Indian Inventions and Discoveries

Human civilization has existed in India for many thousands of years. India’s ancient culture has given the world such major religions as Hinduism and Buddhism. India has also given the world a long list of discoveries and inventions in areas including medicine, science, mathematics, and even games. Indians continue to contribute today. Here are some Indian inventions and discoveries.

FASHION:

Dyeing: Cotton cloth from the 3rd millennium BC was found, dyed with a vegetable dye. Seashell buttons were used in India for ornamental purposes as early as 2000 BC. Diamonds were first mined and used as gems in India. Buddhist texts from the 4th century BC mention them. India was world’s main source of diamonds for a long time. Pajamas were invented in India for outdoor use. The British used them for sleeping, and they became popular around the world.

SCIENCE AND ENGINEERING:

The bow drill is very old. It appeared between the 4th-5th millennium BC. It was used to drill holes into gemstones (and later teeth!).

Traces of a single roller cotton gin have been found in caves in India. They date to the 5th century AD. That’s 1,300 years before Eli Whitney!

The Indus Valley Civilization used animal-drawn ploughs by 2500 BC, ovens by sometime between 2500-1900 BC, and ivory rulers before 1500 BC. Traces of Indus Valley Civilization cities show signs of urban planning: streets cross at right angles, buildings were in neat rows, and there were drainage and sewage systems.

Large-scale sewer systems were used in the Indus Valley by 2700 BC. Houses then had private bathrooms, too.

The earliest furnace was used in the Indus Valley Civilization. It dates to 2500-1900 BC. It was probably used as a kiln for ceramic objects.

The carbon pigment in India ink comes from India. It is made by burning bones, tar, and other materials. Ink has been used in India since at least the 4th century BC.

The “father of fibre optics”, Narinder Singh Kapany, invented the glass fiber with cladding in the 1950s.

Indian microbiologist Ananda Mohan Chakrabarty made an oil-eating micro organism to break down crude oil. They can clean up oil spills. He was granted a patent in 1980.

In 1996, Ajay Bhatt was the co-inventor of the Universal Serial Bus (USB).

AGRICULTURE:

The Indus Valley civilization was growing cotton by the 5th - 4th millennium BC. Jute has been cultivated in India since ancient times.
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MEDICINE:
Evidence of dentistry dates back to 7000 BC.
India had plastic surgery and cataract surgery by 2000 BC.
The first written records of veterinary medicine date to 1900 BC in India.
Hospitals were built in what is now Sri Lanka by 431 BC. The Indian emperor Ashoka built hospitals in his empire by 230 BC.
Indian medical pioneer Sushruta knew about the circulatory system in the 6th century BC. He also studied diabetes. He associated it with obesity and a sedentary lifestyle. He said exercise could help. He also identified hypertension in a way that matches the modern disease.
Inoculation for smallpox was practiced in 8th century India.

GAMES:
Ancestors of chess date to the Indian Gupta dynasty (c. 280 - 550 AD). Muslims brought the game to Europe by the 10th century.
Dice may have been invented in India. Archeologists have found oblong dice in India, dating to the third millennium BC. They were used for gambling. Dice are mentioned in the Rig Veda (c. early 2nd millennium BC).
Parcheesi was invented in 6th century India. It was popular with the Mughal emperors, at least one of whom, Akbar, played it using girls from his harem as playing pieces.
Snakes and Ladders was originally an Indian game to teach morality.

METALLURGY:
Iron was developed in India around the time it was developed in other places. Iron implements from 1800-1200 BC have been found in India.
Sometime between 300 BC and 200 AD, high quality steel was made in India using the crucible technique: iron, charcoal, and glass were mixed and heated. The iron melted and absorbed the carbon. The first such steel was wootz steel, also known as Damascus steel.

MATHEMATICS
The concept of zero as a number comes from India. So do the numerals we use: Hindu-Arabic numerals come from the Indus valley civilization (2500-1900 BC). They were brought to Europe by Muslims.
The first calculus textbook was written in India around 1530.
Madhava of Sangamagrama came up with the Leibniz formula for pi in the early 15th century AD, more than 300 years before Leibniz himself did!
Choose the best answer for each question.

1. Which fiber was probably the most important in the Indus Valley Civilization?
   a. Hemp
   b. Wool
   c. Cotton
   d. Nylon

2. What can be said about Indian medicine?
   a. It has a long history.
   b. It is expensive.
   c. It is appreciated.
   d. It is non-existent.

3. Which game was played using humans as playing pieces?
   a. Chess
   b. Dice
   c. Snakes and Ladders
   d. Parcheesi

4. What can be said about past Indian mathematicians?
   a. They were friendly
   b. They were ahead of European mathematicians
   c. They were friends with Arabs
   d. They were wealthy

5. Which Indian inventions and discoveries do you use on a regular basis?
   __________________________________________________
   __________________________________________________
   __________________________________________________
   __________________________________________________

6. What does this list of inventions tell you about ancient Indian civilization?
   __________________________________________________
   __________________________________________________
   __________________________________________________
   __________________________________________________
ANSWERS

1. c
2. a
3. d
4. b
5. Answers will vary. Accept reasonable answers.
6. Answers will vary. Accept reasonable answers. Possibilities include: Games were popular. They had advanced agriculture. Mathematicians were important. They wore cotton. They liked jewelry. They had modern, planned cities.