

# 3

## SOLAR FAMILY



It is Science festival in Mohan's school.

One astronaut took part in that gathering.

Mohan shared all the information given by the astronaut through a letter to his friend.



Chennai,  
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Dear friend....!

How are you? I hope you are working hard at your studies. I enjoy my science classes. Last week we had our school science festival. Our chief guest was an astronaut. I felt proud, that he was an Indian. He shared his experiences of being an astronaut. He talked about what he saw and experienced on his memorable space journey.

We asked him questions about the solar system. He explained about the solar system through a slide show. He answered all our questions patiently and clearly. He said, "You are the leaders of the future. So study well, and become great persons in the future." His speech was interesting and it has motivated me to become a great astronaut like him.

I am sending all the information he had given us along with this letter. Kindly share this with your friends.

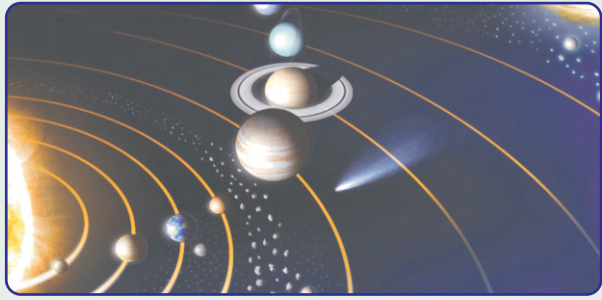
With regards,

Yours lovingly,

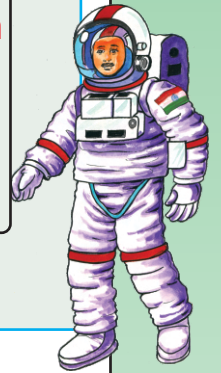
B. Ragul,  
20, Ganapathy Nagar,  
Velankanni-2.

K. Mohan

We can see numerous stars in a clear sky at night. The sun we see everyday is also a star and it is the nearest star to the earth. The planets revolve around the sun at different distances in different orbits. This is called **solar system**.



There are eight planets and many dwarf planets in the solar system. Pluto is one among the dwarf planets.



**Mercury** is the smallest and the nearest planet to the sun.

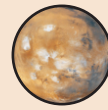
**Venus** is the second planet. It is very hot. It is the brightest planet.



The third planet is the **Earth** where we live. It has air and water. It supports life.

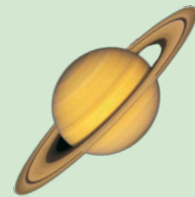


**Mars** is the fourth planet. It is red in colour.

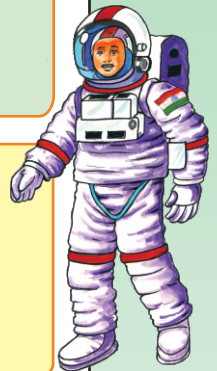
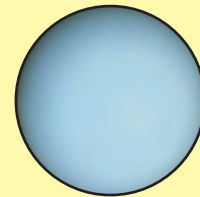


**Jupiter** is the fifth planet. It is the largest planet in the solar system.

**Saturn** is the sixth planet. There are big rings around it.



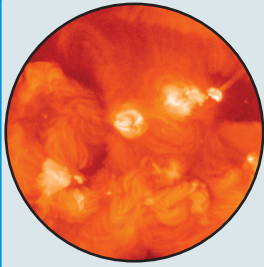
**Uranus** is the seventh planet. It is made up of gases. It also has rings. It is the coldest planet.



