

**BALABHADRA SKILL DEVELOPMENT ACADEMY**  
**SPOKEN ENGLISH PRACTICE LESSON – 30**  
**CONTRIBUTIONS OF INDIA**

1. Ancient Indian scientists were Rishis who have self empowered (atam shasakti karan) themselves achieving higher physical and mental state. Rishis alongwith administrators (kings and ministers) having high social and moral values were able to make India economically, socially, culturally and spiritually a rich nation.

2. **Golden Bird.** Organisation for Economic Co-operation and Development (OECD) under the chairmanship of Angus Maddison carried out a study to find out economic condition of ancient India. The team published a report titled “*The World Economy: A Millennial Perspective*” in 2001. From 1 AD – 1000 AD, India and China shared larger GDP (India - 34%, China - 26.2%). India was wealthiest country in the world. It continued till 1700 AD. In 1757 AD, Indian Economy was still on the top with 24.5% of world GDP (India-24.5%, China - 22.3%, UK - 2.1%, USA - 0.1%). The foreign invasion and British rule damaged Indian economy. In 1947, India’s wealth came down to 3.1%. USA and UK from poorest countries became wealthiest countries in the world. It has been brought out that prevailing social, cultural and spiritual heritage were the main reasons for India’s prosperity.

**Scientific Contributions**

3. In 1543, Polish astronomer Nicolaus Copernicus in his book “The Revolutions of the Heavenly Spheres” said that the earth rotates daily on its own axis and revolves yearly around the sun. This is called heliocentric theory. Galileo during 1609-1612 made astronomical discoveries and said that the earth rotates daily on its own axis and revolves yearly around the sun. During the period, the western countries were believing that the earth is stationary and sun rotates around the earth. For his contradicting views, Galileo was placed in house arrest till his death on 8 January 1642. All his books were banned. On the other hand, since ages India believes in heliocentric theory. Few facts are mentioned in this regard.

(a) We call earth Jagat, means which moves. It means earth is moving.

(b) Aryabhatta (476 CE) in his book, Aryabhatiya mentioned that the Earth is round, rotates on its own axis and revolves around the Sun. He also made predictions about the solar and lunar eclipses, duration of the day as well as the distance between the Earth and the Moon.

(c) **Planets.** Indians are worshiping navagraha (9 planets) since ages. The western countries came to know about the planets 300 years ago with discovery of telescope.

(d) **Shape of Earth.** The study of earth in Hindi is referred as BHUGOL, means – earth (bhu) is round (gol). In Hindu mythology written probable 5000 years ago, Varaha, the third Avtar of Lord Vishnu is holding earth (round shape) on his tusks. Till 300 years ago many countries were believing that earth is flat. On the other hand, Indians since ages know that earth is round.

(e) **Great Bear.** The second star from left in the great bear constellation is a twin star system. Thousands of years ago the ancient rishis could identify two tiny spots in the sky as a twin star system, both rotating in synchrony. They named it Arundhati (Alcor) – Vasistha (Mizar). Even without the telescope, our ancestors could identify two tiny spots in the sky and also how they rotate.

(f) **Astronomical Calculations.** Hindu festivals are being observed since ages. The date and time of festivals are decided as per Hindu calendar. The Hindu calendar is based on relative positions of planets, sun and moon. Indian rishis were able to record relative positions of heavenly bodies without any equipment. However, western countries could predict relative positions of sun, moon and planets only after discovery of telescopes and observatories.

4. **Invention of Zero.** Mathematician Aryabhata (476 CE) invented zero.

5. **Smelting of Zinc.** In the world, Indians were first to have knowledge of zinc extraction. In 12<sup>th</sup> century, first zinc extraction site in the world was constructed in Tiri, Zawar (Rajasthan).

6. **Plastic Surgery.** Sushruta in 6th Century BC was first to carry out surgery.

7. **Rust Free Iron Pillars.** The rust free iron pillars are found in Delhi, Kollur (Bangalore) and Dhar (Madhya Pradesh). Though, pillars are constructed thousands of years ago, still these are rust free. The rust free materials have been used in the construction. This indicates knowledge of iron smiths and developed metallurgy in ancient India.

8. **Laws of Motion.** Sir Isaac Newton is well known for 'laws of motion'. But long before Newton, these laws were given by Indian Rishi Kanada. This has been brought out in a paper published in American Journal of Engineering Research (AJER) in 2020. Indian ancient civilization during vedic period has given birth to many scientific discoveries/inventions. However, these contributions remained hidden from public.