers in the place value chart. Now, we shall show the same numbers on the abacus.

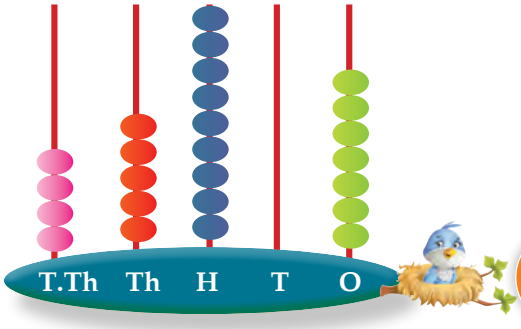
Some Examples

Represent each of the following numbers on abacus:

(a) 87196



(b) 45907

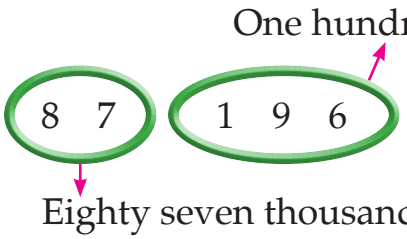


Reading and Writing Five-Digit Numbers

When we write 87196, we use a comma to separate the period.

The comma comes after 3 digits from right, separating the ones and the thousands periods.

8 7 , 1 9 6

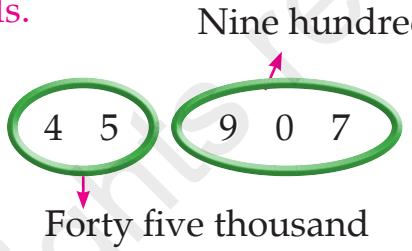


We can write this in words as *eighty seven thousand one hundred ninety six.*

Now, we have represented 45907 in the place value chart and also on the abacus. Let us now learn how to read and write the number.

The comma comes after 3 digits from right, seperating the ones and the thousands periods.

4 5 , 9 0 7



We can read it as *forty five thousand nine hundred seven.*

MYSTERY NUMBER

This number has an 8 in the ten thousands place, 2 in the tens place, 1 in the ones place, 0 in the hundreds place and 0 in the thousands place. The number is _____.

Practice Exercise 1.1

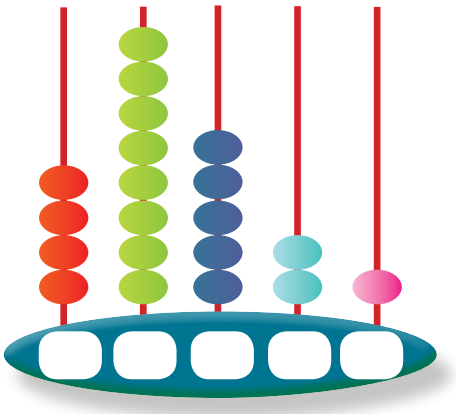
(1) Write the following numbers in the place value chart:

(a) 10,002
(b) 32,654
(c) 13,257
(d) 23,566

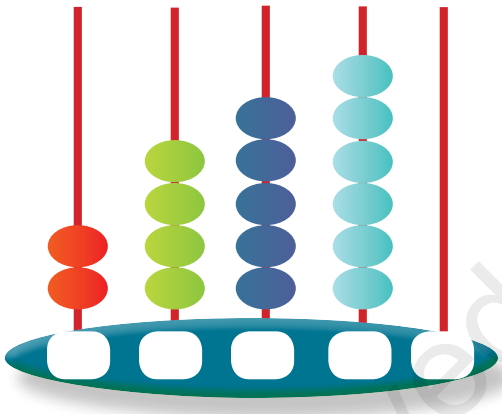
THOUSANDS		ONES		
T.Th	Th	H	T	O

(2) Write the numbers that are shown on the abacus.

(a)



(b)



(3) For each of the following, write the place value of 4.

(a) 15,246 ____ (b) 67,407 ____ (c) 14,827 ____

(4) Write the numbers using commas. Also, write their number names.

	Number	Number name
(a)		14325
(b)		24097
(c)		76954

Six-Digit Numbers

The greatest five-digit number is 99,999. Add 1 to it.

99999 + 1 =

9 9 9 9 9	
+	1
1 0 0 0 0 0	

1,00,000 is called 1 lakh.

1 lakh is 1 followed by 5 zeros.

Representing a Six-Digit Number on the Place Value Chart

We have studied how to write a five-digit number in the place value chart. Lakh is the beginning of a new period in the place value chart.

LAKHS	THOUSANDS		ONES		
Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
L	T.Th	Th	H	T	O

Let us now write 1,35,807 and 2,34,015 in the place value chart and also find out the place value of 5 in both the numbers.

LAKHS	THOUSANDS		ONES		
Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
L	T.Th	Th	H	T	O
1	3	5	8	0	7

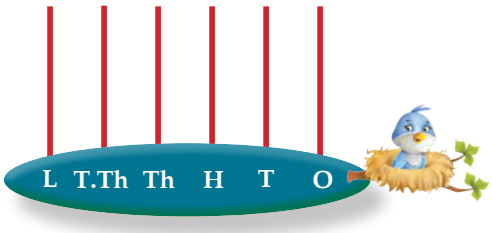
The place value of 5 in 135807 is $5 \times 1000 = 5000$.

LAKHS	THOUSANDS		ONES		
Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
L	T.Th	Th	H	T	O
2	3	4	0	1	5

The place value of 5 in 234015 is $5 \times 1 = 5$.

Representing a Six-Digit Number on an Abacus

Now let us represent six-digit numbers on an abacus. The abacus will now have an added spike for lakhs.

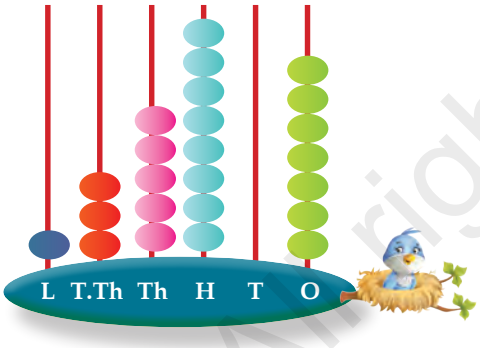


We represented six-digit numbers in the place value chart. They can also be represented on an abacus.

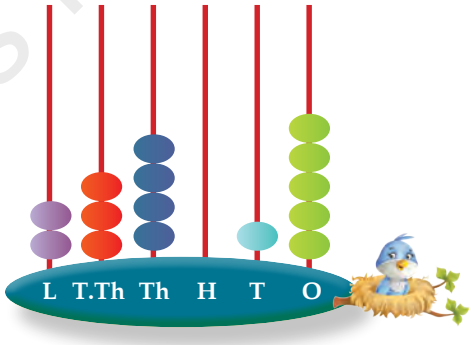
Some Examples

Represent each of the following numbers on abacus:

(a) 135807



(b) 234015



Reading and Writing Six-digit Numbers

The same rule that was applied to write a five-digit number is applied here. Let us write a six-digit number.

A comma is used to seperate the lakhs period from the thousands and the thousands period from the ones period.

5, 24, 3 7 0

Commas also help us in reading a number in words. Let us see how.

Five lakh (lakhs period) — Three hundred seventy

5 | 2 4 | 3 7 0

Twenty four thousand

So, the number name is *five lakh twenty four thousand three hundred seventy.*

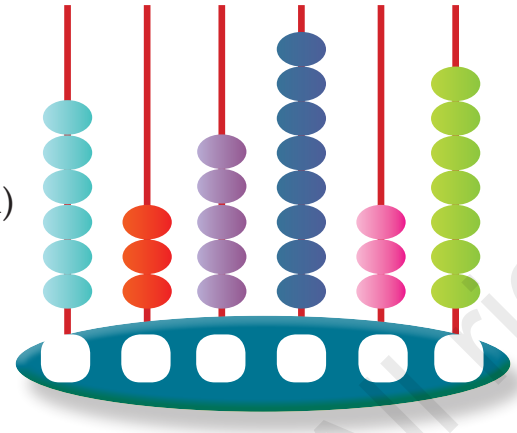
Practice Exercise 1.2

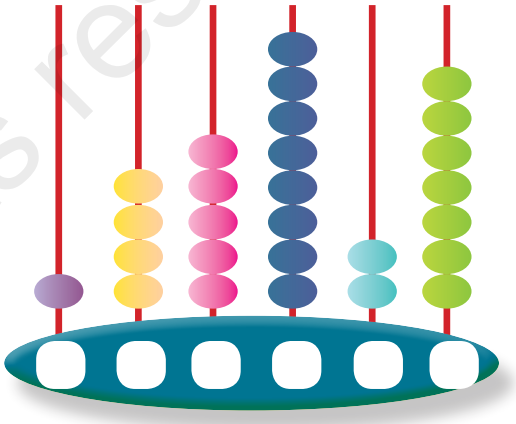
(1) Write the following numbers in the place value chart:

(a) 2,41,357
(b) 1,26,720
(c) 2,09,543
(d) 7,99,056

LAKHS	THOUSANDS		ONES		
Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
L	T.Th	Th	H	T	O

(2) Write the numbers that are shown on the abacus.

(a) 

(b) 

(3) Write the place value of 6 in the following numbers:

(a) 2,56,307 ____ (b) 6,77,054 ____ (c) 9,11,653 ____

(4) Write the numbers using commas. Also, write their number names.

	Number	Number name
(a)		467532
(b)		321005
(c)		827543

Expanded Form and Short Form

When we write numbers in a place value chart or show it on an abacus, we can find the place values of individual digits by just multiplying the digit by the value of its position.

Now let us write the expanded form of 3,47,956 using place values.

L	T. Th	Th	H	T	O
3	4	7	9	5	6

$6 \times 1 = 6$

$5 \times 10 = 50$

$9 \times 100 = 900$

$7 \times 1000 = 7,000$

$4 \times 10000 = 40,000$

$3 \times 100000 = 3,00,000$

The sum of the place values of all the digits in a number is the expanded form of the number.

So, the expanded form of 3,47,956 is 3,00,000 + 40,000 + 7,000 + 900 + 50 + 6.

The expanded form of a number is the sum of the place values of all the digits in a number.

The expanded form of a number is, for example, 4,00,000 + 30,000 + 5000 + 400 + 30. How do we write the short form or the standard form now?

4,00,000 + 30,000 + 5000 + 400 + 30

Place the coloured digits in the place value chart according to their place values.

Whenever there is no number in the ones place, we write a zero at the ones place.

LAKHS	THOUSANDS		ONES		
Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
L	T.Th	Th	H	T	O
4	3	5	4	3	0
↑	↑	↑	↑	↑	↑
4,00,000	30,000	5,000	400	30	0

So, the short form is 4,35,430.

Comparison of Numbers

We have already compared three-digit and four-digit numbers in previous grades. Now we shall try and compare five-digit and six-digit numbers.

Numbers with Different Number of Digits

The distance from Delhi to Chennai is 2570 km approximately, and the distance from Delhi to Gujarat is 550 km approximately. Which place is nearer to Delhi?

DELHI–CHENNAI

2 5 7 0 km

↓ ↓ ↓ ↓

① ② ③ ④

Count the number of digits

DELHI–GUJARAT

5 5 0 km

↓ ↓ ↓

① ② ③

The greater the number of digits, the greater the number.

2570 > 550

The mouth of the signs > and < opens where the number is greater.

So we see that Gujarat is nearer to Delhi compared with Chennai.

Some Examples

Compare 4675 and 54,375.

4675  54,375

Compare 5625 and 24,255.

24,255  5625

If two numbers have a different number of digits, then the number with more digits is greater.

Numbers With the Same Number of Digits

There are 11,000 books in the public library of Block A, and there are 11,324 books in the public library of Block B. Which block's library has more books?

11,000 11,324

Both are five-digit numbers.

Similar to what we did for three-digit and four-digit numbers earlier, we can compare five-digit and six-digit numbers.

1 1 0 0 0 1 1 3 2 4

SAME

SAME

DIFFERENT

3 > 0

So, 11,324 > 11,000.

Hence, the public library in Block B has a greater number of books.

Compare 1,24,652 and 1,24,659.

1,24,652 1,24,659

2 < 9

So, 1,24,652 < 1,24,659

The highlighted digits are the same. The digits at the ones place are not same.

Ordering Numbers

Ascending order: writing numbers from smallest to greatest

Now, we know how to compare five-digit and six-digit numbers.
Compare the following numbers and write them in ascending order.

8,25,207 2,34,682 45,672 45,675 25,675 275 245 5675

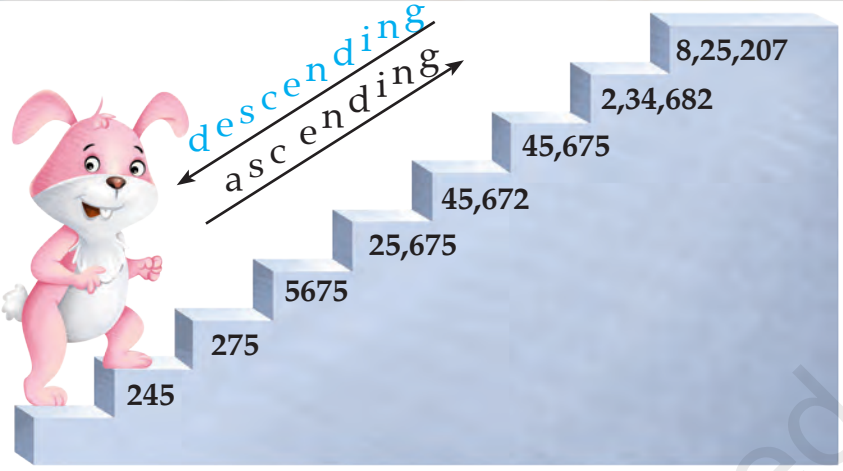
Just follow the rules, and arrange the numbers from the smallest to the greatest.

(1) Among the numbers to be put in order, find the number with the least number of digits. If there is more than one number with the same number of digits, compare the numbers and find the smallest.
Out of the given numbers, there are two 3-digit numbers, 275 and 245.
Here, 245 < 275. Among all the numbers, 245 is the smallest.

245 < 275

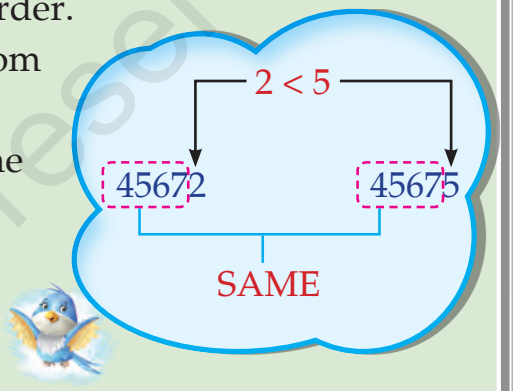
(2) Next look for the number with the second least number of digits. If there is more than one, then compare them to find the smallest among them.
Out of the given numbers, there is only one number, 5675, with 4 digits.
So, 245 < 275 < 5675

(3) Continue until you compare all the numbers.
245 < 275 < 5675 < 25,675 < 45,672 < 45,675 < 2,34,682 < 8,25,207



As we climb up the stairs, the numbers are in ascending order. If we climb down the stairs, the numbers are in descending order.

To arrange numbers in descending order, start from the greatest number.



(1) Among the numbers to be put in order, find the number with the greatest number of digits. If there is more than one number with the same number of digits, compare them and find the greatest.

In the example above, 8,25,207 and 2,34,682 are two numbers with 6 digits.

8,25,207 > 2,34,682.

(2) Next look for the numbers with the second greatest number of digits.

45,675 > 45,672 and 45,672 > 25,675

(3) Continue the procedure until you have compared all the numbers.

8,25,207 > 2,34,682 > 45,675 > 45,672 > 25,675 > 5675 > 275 > 245

PRACTICE EXERCISE 1.3

(1) Write the expanded form of each of the following:

(a) 7,37,346 =

(b) 1,39,239 =

(c) 58,195 =

(d) 36,663 =

(2) Write the short form of each of the following:

(a) 3,00,000 + 40,000 + 7000 =

(b) 2,00,000 + 10,000 + 5000 + 60 =

(c) 10,000 + 2000 + 400 + 90 + 5 =

(d) 6,00,000 + 6 =

(3) Put the greater number in the rectangular box and the smaller number in the square box. One has been done as an example.

(a) 34,379 and 34,373 (b) 2890 and 28,906

(c) 12,745 and 12,748 (d) 5,78,256 and 78,256

34,373

34,379

(4) Write the following numbers in ascending order:

676, 67676, 67675, 76767, 7676, 6767, 76765

Making Numbers

We have made three-digit and four-digit numbers in previous grades.
Here, we are going to make five-digit and six-digit numbers.
These are 5 random digits.

Whenever such digits are given, check for zero. If there is a zero, then we do not keep it at the highest place value, that is, ten thousands for a five digit number, as it will make the number a four-digit number.

7 9 3 5 2

When we write the digits in ascending order, we make the smallest number. In this case it is 23,579.

When we write the digits in descending order, we make the greatest number. In this case it is 97,532.

Make a six-digit number using the digits 1 to 4. The remaining two digits shall be zeros.

(1) Give the place value and face value of 4 in the number.

(2) Write the number name of the number made.

Practice Exercise 1.4

(1) Use the digits to make the greatest and the smallest 6-digit numbers.

5 4 8 0 7 9

GREATEST

SMALLEST

Rounding off

We have already studied rounding off in previous grades. Let us now understand how to round off a five-digit and a six-digit number to the nearest 10s, 100s and 1000s.

(1) Any two-digit number with 0, 1, 2, 3 and 4 in the ones place is rounded down. For example, 13 is rounded down to 10.

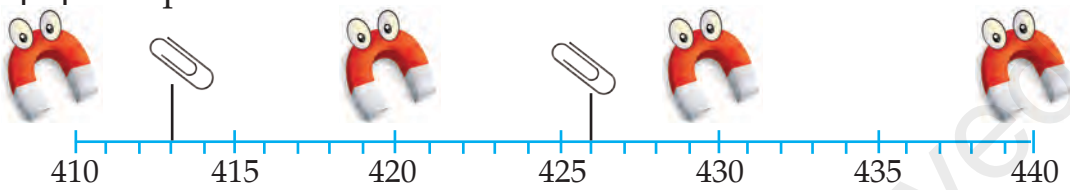
(2) Any two-digit number with 5, 6, 7, 8 and 9 in the ones place is rounded up. For example, 17 is rounded up to 20.

(3) **Rounding digit:** If a number is to be rounded off to the *nearest 10*, the rounding digit is the digit at the tens place. If the number is to be rounded off to the *nearest 100*, then the rounding digit is the digit at the hundreds place. Lastly if the number is to be rounded off to the *nearest 1000*, then the rounding digit is the digit at the thousands place.

PROJECT

Try it!

Put a paper clip at the number 413.



It is closer to the 410 magnet than the 420 magnet, so it will be attracted to 410. So, 413 will be rounded down to 410.

Now, put the paper clip at 426. What will happen now? Which magnet will the paper clip be attracted to?

It will be attracted to 430 and not to 420. So, 426 is rounded up to 430.

Now try this for any number between 430 to 440.

Let us now discuss the steps to round off five-digit and six-digit numbers.

Rounding off to the nearest 10

Step 1: Mark the places for the digits.

Step 2: Identify the rounding digit, i.e. the digit at the tens place.

Step 3: Check the number to the right of the rounding digit.

Step 4: If it is greater than or equal to 5, then the digit at the ones place becomes 0 and 1 is added to the rounding digit.

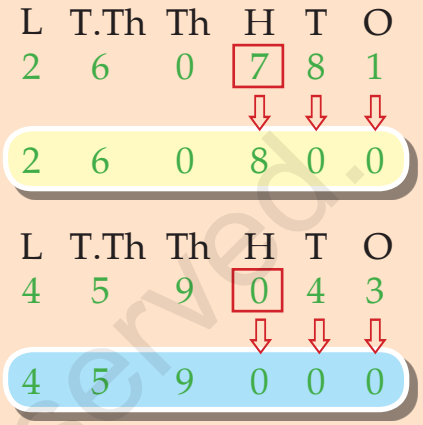
Step 5: If it is less than 5, then the digit at the ones place becomes 0 and the rounding digit does not change.

L	T.Th	Th	H	T	O
7	9	5	5	7	6
7	9	5	5	8	0

L	T.Th	Th	H	T	O
1	5	7	2	4	3
1	5	7	2	4	0

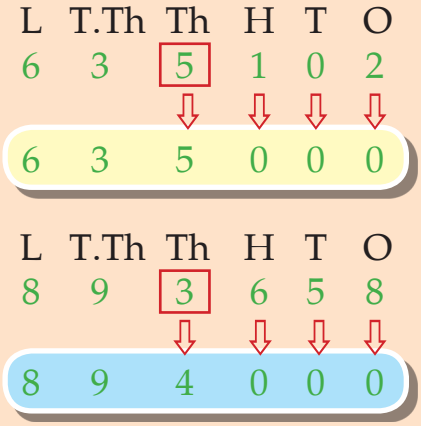
Rounding off to the nearest 100

Step 1: Mark the places for the digits.
Step 2: Identify the rounding digit, i.e. the digit at the hundreds place.
Step 3: Check the digit to the right of the rounding digit.
Step 4: If it is greater than or equal to 5, then the digits at the ones and the tens place become 0 and 1 is added to the rounding digit.
Step 5: If it is less than 5, then the digits at the ones and the tens place become 0 and the rounding digit does not change.



Rounding off to the nearest 1000

Step 1: Mark the places for the digits.
Step 2: Identify the rounding digit, i.e. the digit at the thousands place.
Step 3: Check the digit to the right of the rounding digit.
Step 4: If it is greater than or equal to 5, then digits at the ones, the tens and the hundreds place become 0 and 1 is added to the rounding digit.
Step 5: If it is less than 5, then the digits at the ones, the tens and the hundreds place become 0 and the rounding digit does not change.



Practice Exercise 1.5

(1) Round off to the nearest 10.

(a) 2,62,354 (b) 46,789

(2) Round off to the nearest 100.

(a) 17,955 (b) 1,98,676

(3) Round off to the nearest 1000.

(a) 86,841 (b) 2,73,158

Fun Activity

Colour the Numbers

9	6	5	5	6	1
4	7	2	7	3	2
7	5	6	6	2	8
2	2	4	5	8	4
1	3	0	2	9	3
5	4	3	0	7	1

(1) Seventy six thousand five hundred twenty - red

(2) Four hundred seventy two - blue

(3) Five thousand two hundred thirty four - green

(4) One lakh twenty eight thousand four hundred thirty one - pink

(5) Thirty two thousand eight hundred ninety seven - yellow

(6) Four hundred three - purple

Math Lab Activity

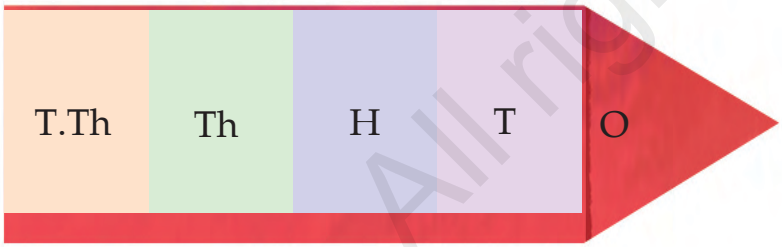
Making Arrow Cards

Materials needed: papers of five different colours, a white paper and pens

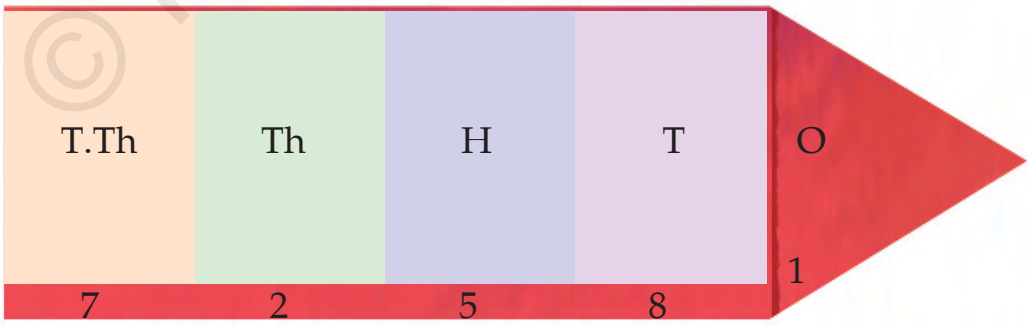
Instructions:

First cut out an arrow of one colour as in the illustration.

Now cut out rectangles from other coloured sheets.
Paste these rectangles on the arrow from the top as flaps, and write T.Th, Th, H, T and O on the flaps.



The teacher will speak out 5 digits. Make a number, and write it on the arrow card. Stick it on the white paper, and write the number name of the number made.



Seventy two thousand five hundred eighty one

MCQs

Tick (✓) the correct answer.

(1) Round off 1,87,366 to the nearest 10.

(a) 1,87,370 (b) 1,90,366

(c) 1,87,300 (d) 1,87,360

(2) Find the sum of the place values of 5 and 8 in 5,67,820.

(a) 5,00,008 (b) 5,00,800

(c) 5,00,080 (d) 5,08,000

(3) In 2,56,789, how many lakhs are there?

(a) 5 (b) 7

(c) 8 (d) 2

(4) Make the smallest five-digit number using the digits 0, 7, 6, 5, 3.

(a) 35670 (b) 30567

(c) 03567 (d) 76530

(5) The number for the expanded form 200000 + 50000 + 7000 + 90 is

(a) 257090 (b) 205790

(c) 257900 (d) 25790

Work it Out

(1) Write the place value of 0 in the number 1,39,072.

(2) In the number 6,78,246, how many lakhs are there?

(3) Write the number names of the following numbers:

(a) 37,830 (b) 90,002 (c) 80,808

(d) 2,12,045 (e) 7,98,070 (f) 3,09,200

(4) In each of the following, what is the place value of the underlined digit?

(a) 32,8<u>1</u>4 (b) 9<u>0</u>,014 (c) 1,92,<u>2</u>07 (d) <u>9</u>,27,654

(5) In the number 2,87,000, which digit has the greatest place value?

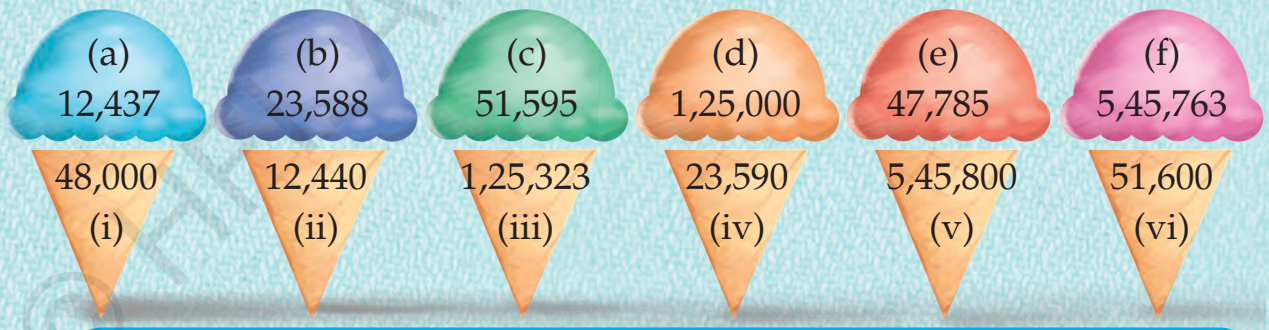
(6) In the number 5,67,340, which digit has the least place value?

(7) Write in ascending order.

(a) 5656, 565656, 5665, 56565, 56756, 66666, 55555

(b) 234, 5674, 2347, 5679, 432, 789563, 78956

(8) On the basis of rounding off, match the numbers. One has been done as an example.



(a) (ii)

(9) Use the digits to make the greatest number possible.

(10) Write the expanded form of the following numbers.