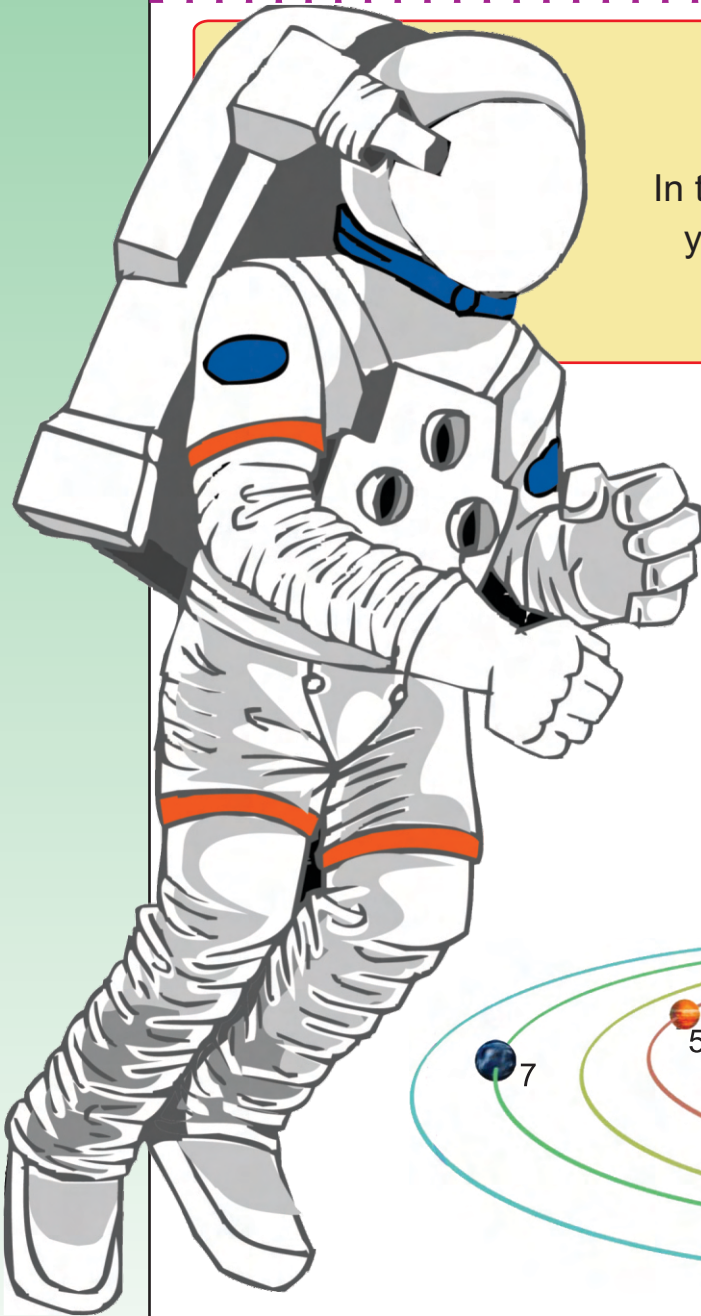
**Neptune** is the eighth planet. It is bluish green in colour and it is surrounded by clouds.



Upto 2006, **Pluto** was considered as the ninth planet. Since it does not have the properties of a planet, it is now regarded as a dwarf planet.



The sun is a ball of fire. It is very hot. Living organisms cannot exist on the earth in the absence of the sun.



You are an astronaut !

In the given astronaut's picture, stick your photographic face and enjoy seeing you as an astronaut.

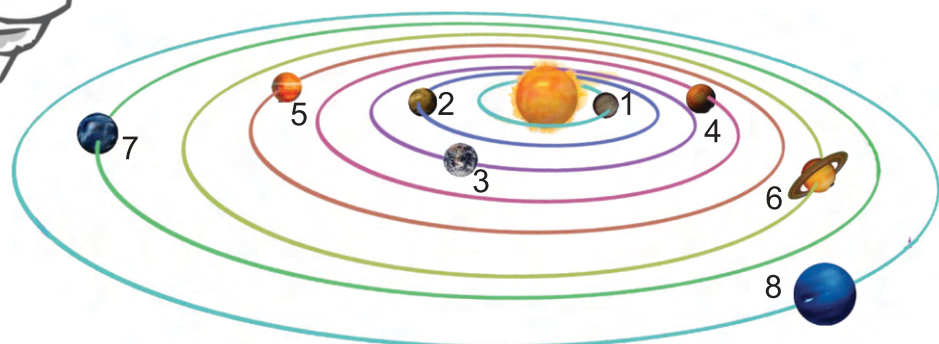
Do you know?



