



Master Lesson Plan

For

Weavers Iron Smelters and Factory Owners

Board	Standard	Subject	Chapter	Language	Reference Link	Creation
CBSE	STD VIII	Social Science	Weavers Iron Smelters and Factory Owners	English	Weavers, Iron Smelters and Factory Owners	2020-11

Weavers Iron Smelters and Factory Owners

1. MS_Objectives-Weavers, Iron Smelters and Factory Owners

Objectives-Weavers, Iron Smelters and Factory Owners

Notes to the teacher: This asset lays down the proposed plan for transacting this chapter.

It states the asset objectives of the MLP.

This asset is for teacher's reference and need not be taught to the students.

The students will be able to:

- critique the effects of industrialization on **Indian craft and industries** during **British rule**.
- infer that **India was renowned for textiles** much before the 18th century.
- explore the **origin of Indian fabric** varieties.
- analyse the **need for technological innovations** in the cotton industry in Britain.
- interpret the **distribution of weaving in India** during the 18th century on a map.
- explain the process of **spinning and weaving**.
- relate to **occupations** associated with handloom weaving.
- analyse the changes that came about in the **status of handloom weaving** Industry in India.
- develop **empathy** towards others.
- infer that industrialization in India did not pick up pace till the **first world war**.
- relish the information about the **traditional method of smelting** in India.
- explain the importance of **Wootz steel** in olden days.
- relate to the **uses of iron and steel** in day to day lives.
- determine the factors for the **decline of traditional iron smelting** in India
- demonstrate their understanding on the **development of Iron and steel industry** in India in the early 20th century
- compare industrialization of **non-colonial Japan** to that of British ruled India.
- to **assess their learning** on the chapter Weavers, Iron Smelters and Factory Owners.
- **Summarise** the chapter Weavers, Iron Smelters and Factory Owners.

Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Main Script	Trade & Industrialization	Traders Big and Small, The Sultan and Wootz steel, The Indian textiles, Tata Iron and Steel, Jamshedpur, Smelting, Livelihood of Iron and steel workers, Iron and steel factories in India, Indian textiles in European market, Cotton Textiles and the World Market, Early years of industrialization in Japan, Cotton Textiles and the World Market, Abandoned furnaces in villages and Small, The sword of Tipu Sultan, Wootz steel, The decline of traditional iron smelting, Tata Iron and Steel Comparison, Livelihood of workers, Iron and steel factories come up in India, Indian textiles in European market and the World Market, Early industrialization in Japan, Cotton Textiles and the World Market, Abandoned furnaces in villages

2. IQ_Industrialization and India during British rule

Industrialization and India during British rule

Notes for Teacher – Please have a discussion with students on each question before clicking on the answer in the PPT. Please have many students answer each question to ensure engagement and participation.

Q 1: Take a look at these images of some farm products exported by India during British rule.

Which of these could be used as raw material for their industries? [Hints: Cotton]

Images 1,2, 3: Cotton, Spices, Silk



Q 2: How was cotton used by the British to develop industries?

[Hints: The British imported raw cotton at cheaper rates from India, processed it and exported the finished product (cloth / clothes) at a much higher price, making huge profits.]

Image 4: Britain trade with India



Britain imported raw materials from India at cheap rates.

Britain exported finished goods to India at higher price.

[Notes for Teacher: The teacher can play the attached Video: Industrial Revolution. The students will have questions based on the video.]

Q 3: According to the video, what were the two basic areas/ industries that benefited by the use of machines?

[Hints: Textile/Iron and steel]

Images 5 and 6: Textile and Iron and steel



Q 4: How did Britain benefit from colonies like India? [Hints: India provided cheap raw materials for industries and a vast market for selling the finished machine made products from Britain.]

Image 7: British benefits from India



Q 5: 'Industrialization affected the handloom weavers of India'. Do you agree or disagree with this statement? Give reasons for your opinion.

[Hints: Yes,

- Machine made textiles were preferred to handloom textiles.
- Yes, Many handloom weavers lost their jobs due to lesser demand.

No,

- The print and colour of handloom industry was unique and could not be produced otherwise.
- Customisation [placing order for a specific type and length of cloth e.g. dhoties/ towels/sarees] was possible for handloom but not for machine made imported cloth.]

Image 8: Textile industry



The teacher can ask the following lead questions to arrive at the desired answers.