(a) 

_____

(b) 

_____

(c) 

_____

(11) Write the short form of each of the following:

(a) 2,00,000 + 40,000 + 8000 + 200 + 6

(b) 50,000 + 3000 + 500 + 30 + 2

Weblinks:
http://www.math-aids.com/Place_Value/
http://www.mathworksheets4kids.com/ordering-numbers.html

ENRICHMENT I

Roman Numerals

Roman numerals were used as the numeric system in ancient Rome. The Romans wrote numerals without any place value. We can see roman numerals on clocks, in books and many other places. In the Roman system, numbers are written as a combination of symbols.
There are seven basic symbols that are used in various combinations to make various numbers of the Hindu-Arabic system. The seven basic symbols along with their equivalents in the Hindu-Arabic system are as follows:

1	5	10	50	100	500	1000
I	V	X	L	C	D	M

The symbols for writing the numbers 1–10 are as follows:

1	2	3	4	5	6	7	8	9	10
I	II	III	IV	V	VI	VII	VIII	IX	X

There is no 0 and numbers do not have a place value in the Roman number system.

There are a few rules that help us write Roman numerals in the correct form.

RULE 1: The numerals I, X, C and M can be repeated to represent a number.
Examples: 2 is written as II.
20 is written as XX.
200 is written as CC.
2000 is written as MM.

Repetition means addition. Remember that the symbols cannot be repeated more than 3 times.

RULE 2: A smaller numeral written to the right of the greater numeral is added to the greater numeral.

Examples: XI = 10 + 1 = 11

XXII = 20 + 2 = 22

LV = 50 +5 = 55

LX = 50 +10 = 60

CL = 100 + 50 = 150

RULE 3: A smaller numeral written to the left of a numeral of greater value is subtracted from the numeral of greater value.

Examples: IX = 10 – 1 = 9

XL= 50 – 10 = 40

XC = 100 – 10 = 90

RULE 4: When a smaller numeral is placed between two numerals of greater values, it is subtracted from the numeral of greater value that immediately follows it.

Examples: XIX = 10 + (10 – 1) = 10 + 9 = 19

XXIV = 20+ (5 – 1) = 20+ 4 = 24

REMEMBER:

- **The symbol I can be subtracted from V and X.**
- **The symbol X can be subtracted from L and C.**
- **The symbol C can be subtracted from D and M.**
- **The symbols V, L and D are never subtracted.**

(1) Write the Roman numerals for each of the following:

(a) 67 (b) 88 (c) 35 (d) 328 (e) 104

(2) Write the Hindu-Arabic number for each of the following Roman numerals:

(a) XXIII (b) CMXXII (c) XV (d) XLIV (e) DCVII

(3) Match the following:

Number	Roman Numeral
(a) 56	(i) CCXLI
(b) 89	(ii) XCIX
(c) 241	(iii) CDLXIX
(d) 99	(iv) LVI
(e) 469	(v) LXXXIX

(4) Write the Roman numeral that comes before each numeral below.

(a) XX (b) L (c) XXXIII (d) CV
(e) CDXC

(5) Write the Roman numeral that comes after each numeral below.

(a) XXXIX (b) XCVIII (c) CX
(d) CCCXXXIV (e) CCLXXXIX

(6) Which of the following are correct?

(a) XIV = 14 (b) VVI = 11 (c) XXIIV = 27 (d) LLI = 101
(e) CD = 400

(7) Fill in the blanks with >, < or = .

(a) IX ___ 9 (b) LX ___ 40 (c) XC ___ CX
(d) XXXIV ___ 22 (e) XXI ___ 21

(8) Write the results in Roman numerals.

(a) 40 – 9 = ____ (b) 80 – 30 = ____
(c) 65 – 25 = ____ (d) 109 – 29 = ___

(9) Write the results in Roman numerals.

(a) XIII + IV = _____ (b) XXXI + IX = _____
(c) XC + XI = _____ (d) CD + D = _____

(10) Fill in the blanks.

(a) There is no symbol for _____ in Roman Numerals.
(b) There are _____ basic symbols in the Roman number system.
(c) To represent a number in Roman numerals, only _____, _____, _____ and _____ need to be repeated.
(d) A roman numeral can be repeated only _____ times.
(e) The Roman numeral D is used to represent the number _____.

Addition and Subtraction

Learning Objectives

- Add five-digit and six-digit numbers
  - With regrouping
  - Without regrouping
- Describe properties of addition
- Solve word problems on addition
- Find estimated sum
- Subtract five-digit and six-digit numbers
  - With regrouping
  - Without regrouping
- Describe properties of subtraction
- Solve word problems on subtraction
- Find estimated difference

Let's Recollect

(1) Add the following:

(a) 325 + 127 _____ (b) 1762 + 172 _____

(c) 2495 + 1327 _____ (d) 158 + 121 _____

(e) 679 + 1234 _____ (f) 453 + 984 _____

(2) Smriti bought gifts for her mother. She bought 2 lip glosses for ₹276 each and face powder for ₹179. What is the total cost of the gifts?

(3) Subtract the following:

(a) 128 – 97 _____ (b) 756 – 254 _____

(c) 950 – 356 _____ (d) 9874 – 2354 _____

(e) 6715 – 4738 _____ (f) 3428 – 1565 _____

Remember

Rules of Addition

- If the order of numbers to be added (or addends) is changed, the sum does not change.
- The sum of a number and zero is the number.
- The sum of a number and 1 is the number just after or the successor of the number.

Rules of Subtraction

- The order of the numbers to be subtracted cannot be changed.
- If zero is subtracted from a number, the difference is the number.
- The difference between a number and itself is zero.
- If 1 is subtracted from a number, the difference is the number just before or the predecessor of the number.

Addition of Five-Digit and Six-Digit Numbers

Addition Without Regrouping

In previous grades, we have learnt how to add three-digit and four-digit numbers. The same rules apply to the addition of five-digit and six-digit numbers.

All the people of a city participated in the 'Adopt a Tree' campaign. In the first year, 23,512 trees were adopted, and in the second year, 25,265 were adopted. How many tress were adopted by the end of the second year?

To know the total number of trees adopted by the end of the second year, we add 23,512 and 25,265. Let us see how.

T.Th	Th	H	T	O
2	3	5	1	2
+ 2	5	2	6	5
4	8	7	7	7

Be sure about the place values of the digits before adding.

Basic Rule

Put the numbers in the column form according to the place value of the digits in the numbers.

Start adding from right to left; that is, add the ones, then the tens, then the hundreds and so on.

So, 48,777 trees were adopted by the end of the second year.

We have studied the expanded forms of five-digit and six-digit numbers in the last chapter. The concept of expanding the numbers is helpful in adding five-digit and six-digit numbers.

Addition Using Expanded Form

Add 1,25,623 and 2,34,315 using the expanded form.

	L	T.Th	Th	H	T	O	
	1	2	5	6	2	3	→ 100000 + 20000 + 5000 + 600 + 20 + 3
+	2	3	4	3	1	5	→ 200000 + 30000 + 4000 + 300 + 10 + 5
	3	5	9	9	3	8	← 300000 + 50000 + 9000 + 900 + 30 + 8

Addition With Regrouping

Now let us see a few examples of addition with regrouping.

You Already Know!

- **Rule 1:** 10 hundreds = 10 × 100 = 1000 = 1 thousand
  Similarly, 20 hundreds = 2 thousands, 30 hundreds = 3 thousands and so on.
- **Rule 2:** 11 hundreds = 11 × 100 = 1100 = 1 thousand and 1 hundred
  Similarly, 12 hundreds = 1 thousand 2 hundreds, 13 hundreds = 1 thousand 3 hundreds and so on.
- **Rule 3:** 12 thousands = 12 × 1000 = 12000 = 1 ten thousand and 2 thousands
  Similarly, 13 thousands = 1 ten thousand and 3 thousands, 14 thousands = 1 ten thousand and 4 thousands and so on.

Add 27,624 and 18,582.

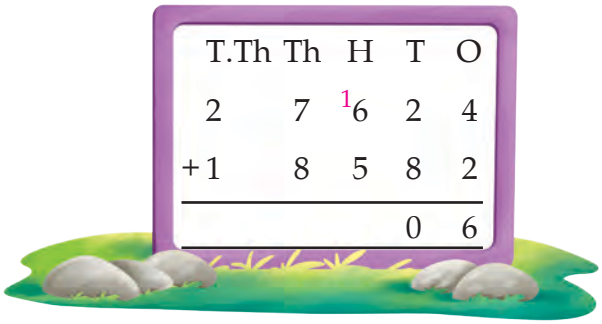
	T.Th	Th	H	T	O
	2	7	6	2	4
+	1	8	5	8	2
					6

Steps:

(1) Write the two numbers in the column form according to the place value of the digits in the numbers.

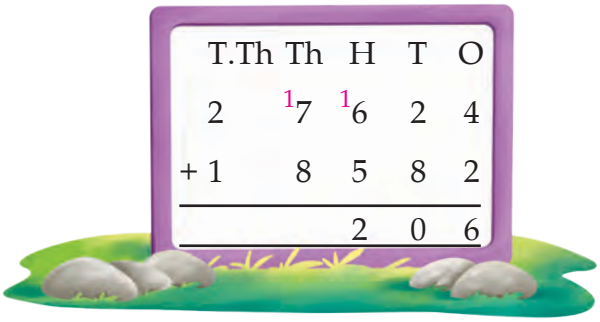
(2) According to the basic rule, start adding from the rightmost digit and move towards left.

(3) Add the ones:
4 ones+ 2 ones = 6 ones.



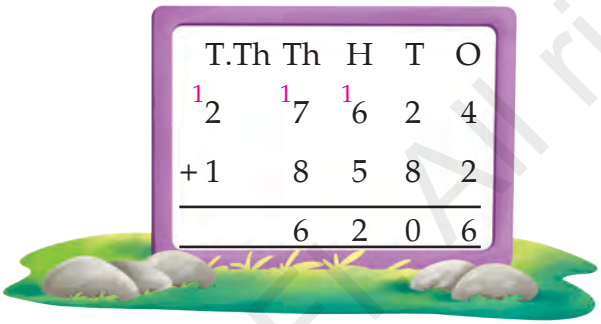
T.Th	Th	H	T	O
2	7	$^{1}6$	2	4
+1	8	5	8	2
			0	6

(4) Add the tens:
2 tens + 8 tens = 10 tens
= 1 hundred and 0 tens.
1 hundred is carried over to the hundreds place and 0 is written in the tens place of the answer.



T.Th	Th	H	T	O
2	$^{1}7$	$^{1}6$	2	4
+1	8	5	8	2
		2	0	6

(5) Add the hundreds:
6 hundreds + 5 hundreds + 1 hundred (carry over) = 12 hundreds = 1 thousand and 2 hundreds (using rule 2).
1 thousand is carried over to the thousands place and 2 is written in the hundreds place of the answer.



T.Th	Th	H	T	O
$^{1}2$	$^{1}7$	$^{1}6$	2	4
+1	8	5	8	2
	6	2	0	6

(6) Add the thousands:
7 thousands + 8 thousands +1 thousand (carry over) = 16 thousands = 1 ten thousand and 6 thousand (using rule 3).
1 ten thousand is carried over to the ten thousands place and 6 is written in the thousands place of the answer.

T.Th	Th	H	T	O
$^{1}2$	$^{1}7$	$^{1}6$	2	4
+ 1	8	5	8	2
4	6	2	0	6

(7) Add the ten thousands:
2 ten thousands +1 ten thousand +1 ten thousand (carry over) = 4 ten thousands.
4 is written in the ten thousands place of the answer.

Thus, 27,624 + 18,582 = 46,206.

Some Examples

Add 1,67,324 and 4,56,274.

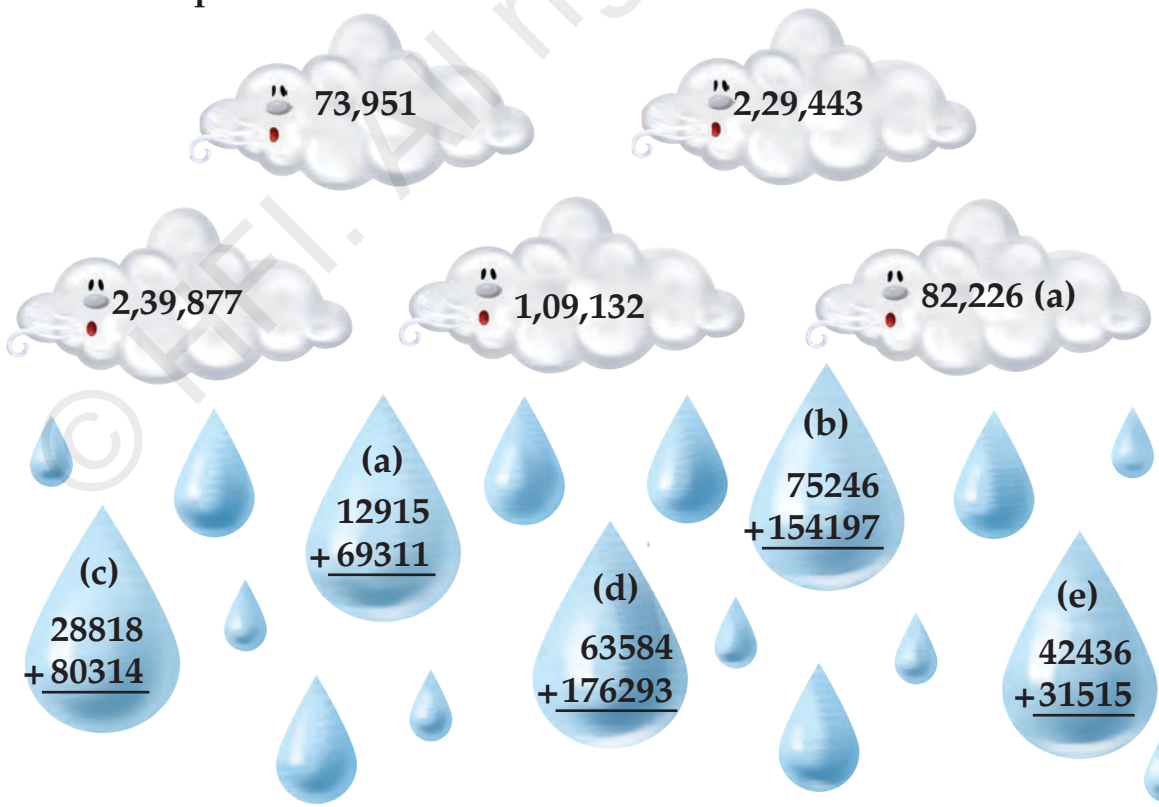
	L	T.Th	Th	H	T	O
	$^{1}1$	$^{1}6$	7	3	2	4
+	4	5	6	2	7	4
	6	2	3	5	9	8

Complete the sum. Make sure you use each digit just once.

	H	T	O
	□	□	3
+	2	7	□
	□	□	□

Practice Exercise 2.1

(1) Match the rain drops, with their answers in the clouds. One has been done as an example.



(2) Write in the column form and add.

(a) 1,50,494 and 2,37,802

(b) Add five lakh sixty seven thousand five hundred twenty two and twenty seven thousand

(c) 6,97,585 and 2,45,619

(3) Find the sum of the greatest four-digit number and one thousand nine hundred ninety nine.

Properties of Addition

We have studied some of the rules of addition in previous grades. Let us revise them and learn a few new rules.

Order of Addends

Add 43,265 and 23,572.

We can add the numbers in two ways.

	T.Th	Th	H	T	O
	4	3	$^{1}2$	6	5
+	2	3	5	7	2
	6	6	8	3	7

OR

	T.Th	Th	H	T	O
	2	3	$^{1}5$	7	2
+	4	3	2	6	5
	6	6	8	3	7

Whatever be the order of the addends, the sum remains the same.

Adding by Grouping

When we want to find the sum of three or more addends, we need to group them. The sum will remain the same no matter the order in which we group these numbers.

Add 45,625, 12,415 and 1,25, 227.

We can add the numbers in the following ways:

{45,625 + 12,415} + 1,25,227

	L	T.Th	Th	H	T	O
		4	$^{1}5$	6	$^{1}2$	5
+		1	2	4	1	5
		5	8	0	4	0

→

	L	T.Th	Th	H	T	O
	1	$^{1}2$	5	2	2	7
+		5	8	0	4	0
	1	8	3	2	6	7

45,625 + {12,415 + 1,25,227}

	L	T.Th	Th	H	T	O
		1	2	4	$^{1}1$	5
+	1	2	5	2	2	7
	1	3	7	6	4	2

	L	T.Th	Th	H	T	O
	1	$^{1}3$	$^{1}7$	6	4	2
+		4	5	6	2	5
	1	8	3	2	6	7

The sum remains the same no matter how we group the addends.

Addition of 0

When we add 0 to a number, we get the number.

1,43,267 + 0 = 1,43,267

5,97,243 + 0 = 5,97,243

Addition of 1

When we add 1 to a number, we get the next number; that is, we get the successor of the number.

13,257 + 1 = 13,258

48,152 + 1 = 48,153

Addition of 10

When we add 10 to a number, the digit at the tens place increases by 1.

87,189 + 10 = 87,199

1,42,371 + 10 = 1,42,381

Addition of 100

When we add 100 to a number, the digit at the hundreds place increases by 1.

47,189 + 100 = 47,289

5,72,371 + 100 = 5,72,471

Addition of 1000

When we add 1000 to a number, the digit at the thousands place increases by 1.

25,471+ 1000 = 26,471

3,76,291 + 1000 = 3,77,291

Word Problems

Addition is widely used in our daily lives. We calculate the total money spent when we buy vegetables or when we shop for clothes. When we travel to different places, we calculate the total distance travelled. All these situations require addition. We have already studied the rule for solving word problems on addition.

Problem Solving

Rule: Rene Finds Dogs So Cute

RENE	FINDS	DOGS	SO	CUTE
E A D	I N D	E C I D E	O L V E	H E C K
Read and understand the question.	Find the information and write it down.	Decide what to do.	Solve the problem.	Check your solution.

The Mughal Gardens are open for visitors only for two months in a year. There were 1,10,275 people who visited the gardens in the first month and 32,554 in the second month. What was the total number of people who visited the Mughal Gardens?

First, let us see read and find what information is provided.
1,10,275 people visited the garden in the first month. 32,554 people visited the garden in the second month.
Now, after reading, we decide to add the number of visitors in the first and the second month.

	L	T.Th	Th	H	T	O
	1	1	0	2	7	5
+		3	2	5	5	4
	1	4	2	8	2	9

Thus, 1,42,829 people visited the Mughal Gardens.

Let us now check our solution. To check the solution, we reverse the order of the addends

	L	T.Th	Th	H	T	O
		3	2	5	5	4
+	1	1	0	2	7	5
	1	4	2	8	2	9

For a test match, an audience of 23,547 turned up on the first day and 45,250 on the second day at a cricket stadium. Find the total audience on the two days.

The audience on the first day = 23,547

The audience on the second day = 45,250

Total audience on the two days = audience on the first day + audience on the second day = 23,547 + 45,250

T.Th	Th	H	T	O
	2	3	5	4	7
+	4	5	2	5	0
	6	8	7	9	7

So, the total audience on the two days is 68,797.
Now check the answer.

T.Th	Th	H	T	O
	4	5	2	5	0
+	2	3	5	4	7
	6	8	7	9	7

PRACTICE EXERCISE 2.2

(1) Fill in the blanks.

(a) 43,564 + _____ = 76,240 + 43,564

(b) 7,25,345 + 0 = _____

(c) 56,897 +1 = _____

(d) 7,45,243 + 10 = _____

(e) 53,206 + 100 = _____

(f) 63,199 + 1000 = _____

(2) Mr Scott bought a house for ₹7,43,895. He spent ₹2,27,950 on its interiors. Find the total money he spent on the house.

Estimating the Sum

In the central board examination, 1,23,428 students passed and 45,721 students failed. Estimate the number of students who appeared for the examination? (Round off to the nearest thousands.)

Estimating the sum is finding the sum that is close to the actual sum.

To find the estimated sum, we first round off the addends and then add.

How do we round off a number? Let us recall from the last chapter. Find the rounding digit. Here, we will round off to the nearest thousands. If the digit after the rounding digit is

less than 5	Make the digits after the rounding digit zero. The rounding digit remains the same.
more than or equal to 5	Make the digits after the rounding digit zero. Add 1 to the rounding digit.

1,23,428 is rounded off to 1,23,000 and 45,721 is rounded off to 46,000.

	L	T.Th	Th	H	T	O
	1	2	3	0	0	0
+		4	6	0	0	0
	1	6	9	0	0	0

ESTIMATED SUM

	L	T.Th	Th	H	T	O
	1	2	3	4	2	8
+		4	5	7	2	1
	1	6	9	1	4	9

ACTUAL SUM

Thus, approximately 1,69,000 students appeared for the examination.

Practice Exercise 2.3

(1) Estimate the sum to the nearest tens.

45,327 + 1,27,345 =

(2) Estimate the sum to the nearest hundreds.

7,56,982 + 36,237 =

(3) Estimate the sum to the nearest thousands.

98,678 + 2,34,432 =

Subtraction of Five-Digit and Six-Digit Numbers

We have studied subtraction of four-digit numbers in previous grades. The same rules apply to the subtraction of five-digit and six-digit numbers.

(1) The number from which another number is subtracted is called the *minuend*.
(2) The number being subtracted is the *subtrahend*.
(3) The answer we obtain is called the *difference*.

BASIC RULES

(1) Put the numbers in the column form. Write the digits at the appropriate places.
(2) Write the larger number first and the smaller number directly below it.
(3) Align the numbers to the right.
(4) Start subtracting from right to left; that is, first subtract the ones, then the tens, then the hundreds and so on.

Without Regrouping

Subtract 27,243 from 67,579.

Remember the basic rule and follow the steps.

(1) Write the numbers in the column form, the larger number first and the smaller number below it.

(2) Subtract column-wise from right to left.

T.Th	Th	H	T	O
6	7	5	7	9
– 2	7	2	4	3

T.Th	Th	H	T	O	
6	7	5	7	9	
– 2	7	2	4	3	
4	0	3	3	6	9 – 3 = 6
					7 – 4 = 3
					5 – 2 = 3
					7 – 7 = 0
					6 – 2 = 4

With Regrouping/Carrying/Borrowing

Subtract 24,753 from 95,927.

95,927 > 24,753

T.Th	Th	H	T	O
9	5	9	2	7
– 2	4	7	5	3
				4

(1) Subtract the ones: 7 ones – 3 ones = 4 ones

T.Th	Th	H	T	O
9	5	$^{8}\not{9}$	$^{12}\not{2}$	7
– 2	4	7	5	3
			7	4

(2) Subtract the tens: 2 tens < 5 tens, so we borrow 1 hundred from the hundreds place. 9 hundreds become 8 hundreds (strike out 9 and write 8 above it).
2 tens + 1 hundred = 2 tens + 10 tens = 12 tens
12 tens – 5 tens = 7 tens

T.Th	Th	H	T	O
9	5	$^{8}\not{9}$	$^{12}\not{2}$	7
– 2	4	7	5	3
		1	7	4

(3) Subtract the hundreds:
8 hundreds – 7 hundreds = 1 hundred

T.Th	Th	H	T	O
9	5	$^{8}\cancel{9}$	$^{12}\cancel{2}$	7
– 2	4	7	5	3
	1	1	7	4

(4) Subtract the thousands:
5 thousands – 4 thousands = 1 thousand

T.Th	Th	H	T	O
9	5	$^{8}\cancel{9}$	$^{12}\cancel{2}$	7
– 2	4	7	5	3
7	1	1	7	4

(5) Subtract the ten thousands:
9 ten thousands – 2 ten thousands =
7 ten thousands

Mental Math Tip

When the minuend has too many zeroes, subtract 1 from both the minuend and the subtrahend, and then find the difference.

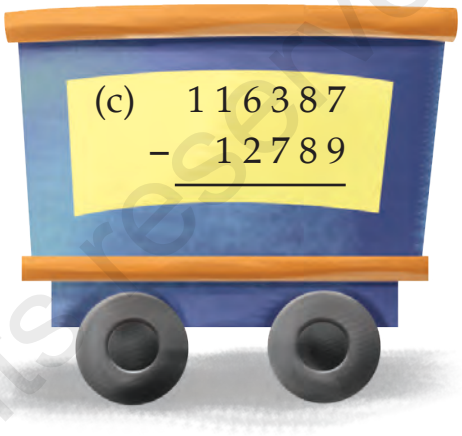
5	0	0	0	0
– 3	2	5	7	9
1	7	4	2	1

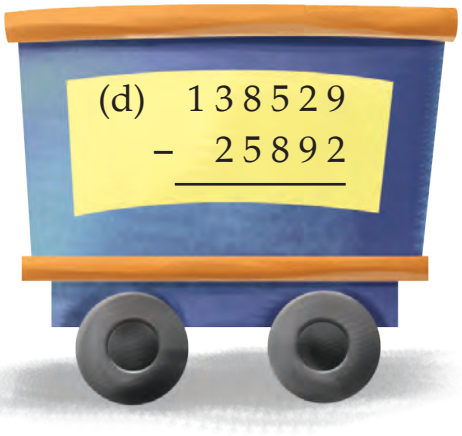
– 1 →
– 1 →

4	9	9	9	9
– 3	2	5	7	8
1	7	4	2	1

Practice Exercise 2.4

(1) Join the coach of the train with the engine by matching the difference of the numbers on the coaches with the answers on the engines.





Properties of Subtraction

Order of Minuend and Subtrahend: The order of the numbers to be subtracted is very important. The larger number is written first, and the smaller is written below the larger number.

297 cannot be subtracted from 180.

	H	T	O
	2	9	7
–	1	8	0
	1	1	7

Subtracting Zero: Whenever zero is subtracted from a number, the difference is the number itself.

1,28,340 – 0 = 1,28,340

Subtracting 1: When 1 is subtracted from a number, the difference is the number just before, that is, the predecessor of the number.

5,82,564 – 1 = 5,82,563

Subtracting the Number from Itself: When the number is subtracted from itself, the difference is zero.

89,643 – 89,643 = 0

Subtracting 10, 100 and 1000

(1) When 10 is subtracted from a number, the digit at the tens place, except if it is zero, is decreased by 1.

76,845 – 10 = 76,835

(2) When 100 is subtracted from a number, the digit at the hundreds place, except if it is zero,is decreased by 1.

5,44,278 – 100 = 5,44,178

(3) When 1000 is subtracted from a number, the digit at the thousands place, except if it is zero, is decreased by 1.

6,89,432 – 1000 = 6,88,432

Word Problems

On Independence day, the residents of an area ordered 17,635 stickers and flags to decorate the area. Out of these, 6,235 were flags, and the rest were stickers. How many stickers were ordered?

READ AND FIND: From the question, we find that the total number of flags and stickers is 17,635, and the number of flags is 6,235.

DECIDE: We need to find the number of stickers. This can be done by subtracting 6,235 from 17,635.

SOLVE:

	T.Th	Th	H	T	O
	1	7	6	3	5
–		6	2	3	5
	1	1	4	0	0

Thus, 11,400 stickers were ordered.

CHECK: We can check our solution by adding the number of flags and the number of stickers and matching the result with the total number of flags and stickers.

	T.Th	Th	H	T	O
	1	1	4	0	0
+		6	2	3	5
	1	7	6	3	5

= total number of stickers and flags.

So, our answer is correct. The number of stickers ordered were 11,400.

A new version of a famous dictionary includes 89,123 words. If the number of words taken from the old version are 57,689, how many new words are there?

PRACTICE EXERCISE 2.5

(1) Fill in the blanks.

(a) 76,789 – 0 = _____

(b) 1,27,345 – 1 = _____

(c) 9,99,999 – _____ = 0

(d) 87,510 – 10 = _____

(e) 76,432 – 100 = _____

(f) 28,672 – 1000 = _____

(2) **Jess bought a car priced at ₹8,75,000. He paid ₹ 56,750 at the time of purchase and the rest after 1 year. How much money was left to be paid after a year?**

(3) **At a magic show, there were 56,985 people. Out of these, 47,000 were children and the rest were adults. How many adults were there at the magic show?**

Estimating the Difference

Like addition, we can also estimate the difference of two numbers by rounding off the numbers.

In a month, 1,57,894 people went to a shopping mall. Out of those, 1,28,446 came in their own car. Estimate the number of people who did not come in their own car. (Round off to the nearest thousands.)