The planet Pluto which was removed from the solar system was named by a girl called Venachia in 1930. At that time she was 11 years old.

Venachia is of \_\_\_\_\_ age now.

### Solar System



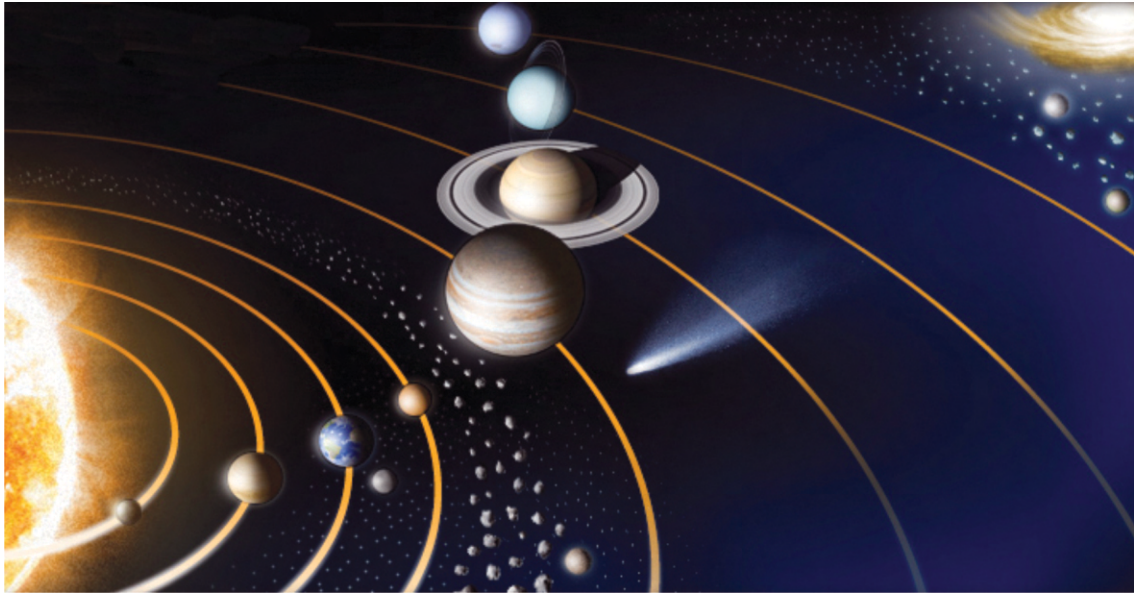
1. Mercury 2. Venus 3. Earth 4. Mars
5. Jupiter 6. Saturn 7. Uranus 8. Neptune



## Activity



Look at the picture and write the names of the planets.



**Mercury** is the nearest planet to the Sun.

4th Planet \_\_\_\_\_ 5th Planet \_\_\_\_\_

7th Planet \_\_\_\_\_ 2nd Planet \_\_\_\_\_

3rd Planet \_\_\_\_\_ 8th Planet \_\_\_\_\_

6th Planet \_\_\_\_\_

## Do you know?



We can see planets such as Venus, Mars, Mercury, Jupiter and Saturn through our naked eye. Whenever such planet could be seen in the sky, it will be published in the newspapers. With the help of the elders try to see the planets.

## Night sky

Normally what can be seen in the night sky?

- ★ Name the instrument used by the child to observe sky.



- ★ What all can you see in the night sky?

**Moon, Stars, Planets and meteors can be seen.**

Since ancient times, man has been fascinated by the night sky. Sailors followed the position of the moon, the stars, the planets and the sun and they found the directions properly. Farmers could foresee the seasonal changes. As a result, they raise crops suitable to the season.

One can see some substances that give light and appear to fall towards the earth. What are they?