Q : Why was machine made cloth preferred? Was it finer / softer/ more appealing?

Suggested Answer: It was faster to produce cloth using machines and thus market was flooded with it. It was cheaper too.

Q: Why did the demand for handloom goods go down?

Suggested Answer: Cotton was not easily available to the local weavers for producing handloom

textiles. They had to pay more for raw cotton and thus their goods were priced higher. It took longer and thus could not compete with imported cheap cloth.

Thus during 18th century British rule in India benefitted the rapid industrialization in Britain.

Video link:

<https://www.youtube.com/watch?v=3gm1eCTleaA>

Image Source:

India Map: [SSSVV gallery key word: India map](#)

Spice: <https://pixabay.com/photos/spices-jar-cooking-rustic-pepper-2548653/>

Cotton: <https://pixabay.com/photos/cotton-branch-cotton-plant-branch-1271038/>

Silk: <https://pixabay.com/photos/silk-mill-silk-weaving-4870/>

Fabric: <https://pixabay.com/photos/fabric-cloth-fashion-textile-1237805/>

Textile: <https://pixabay.com/photos/factory-weaving-machine-textile-831011/>

Iron and steel: <https://pixabay.com/photos/steel-materials-raw-channel-metal-2839316/>

Money bag: <https://openclipart.org/detail/298986/bag-of-gold-coins>

<https://www.publicdomainpictures.net/en/view-image.php?image=205780&picture=textile-industry>

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Inquisitive Questions	Trade & Industrialization	Iron and steel factories come East India Company Comes industries of India, Iron and : come up in India, East India Comes East, Crafts and indi

3. MS_Influential India

Influential India

Notes to the Teachers: *The understanding of the content can be enhanced by showing a few possible samples of Indian fabrics such as Bandhana (bandhani), Patola, Paithani, Phulkari, Pashmina, Muslin (mulmul), Chintz, Palampore (kalamkari) and Jamdani so that the students can also gain a visual knowledge of the rich history of Indian textiles.*

- India is famous for the fine quality of textiles with elegant craftsmanship.
- India had trade relations with West, Central and Southeast Asian nations as early as the 16th century even before the arrival of the East India Company.

Map 1: India's trade relations with Asian nations in 16th century



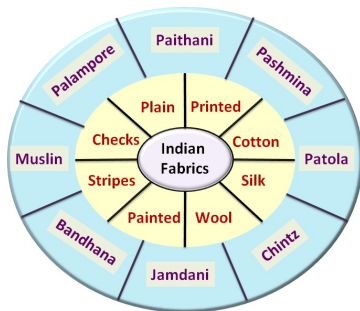
- W - WEST
- NW- NORTH WEST
- C - CENTRAL
- E - EAST
- SE – SOUTH EAST

- During the 17th century The East India company ordered a wide range of textiles commonly known as 'piece goods' which included 98 varieties [just less than 2 from 100] of cotton and silk clothes. Each 'piece good' measures 20 yards long and 1 yard wide. It took two years to receive the finished goods after placing the orders. (Note: one yard equals 3 feet.)

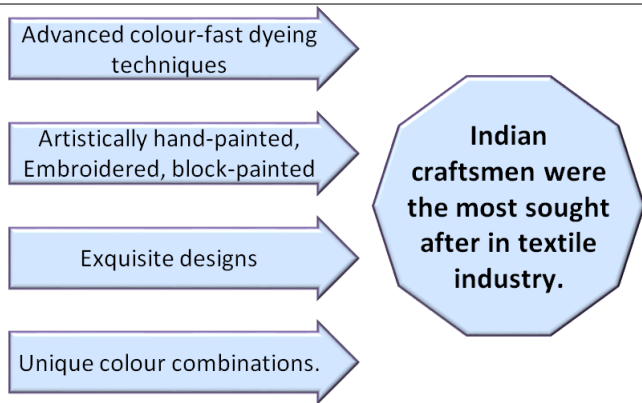
[The Teacher can refer that one yard equals three feet which is almost the waist length of the average student in the class.]

- The wide Indian textile range includes plain, painted, printed, stripped, embroidered, cotton, silk and woollen fabrics such as Muslins, Chintz, Pashmina, Palampores, Jamdani, Bandhana, Patola and Paithani.

Image: Indian textile range



- Indian craftsmen were the masters of colour-fast dyeing techniques. The fabrics were artistically hand-painted or printed with exquisite designs and unique colour combinations.