To estimate the difference,

1,57,894 is rounded off to 1,58,000 and

1,28,446 is rounded off to 1,28,000.

	L	T.Th	Th	H	T	O
	1	5	8	0	0	0
−	1	2	8	0	0	0
		3	0	0	0	0

ESTIMATED DIFFERENCE

	L	T.Th	Th	H	T	O
	1	5	7	8	9	4
−	1	2	8	4	4	6
		2	9	4	4	8

ACTUAL DIFFERENCE

Thus, approximately 30,000 people did not come in their own car.

PRACTICE EXERCISE 2.6

(1) Estimate 15,817 – 5,346 to the nearest tens.

(2) Estimate 1,46,888 – 46,296 to the nearest hundreds.

(3) Estimate 7,89,634 – 5,75,175 to the nearest thousands.

Math Lab Activity

Materials needed: a snakes and ladders game board, coloured game pieces, two dice

Instructions:

(1) Play in pairs. Roll the two dice together. Make a two-digit number using the numbers you get after the dice roll. For example: If the number on the first dice is 2 and 6 on the second, then the two numbers that can be made are 26 or 62. Take the larger number, that is, 62. Place your game piece on 62.

(2) Roll the dice again. Follow the same step to make a number. For example, if 1 appears on the first dice and 4 on the second, the new number made can be 14 or 41. Choose the larger number, that is, 41 in this case. Now add or subtract (whichever possible) this new number from the earlier number. In other words, add 62 + 41 = 103. Now 103 is more than 100, so we have to subtract 41 from 62: 62 – 41 = 21. Place your piece 21.

(3) Now it is your partner's turn.

(4) Take ten turns. The one whose piece stands at the larger number at the end wins.

Weblinks:

https://www.ixl.com/math/grade-4/estimate-differences#
http://www.math-aids.com/Addition/Addition_Worksheets_M5V.html
http://www.math-aids.com/Mixed_Problems/Mixed_Problems_Worksheets_Multi5.html
http://www.math-aids.com/Subtraction/Subtraction_Worksheets_M5V.html

MCQs

Tick (✓) the correct answer.

(1) 7,87,145 – 100 =

(a) 7,87,100 (b) 7,87,045

(c) 7,87,405 (d) 7,87,000

(2) Estimate 2,56,980 – 1,65,490, to the nearest thousand.

(a) 92,000 (b) 95,000

(c) 93,000 (d) 90,000

(3) When 100 is subtracted from a number, the digit at its _____ place is decreased by 1.

(a) Tens (b) Ones

(c) Hundreds (d) Thousands

(4) 3,89,234 people visited the zoo in October and 5,23,190 people visited in November. How many people visited the zoo in the two months?

(a) 9,12,424 (b) 9,21,424

(c) 8,12,424 (d) 1,33,956

(5) 8,90,431 – _____ = 0

(a) 0 (b) 1

(c) 100 (d) 8,90,431

Work it Out

(1) Write in the column form and add.

(a) The smallest five-digit number and two thousand two hundred twenty.

(b) Five thousand three hundred forty two and two thousand nine hundred fifty six

(c) 3,40,645 + 3,04,546

(d) 1,90,841 + 2,80,730

(2) Fill in the blanks.

(a) 52,689 + 89,756 = 89,756 + _____

(b) 5,86,978 + 0 = _____

(c) 9,45,432 + 1 = _____

(d) 43,219 + 10 = _____

(e) 87,199 + 100 = _____

(f) 34,508 + (67,809 + 2,05,010) = 2,05,010 + (67,809 + _____)

(g) 8,99,178 – _____ = 8,99,078

(h) 7,98,123 – 1000 = _____

(i) 5,46,258 – 5,46,258 = _____

(j) 1,27,450 – _____ = 1,27,449

(3) Samara bought a car for ₹4,56,789. She spent ₹1,23,465 on its accessories. Calculate the total money spent.

(4) Estimate the sum to the nearest tens, hundreds and thousands.

		Sum to the nearest tens	Sum to the nearest hundreds	Sum to the nearest thousands
(a)	78,378 + 2,67,584			
(b)	6,12,863 + 54,812			

(5) Write in the column form and subtract.

(a) 5,67,102 – 4,76,305

(b) 9,01,678 – 3,86,790

(c) 4,12,303 – 2,51,902

(d) 1,32,451 – 1,23,154

(6) Estimate the difference to the nearest tens, hundreds and thousands.

		Difference to the nearest tens	Difference to the nearest hundreds	Difference to the nearest thousands
(a)	37,666 – 36,888			
(b)	8,79,345 – 5,82,659			

(7) There are 12,389 birds in a bird sanctuary. Out of those, 7,845 birds migrated. How many birds are left in the sanctuary?

A bird sanctuary is an area where birds are protected.

ENRICHMENT 2

Problems on Addition and Subtraction

(1) Ahana's flower shop sold 53,074 flowers in the month of May. It sold 62,456 flowers in the month of July. How many more flowers did it sell in the month of July?

(2) Mrs Lee earns ₹56,789 per month. Mrs Abraham earns ₹65,123 per month. How much less money does Mrs Lee earn than Mrs Abraham?

(3) Pritesh has 45,678 balloons. 11,453 of those are red, and the rest are green. How many green balloons does Pritesh have?

(4) 10,543 children and 24,467 adults went to see a cricket match. The stadium has 38,234 seats. How many seats were empty?

(5) Joseph works at a stationery shop. He has to sell 12,456 stationery items in three weeks. He sold 4563 stationery items in the first week and 3268 stationery items in the second week. How many more stationery items does Joseph have to sell?

(6) Alia has ₹43,890 in one bank account. She has ₹23,945 in another bank account. How much money does Alia have in all?

(7) A garden has 32,645 flowers. 12,590 of them are roses and 10,640 are lilies. The rest are sunflowers. How many sunflowers are there in the garden?

(8) Jacob and his father went on a holiday. The ticket costs ₹16,395 for an adult and ₹12,367 for a child. They had a coupon for ₹1000. How much did Jacob and his father pay for the tickets?

(9) Lyna collected 17,845 tea leaves from her tea garden in one week and 14,230 tea leaves in another week. How many tea leaves did she collect in all?

(10) A candy factory gets a new order. They have to prepare 34,567 orange candies and 23,423 chocolate candies. How many candies do they have to prepare altogether?

Multiplication

Learning Objectives

- Explore multiplication
- Multiply by 100, 1000 and 10,000
- Build multiplication tables of 11, 12, 13, 14 and 15
- Multiply three-digit numbers
  - By one-digit numbers
  - By two-digit numbers
- Multiply four-digit numbers
  - By one-digit numbers
  - By two-digit numbers
- Solve word problems on multiplication
- Estimate product

Let's Recollect

(1) Multiply the following:

(a) 438 × 5 ____ (b) 32 × 56 ____ (c) 202 × 3 ____

(d) 6 × 10 ____ (e) 7 × 100 ____ (f) 8 × 1000 ____

(2) Fill in the blanks.

(a) 198 × 1 = ____ (b) 587 × ____ = 0

(c) 34 × 2 × 7 = 7 × ____ × 34

(3) A container can hold 450 litres of water. How many litres of water can 7 such containers hold?

Remember

- To multiply a number by 10, 20, 30, …, 90, write a zero at the ones place of the product. The remaining digits of the product are obtained by multiplying the number with the tens digit of the multiplier.
- To multiply a number by 100, 200, 300, …, 900, write a zero at the ones and tens places of the product. The remaining digits of the product are obtained by multiplying the number with the hundreds digit of the multiplier.
- To multiply a number by 1000, 2000, 3000, …, 9000, write a zero at the ones, tens and hundreds places of the product. The remaining digits of the product are obtained by multiplying the number with the thousands digit of the multiplier.

We have studied various methods of multiplication in previous grades. Let us explore a little more of multiplication in this chapter.

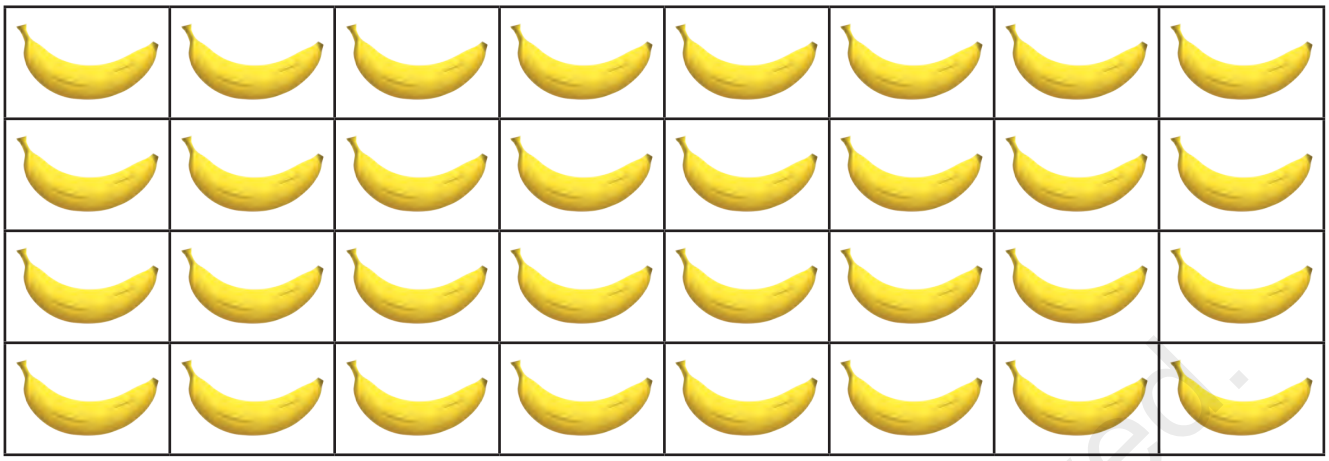
Exploring Multiplication

Breaking up Numbers

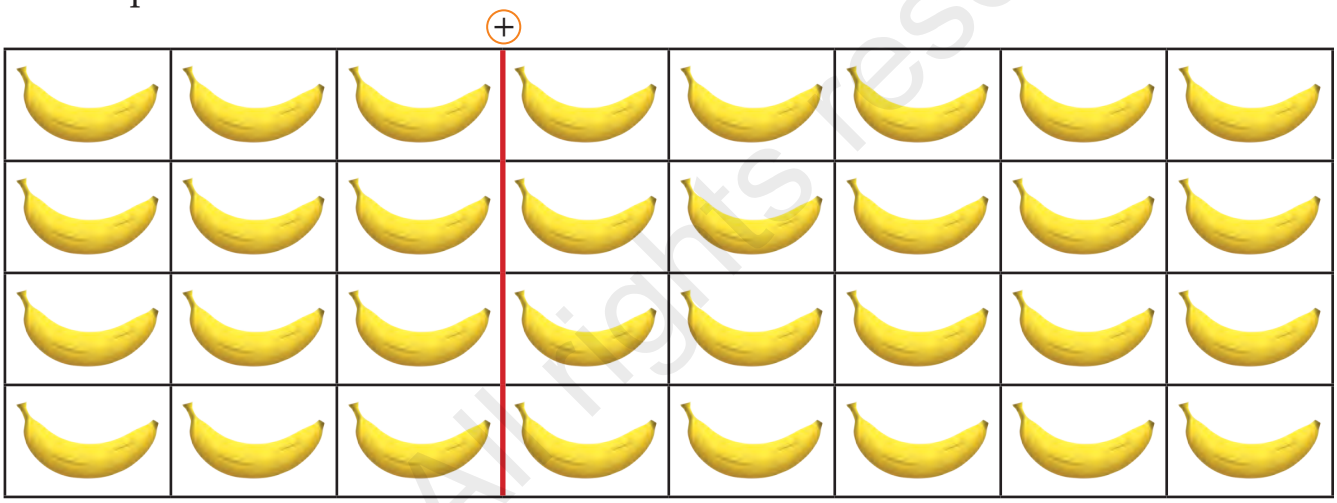
We have studied box multiplication in the last grade. In box multiplication, we break up one of the two numbers into simpler numbers while multiplying. This makes the process of finding the product easy and fast.

Let us multiply by breaking up numbers. Suppose we have to find the total number bananas arranged in 4 rows and 8 columns.

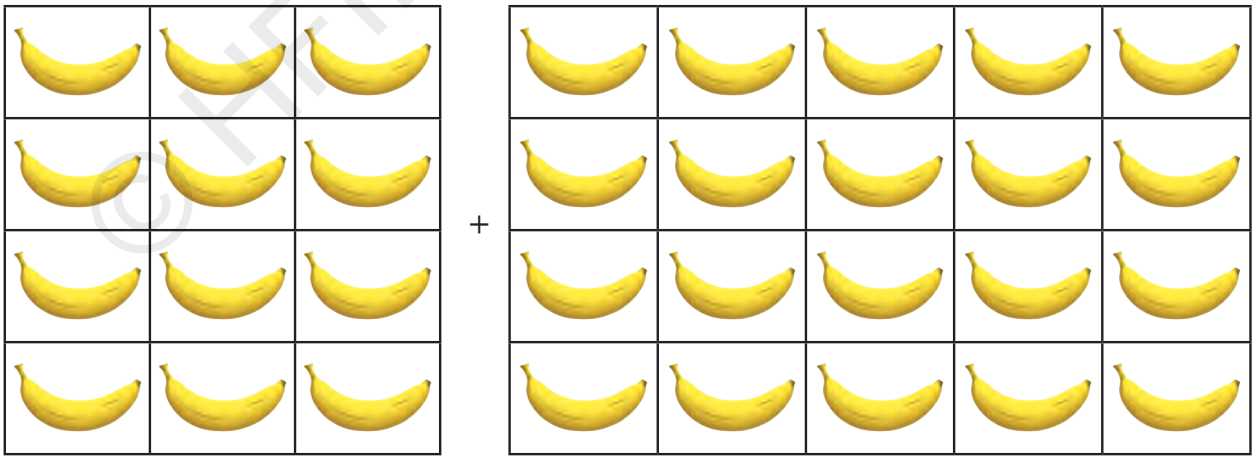
When things are placed in rows and columns, the total number of the things is equal to the product of the number of rows and the number of columns.



The total number of bananas = number of rows × number of columns = 4 × 8 = 32
Another way to find the total number of bananas is as follows:
Break up 8 into 3 + 5.



Separate the columns of bananas into 3 columns and 5 columns.

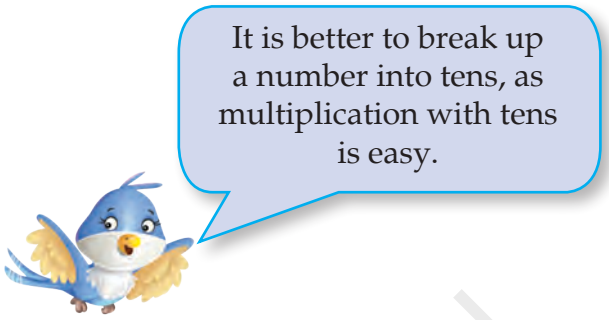


4 × 3 = 12 + 4 × 5 = 20

Therefore, $4 \times 8 = (4 \times 3) + (4 \times 5)$
$= 12 + 20$
$= 32$

Now, how can we find 16×3?
Here, we break up 16 into $10 + 6$.

$16 \times 3 = (10 + 6) \times 3$
$= (10 \times 3) + (6 \times 3)$
$= 30 + 18$
$= 48$



Mental Math Tip

For multiplying large numbers, we break them into hundreds.

For example,

$99 \times 47 = (100 - 1) \times 47 = (100 \times 47) - (1 \times 47) = 4700 - 47 = 4653$

The height of Jamie's father is double Jamie's height.

The red gift box is double the size of the blue gift box.

(1) If you know the 3 times table, you can work out the 6 times table by doubling, as 6 is double of 3, that is, 6 = twice 3 or two times 3 or 2×3.

Double means two times or twice.

We know that $4 \times 3 = 12$, so $4 \times 6 = 24$ (double of 12).

(2) If you know the 7 times table, you can easily work out the 14 times table.

$1 \times 7 = 7$	so	$1 \times 14 = 14$ (double of 7)
$2 \times 7 = 14$		$2 \times 14 = 28$ (double of 14)
$3 \times 7 = 21$		$3 \times 14 = 42$ (double of 21)

MULTIPLYING BY 100, 1000 AND 10,000

We have already studied multiplication by 100 and 1000 in earlier grades.
When we multiply a number by 100, the product ends in two zeros.

For example, $6 \times 100 = 600$.

When we multiply a number by 1000, the product ends in three zeros.

For example, $9 \times 1000 = 9000$

Now let us study multiplication by 10,000.

$1 \times 10{,}000 = 10{,}000$
$2 \times 10{,}000 = 20{,}000$
$3 \times 10{,}000 = 30{,}000$
…
$9 \times 10{,}000 = 90{,}000$

When we multiply a number by 10,000, the product ends in 4 zeros.

We have studied the multiplication tables of 2, 3, 4, 5, 6, 7, 8, 9 and 10.

Now, we move to the multiplication tables of 11, 12, 13, 14 and 15.

Let us learn multiplication by 11.

Multiplication Table of 11

A bunch of flowers has 11 flowers in it  . Let's prepare the 11 times table with this bunch.

As 11 is 10 + 1, multiplying a number by 11 will be same as the sum of the number multiplied by 10 and the number multiplied by 1.

$7 \times 11 = 7 \times (10 + 1) = (7 \times 10) + (7 \times 1) = 70 + 7 = 77$

	11×1	11
	11×2	22
	11×3	33
	11×4	44
	11×5	55
	11×6	66
	11×7	77
	11×8	88
	11×9	99
	11×10	110

Have you noticed the multiplication table of 11. What is the pattern? The product of a one-digit number and 11, is a two-digit number with both the digits same as the number.

$5 \times 11 = 55$

$9 \times 11 = 99$

However, $11 \times 10 = 11 \times 1$ with a zero at the end, that is, 110.

The multiplication tables of 12 to 15 can also be made the same way:
12 = 10 + 2, 13 = 10 + 3, 14 = 10 + 4 and 15 = 10 + 5.

Multiplication Table of 12

A bunch of bananas has 12 bananas in it  .
Let's prepare the 12 times table with this bunch.

A bunch of 12 bananas is a *dozen* bananas.
A group or set of 12 is called a *dozen*.

	12 × 1	12
	12 × 2	24
	12 × 3	36
	12 × 4	48
	12 × 5	60
	12 × 6	72
	12 × 7	84
	12 × 8	96
	12 × 9	108
	12 × 10	120

Multiplication Table of 13

A bunch of grapes has 13 grapes in it  . Let's prepare the 13 times table with this bunch.

	13 × 1	13
	13 × 2	26
	13 × 3	39
	13 × 4	52
	13 × 5	65
	13 × 6	78
	13 × 7	91
	13 × 8	104
	13 × 9	117
	13 × 10	130

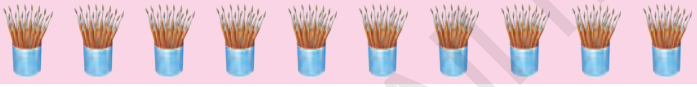
Multiplication Table of 14

A packet of crayons has 14 crayons  . Let's prepare the 14 times table with this packet of crayons.

	14 × 1	14
	14 × 2	28
	14 × 3	42
	14 × 4	56
	14 × 5	70
	14 × 6	84
	14 × 7	98
	14 × 8	112
	14 × 9	126
	14 × 10	140

Multiplication Table of 15

A brush holder has 15 brushes  . Let's prepare the 15 times table with this brush holder.

	15 × 1	15
	15 × 2	30
	15 × 3	45
	15 × 4	60
	15 × 5	75
	15 × 6	90
	15 × 7	105
	15 × 8	120
	15 × 9	135
	15 × 10	150

In a similar manner, we can make multiplication tables for 16, 17, 18, 19 and 20.

Practice Exercise 3.1

(1) Multiply by breaking up a number.

(a) 14 × 3 (b) 7 × 8

(c) 6 × 9 (d) 15 × 4

(e) 12 × 6

(2) Double the 6 times table to find these products.

(a) 5 × 12 (b) 6 × 12

(c) 8 × 12 (d) 9 × 12

(3) Double the 9 times table to find these products.

(a) 4×18 (b) 3×18

(c) 7×18 (d) 2×18

Multiplication of Three-Digit Numbers

By One-Digit Numbers

We have already studied the multiplication of a three-digit number by a one-digit number. Let us recollect it.

What will be the product of 545 and 2?

Multiply the digit at the ones place, then the digit at the tens place and then the digit at the hundreds place of the multiplicand by 2. Try to remember the number that is carried over.

Th	H	T	O
	5	$^{1}4$	5
		×	2
1	0	9	0

By Two-Digit Numbers

Without Regrouping

The cost of a book is ₹212. What will be the cost of 32 such books?

We need to multiply 212 and 32 to find the cost of 32 such books .

Th	H	T	O
	2	1	2
	×	3	2
	4	2	4

The multiplicand is multiplied by the ones digit of the multiplier.

Th	H	T	O
	2	1	2
	×		2
	4	2	4

Th	H	T	O
	2	1	2
	×	3	2
	4	2	4
6	3	6	0

Multiply the multiplicand by the tens digit of the multiplier. We have 3 in the tens place, so we multiply by 30.

Th	H	T	O
	2	1	2
	×	3	0
6	3	6	0

When we multiply by the tens digit of the multiplier, we multiply and simply add a zero at the end.
212 × 3 = 636. Add a zero at the end, 6360.
Write the number below the last result.

Th	H	T	O
	2	1	2
	×	3	2
	4	2	4
+ 6	3	6	0
6	7	8	4

Now, add both the results. Make sure the numbers are aligned to the right.

So, the cost of 32 books is ₹6784.

With Regrouping

A factory produces 348 bulbs in a day. How many bulbs will it produce in 26 days?

We need to multiply 348 by 26 to find the total number of bulbs produced in 26 days.

Th	H	T	O
	3	4	8
	×	2	6
2	0	8	8

Multiply the multiplicand by the ones digit of the multiplier.

Th	H	T	O
	$^{2}3$	$^{4}4$	8
	×		6
2	0	8	8

Th	H	T	O
	3	4	8
	×	2	6
2	0	8	8
6	9	6	0

Multiply the multiplicand by the tens digit of the multiplier. We have 2 in the tens place, so we multiply by 20.

Th	H	T	O
	3	$^{1}4$	8
	×	2	0
6	9	6	0

Now add the two results.

Th	H	T	O
	3	4	8
	×	2	6
	$^{1}2$	$^{1}0$	8
+	6	9	6
9	0	4	8

So, the number of bulbs produced in 26 days is 9048.

On Wednesday, 987 people bought tickets to watch a movie. The hall owner decided that he will donate ₹9 from every ticket bought to help underprivileged children. How much money was collected for donation that day?

PRACTICE EXERCISE 3.2

(1) Find the products.

(a) 143 × 7 (b) 167 × 22 (c) 111 × 15 (d) 224 × 18 (e) 119 × 23

(f) 654 × 14 (g) 125 × 51 (h) 321 × 11 (i) 234 × 16 (j) 198 × 34

Multiplication of Four-Digit Numbers

By One-Digit numbers

There are 1235 chalk boxes in a truck. How many chalk boxes will be there in 8 such trucks?

We need to multiply 1235 and 8 to find the total number of chalk boxes in 8 trucks.

Th	H	T	O
$^{1}1$	$^{2}2$	$^{4}3$	5
		×	8
9	8	8	0

When we are given the number of things in one group and have to calculate for many groups, we multiply.

As in three-digit numbers, simply multiply the digits of the multiplicand with the multiplier starting from the ones to the thousands.

So, the total number of chalk boxes in 8 trucks is 9880.

By Two-Digit Numbers

A book has 2436 words. How many words are there in 34 such books?

Th	H	T	O
2	4	3	6
		×	3	4
9	7	4	4

Multiply the multiplicand by the ones digit of the multiplier.

Th	H	T	O
$^{1}2$	$^{1}4$	$^{2}3$	6
		×		4
9	7	4	4

Th	H	T	O
2	4	3	6
		×	3	4
	9	7	4	4
7	3	0	8	0

Multiply by the tens digit of the multiplier.
We have 3 in the tens place, so we multiply by 30.

Th	H	T	O
$^{1}2$	$^{1}4$	$^{1}3$	6
		×	3	0
7	3	0	8	0

Now add the two results.

	Th	H	T	O
	2	4	3	6
		×	3	4
	9	^{1}7	4	4
+	^{1}7	3	0	8	0
	8	2	8	2	4

In a week, 2436 cars cross a flyover, and each car pays a toll of ₹54 . How much toll is collected after a week?

So, 34 books have 82,824 words.

Practice Exercise 3.3

(1) Find the products of the following:

(a) 4351 × 2 (b) 5612 × 3 (c) 7903 × 5 (d) 3452 × 9 (e) 6790 × 43
(f) 9821 × 12 (g) 5631 × 23 (h) 8967 × 15 (i) 2307 × 45 (j) 6548 × 18

Word Problems

The capacity of a tank is 3421 litres. Find the total capacity of 16 such tanks.
Remember the rule we followed in earlier classes.

Problem Solving

Rule: Rene Finds Dogs So Cute

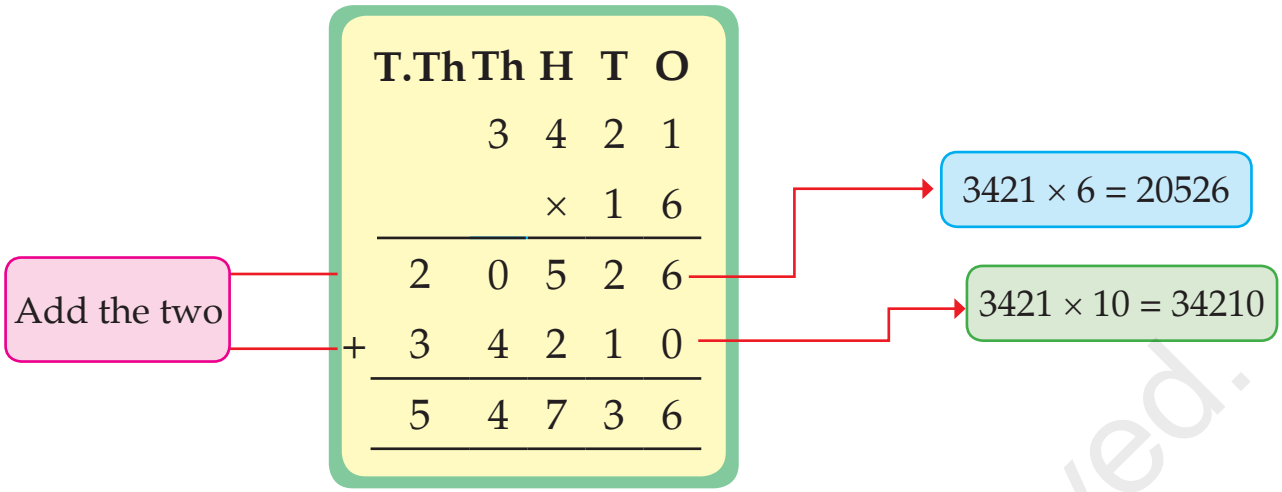
RENE	FINDS	DOGS	SO	CUTE
E	I	E	O	H
A	N	C	L	E
D	D	I	V	C
		D	E	K
		E		
Read and understand the question.	Find the information and write it down.	Decide what to do.	Solve the problem.	Check your solution.

READ – Upon reading the question, we come to know that the capacity of one tank is 3421 litres, and we have to find the capacity of 16 such tanks

FIND – We are given

Capacity of a water tank = 3421 litres
Number of such tanks = 16

DECIDE – We shall multiply 3421 and 16 to find the capacity of 16 such tanks.



Thus, the total capacity of 16 tanks is 54,736 litres.

Estimating Product

Estimating by Rounding off to the Nearest Tens

Estimate the product of 138 and 49.
On rounding off 138 to the nearest tens, we get 140.
On rounding off 49 to the nearest tens, we get 50.
So, the estimated product = 140 by 50 = 7000.