### What are meteors?

There are a number of asteroids in space. Sometimes they come towards the earth. As they come downward, it catches fire due to friction with the atmosphere. Such **asteroids** are called meteors.

### Do you know?



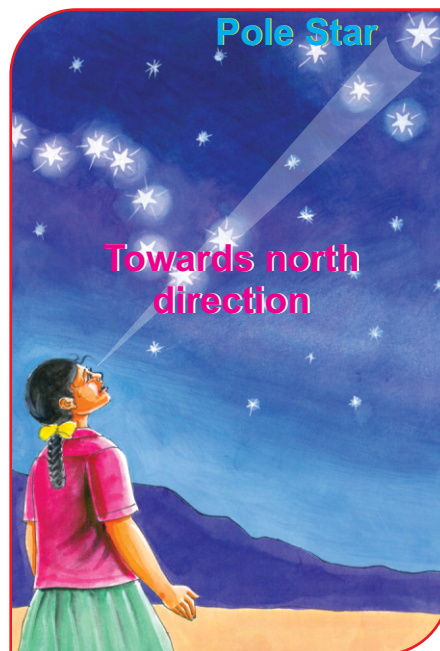
Halley comet appears once in 75 to 76 years . Last time it appeared in 1986 and again it will appear in 2061 .It was discovered by Edmund Halley. It can be seen revolving round the sun by our naked eyes.

## Pole Star

The brightest star that can be seen with our naked eye is the **pole star**. It can be seen in the northern direction.

### Do stars have tail?

**Comets** are stars that have tails and they exist in the solar system. They are made up of gases. When it comes closer to the Sun the gases expand and appear like a tail. The tail will always be seen in the **opposite direction** of the Sun.



### For Teachers...



Take the students for a field trip to the planetarium



## Evaluation



(a) Observe the picture and answer the following.



1. Write the names of the planets in the solar system.
2. Which is the nearest planet to the sun?
3. Name the largest planet in the solar system.
4. Name the smallest planet in the solar system.

(b) State whether True or False.

1. Venus is the 3rd planet in the solar system.
2. The sun is a ball of fire.
3. There is no air and water on the earth.
4. Mercury is the nearest planet to the sun.

(c) Fill in the blanks with appropriate words.

1. There are \_\_\_\_\_ (8/9) planets in the solar system
2. Sun is a ball of \_\_\_\_\_ ( Fire / Ice )
3. Living organisms exist in the \_\_\_\_\_ ( Uranus / earth )
4. The eighth planet in the solar system is \_\_\_\_\_ ( Neptune / Mercury)



**(d) Match the following.**

1. Jupiter	Sixth planet	<input type="checkbox"/>
2. Pluto	Nearest planet	<input type="checkbox"/>
3. Saturn	Largest planet	<input type="checkbox"/>
4. Mercury	Life exists	<input type="checkbox"/>
5. Earth	Dwarf planet	<input type="checkbox"/>

**(e) Write brief answers.**

1. What is the solar system?
2. What is a comet?
3. Write a short note on meteors.
4. Write about the planet venus.
5. Write about the polestar.

Do you know?



Asia's largest telescope is in Tamilnadu. It is situated at Kavalur in Javathu Mountain in Thrivannamalai District. It is named as Vainubabu. Its diameter is 2.3 meter. It was designed and made in India in 1986 and a small planet was observed through this telescope in 1988. This planet is named 4130 Ramanujar.



Do you know?



Manmade satellites are sent to space to revolve around the earth. India has launched its own satellite named as Indian National Satellite (INSAT). Since 1983, many satellites have been sent to space for communication and for environmental research purposes. In the year 2000, INSAT 3-B satellite was launched for the use of mobile phone. In 2004, satellite EDUSAT was launched for the students education. In 2007, INSAT 4CR was launched for DTH telecommunication and it is still in operation.