Thus we understand that the skillful creation of the local weavers made Indian products very popular in the countries around.

Image Source:

Asia Map: SSSVV gallery key word: Asia

<https://openclipart.org/detail/319720/little-boy-points>

Time to teach	Asset Type	Theme	SubTheme
6 Minutes	Main Script	Trade & Industrialization	Indian Textiles and the World and industries of India, Cotton industry , Indian Textiles and Market, Crafts and industries: Textile industry

4. SA_Fun with Fabrics

Fun with Fabrics

[Notes to the Teacher: The teacher can introduce the topic as follows:

Indian textiles were popular in different parts of the world. The East India Company ordered clothes that originated from many parts of India such as Kasimbazar, Patna, Calcutta, Orissa, Gujarat, Rajasthan, Kerala, Charpoore, Masulipattanam, Kanchipuram. Let us explore some fabrics and their origin.]

Let us play a Game

AIM: To identify the fabrics with the given hints.

RESOURCES REQUIRED: Notebook and pen

SETTING FOR THE ACTIVITY: CLASSROOM

TYPE OF ACTIVITY: Group project

The teacher can give the list of Indian fabrics that were traded during the British Rule with a short description on their origin. This can be displayed from the PPT along with the images.

Images: Indian Fabric Varieties



1. **Muslin:** European traders came upon muslin of India from the Arabs in Mosul, Iraq. Muslin was mostly produced in Kolkata and Dhaka.
2. **Calico:** Portuguese traded this type of fine cotton fabric from Calicut (present day Kozhicode), Kerala and hence gave the name Calico.
3. **Chintz:** Chintz are small and colourful floral printed cotton cloths derived from the Hindi word 'chhint' meaning small. Chintz was produced in Masulipatnam, Andhra Pradesh.
4. **Bandhana:** The name derived from the word 'baandhna' meaning tying in Hindi and referred to a variety of brightly coloured cloth produced through a method of tying and dyeing. Bandanna patterns were mostly produced in Rajasthan and Gujarat.
5. **Jamdani:** In Persian, 'Jam' means flower and 'Dani' means jar. The name is suggestive of the beautiful floral motifs on fine muslin woven with a mixture of cotton and gold thread. The most important centres of jamdani weaving were Dacca in Bengal and Lucknow.
6. **Kalamkari** is an ancient Indian art that originated about 3000 years ago. It derives its name from Kalam meaning Pen, and Kari meaning work, literally Pen-work.
7. **Paithani** originated from the place Paithan, a town in Maharashtra, located in Aurangabad district, anciently known as 'Pratishthana' and was the capital of the Satavahana Empire in times of Ruler Shalivahana.
8. **Pashmina** in Persian means 'made from wool'. Pashmina is also known as 'cashmere' as they are woven in Kashmir.

9. **Phulkari** translates into 'flower work' in Hindi, This fabric originated from Punjab and was spun from the charkha adorned with spectacular patterned embroidery on odinis, shawls, kurtis and chunris.
10. **Patola** is hand-woven silk fabric that originated in Patan, Gujarat. The name Patola is derived from the word Pattakulla, meaning 'Silk Cloth' in Sanskrit.
11. **Muga silk:** One of the rarest silks in the world is the Muga silk from Assam. The word 'Muga' means yellowish in Assamese. It is organic and natural and has the strongest natural fiber.

PROCEDURE:

1. Make teams of 2 or 3 students each
2. Each of them will be given details of one fabric.
3. Each team will come in front of the class and give hints on the fabric without revealing the name of the fabric.
4. **The image of the respective fabric can be displayed from the PPT (slide 15).**
5. **The rest of the students will be the audience and guess what the fabric is with the given hints.**
6. **The students from the audience can be selected in turns to give the correct answer.**

An example is given below:

The team is given - **Muga silk**. They are provided with the following details.

'Muga Silk: One of the rarest silks in the world is the Muga silk from Assam. The word 'Muga' means yellowish in Assamese. It is organic and natural and has the strongest natural fiber.'

After reading the details, the team will give the audience the hints to identify the fabric without mentioning the word 'Muga'.

The hints can be as follows:



- It is one of the rarest silk fabrics in the world.
- Origin: Assam.
- Meaning: Yellowish in Assamese.
- It is organic and has the strongest natural fiber.