Estimating by Rounding off to the Nearest Hundreds

Estimate the product of 169 and 349.
On rounding off 169 to the nearest hundreds, we get 200.
On rounding off 349 to the nearest hundred, we get 300.
So, the estimated product = 200 × 300 = 60,000.

Practice Exercise 3.4

(1) Estimate the product by rounding off to the nearest tens.
(a) 144 × 37 (b) 89 × 78 (c) 233 × 171 (d) 766 × 534

(2) Estimate the product by rounding off to the nearest hundreds.
(a) 455 × 147 (b) 926 × 818 (c) 623 × 789 (d) 690 × 543

(3) A company packs 4723 bolts in a carton. Find the number of bolts in 16 such cartons.

(4) An aeroplane covers 1214 kilometres in an hour. How many kilometres will it cover in 15 hours?

Fun Activity

Product on Your Cards

Materials needed: two sets of cards (one set should have three-digit numbers and four-digit numbers, and the other set should have one-digit numbers and two-digit numbers), blank papers and pen

Instructions:

(1) The class is divided into two teams.

(2) The two sets of cards are kept on a table in the centre of the class.

(3) The teacher calls out the name of one student from each team. One student picks a card from set 1 and the other student picks a card from set 2.

(4) The students read the numbers aloud.

(5) Now both the students quickly multiply the two numbers on the cards and call out the product.

(6) The one who calls out the correct product first wins.

(7) The game continues until all the cards in the sets are drawn.

Teacher tip

The teacher should make sure that the number of cards in each set is such that every student in the class is able to participate.

MCQs

Tick (✓) the correct answer.

(1) Estimate the product of 289 × 144 to the nearest tens.

(a) 40600
(b) 42000
(c) 39200
(d) 43500

(2) If the cost of a tea set is ₹595, what is the cost of 5 tea sets?

(a) ₹590
(b) ₹1000
(c) ₹600
(d) ₹2975

(3) Find the product of 1453 × 4.

(a) 9873
(b) 5812
(c) 1258
(d) 9867

(4) When multiplying a number by 10,000, we add

(a) three zeros at the end of the product.
(b) three zeros at the beginning of the product.
(c) four zeros at the end of the product.
(d) four zeros at the beginning of the product.

(5) Find the product of the smallest four-digit number and the greatest two-digit number.

(a) 99000
(b) 9900
(c) 1000
(d) 9000

Work it Out

(1) Write the 13 times table by breaking up numbers. Two have been done as examples.

(a) $1 \times 13 = (1 \times 10) + (1 \times 3) = 10 + 3 = 13$

(b) $2 \times 13 = (2 \times 10) + (2 \times 3) = 20 + 6 = 26$

(c) $3 \times 13 =$ _____

(d) $4 \times 13 =$ _____

(e) $5 \times 13 =$ _____

(f) $6 \times 13 =$ _____

(g) $7 \times 13 =$ _____

(h) $8 \times 13 =$ _____

(i) $9 \times 13 =$ _____

(j) $10 \times 13 =$ _____

(2) Double the 8 times table to find the following products:

(a) 3×16 (b) 5×16

(c) 7×16 (d) 9×16

(3) Find the product.

(a) 345×7 (b) 756×5 (c) 678×23 (d) 134×45

(e) 1876×4 (f) 2875×3 (g) 7654×15 (h) 5439×31

(4) Estimate the product to the nearest tens.

(a) 746×243 (b) 88×74

(5) Estimate the product to the nearest hundreds.

(a) 286×456 (b) 134×145

(6) Arjun plans a trip to Kerala. He rents a house at a cost of ₹325 per day. If he stays in the house for 1 week, how much money does he need to pay as rent? (Hint: 1 week = 7 days)

(7) There are 25 men working at a construction site. The contractor pays ₹1349 as salary to each of them. How much money does the contractor have to pay as the total salary?

(8) Rahul has a collection of 4321 stamps in an album. He has 17 such albums. How many stamps in all has he collected?

(9) Rehaan's father pays an electricity bill of ₹1269 per month. How much does he have to pay for a year? (Hint 1 year = 12 months)

Weblinks:

http://www.math-aids.com/Multiplication/Multiplication_Worksheets_MDV.html

http://www.math-drills.com/multiplication2.php

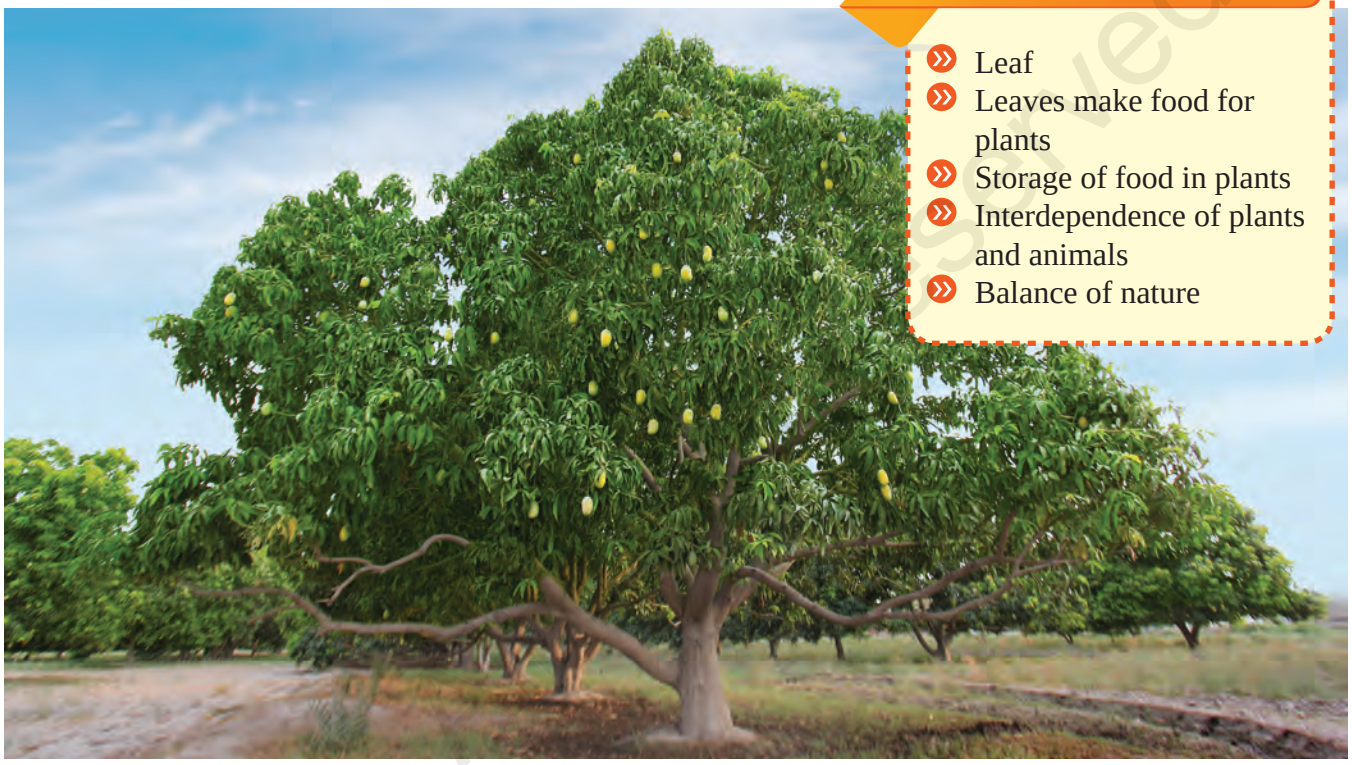
CLASS-4 ✦ SEMESTER-I

Chapter 1

Plants: Food Preparation and Storage

We Will Explore

- Leaf
- Leaves make food for plants
- Storage of food in plants
- Interdependence of plants and animals
- Balance of nature



Look at the picture above. It is a big mango tree. We know the functions of each part of a plant. Can you match the following functions to the parts of the plant?

(1) I make food for the plant.	Root
(2) I fix the plant to the soil.	Seed
(3) I carry water from the root to the leaves.	Stem
(4) I contain a baby plant inside me.	Leaf
(5) I have different colours, shapes and sizes.	Flower
(6) I carry and protect the seeds within me.	Fruit

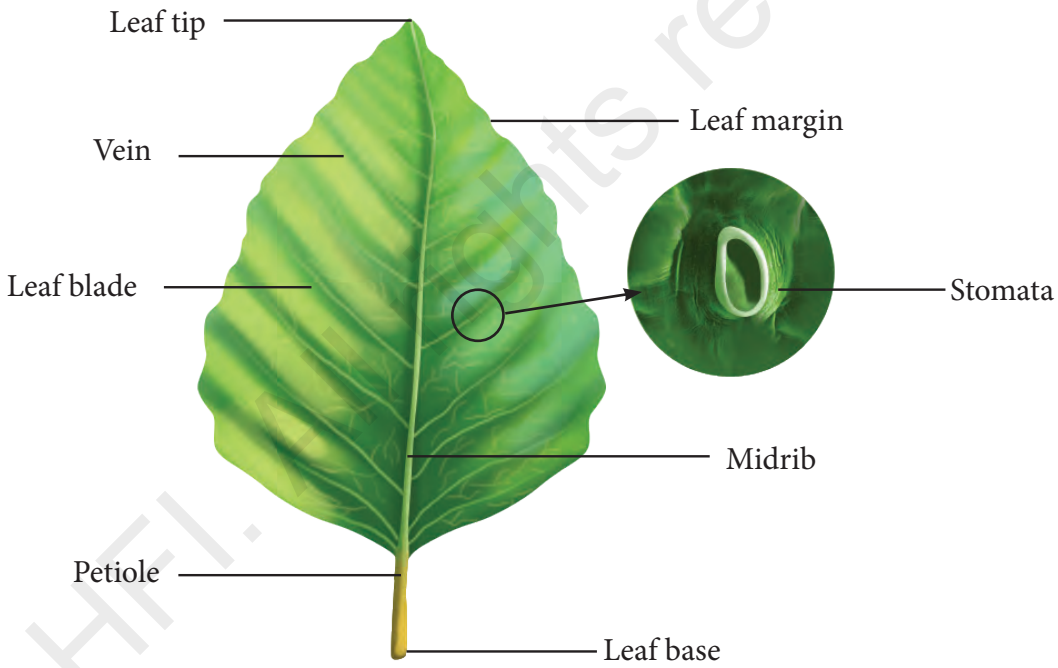
All of us eat fruits and vegetables that come from plants. All animals directly or indirectly depend on plants for their food. We use plants and plant products for our everyday needs. Do you know where and how food is made in plants? It is the leaf that makes food for the plants. Let's discuss leaves in more detail.

Leaf

Most plants are green. They appear green because of the presence of a green substance called chlorophyll in their leaves. The chlorophyll helps the leaf in making food in presence of air, sunlight and water. So, leaves are called the food factory of plants. Different plants have different types of leaves. We can identify the plant by looking at its leaf.

PARTS OF A LEAF

You would have read about the parts of a leaf in the last grade. What do we call the main line running through the middle of a leaf? It is called the midrib.



The stalk of the leaf is called petiole. The flat part of the leaf is called the leaf blade or lamina. The midrib is the main line, which has many side branches called veins. Veins provide support and carry both water and food in leaves. The underside of a leaf has many pores, which we cannot see with our naked eyes. These pores are called stomata. Carbon dioxide enters and oxygen is given off from the stomata during the process of food making.

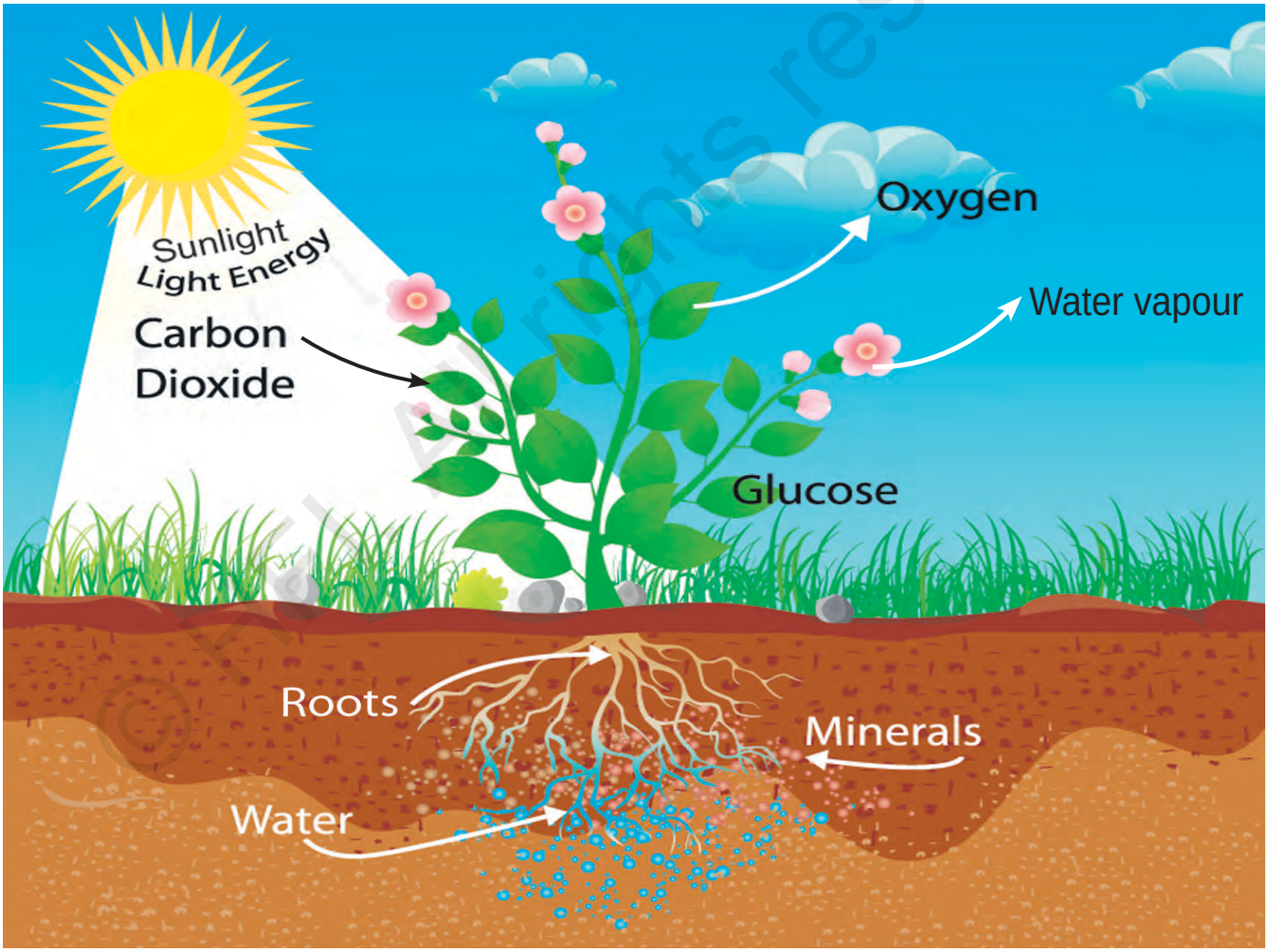
Leaves Make Food for Plants

- A plant takes in water from soil and carbon dioxide from air. Green leaves with chlorophyll make food from water and carbon dioxide in the presence of sunlight. Hence plants need water, carbon dioxide, sunlight and chlorophyll for preparing food.

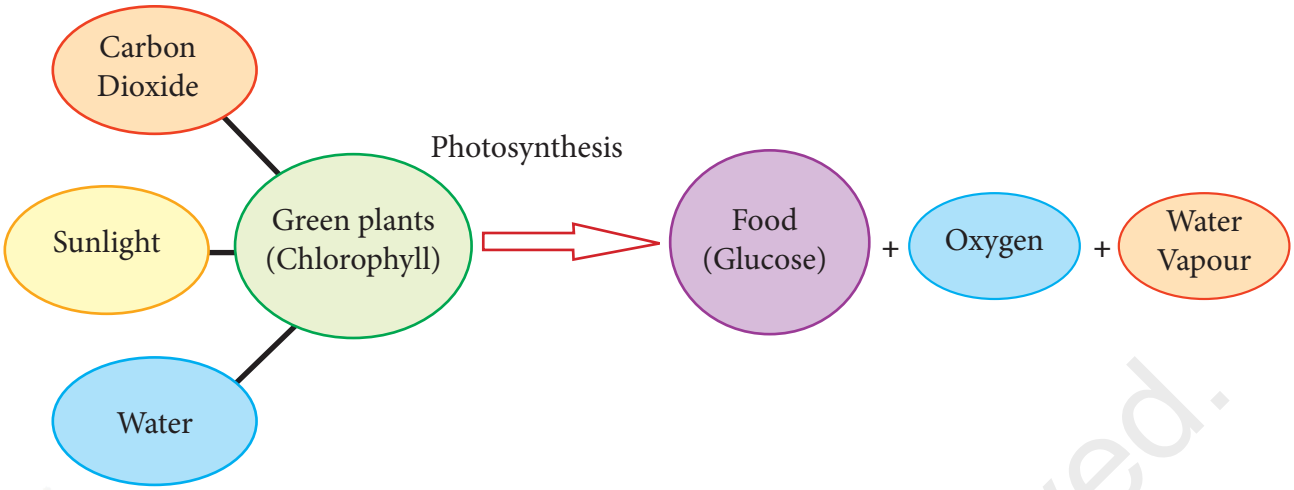
Lamina: the flat, broad portion of leaf

Vein: the branching structure, found in leaf

- The process of preparing food by the leaf is called photosynthesis. 'Photo' means 'light' and 'synthesis' means 'put together'. Sunlight is the basic requirement in photosynthesis because it provides energy for the process in the form of light.
- The food made by the plant is simple sugar in the form of glucose.
- Oxygen and water vapour are given off in the process.



TEACHER'S NOTE Explain the process of photosynthesis to the students in a simple way through the diagram and the flowchart.



Science Is Fun

Plants need sunlight for making food.

- Take a potted plant.
- Cover a part of a leaf with a black paper as shown in the picture.
- Keep it in sunlight for 3 to 4 days.
- Remove the black paper from the leaf.

What do you observe?

The covered part of the leaf has become non-green because it has not received sunlight. Photosynthesis did not take place in that part. This shows that sunlight is needed for photosynthesis.

Storage of Food in Plants

The food prepared by the plant is in the form of simple sugar. It is used in a number of ways.

- To get energy to carry out a number of processes;
- For the growth of the plant;
- Extra food is stored in the form of starch in different parts of the plant such as the root, the stem, leaves, flowers, fruits and seeds. We eat that part of a plant where food is stored.

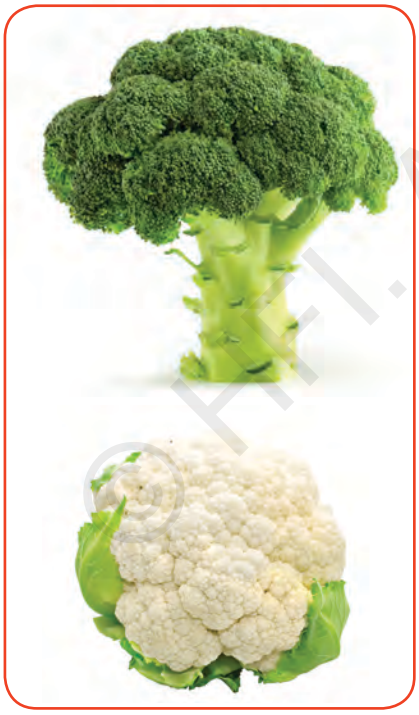
Sugar and starch : different forms of energy-giving food

Roots

Stems

Leaves

Flowers



Fruits

Seeds

Interdependence of Plants and Animals

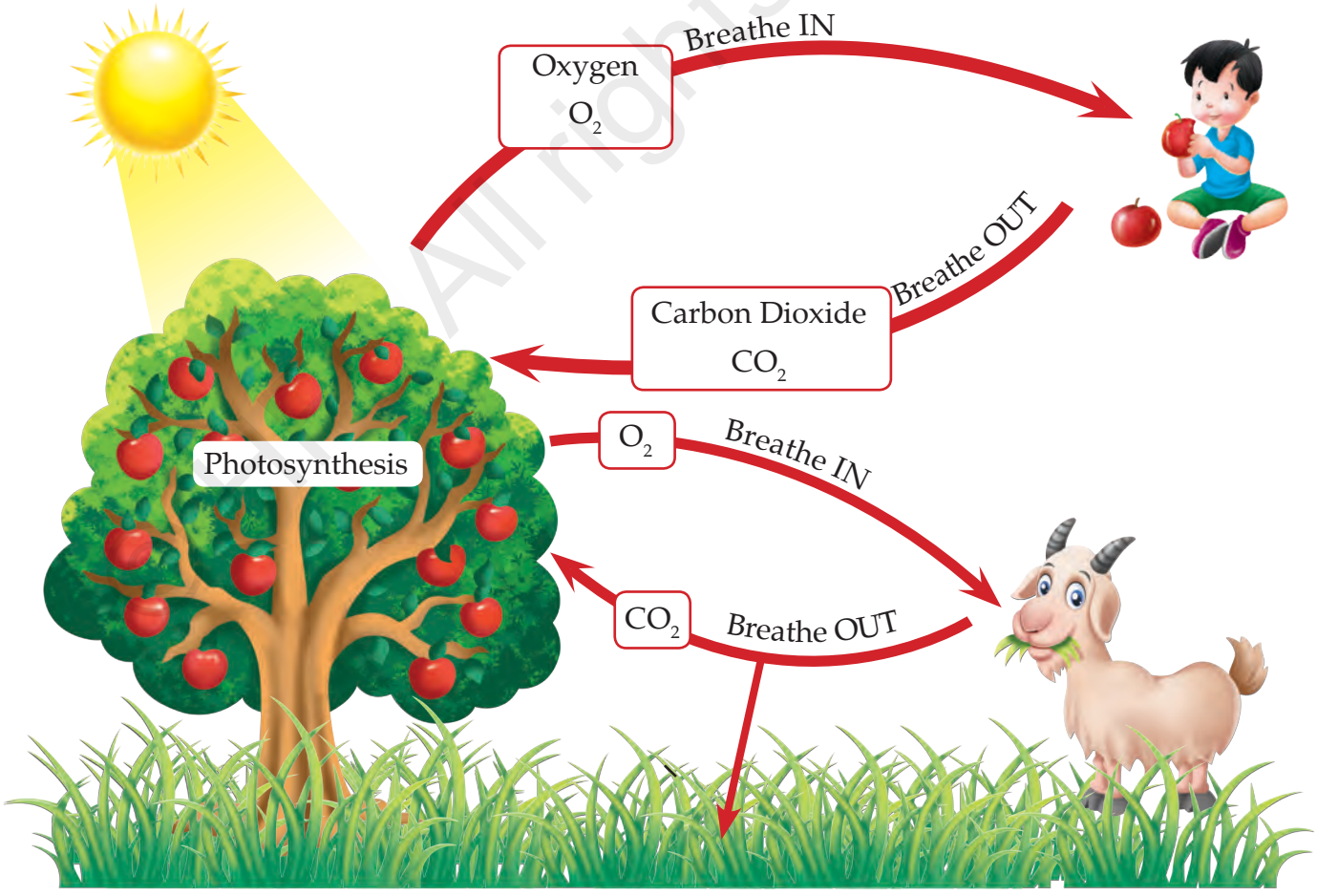
Animals and plants depend on each other.

- Both plants and animals need oxygen all the time to get energy. However, plants in the day time, during the process of photosynthesis, need carbon dioxide and give out oxygen. Thus, plants recycle the air and supply oxygen or fresh air for us and animals to breathe.
- Animals depend on plants directly or indirectly for food. Plants use carbon dioxide for preparing their food, which is breathed out by animals.

Thus both plants and animals depend on each other.

Knowledge Tree

There are some non-green plants. They do not have chlorophyll. They are not capable of making their food. They get their food from dead and decaying materials.



Balance of Nature

We know plants and animals depend on each other.

What would happen if the number of animals increases suddenly?

If the number of animals will increase, the food will become less, as the existing plants may not be able to supply the required food. Moreover, there will be less oxygen for the animals to breathe. Thus, the balance of nature will be disturbed.

Animals Plants

The interdependence of plants and animals helps maintain a balance of nature. To maintain this balance, we need to protect both plants and animals.

Science Is Fun

Draw an aquarium on a drawing sheet as shown in the picture. Draw the cycle of the flow of oxygen and carbon dioxide.

Knowledge Tree

- World Environment day is celebrated on 5 June.
- *'Van Mahotsav'* is an annual tree-planting festival celebrated in the first week of July.
- Wildlife conservation is the practice of protecting wild animals and forest reserves.

We Have Explored »

1. The process of preparing food by green leaves is called 'photosynthesis'.
2. Water, carbon dioxide, sunlight and chlorophyll together are required by plants to prepare food.
3. Extra food is stored in different parts of plants in the form of starch.
4. Plants and animals depend on each other.
5. A balance between plants and animals is needed.

Recall and Answer »

(1) Tick(✓) the correct option.

(a) Which of the following parts is called the food factory of the plant?

(i) Flower (ii) Leaf (iii) Root (iv) Stem

(b) For making food, plants get energy from ____

(i) the moon. (ii) sunlight. (iii) carbon dioxide. (iv) water.

(c) The food prepared by the plant is in the form of

(i) mineral. (ii) sugar. (iii) starch. (iv) protein.

(d) _____ is a stem that stores food.

(i) Sugarcane (ii) Cabbage (iii) Radish (iv) Tomato

(e) Plants give out oxygen during ____

(i) the day. (ii) the night. (iii) both day and night. (iv) late night.

(2) Write 'T' for true and 'F' for false statements.

(a) The stalk of a leaf is called the lamina.

(b) Carrot is a stem that stores food.

(c) The numerous branches found in a leaf are called veins.

(d) Oxygen is used in the process of photosynthesis.

(3) Name the materials required by the plants to perform photosynthesis.

(4) Name the different parts of a leaf.

(5) Name three roots that store food.

(6) How do plants use their food?

Think And Answer

(1) Look at the picture. This plant has no leaves.
How does it make its food?

(2) Answer the following in one word:

(a) Name one food that contains starch. _____

(b) Name the gas that we get from plants. _____

(3) Find the odd one out.

(a) cabbage, lettuce, spinach, carrot

(b) carrot, beet, radish, potato

(c) cauliflower, pea, gram, maize

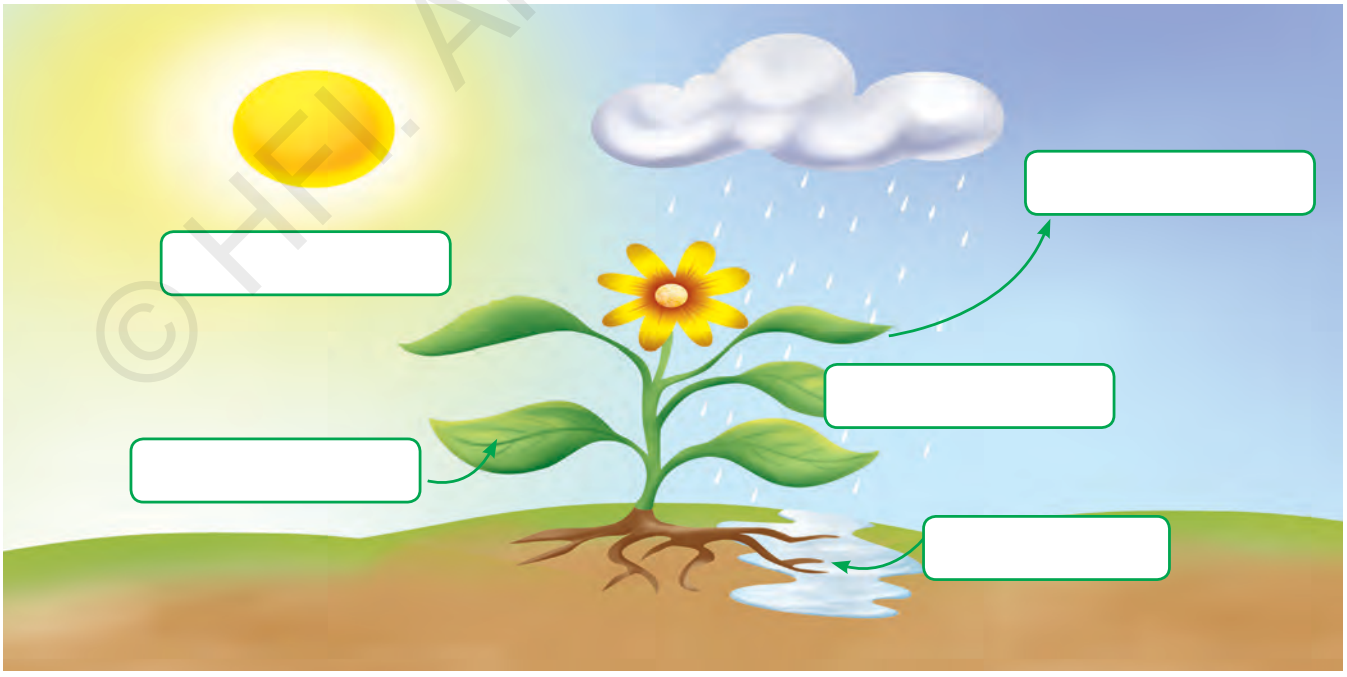
(d) onion, tomato, brinjal, capsicum

(4) (a) Can plants make food at night? Give reason.