(INSAT) 3B

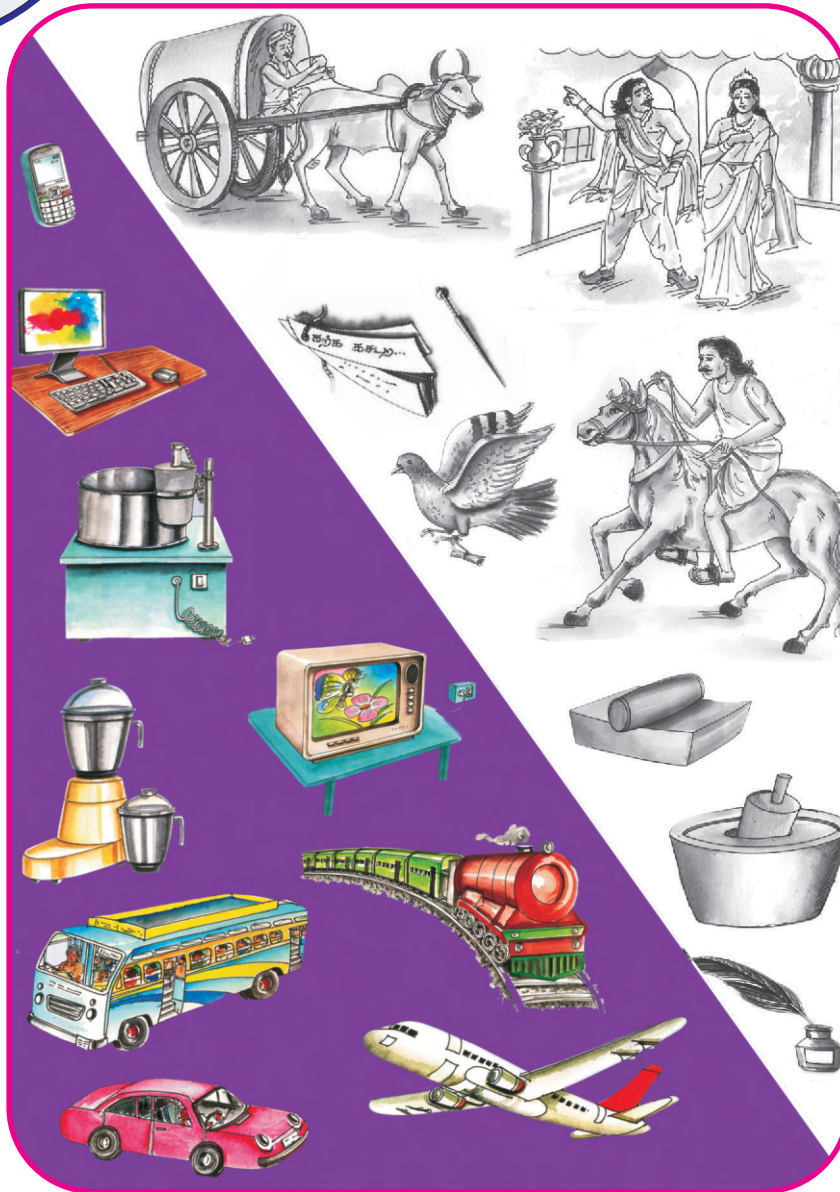


INSAT 4-CR



# 4

## SCIENCE IN DAY-TO-DAY LIFE



Compare the two pictures.

How have the objects in the black and white pictures changed now?

On what basis have these changes taken place?

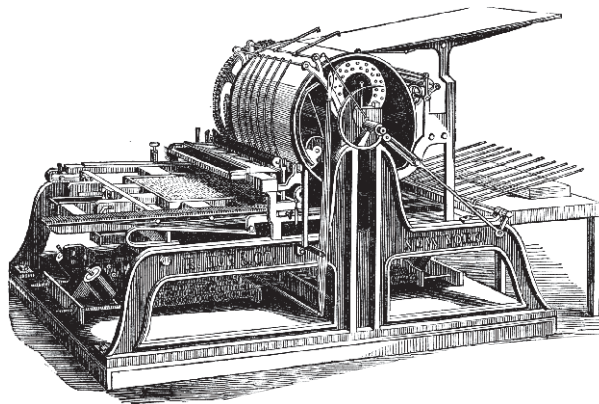
Do you know who invented the Television, the Telephone, Computer and Printing machine?