Hints (Example)for the activity:

Give hints one by one. Allow the audience to guess the fabric with each hint., read out the remaining hints after that.

The audience can guess the fabric as Muga silk. If none can identify, the team may give the answer themselves.

[Notes to the Teacher: The teacher can assign any one of the 10 fabrics mentioned before.]

1. **Muslin**
2. **Calico**
3. **Chintz**
4. **Bandhana**
5. **Jamdani**
6. **Kalamkari**
7. **Paithani**
8. **Pashmina**
9. **Phulkari**
10. **Patola**

OBSERVATION:

The teacher can observe whether each team gives the hints correctly before they present to the class.

The teacher observes whether the students are identifying correctly with the given hints.

CONCLUSION: After the game, the students can note down the details of all the fabrics discussed in their notebooks.

Instructions to Teacher:

- Teacher will organise, supervise and guide the activity.
- While giving the hints for a fabric, the teacher can display the image of the respective fabric given in the PPT (slide 15 to slide 24) for better understanding.
- The teacher can select students to identify the fabric so that all participants get chances to respond.
- The students can be encouraged to use the board in case they need to give hints of the fabrics using illustrations.
- A follow-up activity can be given to the students. The students can do the assignments in their note books.

Make a table of all the fabrics discussed and their origin.

The table can be as follows (one example given for better understanding)

Table: Fabric and its origin

Fabric	Origin
(Example) Muga	In Assamese 'Muga' means 'Yellowish'
Muslin	
Calico	
Chintz	
Bandhana	
Jamdani	
Kalamkari	
Paithani	
Pashmina	
Phulkari	
Patola	

The order of the activity can be as follows

- display the PPT till slide no.14
- form teams and give the instructions about the activity
- check with the hints before the students start the activity
- display the relevant image (slide 15 to slide 24) when the students give out the hints to the class
- play the observation and conclusion from the PPT at the end of the activity
- give the follow-up assignment by explaining to make a table using the black-board.
- evaluate the table

Precautions: The teacher can make some rules to maintain class discipline, such as follows:

- Only those selected by the teacher can answer.
- The students must raise their hands to get a chance to answer..
- Those who shout will not be given a chance to answer.

Troubleshooting: The teacher can ensure that the hints given by the students are correct. This needs to be done in advance, before the activity begins.

Reference Link:

<https://www.craftsvilla.com/blog/traditional-art-of-weaving-jamdani-saree/>

<http://www.indiamarks.com/kalamkari-the-ancient-indian-art-organic-fabric-painting/>

<https://www.unnatisilks.com/paithani-history-indian-crafts.html>

<https://www.utsavpedia.com/textiles/muga-silk-the-golden-silk/#:~:text=The%20word%20%60Muga%E2%80%99%20means%20yellowish%20in%20Assamese.%20The,made%20from%20the%20semi-cultivated%20silkworm%20named%20Antheraea%20assamensis.>

Image Source:

Phulkari: <https://pixabay.com/photos/fabric-ethnic-embroidery-textile-1280136/>

Paithani: <https://pixabay.com/photos/wedding-saree-collection-1050936/>

Jamdani: <https://pixabay.com/photos/saree-indian-ethnic-clothing-734917/>

Kalamkari: <https://search.creativecommons.org/photos/aa7a3932-8d57-4450-9a2f-e45885ae3379> "A handmade painting at a kalamkari exhibition" by Anuradha Sengupta is licensed under [CC BY 2.0](https://creativecommons.org/licenses/by/2.0/)

Patola:

[https://commons.wikimedia.org/wiki/File:%27Patola%27_\(ritual_heirloom_cloth\)_from_Gujarat,_India,_late_18th_or_early_19th_century.jpg](https://commons.wikimedia.org/wiki/File:%27Patola%27_(ritual_heirloom_cloth)_from_Gujarat,_India,_late_18th_or_early_19th_century.jpg)

Muslin: <https://pixabay.com/photos/handkerchief-textile-fashion-white-5425158/>

Calico: <https://www.publicdomainpictures.net/en/view-image.php?image=32000&picture=nantong-blue-calico>

Chintz: https://commons.wikimedia.org/wiki/File:Chintz_appliqu%C3%A9_d_quilt_MET_DT1815.jpg

Bandhana: <https://www.publicdomainpictures.net/en/view-image.php?image=101539&picture=tie-dye-background>

