

- Have you ever thought how India was in the past?
- Was science much advanced earlier in the past also as it is today?
- We enjoy the medical facilities, technologies, transportation, live a luxurious life, etc. Was it earlier too?

Read to find out our glorious past.....

Most Indians are aware that they had a great heritage, but few would include science in it. This is mainly because during centuries of foreign rule they have been led to believe that science is an import from Europe. They forget the many



significant contributions to science India has made for centuries before the first Europeans came to India.

There is proof that more than 3000 years before the birth of Christ, people of this country had much scientific knowledge. Relics of the Indus valley civilization found at Harappa and Mohen-jo-daro (now in Pakistan) show that their cities were well planned, with excellent water supply and drainage systems. The progress they had made in



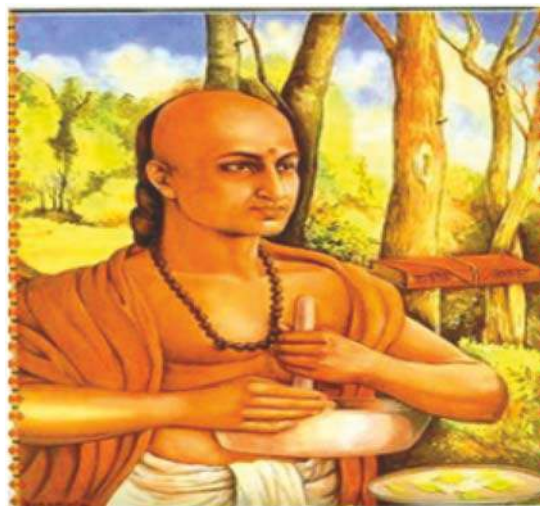
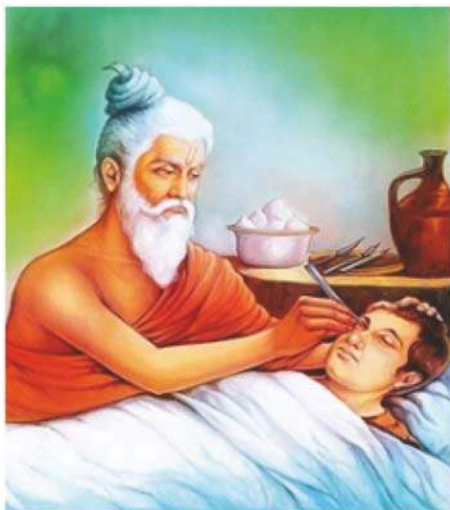
agriculture, brick making, craft and industry was remarkable. Their clothes were made of cotton. For reasons yet unknown, this civilization decayed and was lost. The cities got buried.

The golden age of science in India was from the 4th century B.C. to the 7th century A.D.

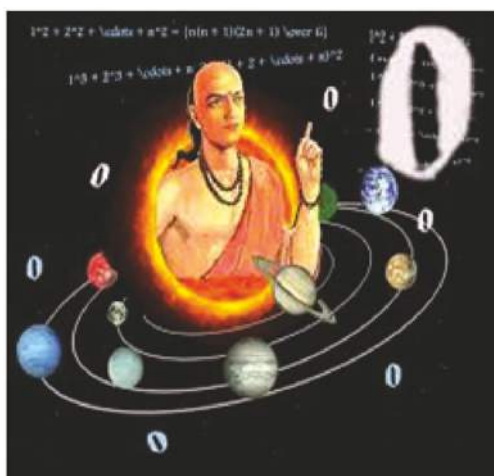
With wealth and the land science advanced under the *Maurya*, *Shaka*, *Kushan* and Gupta empires. There were famous universities at *Nalanda*, *Varanasi* and *Taxila*. There was much exchange of scholars with neighbouring and distant lands.

Great contributions were made in the fields of mathematics, astronomy and medical science.

One of the earliest scientists was Sushruta. He repaired a nose some 26 centuries ago and was the first plastic surgeon. He was an expert in removing urinary stones, treating fractures and eye operations. He even advised his pupils to use



dead bodies for practice before surgery. He is known as the father of anesthesia also. Charak was the first physician who suggested that there were 360 bones in



human body. He has also described medicinal uses of about 10,00,000 herbal plants. Aryabhata from Kerala studied in University of Nalanda . He was the first to find out that the earth is round and it rotates on its axis, creating day and night.

