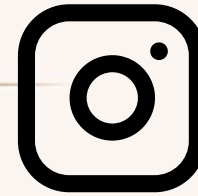


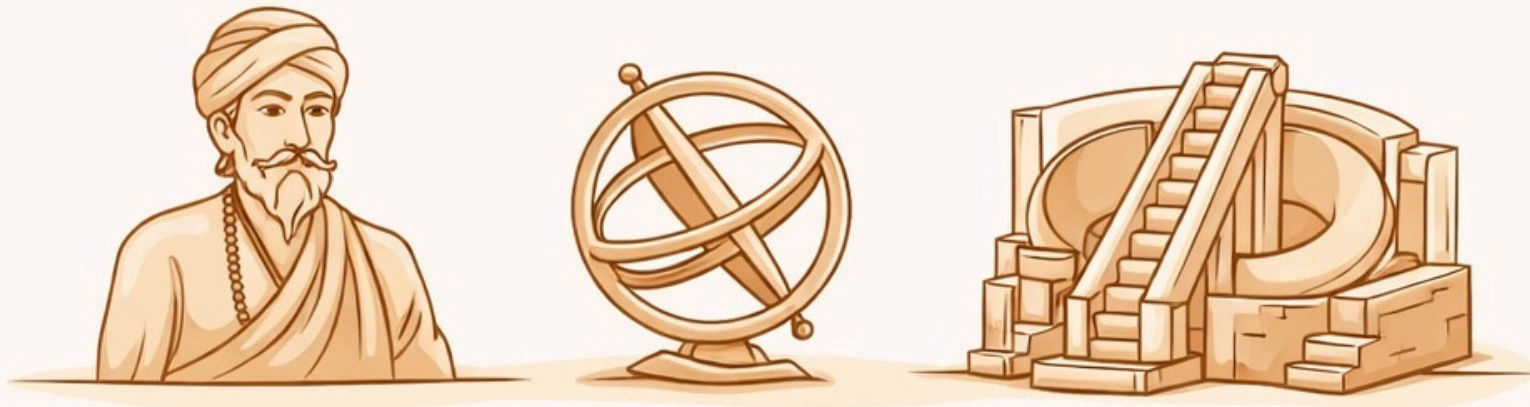
Chapter 5

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# India's Heritage of Science



**GSEB class 10th SS**



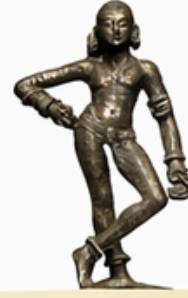
**GSEB class 10th SS**



1. Advances in Metallurgy



2. Metals in Daily Life & Art



3. Dancing Girl of Indus Valley



4. Kushan Period Buddha Statues



5. Chola Dynasty Metal Idols



6. Nataraja Statue (Chennai Museum)

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7. Rama - The Archer



7. Metal Statue



8. Animal & Bird Figures

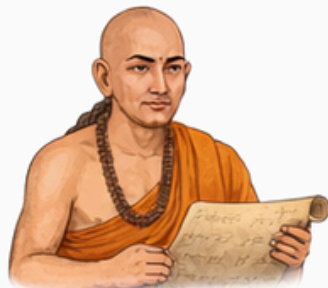


9. Betel-Nut Cutters



10. Gods, Goddesses & Tools

# Metallurgy in Ancient India



**3** Acharya Nagarjuna  
of Nalanda University

**4** Books:  
*Rasaratnkar & Arogyamanjari*



**1** Experimental Science  
in Ancient India



**2** Used in Minerals, Metals,  
Plants & Medicines



**Chemistry (Alchemical Lore)  
in Ancient India**

**5** Herbal &  
Allopathy  
Medicines



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**6** Mercury Ash  
in Medicine



**8** Metals, Poisons, Salts  
& Mineral Ashes



**7** Nalanda's School  
of Chemistry



# Examples of Chemical Skill

## 1. Copper Buddha Statues

Advanced Chemical  
& Metallurgical Knowledge



## 2. Sultanganj Buddha

72 Feet High,  
1 Tonne Weight



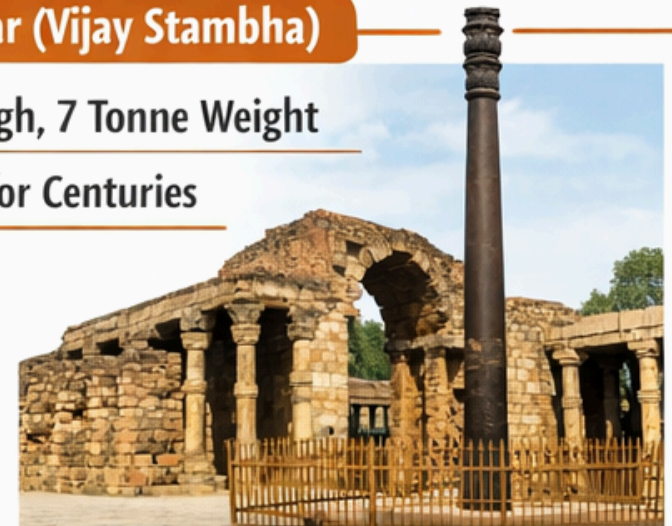
## 3. Nalanda Buddha

18 Feet High



## 4. Iron Pillar (Vijay Stambha)

24 Feet High, 7 Tonne Weight  
Rust-Free for Centuries



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## 1 Achievements in Medicine & Surgery

- 1 Ancient India made great progress in medicine and surgery.
- 2 Three great scholars – Charaka, Sushruta & Vaghnatta – were pioneers of Indian medical science.