In ancient days, man observed nature and reflected. As his thinking capacity grew science also developed. He questioned the changes that happen in nature as Why? What? How? and When?. These questions led to the new inventions.

There are so many inventions by the time you open and close your eyes.

How were they invented?

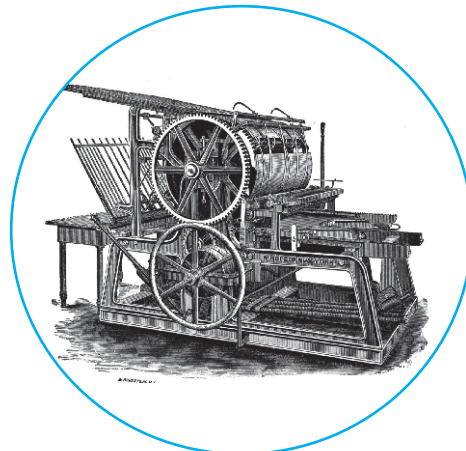
Scientists from their experience in life invented all these things. The printing machine is one among them.



## PRINTING MACHINE

Where have you seen manuscripts and stone sculptures?

Which machine is used to make books, newspapers and textbooks?



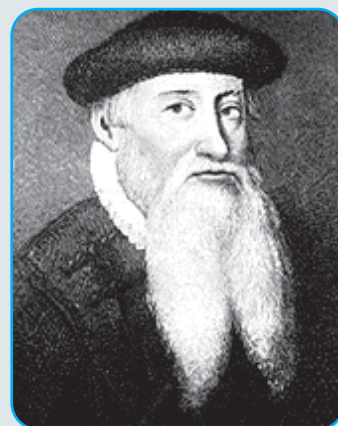


First, man wrote on sand and clay. Then he carved on the stones. Later he used sharp pointers to write on palm leaves. He had to use a lot of time and effort. To make this work easier and faster a printing machine was required.

**Johannes Gutenberg**, a German, invented the printer.

Today, the printer has revolutionized the world.

**Johannes Gutenberg** was a goldsmith and a merchant. He lived in Main city in South Germany. He produced books out of the letters made of wood and metals in 1436. He is the inventor of the printing machine.



**Johannes Gutenberg**



**Offset Printer**

### Activity



Find out the information about printing press which published your textbook.

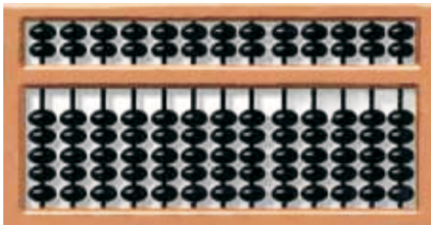
In which district in Tamilnadu is printing carried out extensively?

## COMPUTER

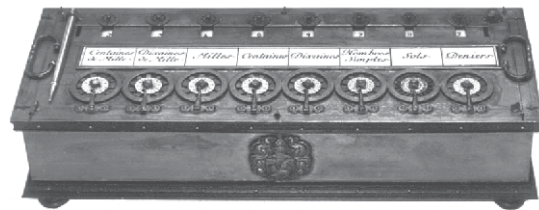
Man, right from his origin, used small stones, pebbles, small sticks, lines drawn on the wall, and his fingers to calculate. Then he formed numbers to calculate. Later he invented calculating devices operated by hand.

e.g. Abacus, Napier equipments, Pascal device, etc.,.