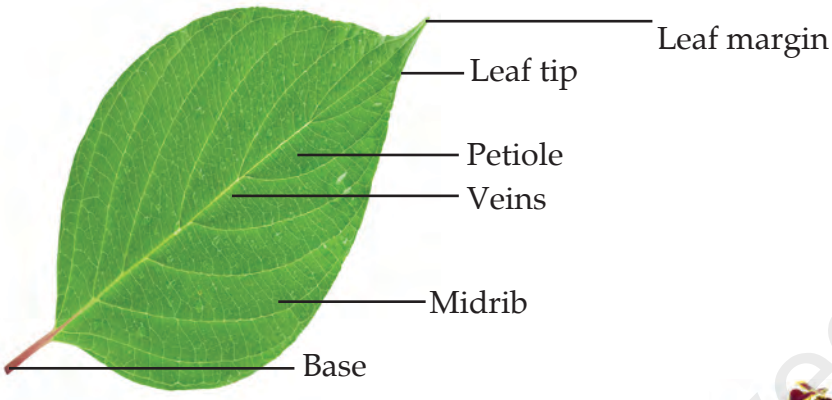
(b) How can a plant make its own food but an animal cannot?

Create and Learn

(1) Below is the process by which plants make their food. Name the process and fill the boxes to complete the figure.



(2) Label the parts of leaf correctly, if these are wrong.



Think Beyond

(1) Observe the plant in the picture. It is the *Coleus* plant.

Answer the following questions:

(a) Its leaves are not green. How does it get its food?

(b) Does photosynthesis occur in this plant?

(2) (a) Do plants breathe like animals? Yes/No

(b) Do plants need oxygen? How does oxygen help plants?

(c) Do plants use oxygen during the day? Give reason.

(3) These are a few underwater plants. They do not get direct sunlight. How do they make their food?

Values to Learn

(1) One day Mona's teacher was discussing seed germination in the class. Mona got excited and wanted to grow plants in her garden. She visited a gardener and got a few useful gardening tips. She used the tips and grew chili, coriander and mint plants in her garden.

Gardening is a very good hobby. Learn a few gardening skills and apply them to grow plants.

(2) Life is not possible without plants. They provide food for all living organisms directly or indirectly. They also purify the air surrounding us.

Keeping the following things in mind, write how you can take care of plants.

(a) soil (b) water (c) light

Survival of Plants

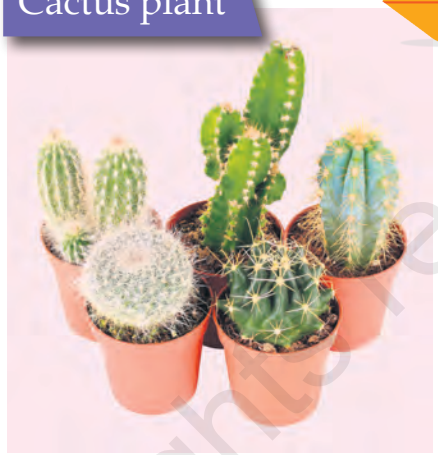
Chapter 2

We Will Explore

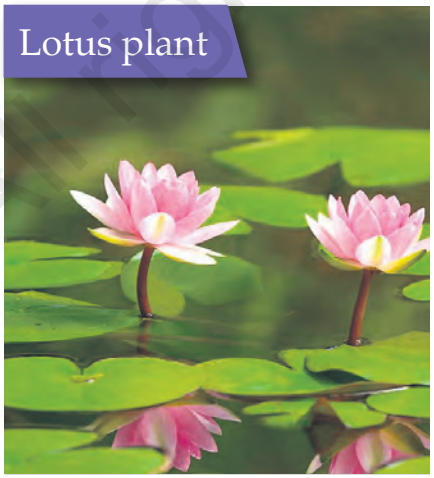
- Plant adaptations
- Classifying plants on the basis of habitat
- Classifying plants on the basis of how they obtain food

Pine tree

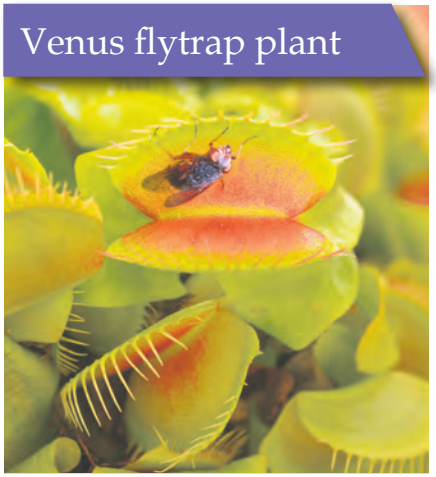
Cactus plant



Lotus plant



Venus flytrap plant



Observe the pictures above and fill in the blanks.

(1) The tiny-pointed structures are found in _____.

(2) The shape of leaves of a _____ is conical.

(3) The leaves of the _____ are broad and flat in shape.

(4) Lobed leaves of Venus flytrap plant have _____ in them.

We see different types of plants in our surroundings. Moreover, different plants are found in different places.

Plant Adaptations

We see plants everywhere, in water, on mountains, in deserts and on plains. Plants in forests are different from plants that grow in water. The same way, desert plants are different from plants in plains. Plants have adaptations to help them live and grow in different areas. These adaptations may be due to habitat, food, protection or reproduction.

What is adaptation?

The special feature that allows a plant to live or survive in a particular area is called adaptation.

Classifying Plants on the Basis of Habitat

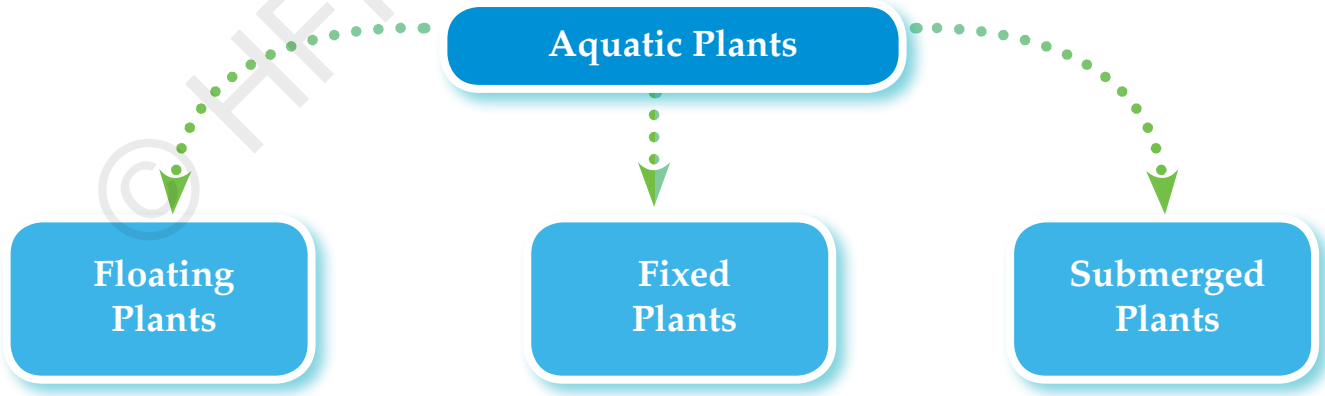
Generally plants are classified into two major groups based on their habitat.

Habitat : the place where plants or animals live

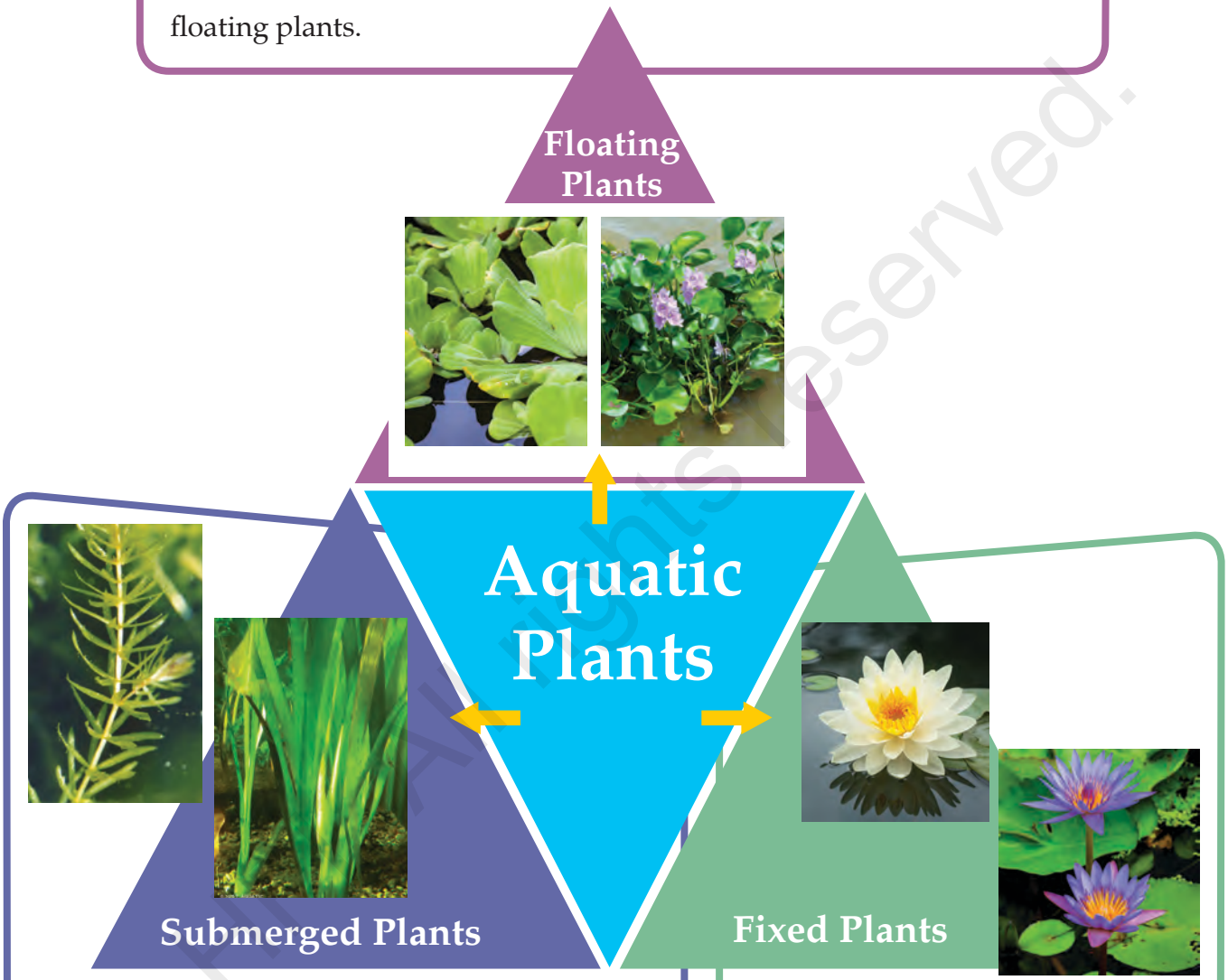
Plants that grow on land are called terrestrial plants, and those that grow in water are called aquatic plants.

Aquatic plants

Aquatic plants or water plants are of three types: floating plants, fixed plants and submerged plants.



Floating plants: These plants are able to float on water. They have adapted their light-weight bodies such that they float easily. They have spongy bodies filled with air. Water hyacinth and *Pistia* are examples of floating plants.



Submerged plants: These plants are true aquatic plants. They need to adapt to stay and breathe under water. They have tiny, divided ribbon-like leaves. The leaves have no stomata or breathing pores. These plants breathe through their body surface. *Hydrilla* and *Vallisneria* (tape grass) are examples of submerged plants.

Fixed plants: The roots of these plants are fixed. They need to adapt their broad and flat leaves to get enough air and sunlight for making food. Lotus and water lily are examples of fixed plants.

Submerged plants : underwater plants

Science Is Fun

Observe the features of the water plants.

- With your parents, visit a pond or some other water bodies.
- Observe plants such as the water hyacinth or the water lily.
- Touch the water hyacinth plants and feel whether they are spongy or hard, heavy or light.
- Observe the shape of the leaves in the water lily or lotus plants.
- Write down your observation and the reason in your notebook.

Knowledge Tree

Do you know why tape grass and duckweed plants are sometimes put in aquariums?

These plants clean the water by removing carbon dioxide breathed out by aquatic animals such as fish.

Terrestrial plants

Land plants or terrestrial plants are of different types depending on the places where they grow.

Plants in plains: In plains, the climate is neither too cold nor too hot. The plants that grow in this climate have many branches. Leaves of these plants are shed in winter. Mango, peepal and banyan trees are examples of such plants.

Mango

Peepal

Banyan

Plants in marshy areas: The area in which soil has more water is called marshy or swampy area. Generally, in such areas the land is wet, and the soil is clayey having plenty of water. So, roots do not get air properly. The plants in marshy areas have breathing roots. Mangrove plants are examples of such plants.

Mangrove tree

Plants in mountain or hilly areas: It is generally cold in hilly or mountain areas. Most of the trees in such areas are tall, straight and evergreen. A few trees have needle like leaves. The shape of the trees is generally conical. Pine and fir are examples of such trees.

Pine tree

Fir tree

Knowledge Tree

Deciduous trees shed their leaves in winter to protect themselves from cold and new leaves appear again in spring season.

Evergreen trees do not shed their leaves at all and remain green throughout the year.

Plants in deserts: Mostly the desert areas are hot, dry and sandy. So plants need to retain water and obtain water from deep inside the earth. The roots of these plants are long and spread out. Most desert plants have a few small leaves or no leaves, but they have spines to avoid loss of water through transpiration. They have green fleshy stem that contains chlorophyll to make food. Cactus and prickly pear (Opuntia) are examples of such plants.

Transpiration : the process through which water is discharged in the form of water vapour from the stomata of leaves

A type of Cactus

Opuntia

Plants in grasslands: These areas are covered with grasses. Generally small trees are scattered in such area.

Plants in coastal areas: High rainfall is generally seen in coastal regions. Moreover salty water is found in these areas. The trees in such areas have lots of leaves which do not get shed in winter. Coconut, sugarcane, rice and rubber plants are seen in coastal regions.

Coconut

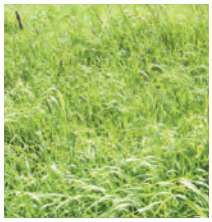
Rubber

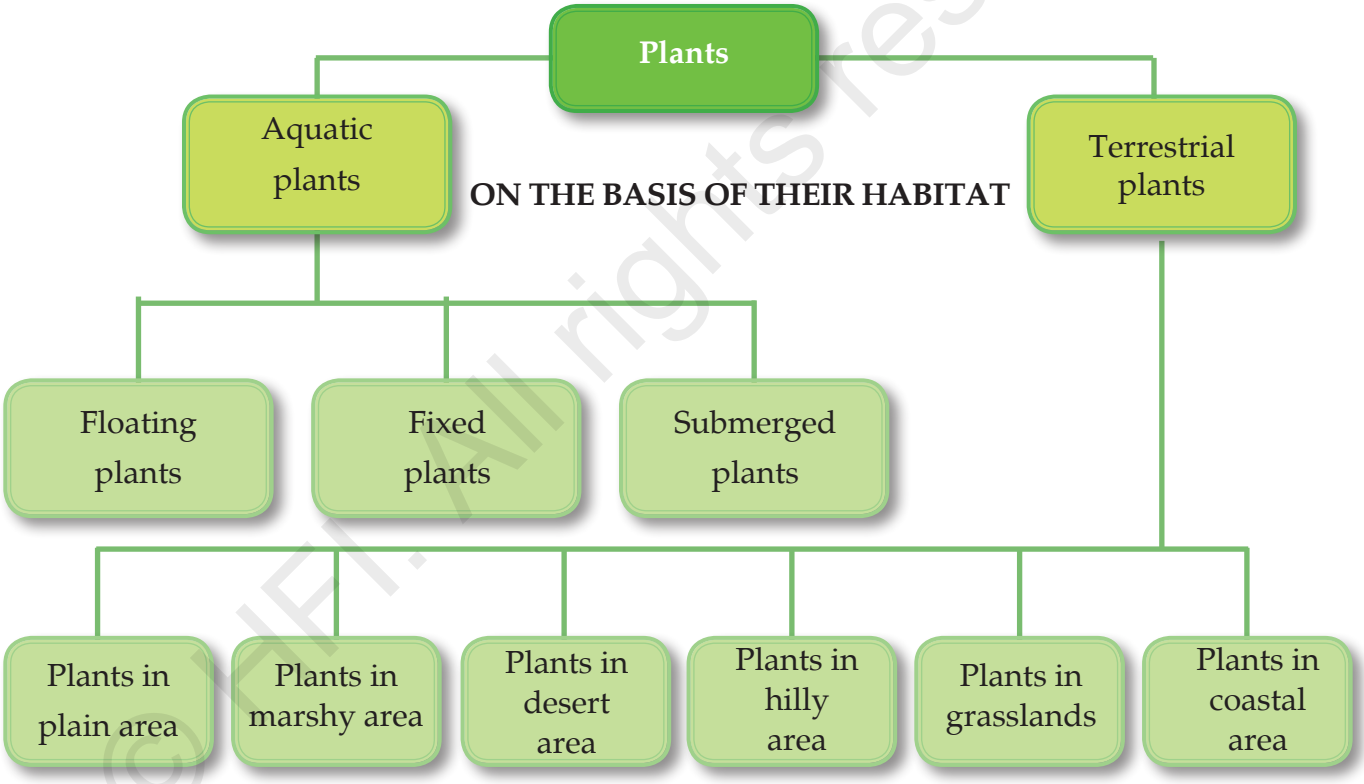
Knowledge Tree

- Rainforests are hot and wet forests that are found mostly near the equator. They receive high rainfall. The trees there are evergreen.
- Thorn forests are found in desert regions.
- Hilly forests are found in mountain/hilly regions.

Science Is Fun

Match the columns.

A					
B	Marshy area	Desert	Grassland	Coastal area	Hilly area



Classifying Plants on the Basis of How They Obtain Food

Plants are of three types based on how they get their food:

(a) green plants,
(b) non-green plants and
(c) insectivorous plants.

GREEN PLANTS

These plants generally have chlorophyll in their leaves. They make their own food through the process of photosynthesis. They are called producers. All animals depend upon them directly or indirectly for their food.

Producers: those plants that make their own food through photosynthesis

NON-GREEN PLANTS

These plants have no chlorophyll. So, they are called achlorophyllous or non-photosynthetic plants. They depend on either living organisms (parasitic) or dead and decaying materials (saprophytic) to get their food. *Cuscuta* (dodder), Indian pipe and coral root are examples of such plants. *Cuscuta* is a parasitic plant, whereas Indian pipe and coral root are saprophytic plants.

Cuscuta

Coral root

Indian pipe

Knowledge Tree

Fungi were earlier considered to be plants. They are no longer classified as plants. Now they belong to a different kingdom 'Fungi'. Mushroom and bread mould are examples of fungi. Some fungi are useful and some are harmful.

Mushroom

Bread mould

Some fungi grow on living organisms for their food. They are called parasitic fungi. They cause diseases in plants, animals and humans. Some other fungi get their food from dead and decaying materials and are called saprophytic fungi.

Yeasts are a type of fungi that are used in making bread. They make the bread soft and spongy.

Science Is Fun

Know the fungi in your surroundings.

(1) Dusty patches found on bread, cheese and books

(2) Mushrooms used in cooking

(3) Whitish dusty matter on leather products such as shoes and bags in the rainy season

(4) Wood-decaying fungi on logs

INSECTIVOROUS PLANTS

Some plants in our surroundings capture and eat insects. They are called insectivorous or carnivorous plants. Such plants have some special features to capture insects. These plants have chlorophyll, and they are also able to make their food through photosynthesis. They get some of the nutrients from the insects. Examples of these plants are Venus flytrap, sundew, bladderwort and pitcher plants. In the pitcher plant, the leaf is modified into a pitcher with a lid to capture insects.

Venus flytrap

Sundew

Bladderwort

Pitcher

Myths and Truths

Myth: Some carnivorous plants such as Venus flytrap eat people.

Truth: They are not actually man-eaters. Humans are too large for a flytrap to digest. They can capture, eat and digest small animals, insects, etc. but they cannot eat big animals.

We Have Explored »

1. Adaptations are special features in plants that help them live and grow in different areas.
2. Plants are aquatic and terrestrial, depending on their habitat.
3. Aquatic plants can be floating, fixed or submerged.
4. Terrestrial plants are of different types, depending on the places where they grow.
5. Some non-photosynthetic plants depend on either living organisms or dead and decaying materials to get their food.
6. Insectivorous plants capture and eat insects.

Recall and Answer »

(1) Tick (✓) the correct option.

(a) Which adaptation is found in plants growing in marshy area?

(i) Spines (ii) Fleshy

(iii) Absence of leaves (iv) Breathing roots

(b) Light weight and spongy bodies filled with air are found in _____

(i) floating plants. (ii) submerged plants.

(iii) hilly area plants. (iv) desert plants.

(c) Two wing like lobes of the leaf catches the insects in the _____

(i) sundew plant. (ii) Venus flytrap.

(iii) bladderwort. (iv) pitcher plant.

(d) Leaves are very few or absent in most desert plants because _____

(i) they eat insects. (ii) they get food from dead materials.

(iii) it avoids loss of water. (iv) there is no need for photosynthesis.

(2) Write 'T' for true and 'F' for false statements.

(a) Lotus and water lily are fixed water plants.

(b) The land is wet and soil is clayey in marshy areas.

(c) Lots of leaves are found in desert plants.

(d) Hilly plants are generally cone shaped.

(e) Insectivorous plants cannot make their own food.

(3) What adaptations are found in desert plants?

(4) How do breathing roots help in marshy areas?

(5) What are fungi? Give two examples.

(6) Write the features of plants found in hilly/mountain area.

(7) Name three insectivorous plants.

Think And Answer

(1) Observe the plant and answer the following questions:

(a) Name the plant. _____

(b) The plant grows in _____ area.

(c) What are the features of this plant?

(d) In India, this type of plant is found in _____. Rajasthan/Kashmir

(2) Observe this picture. Answer the following questions:

(a) Leaves are absent in such plants. How do they make their food?

(b) Some thorns are there on this plant. What is their role?

(c) Its stems are thick and fleshy. Why?

(3) Look at the picture.

(a) The name of this plant is _____.

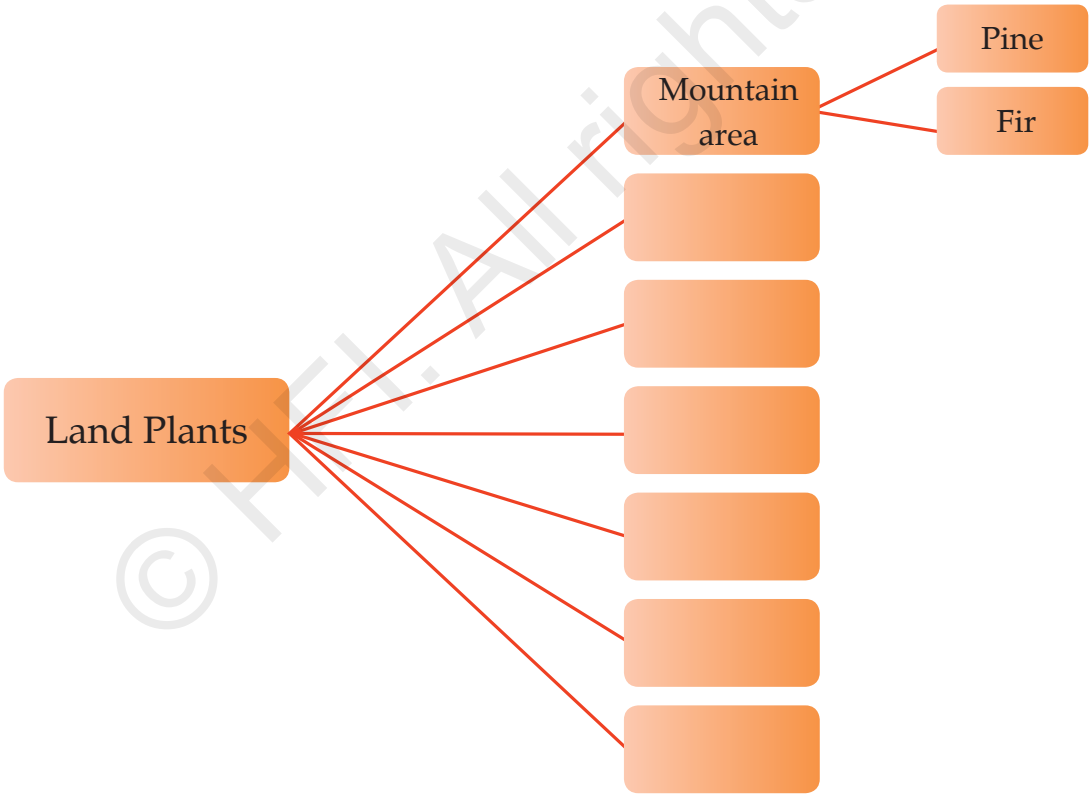
(b) It is beautifully coloured. Why?

Create and Learn

(1) Draw a Christmas tree on a drawing sheet. Colour it and then decorate it. Write 2 to 3 lines about this plant.

(2) Make a chart of different land habitats.

Name at least two plant that are found in each.
One has been done for you.



Think Beyond

(1) Insectivorous plants eat insects, although they are capable of preparing their own food. Why?

(2) Plants found in mountains are generally cone shaped. Why?

Values to Learn

People live in different regions, be it a desert area, forest area or mountain area. Similarly, different types of plants are seen in different areas. The presence of plants is extremely necessary to survive on this earth. Plants help the environment and people in different ways. Write five to six points saying how plants help us and our environment and what we should do to take care of plants.

Subject Link

(1) In India, different habitats are found in different regions. Try to know some of the regions and fill in the blanks.

(a) In Kerala and Goa, plenty of coconut trees are found. Those are _____ regions.

(b) In Kashmir and Himachal Pradesh, many evergreen, straight and cone-shaped trees are found. Those are _____ regions.

(c) In Rajasthan and some parts of Gujarat, thorn forests are found and leaves are absent. Those are _____ regions.

(d) In West Bengal, mangrove plants are found in the Sunderban forest. That is a _____ region.

(e) In Assam and Nagaland, thick populated forests are found. Those are _____ regions.

(2) Visit some places such as Kerala, Goa, Rajasthan and Jammu and Kashmir. Observe different types of trees found in those places.

Chapter 3 Animals: Life Cycle

We Will Explore

- Reproduction
- Type of animals based on reproduction
- Animals that lay eggs
- Animals that give birth to babies

The picture above shows a few animals, birds and their babies.