Muga silk: Original Contribution: Anuradha Ramkumar; ramji.anu@gmail.com

Time to teach	Asset Type	Theme	SubTheme
20 Minutes	Suggested Activity	Trade & Industrialization	Crafts and industries of India industries of India

5. MS_British Bring Technology To Cotton Textile Industry

British Bring Technology To Cotton Textile Industry

[Notes to the Teacher: *The teacher can start the asset with an introduction as follows: 'What were the varieties of clothes that were produced in India in the past? The students may give the answer by recalling the names of fabrics learnt so far.]*

- India was the **world's largest producer** of cotton textiles during the 18th century.
- **European** trading companies such as the Dutch, the French and the English made enormous profits trading Indian textiles.
- These companies purchased cotton and silk textiles in India **in exchange for silver**. The Europeans minted silver coins as currency and paid the Indian weavers in silver to buy their goods.

However, when the English East India Company gained political power in Bengal they collected **revenue taxes from the local people** and used the revenue to buy Indian textiles, instead of paying in silver.

(The teacher can refer to the following links to give more details on the silver coins used by the Europeans during 18th century)

https://en.wikipedia.org/wiki/Spanish_dollar

https://en.wikipedia.org/wiki/Global_silver_trade_from_the_16th_to_19th_centuries

Image 1: European trader paying in silver to buy goods from an Indian weaver.



Image 2: Silver coin used in 1886



- **Around 60%** of the total value of the company's sales in London was provided by the Indian textiles. The European weavers could not earn much as Indian textiles were preferred. Thus importing Indian textiles **became a threat** to the domestic textile businesses in Britain.

Image 3: Indian textiles in the world market



- **Calico Act:** The British Parliament passed an act in 1720 to benefit the local weavers in Britain. This act named as 'Calico Act', **banned the imports** of printed cotton textiles especially calico from **India**.
- Due to this act, Indian goods could not be imported into Britain. But the people of Britain favoured Indian textiles. Hence, to satisfy the demands and to gain profits, the local weavers in England imitated the **Indian designs and prints**.

Image 4: Calico Act

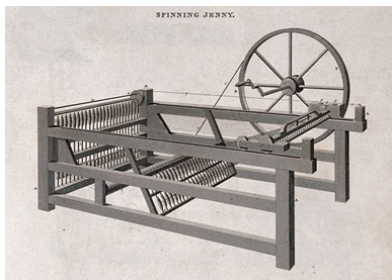


- The British weavers had to produce more cloth with less labour to gain huge profits. This led to new **technological innovations** in Britain.
- In 1764, John Kaye invented Spinning Jenny. **Spinning Jenny** is a machine by which a single worker could operate **several spindles** at the same time. When one wheel was turned all the spindles rotated. This invention increased productivity on a larger scale.

Image 5 : simple spinning wheel



Image 6: Spinning Jenny



- In 1786, **Richard Arkwright** invented the steam powered **Spinning frames** that enabled machines to spin threads in huge quantities at cheaper rates.

Image 7: Spinning frame/Water frame

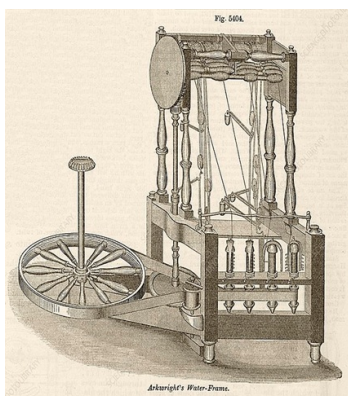


Image 8: Textile industry grew rapidly in Britain.



- Thus with rapid industrialisation, Britain came to be known as the '**Workshop of the World**'.

Image Source:

<https://openclipart.org/detail/223362/vintage-french-male-model>

<https://openclipart.org/detail/19224/sikh-followed-by-partridge>

<https://openclipart.org/detail/323025/a-maori-flax-bag-and-bone-tiki>

<https://openclipart.org/detail/302069/money-bag-6>

<https://pixabay.com/photos/ruble-coins-money-russia-silver-627224/>

<https://pxhere.com/th/photo/997447>

<https://pxhere.com/en/photo/776930>

<https://www.pexels.com/photo/printed-piece-of-fabric-2933636/>

<https://www.pexels.com/photo/fabric-flower-pattern-sunlight-408303/>

<https://pixabay.com/photos/khadi-coarse-cloth-garag-india-233560/>

https://commons.wikimedia.org/wiki/File:Textiles;_a_spinning_jenny._Engraving_by_W._Lowry,_1811._Wellcome_V0024143.jpg