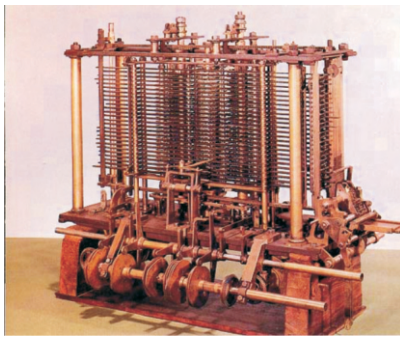
Charles Babbage invented Difference Machine in 1822. The principle of computer was already implemented in those days in this machine.



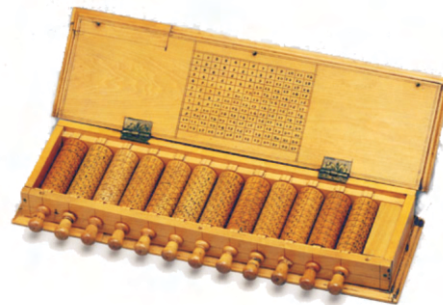
Abacus



Pascal device



Difference machine



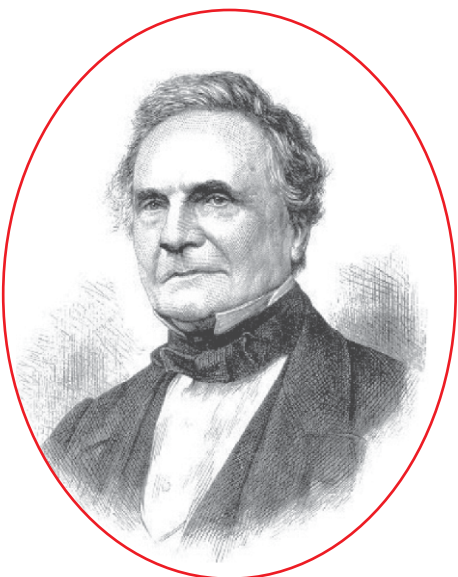
Napier equipments

He wanted the calculations to be error-free, faster and the calculated values to be stored and retrieved when needed. As a result computer was invented by him.



Charles Babbage designed the computers. Where have you seen the computer being used?

Computers are used in Departments of Defence, Education, Police, Research and Development, Health, Commerce, Communications, etc. Computer is used in all the fields throughout the world.

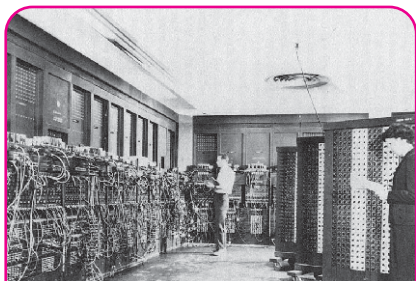


Charles Babbage

Charles Babbage was born in London in England in the year 1791. He did his higher studies in the Cambridge University in England. He was very much interested in Mathematics. He invented a device to calculate at a faster rate. This was the first computer. Apart from computer, he also invented speedometer and eye testing equipment.

The computer invented by him is very big in size. It can be found in London Science Museum even today.

In what way is a computer useful in your school?



First Computer designed  
by Charles Babbage



Latest  
Computer



Laptop

## TELEPHONE

How will you send a message to your friend from Kanyakumari District to Trichy? Telephone has become very essential for long distance communication. Do you know how the telephone was invented?



Alexander  
Graham Bell



Telephone (old)



Telephone (New)