The concept of zero was discovered around 5th century by a great mathematician-Bhaskar.He worked on different aspects of mathematics.

Indians are proud of their glorious scientific past. With Independence in 1947, a new page was opened in the history of facilities for scientists. Research began in many fields. India is now a member of nuclear club, space club and the Antarctica exploration club. In this modern race, while much remains to be done for India to catch up with advanced countries, much has been done. India is on its way to gain the scientific glory again.

- Adapted from scientists of India by Mrinal Mitra and B. G. Varma.

Glossary:

- heritage : something which is passed down over many years within a nation.
- contribution : the act of having a share in something.
- relic : an object of historic importance.
- drainage : means of carrying away dirty water.

remarkable : worth speaking of, astonishing.

decay : to decline(here);to fall to a lower state, to get destroyed

anaesthesia : insensitivity to pain, a drug makes a person or an animal
unable to feel anything especially pain.

rotate : turn round on one position; spinning

axis : an imaginary line around which a spinning body moves

facilities : any means to do something

exploration : travelling into a place for the purpose of discovery

Activity I

1. Choose the correct alternative:

i. Scientific research in ancient India was at its peak for a period of about

- a. 400 years b. 1100 years
c. 700 years d. 100 years ()

ii. Under the Mauryas, Shakas and Guptas empires scientific research
flourished because

- a. There was no shortage of money to stop it.
b. There were famous universities at Nalanda, Varanasi and Taxila.
c. There was much exchange of scholars with neighbouring countries.
d. For all the three reasons put together. ()

2. Say whether the following statements are True or False.

i. It was believed that heritage is an import from Europe. ()

ii. Indus valley civilization consisted with excellent water supply and
drainage system. ()

iii. The universities at Taxila was founded by Bhaskar ()

)

iv. Sushruta discovered the concept of zero. ()

v. Aryabhatta studied at the university of Nalanda. ()

3. Answer the given questions in short (10-20 words) each:

i. Mention the fields in which remarkable progress was made up to the

7th century AD.

- ii. What according to Charak was the total number of bones in the human body?
- iii. Who is known as the father of anesthesia?
- iv. How can we say that India is on its way to gain the scientific glory again?
- v. What advice did Sushruta give for practising surgery?

Activity II

1. Match words in column A with the meaning in column B.

A	B
drainage	to get destroyed
relic	the scientific study of the sun, the moon and the stars
anaesthesia	means of carrying away dirty water
decayed	a substance that causes insensitivity to pain
astronomy	an object of historical importance

2. Fill in the blanks choosing the word from the box:

heritage, significant, civilization, physician, nuclear

- i. The culture and traditions are inseparable part of
- ii. There is a big power plant in Rawatbhata.
- iii. Mr. Sharma called a urgently when his mother had a heart attack.
- iv. Rajasthan is known for its , forts and hospitality all over the world.
- v. Mobile phones play a role in everyday life of common man.

Activity III

Read the following sentences:

- a. Outstanding contributions were made in the fields of mathematics, astronomy and medical science.
- b. The concept of zero was discovered around the fifth century A.D.
[In the sentences, the subject has been ignored. Such sentences are said to be in passive voice.]

1. Change the following sentences into passive voice:

- i. The cook has prepared many dishes.
- ii. People speak Hindi in Rajasthan.
- iii. We should always help the old people.
- iv. Newton discovered the law of gravitation.
- v. We do not sell imported goods.

2. Fill in the blanks choosing the correct alternative:

- i. Heby the police once already.
 - a. is being arrested
 - b. has been arrested
 - c. is arrested
 - d. has arrested
- ii. Most of the citiesby an earthquake in 2001.
 - a. destroyed
 - b. were destroyed
 - c. has been destroyed
 - d. was being destroyed
- iii. The baby by our mother tonight.
 - a. are being looked after
 - b. looked after
 - c. is being looked after
 - d. was being looked after
- iv. All the envelopesby the new clerk.
 - a. had addressed
 - b. is being addressed
 - c. was being addressed
 - d. were addressed
- v. That desk several times this year.
 - a. is being repaired
 - b. has been repaired
 - c. had repaired
 - d. were being repaired

Activity IV**1. Complete the table given below choosing the facts from the text.**

Name	Field	Achievements
Sushruta		
		Medicinal uses of plants
	Astronomy	
		Discovered zero