(1)	Have you seen the eggs of a hen?	Yes/No
(2)	Do you know that a baby comes out of the egg?	Yes/No
(3)	Have you ever seen the egg of a pigeon?	Yes/No
(4)	Have you ever seen the babies of a dog/cat ?	Yes/No

Reproduction

Living things such as plants and animals do not live forever. They die after a certain time. To continue life, all living things have the ability to produce more of their own kind.

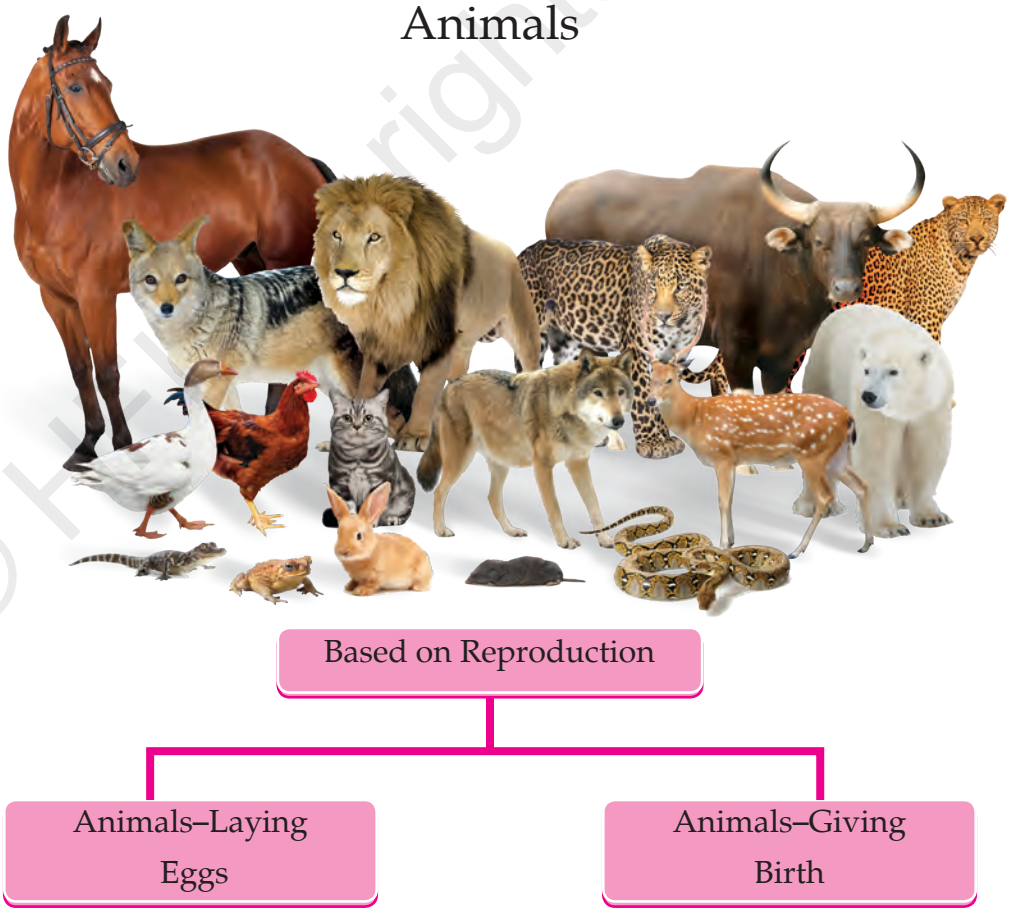
The process by which animals produce young ones of their own kind is called reproduction.

Types of Animals Based on Reproduction

Animals reproduce in two ways. On the basis of the ways in which they reproduce, we can divide them into two types.

(1) Some animals such as hens, fish and frogs lay eggs, from which young ones come out. These are called egg-laying animals.

(2) Some animals such as cats, dogs, tigers and humans give birth to young ones and feed them with their own milk. Such animals are called mammals.



Animals that Lay Eggs

Birds, amphibians, insects, reptiles and some water animals lay eggs. Once the eggs mature, the young ones hatch out. The baby develops outside the mother's body.

BIRDS

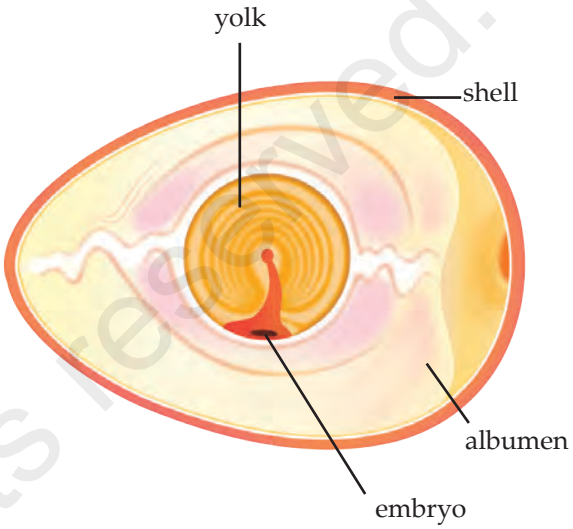
Birds lay eggs in their nests.

(a) The yellow portion is called the yolk.

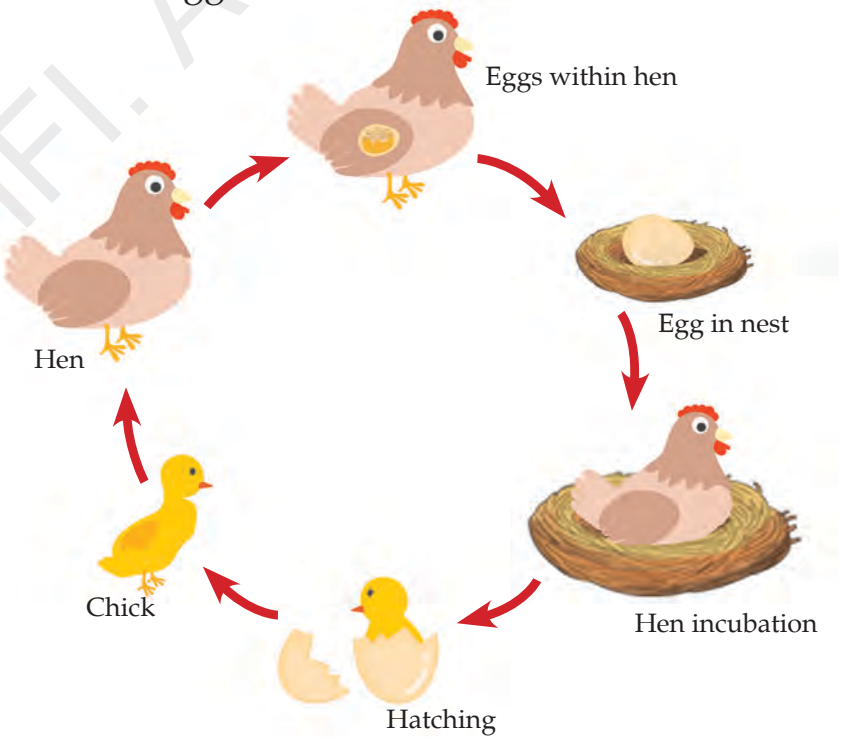
(b) The yolk contains the embryo, which grows into a baby bird.

(c) The hard outer layer of the egg is called the shell.

(d) A white watery substance surrounds the yolk, which is called albumen. It is rich in protein and protects the yolk.



Life cycle of a hen: Look at the life cycle of the hen in the picture. After laying eggs, the hen sits on the eggs for few weeks to keep them warm. This period is called the incubation period. When the baby birds are fully developed, they break the egg shell and come out. This is called hatching.



Knowledge Tree

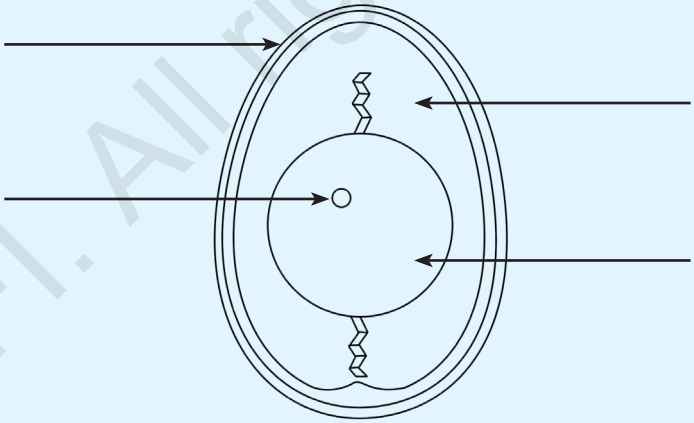
The egg of an ostrich is the largest egg on land. The largest recorded egg weighed 2.589 kg on 17th May 2008.

Hatching: the process in which young ones come out from eggs

Life cycle: a series of changes that occur in the life of an organism, including reproduction

Science Is Fun

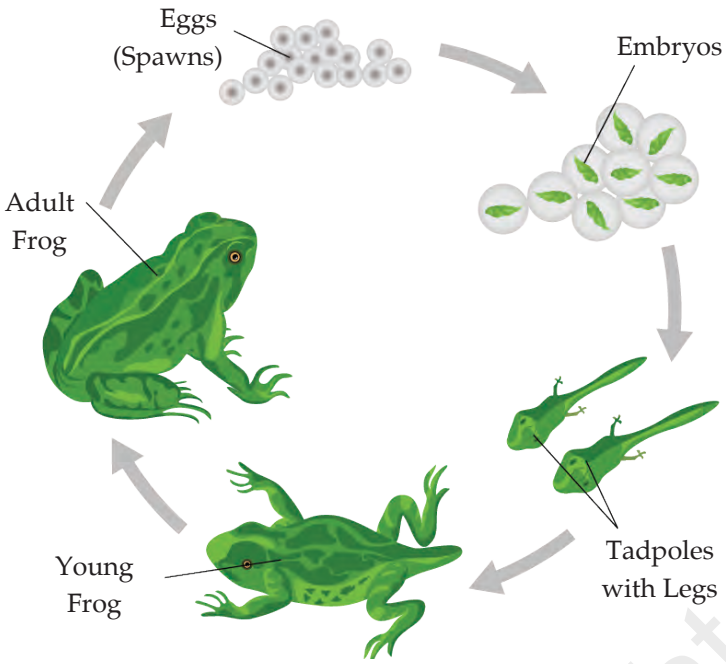
Label the parts of the egg in the following picture.



FROGS

Life cycle of a frog: A female frog lays many eggs at a time in ponds or other waterbodies. These egg clusters are called spawns. When the eggs hatch, tiny fish-like bodies with tail come out. They are called tadpoles. They swim in water like fish and eat. They look very different from adult frogs. They undergo several

changes called metamorphosis. After a few weeks, they develop legs, and gradually the tail disappears. After a few days, the young frog becomes the adult frog.



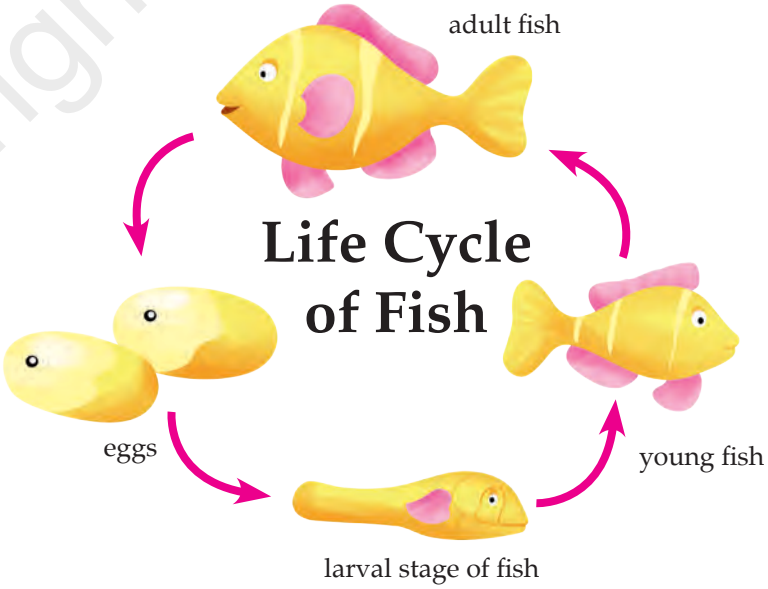
Knowledge Tree

Bats have wings and look like birds, but they are mammals because they give birth to young ones and feed them milk.

FISH

Fish, starfish and crabs are examples of water animals. They normally lay eggs, but all of them do not.

Life cycle of a fish: Most fish lay eggs in water. At a time, they lay thousands of eggs. When the eggs hatch, baby fish come out. They swim in water and gradually become adult fish.



INSECTS

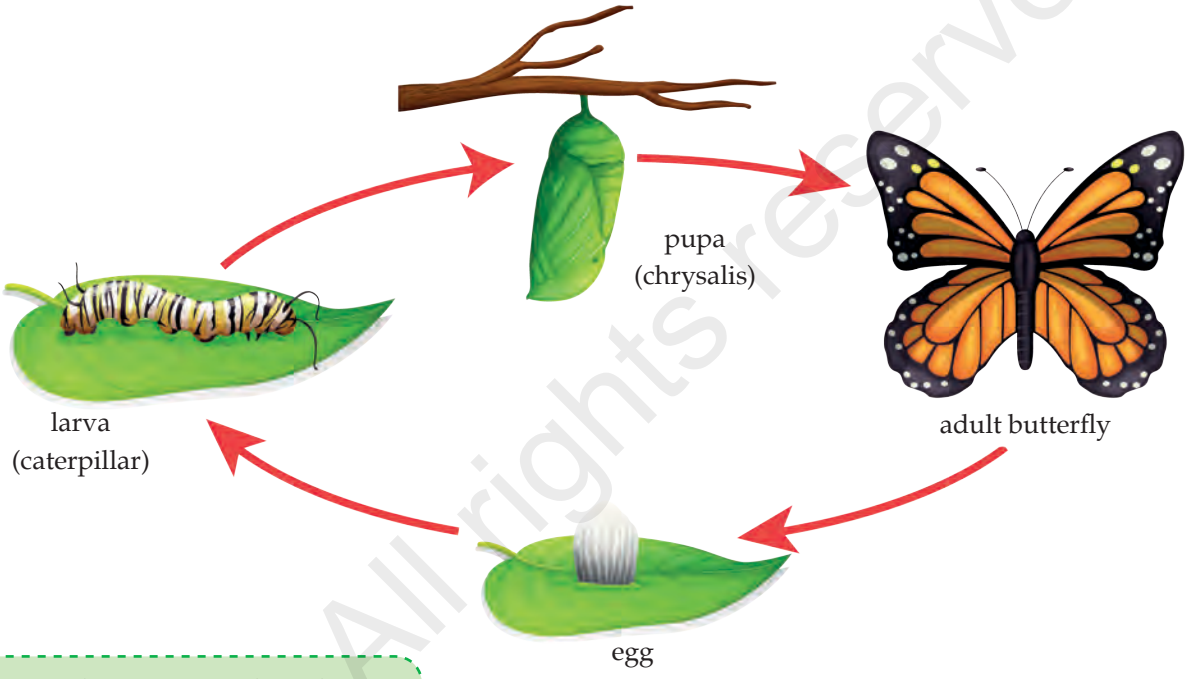
All insects lay eggs. These eggs go through several stages to become an adult insect. Their life cycle shows metamorphosis. Insects such as houseflies, moth and butterflies pass through four stages of their life cycle, whereas insects such as grasshoppers and cockroaches pass through three life cycle stages.

Life cycle of a butterfly (four stages)

(1) A butterfly lays hundreds of eggs at a time and the eggs hatch into young ones. They are called larvae or caterpillars. (The larva of a housefly is called maggot.)

(2) The caterpillar looks very different from a butterfly. After a few days, the caterpillar builds a cocoon around itself to form the pupa. During this period, it sheds its skin several times.

(3) An adult butterfly comes out from the cocoon after a few days.

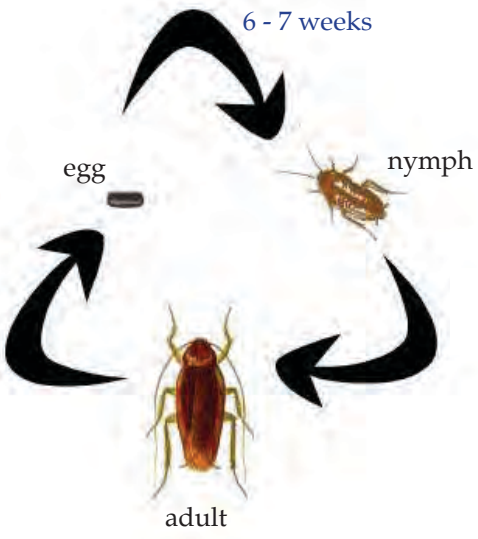


Metamorphosis: a complete change from the young form to the adult form

Life cycle of a cockroach (three stages)

(1) An adult cockroach lays eggs. After two weeks, the eggs hatch into young cockroaches, called nymph.

(2) The nymph sheds its skin several times and changes into an adult cockroach. This shedding of old skin is called moulting.



Science Is Fun

Know the different stages of the life cycle of a butterfly.

Below are the pictures of the different stages of the life cycle of a butterfly. Number these pictures in the correct order.

REPTILES

Animals such as snakes, crocodiles, tortoises and lizards that have dry and scaly skin are called reptiles. They lay eggs. Crocodiles and tortoises lay eggs in shallow pits near water-bodies.

Eggs of snakes

Eggs of tortoise

Eggs of crocodile

Science Is Fun

Pictures of a butterfly, a frog and a cockroach are given. Write the words in the box under the correct picture.

spawn
tadpole
nymph
caterpillar
cocoon

Animals that Give Birth to Babies

The animals that give birth to young ones and feed them their own milk are called mammals. Lions, tigers, dogs, cats and human beings are examples of mammals.

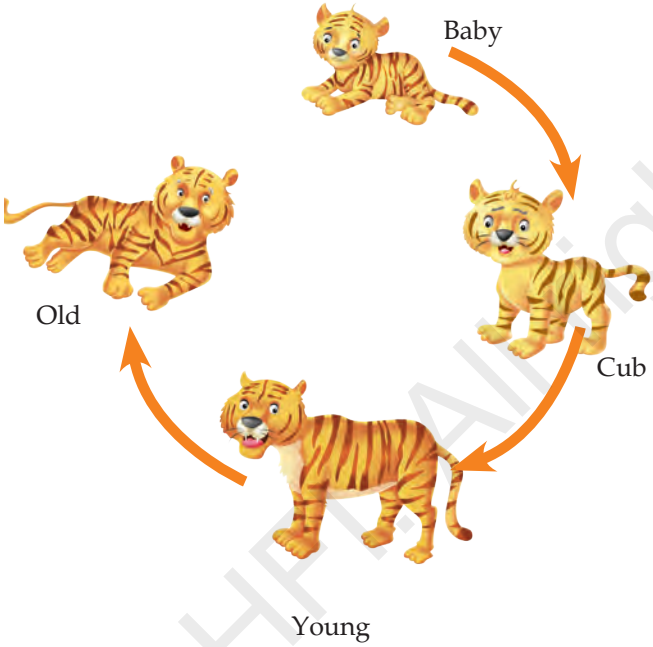
Following are the main features of these animals:

(a) The young ones grow inside the body of the mother for many weeks.

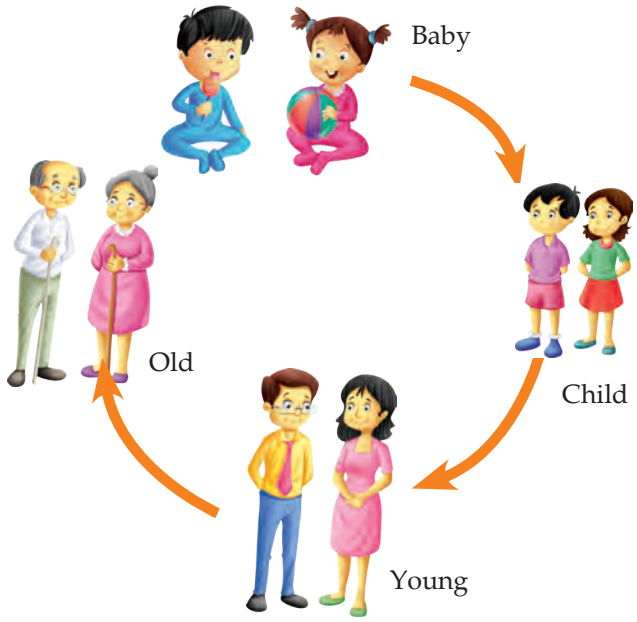
(b) When they are born, the mother takes care of them and feeds them her milk and protects them until they become independent.

Knowledge Tree

Whales and dolphins are some water animals, that give birth to young ones.



Life cycle of a tiger



Life cycle of a human being

Knowledge Tree

1. The duck-billed platypus is a mammal, that lays eggs instead of giving birth but this mammal feeds her milk to her young ones.
2. Marsupials are a group of mammals that carry their young ones in a pouch called marsupium. Kangaroos are examples of marsupials.

We Have Explored »

1. Reproduction is the ability to produce young ones.
2. Animals reproduce either by laying eggs or by giving birth to babies.
3. Birds, insects, butterflies, frogs, fish, cockroaches, turtles and snakes are the animals that lay eggs.
4. Cats, dogs, tigers, lions and humans are mammals that give birth to babies.

Recall and Answer »

(1) Tick (✓) the correct option.

(a) The white jelly-like substance that surrounds the yolk is rich in

(i) sugar. (ii) fat.

(iii) protein. (iv) mineral.

(b) The process of shedding old skin is called _____

(i) reproduction. (ii) moulting.

(iii) hatching. (iv) metamorphosis.

(c) The larva of a cockroach is called _____

(i) spawn. (ii) maggot.

(iii) nymph. (iv) caterpillar.

(d) Which of the following passes through three stages of life cycle?

(i) Butterfly (ii) Cockroach

(iii) Moth (iv) Housefly

(2) Match the following animals to their young ones.

A
Frog
Butterfly
Cockroach
Housefly

B
Nymph
Maggot
Caterpillar
Tadpole

(3) What is a nymph? Name the animal whose young one is called nymph. Where is it found?

(4) What is metamorphosis? Give three examples where metamorphosis is seen.

(5) Write three features of animals that give birth to babies.

(6) Do all water animals lay eggs? Write two lines about the life cycle of a fish.

Think And Answer

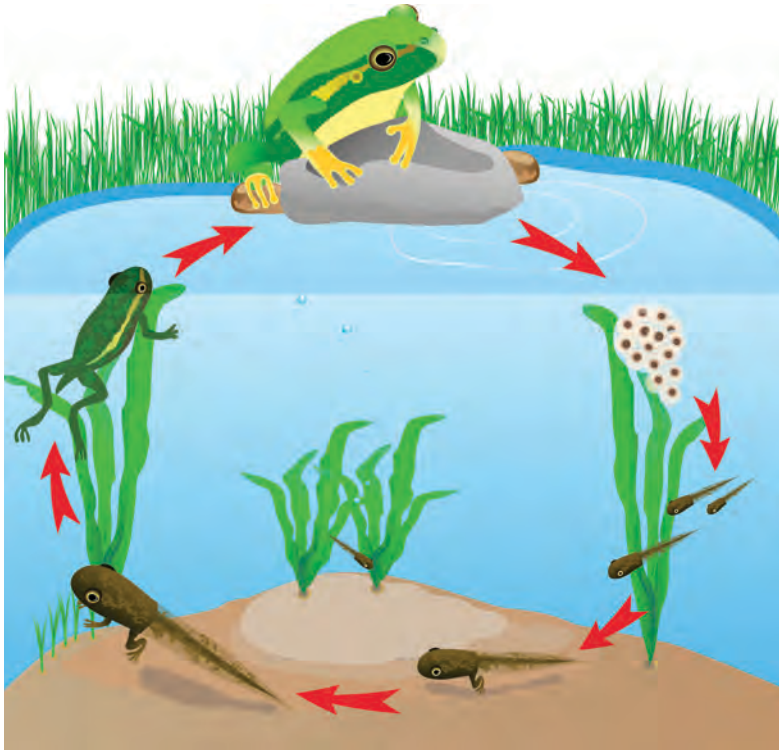
(1) Observe the picture. Answer the following questions:

(a) This is the life cycle of a _____.

(b) Name the young one of the animal that has a long tail.

(c) The cluster of eggs produced by this animal is called _____.

(d) How is a fish and this animal alike? Write their two similarities.



(2) (a) How is a bird different from a crocodile?

(b) Name the animal that lives in water but has no gills to breathe. It gives birth to babies like cats and dogs.

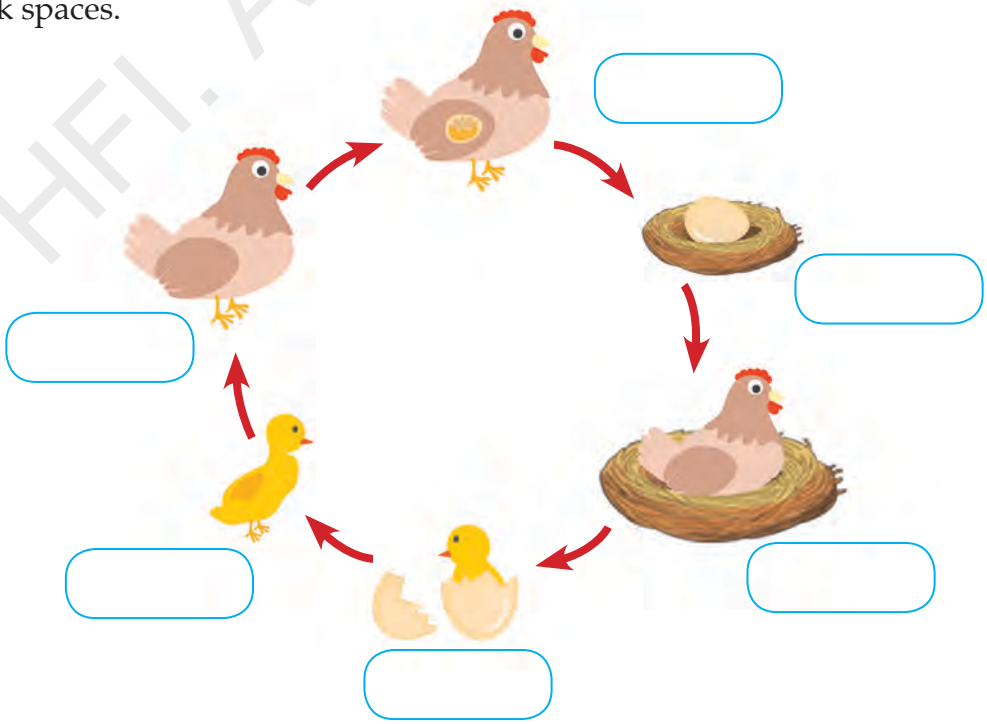
(3) Observe the picture and fill in the blanks.

The picture shows a stage in the life cycle of an insect called _____.This stage is called _____. The covered structure around the insect is _____. During this stage, the insect sheds its skin several times. This process is called_____.

Create and Learn

(1) Grasshopper and cockroaches show three stages of their life cycle. Draw the life cycle of a grasshopper. Label the stage where moulting occurs.

(2) Below is the life cycle of a hen. Complete the life cycle by filling in the stages in the blank spaces.



(3) Visit a zoo with your parents. Make a list of the animals you see there. Write down their names in the correct columns.

Animals that lay eggs	Animals that give birth

Think Beyond

(1) Fish and frogs lay a large number of eggs at a time. Why?

(2) A frog can live on land, but the baby of the frog cannot live on land. Why?