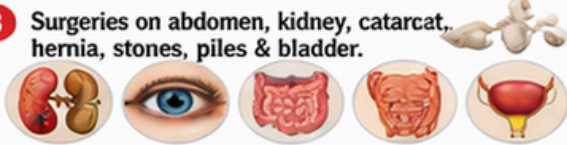
## 2 Important Medical Texts

- 1 Charaka – *Charaka Samhita* (Over 2000 medicinal herbs)
- 2 Sushruta – *Sushruta Samhita* (Surgical methods & instruments)
- 3 Vagbhata – *Ashtanga Hridaya* (Diagnosis & treatment)
- 4 These texts are still useful for medical studies.



## 3 Surgery and Treatment

- 1 Surgical instruments were very sharp, and advanced.
- 2 Doctors could stop bleeding using special bandages.
- 3 Surgeries on abdomen, kidney, cataract, hernia, stones, piles & bladder.
- 4 Joining broken bones, removing foreign objects & treating injuries.
- 5 Knowledge of plastic surgery – nose & ear reconstruction.
- 6 Diagnosis of diseases & diet plans after recovery.



# Science of Medicine and Surgery in Ancient India

## 4 Medical Training

- 1 Students were trained practically – on dead bodies or wax models.
- 2 Successfully handled complicated childbirth operations.
- 3 Skilled in gynaecology & paediatrics.



## 5 Veterinary Science

- 1 Veterinary medicine was also well developed.
- 2 Books like *Hasti Ayyureda*, *Shalihotra* & *Ashwashastra* – diseases of elephants & horses.



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## 6 Overall

Ancient Indian medicine was highly advanced, scientific & well-organised, showing deep knowledge of health, surgery & care.



# Mathematics in Ancient India

1. Great contributions to mathematics used worldwide.
2. Gifted the world Zero, Decimal System, Algebra, Geometry, Arithmetic.

## Major Contributions

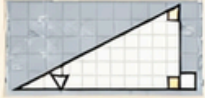
1. Aryabhata discovered Zero (0).



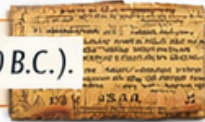
2. Decimal System used in Harappa & Mohenjo-daro.



3. Bodhayan: Pythagoras Theorem.



4. Aapstambha: Shulva Sutras (1800 B.C.).



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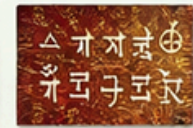
## Great Mathematicians and Their Works

1. Aryabhata:

1. Value of  $\pi$  (Pi) = 3.14



2. Addition, Subtraction, Roots



3. Wrote Aryabhatiya, Dash-gitika



4. "Father of Mathematics"



2. Brahmagupta:

1. Equations & Arithmetic Rules



3. Bhaskara II (Bhaskaracharya):

1. Wrote Lilavati & Bij Ganit



2. Addition & Subtraction Signs



# Astronomy and Astrology in Ancient India

## Major Contributions:

1. Aryabhata's Contributions



2. Earth Rotates on Axis



3. Lunar Eclipse Explained



4. Aryabhata Satellite



## Famous Astronomers:

5. Brahmagupta on Gravity



6. Varahmihir



6. Varahmihir



7. Tantra, Hora & Samhita



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## Brihat Samhita Topics:

8. Effects of Planets on Life



9. Human Nature & Future



10. Human Nature & Future



10. Animals & Marriage



11. Ponds & Gardens



12. Ponds & Gardens Construction



12. Auspicious Farming Times



13. Ancient Indians had Great Scientific Skills.

14. We Should Be Proud of Our Heritage.



# Vastushastra

1. Ancient Indian science of architecture



3. Great Sages: Brahma, Narada, Brihaspati, Bhrigu, Vashishtha & Vishwakarma



6. Rana Kumbha Revived in 15<sup>th</sup> Century



7. Vishwakarma, Architect of the Gods



2. Connected with Astrology & Worldwide Recognition



4. Rules for Houses, Temples, Palaces & Town Planning



5. Described in 'Brihat Samhita'



8. Eight Parts of Vastushastra



9. Site Selection & Room Placement



10. Followed Internationally Today



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Site Selection, Design & Brahmasthan



Temple Planning



Kitchen, Bedroom, Dining Room