Cellphone

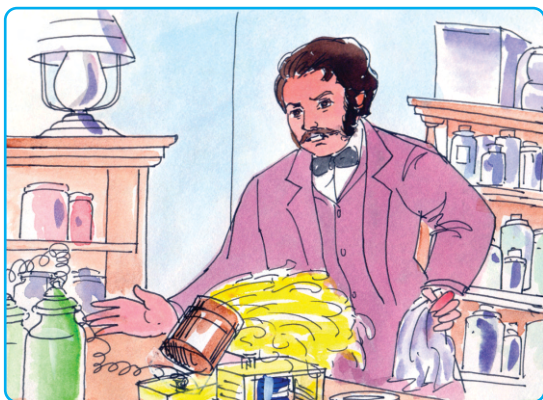
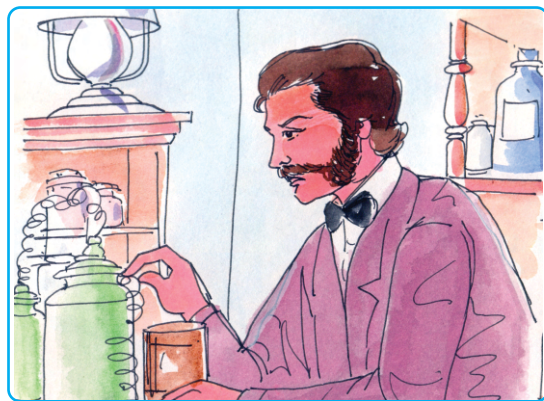
Alexander Graham Bell was born in Edinburgh city at Scotland in the year 1847. His mother was deaf. His father was a teacher for the deaf. Graham Bell had his elementary education only for 5 years.

He worked as a teacher for the deaf children. While he was teaching he started his research. Once he tried to send some messages through a wire. He did not succeed. However, he continued his research. As a result he succeeded in sending human voice through wire in 1876. The telephone was invented. His friend Watson helped him in his research. Do you know what was the first message spoken by Graham Bell in his telephone?

He said “Watson, come here. I want to see you”.

Do you know how the telephone was invented?

Graham Bell was working with sound carrying equipment in his Research Laboratory at Boston in America.



Accidently acid from the equipment fell on his dress.

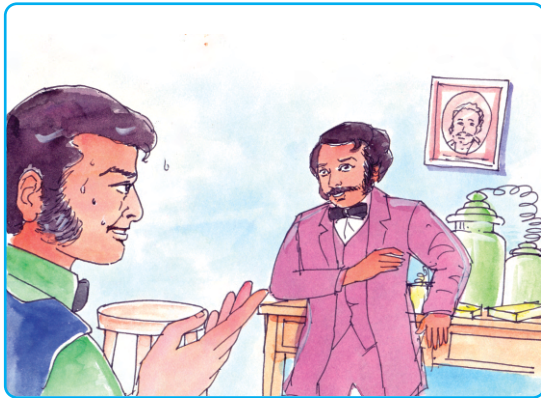
Immediately he called his assistant "Watson."



"Watson. please come here."

Watson who was working in a room on the first floor was shocked to hear Graham Bell's voice through the equipment.

He immediately ran to the ground floor.



He entered Graham Bell's room and shouted. "The equipment is working".

This is how the telephone was invented.

### Activity



Make a model of a telephone using matchboxes or paper cups.

## SCIENTIFIC QUESTIONS

One day, Sir Issac Newton saw an apple falling down from a tree. At that time, he thought why the apple did not go up. That is how he was able to discover the gravitational force.

The question such as Why, What and How are called scientific questions.





- Do you know **why** the hind leg of a frog is long?
- **What** are the things attracted by the magnet?
- **How** are bees attracted towards flowers?

Observe the pictures. How many questions can you form out of these?  
List them.




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## Activity



Carve your name on a potato or carrot and apply ink and press it on a paper. Cut a lady's finger and apply ink on that and prepare greeting cards.



## Evaluation



Answer in one or two words.

1. Who designed the printing press first? Which is his native land?
2. In what type of letters did Johannes Gutenberg write his book?
3. Write any three uses of the printing press.
4. Write any two equipments used to calculate with hands.
5. Name the equipment designed by Charles Babbage.
6. Which country did Charles Babbage belong to? In which University did he do his higher studies?
7. Write any two uses of computer in your school.
8. When was the telephone invented?
9. Name Graham Bell's friend who helped him in his research.
10. What do you mean by scientific question?

# 'I can, I did'

## Student's Activity Record

**Subject:**

Sl.No	Date	Lesson No.	Topic of the Lesson	Activities	Remarks