Values to Learn

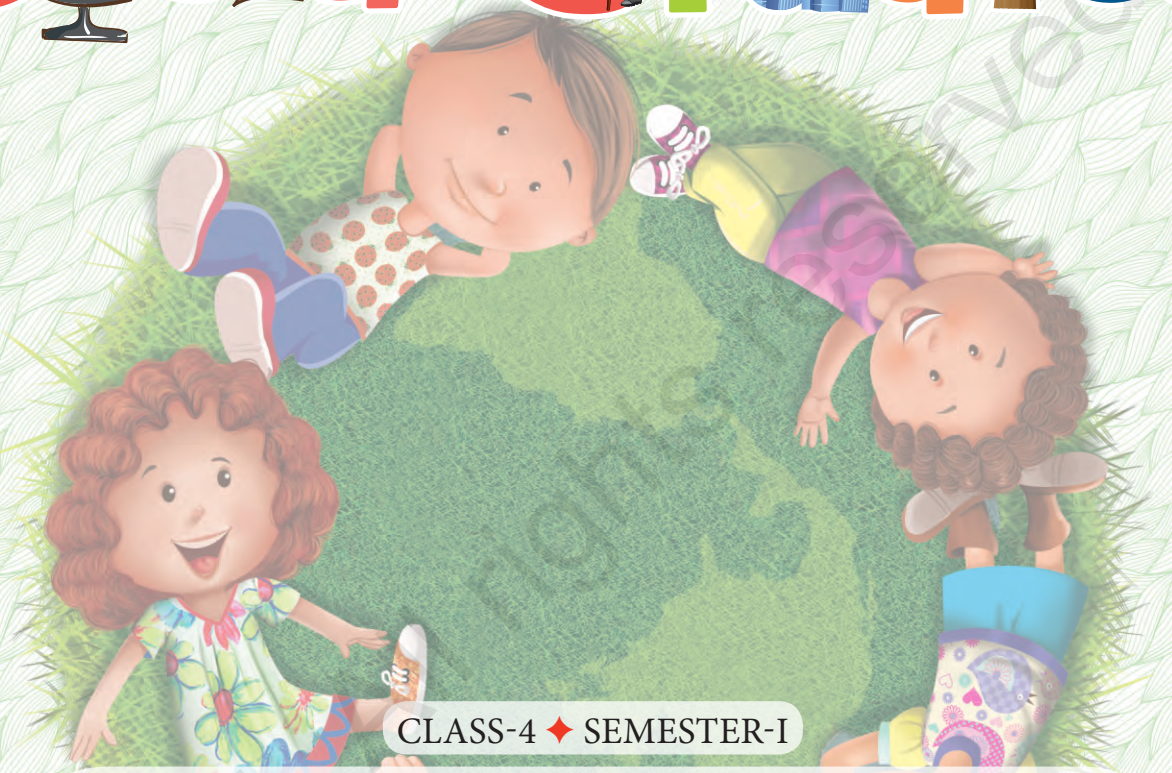
(1) What would you do if you find a new born kitten near your house, without its mother?

(2) While playing in the garden, Neer was trying to catch butterflies. Falak stopped him from doing so.

(a) Was Neer doing the right thing? Why?

(b) What values were shown by Falak?

Social Studies



CLASS-4 ✦ SEMESTER-I

CHAPTER

1 Reading Maps

You Will Learn

- Maps and globe
- Types of maps
- How to study a map?

LET US BEGIN

Cheeni and Angie had learnt in their previous class that maps and globes help us to find places on Earth.

Let us do a quick recap with Cheeni and Angie. Fill in the blanks.

- The Earth is shaped like an …….
- The Earth is flattened at the top and bottom. These flattened points are called …….
- The flattened point at the top of the Earth is known as …….. and the flattened point at the bottom of the Earth is known as …….
- In 1519, an explorer named Ferdinand Magellan sailed from Spain. He sailed for many years in one direction and finally returned to the same place. It proved that the Earth is …….. and not flat.
- A …….. is a drawing of the Earth on a flat surface, usually paper.
- A …….. is a model of the Earth that is quite similar to it.

MAPS AND GLOBES

When we look at the Earth from space, it looks like a huge ball. The Earth is shaped like an orange. We are unable to see the entire Earth at the same time because of its large size.

The Earth is shaped like an orange

A Globe

A Map

A globe is a small model of the Earth. It helps us to see the different places on Earth. When we spin the globe, we can see all the places on Earth.

When we draw any part of the Earth on a flat surface such as paper, it is called a map. We can easily carry maps from one place to another.

While travelling to a new place, Cheeni enjoys looking at the map of the place she is travelling to. An atlas is a book of maps.

TYPES OF MAPS

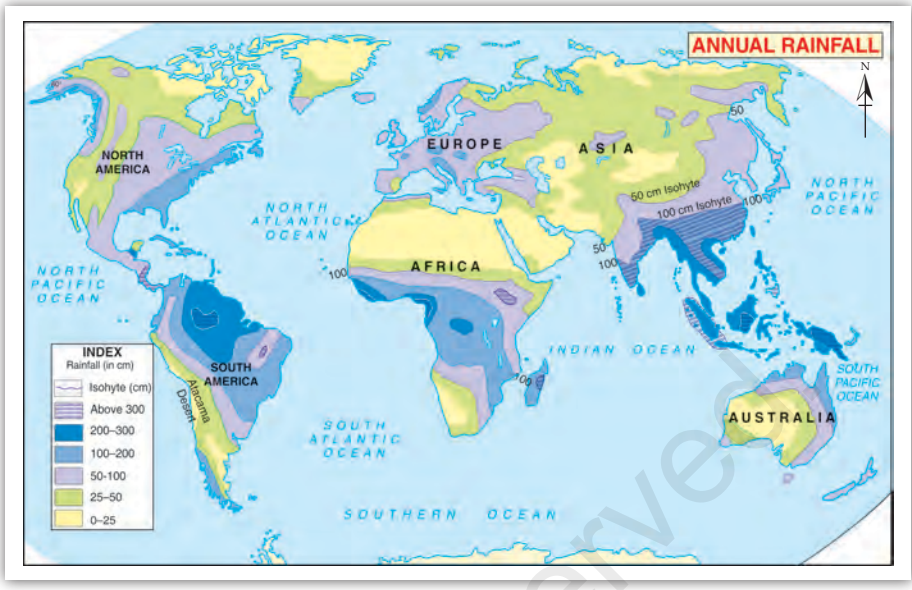
Maps are of different types. Each type of map shows a special type of information. Physical maps help to know the location and shape of various natural features on the Earth. These features include natural landforms and waterbodies such as mountains, plateaus, deserts, rivers and seas. Some maps also show human-made structures such as roads, dams, bridges and parks.

Map 1.1: Physical map of Europe

Political maps show the location and boundaries of countries, states, union territories, capitals and cities.

Map 1.2: Political map of Europe

Thematic maps are based on a particular theme or subject such as distribution of rainfall, crops and population.



Map 1.3: Thematic map of the world

HOW TO STUDY A MAP

In the previous class, we have learnt how to find directions on a map with the help of a compass rose. The art of making maps is called cartography. A person who makes maps is called a cartographer. A map is made with the help of directions, scales, key or legend.

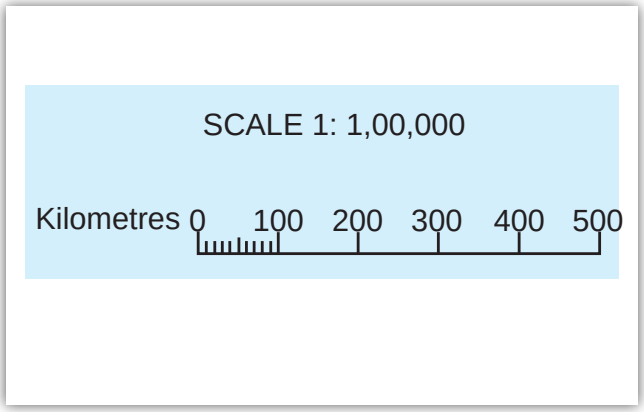
Directions are most important to find the location of a specific place. Sailors, explorers and travellers used a magnetic compass to find directions. It has a needle that always points towards the North. Later they started using maps to know directions. On a map, the top always shows the North, the bottom south, east is on the right and west on the left. On a map, directions are always shown on the top through a compass rose or a North Line (N).

A compass rose on a map

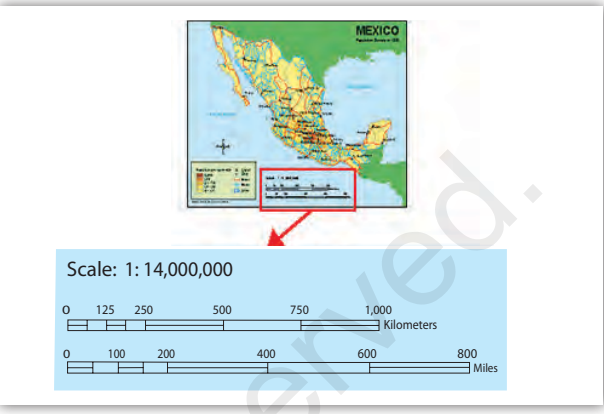
Let Us Explore

Draw a map to show the route from your house to your school. Show the important buildings you pass through.

The actual distance between places cannot be shown or drawn on a map. So a map is always smaller than the actual size. Scale of a map shows the reduced distance shown on the map compared to the actual distance on the ground. It also shows how distances on the map are related to distances on the actual ground. The scale is mentioned at the bottom of the map.



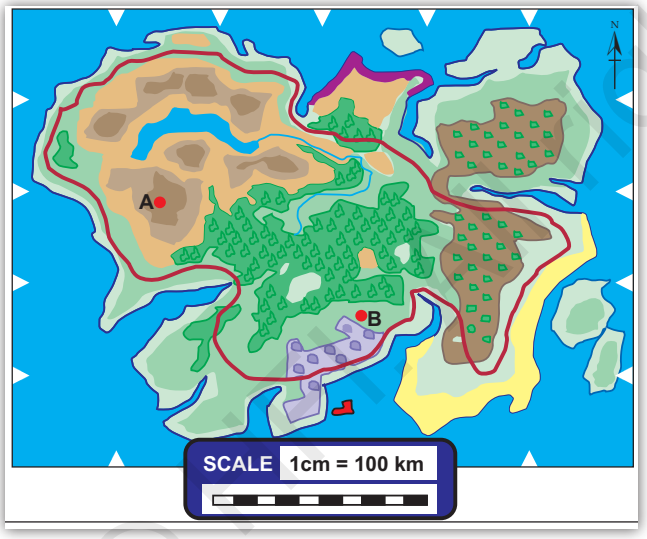
A scale where 1 cm on the map is equal to 100 km on actual surface



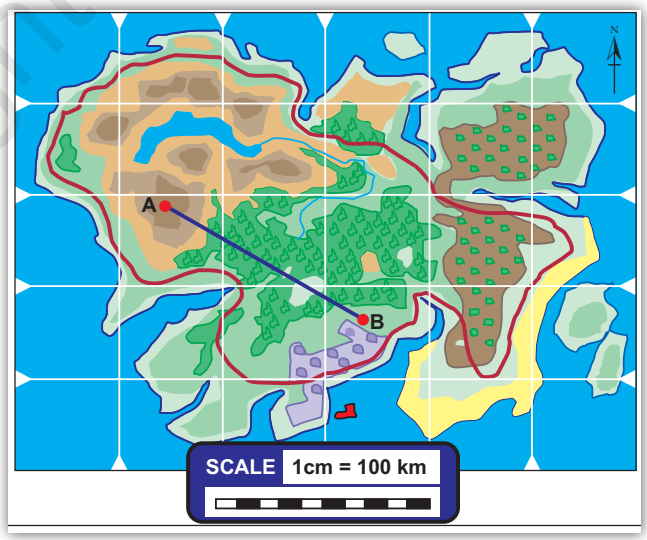
Scale shown at the bottom of a map

With the help of a scale we can calculate distance between places. Grid is the network of lines on a map. These lines are called latitudes and longitudes. You can see grid in picture 2.

Picture 1



Picture 2

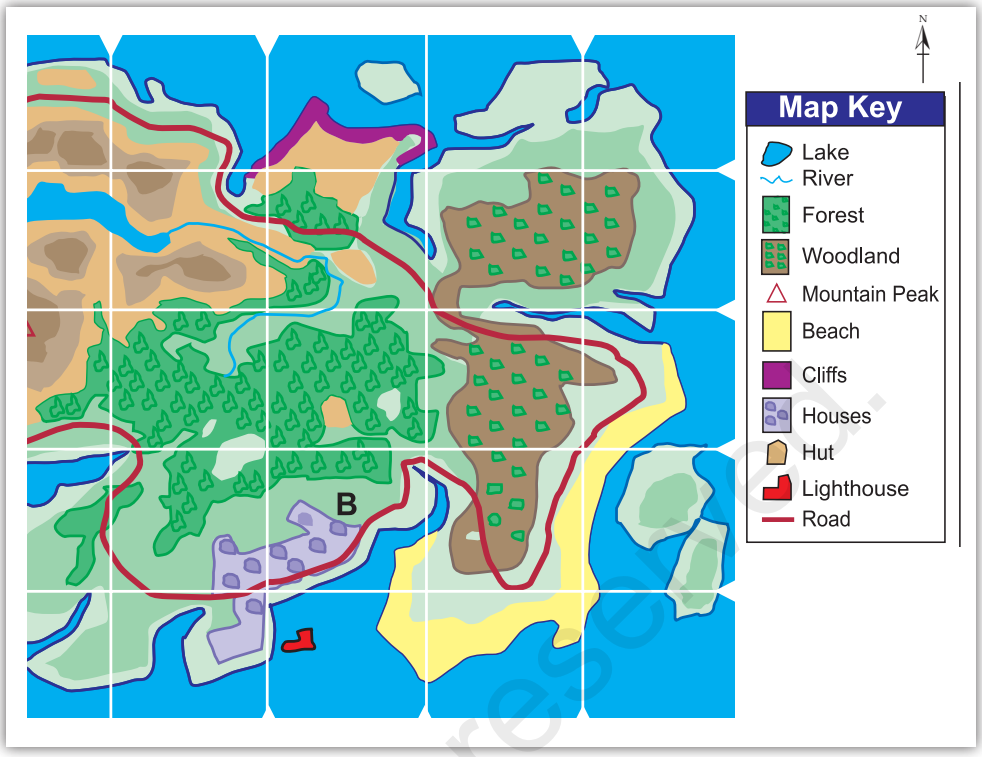


See the map given in Picture 1. Let us take A and B as two places on the map. Refer to picture 2. Draw a straight line connecting points A and B. Place the ruler along this line and measure the distance between points A and B, in centimetres.

We see that the distance between A and B on the map = 3 cm. Refer to the scale. The scale of the map is 1 cm = 100 km.

So the actual distance between A and B on the ground = Distance on the map x 100 i.e. 3 x 100 = 300 km

The colours that we see on maps help us to identify the different physical features. Some standard colours are used to show specific features. Brown is used to show mountains, green is used to show plains, blue is used to show waterbodies, light brown is used to show plateaus and yellow is used to show deserts.



Colours and symbols used in a map key

A map has limited space to show all the features. We use different symbols to show these features on a map. These symbols stand for different natural and human-made features shown on a map. They are known as conventional symbols. To know what these colours and symbols stand for, we use a map key or legend on a map. The legend or map key is shown in a box at the corner of the map. With the help of a map key we can understand any map.

You Have Learnt

- A map is a drawing of a part of the Earth on a flat surface such as paper.
- An atlas is a book of maps.
- Physical, political and thematic are the three main types of maps.
- The features that help us to study a map are direction, scale, colour, symbols, and map key or legend.

map: a drawing on a flat surface that shows the rivers, mountains, streets, etc., of a particular area
globe: a small model of the Earth
atlas: a book of maps
compass rose: a figure used to show directions

EXERCISES

Let Us Answer

A **Fill in the blanks.**

1. ..... is a drawing of any part of the Earth on a flat surface.
2. ..... maps tell us about the boundaries of countries.
3. A ..... rose shows directions on a map.
4. A ..... or ..... explains what colours and symbols show on a map.
5. The ..... shows the actual distance on the ground in relation to the distance shown on the map.

B **Write T for True and F for False.**

1. A legend shows what the symbols represent on the map. ☐
2. Mountains are marked with green on a map. ☐
3. A globe is a flat drawing of the Earth. ☐
4. The needle of a compass always points towards the east. ☐
5. A book of maps is called an atlas. ☐

C **Answer the following questions in your exercise book.**

1. What is a globe?
2. What is a map?
3. What does the scale on a map show? Why do we need a scale for any map?
4. Name the different types of maps.

Think Beyond

HOTS Question

Find out why a map is more useful than a globe.

Let Us Do

A **Study the map of the park and complete the questions that follow.**

1. How many picnic tables are in the park? ……..
2. Draw a circle around the swings.
3. Colour the trash cans blue.
4. Draw a triangle around the stop sign.
5. How many slides are in the park? ……..

B **Make a chart on the types of maps.**

Life Skills

Thinking Skills

Antarctica is covered with snow and ice for the whole year. Can humans, animals and plants live there? What problems would we face in Antarctica?

Map Work

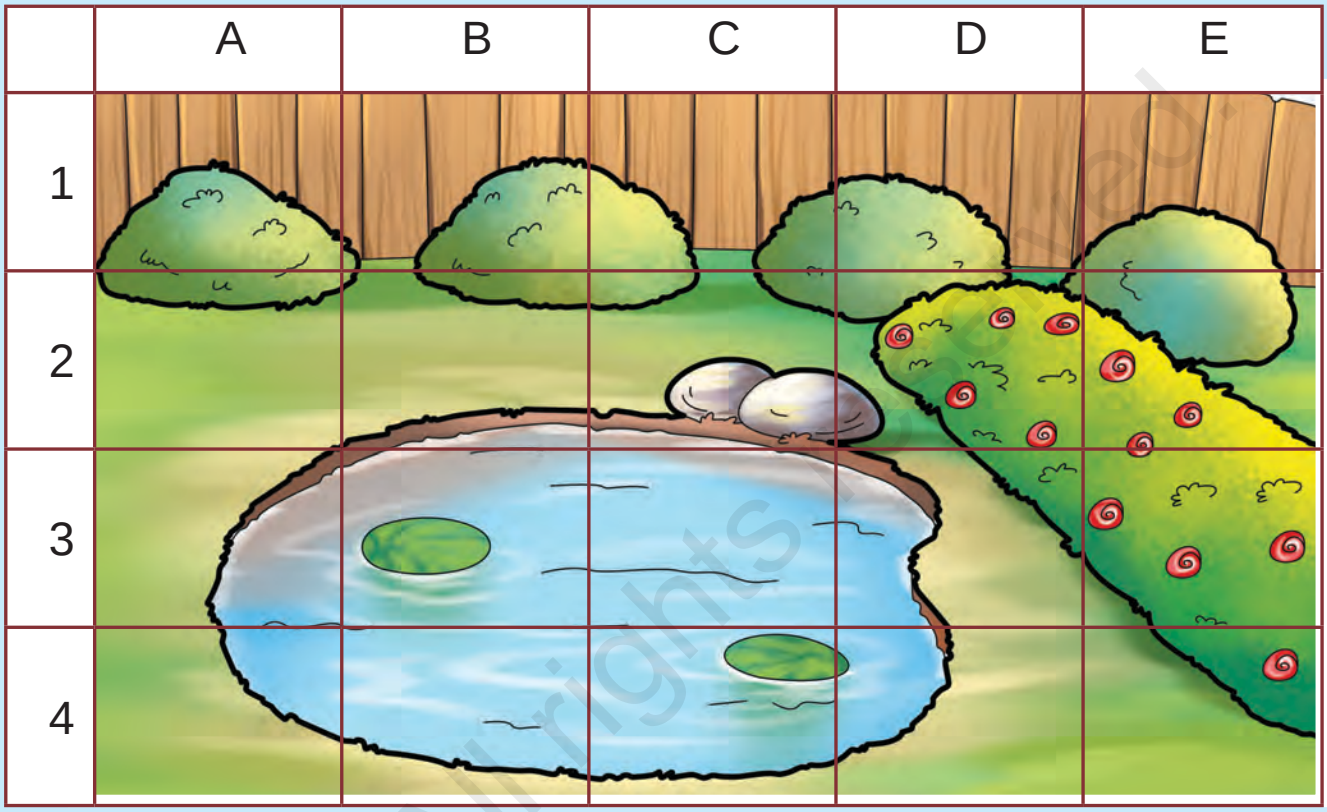
Mark and label the five oceans and the seven continents on a map of the world. Colour the oceans blue and use different colours to colour the continents.

Internet Links

- http://www.jrank.org/history/pages/8345/How-Do-I-Use-Globes-Maps.html
- http://kids.britannica.com/comptons/article-204238/maps-and-globes
- http://geography.mrdonn.org/mapskills.html

Project Time

FINDING A FAMILY TREASURE! Follow the directions given below to reach the spot where your great-grandparents hid a pot of gold coins several years ago.



DIRECTIONS:

1. Start from square A4
2. Move 2 squares up
3. Move 4 squares right
4. Move 1 square down and mark a circle
5. Dig this square

Introduce the concept of sphere and discuss with children that a globe is a model of the spherical Earth. Make children understand that a map is a flat drawing of the Earth. We use scales and grid to locate places and determine ground distances and show them on a map. Tell children that maps show a relative position and size of landmasses and waterbodies. You may engage children with fun activities at http://www.havefunteaching.com/worksheets/social-studies-worksheets/map-worksheets.

CHAPTER

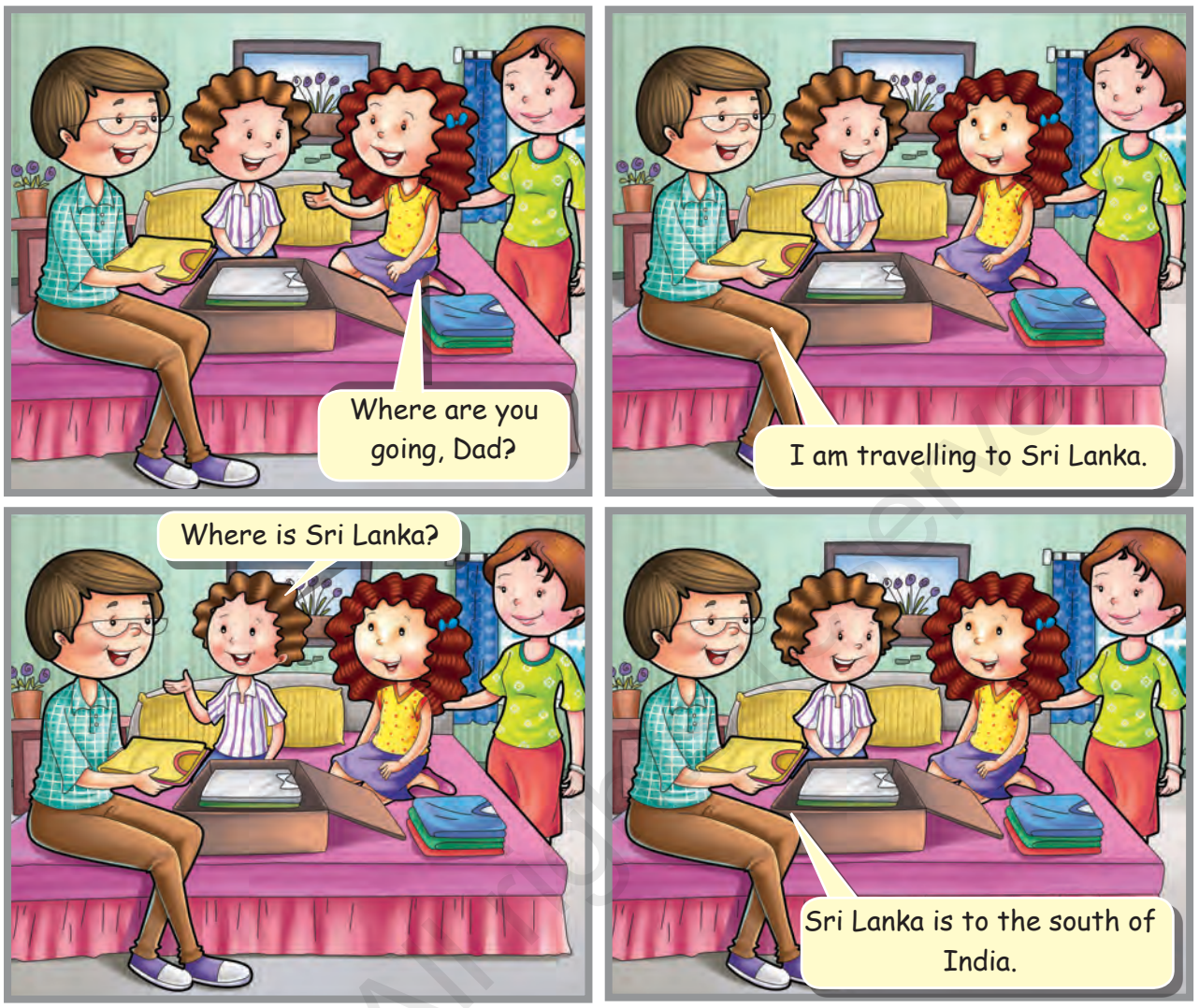
2 About India

You Will Learn

- Neighbouring countries of India
- Physical features of India
- Political divisions of India

LET US BEGIN

Do you remember the names of the neighbouring countries of India that you have learnt in the previous class? Name them.



NEIGHBOURING COUNTRIES OF INDIA

India lies in the southern part of the continent of Asia. It is the seventh largest (in area) country in the world. Sri Lanka, Bangladesh, Bhutan, Myanmar, China, Nepal, Afghanistan, Pakistan and Maldives are the neighbouring countries of India. India and some of its neighbouring countries together are known as the Indian Subcontinent.

PHYSICAL FEATURES OF INDIA

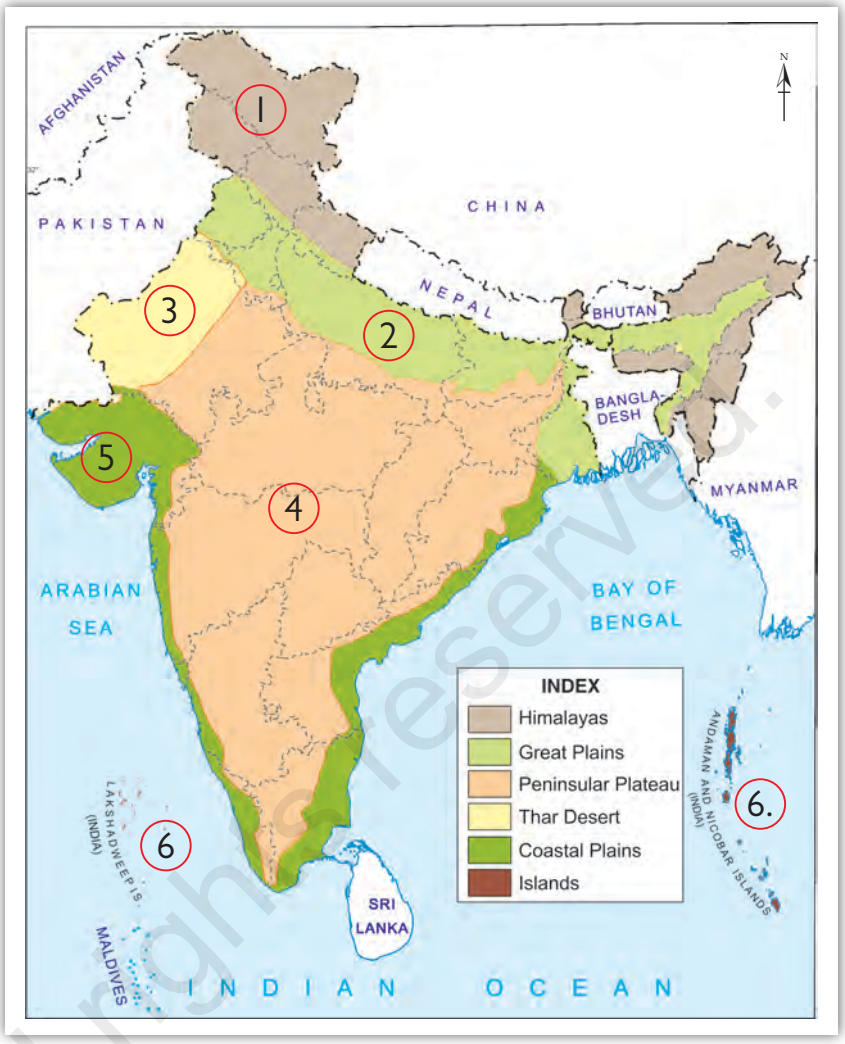
The landforms and waterbodies of India form the physical features of India.

The physical features of India are:

1. The Northern Mountains
2. The Northern Plains
3. The Great Indian Desert
4. The Plateau Region
5. The Coastal Plains
6. The Islands

Talking Point

Do you think the different types of landforms in India make it a special and interesting country? Share your thoughts with the class.



Map 2.1: Physical features of India

In the north, we have the snow-capped peaks of the Northern Mountains. They are known as the Himalayas. These mountains run from the north-west to the north-east of India like a huge arc. They protect us from the extreme cold winds that blow from the Central Asia.

The vast flat lands to the south of the Himalayas are called the Northern Plains. These plains have rich fertile soil brought down by the rivers Ganges (or Ganga), Indus, Brahmaputra, and their tributaries.

In the western part of India, lies the Great Indian Desert. It is also known as the Thar Desert. This is a hot and dry sandy area. Very few plants like cactus and date palms grow in the Thar Desert.

The southern part of the Plateau Region is the vast tableland known as the Deccan Plateau.

On the western and eastern sides of the Deccan Plateau, are the Coastal Plains. The Deccan Plateau is bordered by mountain ranges on the eastern and western sides. The ranges on the west are called the Western Ghats and on the east they are called the Eastern Ghats.

India has two main island groups. The Andaman and Nicobar Islands lie in the Bay of Bengal and the Lakshadweep Islands lie in the Arabian Sea.

POLITICAL DIVISIONS OF INDIA

New Delhi is the capital of India. It lies in the National Capital Territory of Delhi. Our country is governed from New Delhi, by the central government which is headed by the Prime Minister of India. India is a large country, so to govern it better, India is divided into 28 states and 8 union territories. Each state has its state government which is headed by the Chief Minister of the state. The National Capital Territory of Delhi is a union territory. Each union territory is directly governed by the central government.

Map 2.2: Political map of India

Do You Know?

Telangana is the most recently created state of India. It was carved out from the existing state of Andhra Pradesh in June, 2014. Hyderabad is now the capital of Telangana and Amaravati is the new capital of Andhra Pradesh.

Do You Know?

Siachen Glacier in Ladakh is the northernmost point of India, while Indira Point in the Andaman and Nicobar Islands is the southernmost point of India.

Cape Comorin near Kanniyakumari is the southernmost tip on the Indian Peninsula.

Kibithu in Arunachal Pradesh is the easternmost point of India, and Guhar Moti in Gujarat is the westernmost point of India.

Let us learn about the states and union territories of India and their capitals.

STATE	CAPITAL	STATE	CAPITAL
1. Andhra Pradesh	Amaravati	15. Manipur	Imphal
2. Arunachal Pradesh	Itanagar	16. Meghalaya	Shillong
3. Assam	Dispur	17. Mizoram	Aizawl
4. Bihar	Patna	18. Nagaland	Kohima
5. Chhattisgarh	Raipur	19. Odisha	Bhubaneshwar
6. Goa	Panaji	20. Punjab	Chandigarh
7. Gujarat	Gandhinagar	21. Rajasthan	Jaipur
8. Haryana	Chandigarh	22. Sikkim	Gangtok
9. Himachal Pradesh	Shimla	23. Tamil Nadu	Chennai
10. Jharkhand	Ranchi	24. Telangana	Hyderabad
11. Karnataka	Bengaluru	25. Tripura	Agartala
12. Kerala	Thiruvananthapuram	26. Uttar Pradesh	Lucknow
13. Madhya Pradesh	Bhopal	27. Uttarakhand	Dehradun
14. Maharashtra	Mumbai	28. West Bengal	Kolkata

UNION TERRITORY	CAPITAL
1. Andaman and Nicobar Islands	Port Blair
2. Chandigarh	Chandigarh
3. Dadar & Nagar Haveli and Daman & Diu	
4. National Capital Territory of Delhi	New Delhi

UNION TERRITORY	CAPITAL
5. Lakshadweep	Kavaratti
6. Puducherry	Puducherry
7. Jammu and Kashmir	Srinagar (S) Jammu (W)
8. Ladakh	Leh

Let Us Explore

Jammu and Kashmir has two capitals. Find out why this Union territory has two capitals. What must have been the problems faced by the state government in its working?

You Have Learnt

- India is the seventh largest country in the world.
- Afghanistan, Pakistan, China, Bhutan, Myanmar, Bangladesh, Sri Lanka, Nepal and Maldives are the neighbouring countries of India.
- The Northern Mountains, the Northern Plains, the Great Indian Desert, the Plateau Region, the Coastal Plains and the Islands are the physical features of India.
- India is divided into 28 states and 8 union territories.

population: *number of people living in a particular place like a country or a state*
snow-capped: *having the top covered with snow*
extreme: *anything that is too much in amount or degree of tolerance*
fertile: *rich soil or land capable of producing crops*
tableland: *a highland that has a flat top, like a table*
government: *the group of people elected or chosen to control and make decisions for a country or a state*

EXERCISES

Let Us Answer

A **Tick (✓) and choose the correct answer and fill in the blanks.**

1. India is divided into …….. states and …….. union territories.
   a. 30/9 ☐ b. 28/7 ☐
   c. 28/08 ☐ d. 31/6 ☐
2. India is the …….. largest country in the world.
   a. second ☐ b. seventh ☐
   c. tenth ☐ d. fourth ☐
3. The …….. is surrounded by the Western Ghats in the west and Eastern Ghats in the east.
   a. Deccan Plateau ☐ b. Thar Desert ☐
   c. Northern Plains ☐ d. Himalayas ☐
4. The Great Indian Desert is also called the …….. Desert.
   a. Sahara ☐ b. Thar ☐
   c. Ganges ☐ d. Chandigarh ☐
5. …….. is the Capital of India.
   a. Chennai ☐ b. Mumbai ☐
   c. New Delhi ☐ d. Kolkata ☐

B **Write T for True and F for False.**

1. The Northern Mountains and the Northern Plains are the physical features of India. ☐
2. China and Afghanistan are two neighbouring countries of India. ☐
3. The Coastal Plains are an important political division of India. ☐
4. The Arabian Sea lies to the west and the Bay of Bengal lies to the east of India. ☐
5. Each union territory is governed by the central government. ☐

C **Answer the following questions in your exercise book.**

1. What are the major physical features of India?
2. How many states and union territories are there in India?
3. Name two states and two union territories, and their capitals.
4. Name two neighbouring countries of India located to the south of India.

Think Beyond

HOTS Question

What would happen if all the snow and ice on the Himalayas melt completely as a result of global warming, and the Himalayan Rivers become seasonal rivers with most of the water flowing only in the rainy season? Think and tell the effects of this change on the Northern Plains.

Let Us Do

A **Draw a large map of India on a chart paper. Mark the six physical divisions of India. Collect pictures and paste (or draw) and colour the geographical features found in these physical divisions.**

B **Make a chart on the north-eastern states of India—Arunachal Pradesh, Assam, Sikkim, Meghalaya, Manipur, Mizoram, Nagaland and Tripura. Collect pictures of people, food, festivals, tourist attractions, landforms and waterbodies of these states.**

Life Skills

Thinking & Social Skills

Name the state or the union territory where you would like to live. Give reasons for choosing this state/union territory. How can we make this place better?

Map Work

On a political map of India, identify and mark the following:

1. Three states that lie on the western or the eastern coastline
2. Four states that neither share a border with any neighbouring country nor lie on the coastline
3. Four states that share a border with any neighbouring country
4. The capital of India, River Ganges and River Brahmaputra

Show a large physical map and a political map of India. Compare the physical map with the political map of India. Ask children to name the states in which the different physical divisions are located. Explain to the children the need for India to be divided into states and union territories. Sensitise and make children aware that there is diversity in language, culture, food and clothing in the various states of India but India is "one in spirit".

CHAPTER

3 The Northern Mountains

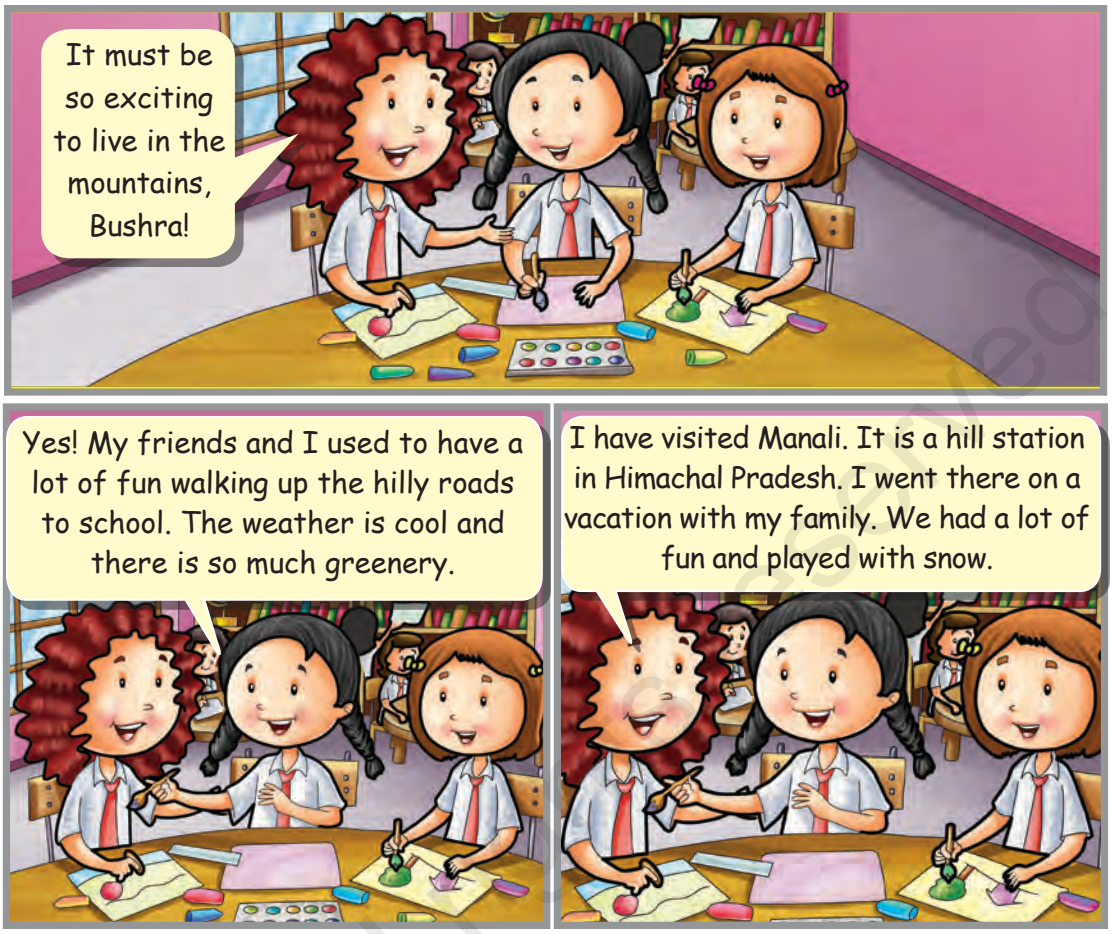
You Will Learn

- The Himalayas
- Life in the Northern Mountains

LET US BEGIN

Have you visited any hill station in India? If yes, which hill station did you visit? Share five things you enjoyed about the hill station.

A new girl has joined class 4 and Cheeni is excited to meet her.
The girl's name is Bushra and she is from Srinagar in Jammu and Kashmir.



THE HIMALAYAS

In the previous chapter, you learnt that the Northern Mountains are an important physical feature of India. The Himalayas and the Karakoram Ranges form the Northern Mountains.

The Himalayas lie to the north of India. Mount Godwin Austen or K2 is located in the Karakoram Range. It is the second highest mountain peak in the world. The highest mountain peak in the world, Mount Everest is located in the Himalayas, in Nepal. The Himalayas cover the northern and the north-eastern parts of India. This range extends from Ladakh to Arunachal Pradesh.

The Himalayan Range consists of three parallel ranges:

- The Greater Himalayas or Himadri
- The Middle Himalayas or Himachal
- The Outer Himalayas or Shiwaliks

Talking Point

Tenzing Norgay and Edmund Hillary were the first persons to climb Mount Everest, in 1953.

The Greater Himalayas or Himadri

The northernmost range of the Himalayas is called the Greater Himalayas or the Himadri. This range remains snow-covered throughout the year. Mount Kangchenjunga and Mount Annapurna are the two highest peaks in the Himadri Range. Mount Kangchenjunga is the third highest peak in the world. This range has thick masses of moving ice called glaciers. These glaciers melt and give rise to many important rivers. The Ganga, the Yamuna, the Indus and the Brahmaputra are some important rivers that flow from this range.

A view of Kangchenjunga

The Karakoram Range

A view of Mount Everest

The Middle Himalayas or Himachal

Below the Himadri Range lie the Middle Himalayas or the Himachal. These mountains are not as high as the mountains in the Himadri. The Himachal is covered with thick forests which have trees such as oak, pine, fir and deodar.

A view of the Himachal Range

Kangra Valley

Gangtok in winter

In winter season, the Himachal Range receives snowfall. Many beautiful hill stations are situated in this range, such as Manali, Kullu, Mukteshwar, Gangtok and Darjeeling. It also has many fertile valleys such as Kangra.

The Outer Himalayas or Shiwaliks

The lowest range in the Himalayas is called the Outer Himalayas or the Shiwaliks. The mountains in this range are more like hills. Many cities, towns and villages are located in this range. This range is not covered with snow. The Shiwaliks are covered with thick forests. People cultivate the slopes of hills, and grow many types of crops and vegetables.

The Shiwaliks extend to the north-eastern states of India, where they are called the Purvanchal Ranges. These ranges have hills such as Garo, Khasi, Naga and Mizo. These hills are covered with thick forests and have beautiful waterfalls.

Nohkalikai Falls, (Meghalaya)

Khasi Hills

Terrace-farming in the Shiwaliks

The Himalayas have a major effect on the climate of India. These mountains act as a natural barrier against the cold northern winds blowing from Central Asia. The moisture-laden monsoon winds are prevented from blowing further north. These winds strike against the Himalayas and cause rainfall in most parts of northern India.

Climate and Vegetation of the Northern Mountains

The Greater Himalayas experience extreme cold throughout the year, and are always covered with snow. The Middle Himalayas have cool and pleasant summers and cold winters. Many tourists visit the valleys and hill stations in the Middle Himalayas during summer. The Outer Himalayas are not very cold and have cool summers and mild winters with heavy rainfall during the summer monsoon.

In the Greater Himalayas, shrubs, mosses, lichens and wild flowers such as blue poppies and rhododendrons grow. The Middle Himalayas have many trees such as pine, oak, poplar, walnut, spruce, fir, cypress, juniper and birch. The valleys of the Middle Himalayas are famous for fruit orchards such as apples, plums, peaches, pears, cherries and almonds.

An apple orchard

A pine forest

The foothills of the Outer Himalayas are called the terai. The region is covered with trees, well known for their timber, such as keekar, sal, teak and babool. The slopes of these mountains are used for growing tea. Large areas of the forest on the slopes and the foothills are cleared for growing crops such as rice, sugar cane and wheat.

Yaks, mountain goats, snow leopards, musk deer and wild sheep are some animals that are found in the Greater Himalayas. The Middle Himalayas are home to animals such as tigers, leopards, rhinoceroses, red pandas and different types of deer. Hogs, hyenas, bears, elephants and tigers are found in the Outer Himalayas. Many varieties of birds, snakes, crocodiles and tortoises are found in the forests and rivers.

Rivers and Passes In the Northern Mountains

Major rivers such as the Ganga, Yamuna, Brahmaputra, Indus and Satluj flow from the Himalayas. These swift-flowing rivers of the Greater and the Middle Himalayas are used for producing electricity by building dams across them. In the plains, these rivers deposit rich soil and make the plains fertile for growing different crops.

A path through a mountain range is called a pass. People use these passes to cross a mountain. In the Northern Mountains, these passes are called La. Zoji La, Khardung La, Chang La, Nathu La and Shipki La are some of the important passes in the Northern Mountains.

Zoji La Pass

Nathu La Pass

LIFE IN THE NORTHERN MOUNTAINS

The Himalayas are spread over Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and the northern part of West Bengal, and the north-eastern states.

Jammu and Kashmir is the northernmost state of India. It is cool in summer and extremely cold in winter. It receives heavy snowfall in winter. The major rivers that flow through the state are Jhelum, Chenab, Ravi and Tawi. The languages spoken in the state are Kashmiri, Dogri, Urdu and Ladakhi. Srinagar is the summer capital and Jammu is the winter capital of Jammu & Kashmir.

Jammu and Kashmir is famous for its snow-covered peaks and beautiful valleys. It is a popular tourist destination. It is well-known for its orchards, chinar forests and houseboats. Dal Lake and Wular Lake are two famous lakes in Jammu and Kashmir. Skiing in Gulmarg, trekking in Pahalgam and boating in *shikaras* in the Dal Lake are some activities that people enjoy doing in Jammu and Kashmir. The holy sites of Vaishno Devi and the Amarnath Caves are other important attractions in Jammu and Kashmir.

Phiran and *salwar* are the traditional clothes of men and women. During the long, cold winters, people carry *kangri*, a small pot filled with burning charcoal, under the clothes to keep themselves warm. They drink *kahwa,* a traditional green tea. The occupation of the people depends on the time of the year and the climate. They weave carpets, blankets, shawls and make handicrafts items from papier mache. Pashmina shawls, known for their high quality of wool, are also made in Jammu and Kashmir. People grow various fruits such as apples, peaches, plums, cherries and saffron (*kesar*).

People of Jammu and Kashmir

Shikara on the Dal Lake

People drink kahwa, a special tea

Himachal Pradesh has cool summers and very cold winters. It has snow-covered peaks, lush meadows, orchards and green valleys. Beas, Ravi, Satluj, Yamuna and Chenab are the main rivers that flow in Himachal Pradesh. Shimla is the capital of the state. It is also an important hill station. Dalhousie, Kullu and Manali are some of the other famous hill stations in Himachal Pradesh. Many people visit these hill stations during summer and winter. Trekking, river rafting and skiing are some activities that people enjoy doing here. The widely spoken languages in the region are Pahari, Dogri, Kangri and Hindi. Himachal Pradesh has the world's highest cricket ground located in Chail. The traditional clothes are colourful *phirans*, pyjamas, woollen caps and traditional scarves called *dhazu*. People grow rice, maize, barley, fruits and vegetables, and rear sheep and goats.

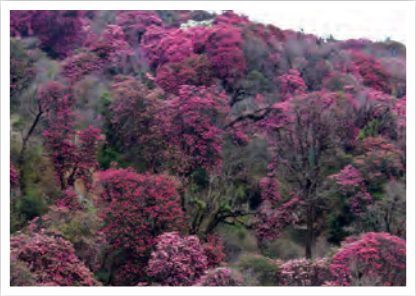
People of Himachal Pradesh

World's highest cricket ground at Chail

A view of Dalhousie in Winter

Uttarakhand is located at the foothills of the Himalayas. It has beautiful forests of oak trees and rhododendrons. Its capital is Dehradun. Kumaoni and Garhwali are the main languages spoken in Uttarakhand. It is famous for its hill stations such as Mussoorie, Nainital and Ranikhet. Gangotri, Yamunotri, Kedarnath and Badrinath are some famous places of pilgrimage located in the state. It is also called *Dev Bhumi* or 'land of gods'.

People of Uttarakhand



Rhododendrons in the forest

A view of a valley in Uttrakhand

Sikkim is the second smallest state of India. The weather varies from cool summers to cold winter. It gets a lot of rainfall during monsoon and landslides are very common here. Gangtok, the capital of Sikkim, is a beautiful hill station. Mount Kangchenjunga, the highest peak in India, is also located in Sikkim. The original inhabitants of Sikkim are Nepalese, Lepcha and Bhutia. Women in Sikkim wear long skirts called *boku* and heavy bead necklaces.

Sikkim has fertile valleys and orchards. The Red Panda and the Himalayan Black Bear are two species that are found here. Agriculture is the main occupation of the people of Sikkim and they grow cardamom, oranges, apples, tea, rice and orchids. Weaving is another major occupation in the state.

Darjeeling is a famous hill station in West Bengal. It lies to the south of Sikkim. It is famous for its tea gardens.

People of Sikkim

Himalayan black bear (found in Sikkim)

Tea gardens in Darjeeling

The seven states of the North-East are known as the 'seven sisters' and include Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. These states lie in the Puravanchal Range of the Himalayas and receive very heavy rainfall throughout the year. People build stilt houses to protect themselves from the heavy rain and wild animals.

Agriculture is the main occupation of the people in the north-eastern states. They grow rice, jute, sugar cane, pineapple, potato, maize and fruits. Large areas are covered with bamboo trees, from which people make beautiful craft items. Shillong is a famous hill station and is known as the 'Scotland of the East'. Most of the hills in the north-eastern states are covered with thick forests. Wild animals such as elephants, bears, wild buffaloes, leopards and tigers are found in these forests.

A couple from North-East

Beautiful cane handicraft

A view of Shillong

You Have Learnt

- The Himalayas and the Karakoram Ranges form the Northern Mountains.
- Himadri, Himachal and Shiwaliks are the three parallel ranges of the Himalayas.
- Mount Everest, in the Himalayas, is the highest peak in the world. It is located in Nepal. Mount Godwin Austen or K2, in the Karakoram Range, is the second-highest peak in the world.
- Mount Kangchenjunga is the third highest peak in the world.
- Jammu and Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Sikkim and the north-eastern states of Arunachal Pradesh, Manipur, Meghalaya, Mizoram and Nagaland lie in the Northern Mountains.

glacier: a slowly moving river-like body of ice
cultivate: prepare and use land for growing crops
moisture-laden: carrying water content
barrier: an obstruction that prevents movement
foothill: lowland at the bottom of a mountain or mountain range
timber: wood used for building houses or furniture
dam: a human-made barrier across a river

EXERCISES

Let Us Answer

A **Choose the correct word from the help box and fill in the blanks.**

Himachal Pradesh, Karakoram, Himalaya, Mount Godwin Austen, Mount Everest, Purvanchal

1. The …….. and the …….. Ranges form the Northern Mountains.
2. …….. is the highest peak in the world.
3. Shimla, Kullu, Manali and Dalhousie are some hill stations in the state of ……..
4. Garo, Khasi, Naga and Mizo are hills in the …….. Range.
5. …….. is the second highest peak in the world.

B **Write T for True and F for False.**

1. The Himalayas are made up of four parallel mountain ranges. ☐
2. The Outer Himalayas are also known as Himadri. ☐
3. The Shiwaliks in the north-eastern states are called Purvanchal Range. ☐
4. Glaciers in the Greater Himalayas are the source of many important rivers. ☐
5. Pashmina shawls are made in Jammu and Kashmir. ☐

C **Think and answer the following questions.**

1. You travel to a state where people wear *phiran* and *salwar*, drink *kahwa* and carry *kangri* to protect themselves from cold. It is famous for apples, peaches, plums and saffron (*kesar*). Name the state.
2. You visit the capital city of a state. This city is a famous hill station in north-east India. It is also called the 'Scotland of the East'. People make beautiful crafts from bamboo and cane. Name the city.
3. You travel to a state which is the second smallest state of India. It has animals such as Red Panda and the Himalayan Black Bear. Heavy rainfall and landslides are common here. Name the state.

D **Answer the following questions in your exercise book.**

1. Name the states that lie in the Himalayas.
2. Name the three parallel ranges that form the Himalayas.
3. Describe the vegetation in the three ranges of the Himalayas.
4. Write a short note on the rivers and passes of the Himalayas.

Think Beyond

HOTS Question

In the mountains and hills, people cut out steps in the slopes and plant crops on these steps. Find out why this type of farming is done on the mountains and hills.

Let Us Do

A **Divide the class into groups of four. Assign each group a state that lies in the Northern Mountains. Each group will collect pictures and make a collage on the culture, food, clothing, people and occupations of the state assigned to them.**

B **Collect pictures and make a poster on the forests and wildlife found in the Northern Mountains.**

Life Skills

Thinking & Environmental Skills

Many forests in the Northern Mountains have been cut down for timber and agriculture. During heavy rains, the soil of the Northern Mountains is washed away and there are landslides. Share some ideas to prevent cutting down of trees and soil erosion.

Map Work

On a map of India, mark the following: Mount K2, Mount Everest, Srinagar, Shimla, Nainital, Kangchenjunga, Darjeeling and Gangtok. You may refer to an atlas.

Internet Links

- *http://www.importantindia.com/11790/the-northern-mountain-ranges-in-india/*
- *http://www.himalayamountains.com/*
- *http://www.kidsdiscover.com/spotlight/himalayas-kids/*

Project Time

Imagine yourself as a tourist visiting the state of Sikkim, where you become friends with a Nepalese child. Write a tour diary describing 'A Day in the Life of a Nepalese Child'.

CLASS-4 ✦ SEMESTER-I

1 Superlatives of India

The places with rare distinctions are called superlatives. Name the following superlatives of India. Take help from the clues given in the box.

1. Largest Delta : .....
2. Largest Desert : .....
3. Longest River : .....
4. Largest Lake : .....
5. Highest Peak : .....
6. Largest City : .....
7. Highest Waterfall : .....
8. Largest State : .....
9. Place of Heaviest Rainfall : .....
10. Biggest Cave Temple : .....
11. Longest Railway Platform : .....
12. Biggest Mosque : .....
13. Largest Museum : .....
14. Longest Sea Beach : .....
15. Highest Dam : .....

Kanchenjunga	Tehri Dam	Mawsynram	Marina Beach	Wular Lake
Thar	Rajasthan	Mumbai	Gorakhpur	Sunderbans
Ellora	Indian Museum, Kolkata	Brahmaputra	Kunchikal Falls, Karnataka	Jama Masjid, Delhi

2 Rivers of India

Unscramble and write the names of the important rivers of India.

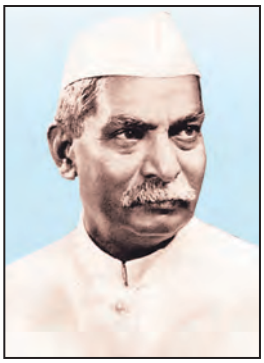
1. GAGAN .....
2. GUNATDRABHA .....
3. AVIRADOG .....
4. SIRHNAK .....
5. PATTI .....
6. VAKRIE .....
7. MAHADINA .....
8. MAPURABARTH .....
9. TOMIG .....
10. NEBACH .....
11. DUNIS .....
12. MAYAUN .....
13. SIKO .....
14. JATSUL .....

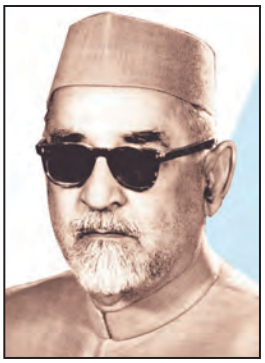
Try Yourself

Find out the places of origin of the above-mentioned rivers and write them in your scrapbook.

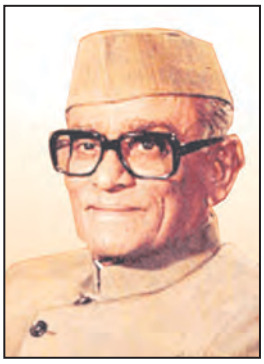
3 Presidents of India

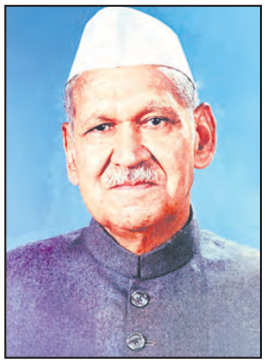
Identify the pictures of the Presidents of India. Write their names in the space provided.





1. ..... 2. ..... 3. ..... 4. ..... 5. .....




6. ..... 7. ..... 8. ..... 9. ..... 10. .....




11. ..... 12. ..... 13. ..... 14. .....