<https://pixabay.com/photos/silk-factory-spools-textile-sewing-4823846/>

https://commons.wikimedia.org/wiki/File:Spinning_frame01.jpg

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Main Script	Trade & Industrialization	Shifts in trade and economy Indian textiles in European r Textile industry , Shifts in tra after the 1950s., Indian textil markets, Cotton Textile indu

6. SA_Weaving in 18th century India

Weaving in 18th century India

[Notes to the Teacher: The teacher can introduce the activity as follows:]

During the 18th century traders transported their goods via roads as railways had not developed. The goods were brought to the major cities and sold to the European Traders. The Indian textile production was divided into four regions namely East, West, North and South.

- Calcutta (now Kolkata) in West Bengal and Dacca (Dhaka) in East Bengal (now Bangladesh) were one of the major trade centres for the East India Company in the eighteenth century. It was famous for its Mulmul and Jamdani weaving.
- Gujarat had many important weaving centres in the west coast.
- North India had weaving centres in Punjab and Lahore (now Pakistan).
- South India was considered as the next major region with many cotton weaving centres along the Coromandel coast that stretches from north of Andhra Pradesh to Madras (now Chennai).

Let us now explore the places and fabrics of these four regions.

The teacher can display the ppt and give the details of the activity.

AIM: Region-wise mark on the map, the places and types of fabrics weaved in India during the 18th Century.

RESOURCES REQUIRED:

1. **Outline Map of India for each team**
2. **Sketch pens**

3. **Colour pencils, Pencils**

4. **Atlas**

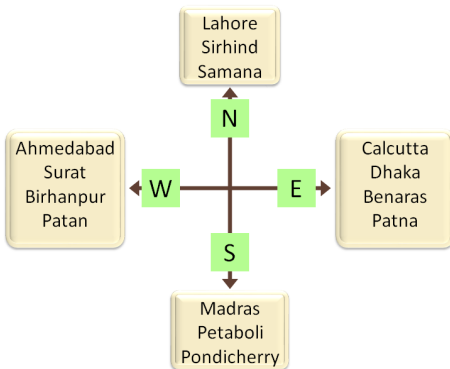
SETTING FOR THE ACTIVITY: CLASSROOM

TYPE OF ACTIVITY: Group project

PROCEDURE:

1. Make 4 teams. The teacher can assign **one region to each team** - East, West, North, South.
2. Each team will note down the **places and fabrics produced** in their assigned region as shown in the PPT.

(The teacher can give time for the students to note down the places from the PPT)



3. **Mark** the places and mention the type of fabric produced using **symbols** such as follows:

- ★ Plain Cotton
- ▲ Stripes And Checks
- ▼ Chintz
- ◻ Silk

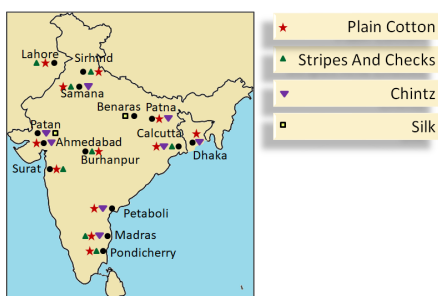
4. Complete the map by marking all the places for the allocated region.

(The teacher can encourage the students to use atlas along with the wall map and PPT to mark the places on the map.)

5. Mention on the map the symbols used and the fabric that refers to it.

Image 3: Map-Weaving in India during the 18th century.(all four regions included).

(The map can be displayed before the activity for better understanding.)



OBSERVATION:

- The teacher can check whether each team has correctly noted the important places for that region before marking on the map.

- The teacher can check if the students are marking on the map using correct symbols.

Conclusion:

- The teacher can conclude the activity by mounting the completed maps on the **bulletin board** for students' reference.
- A **follow-up assignment** can be given to all the students to make a table of places and fabric region wise. This can be done in the **notebooks**. The table can be as follows:

Table: Distribution of types of fabrics in India region-wise

Sample Table		
Region	Place	Type of Fabrics
North	Lahore	Plain cotton, stripes and checks
South		
West		
East		

[The teacher can give the sample table as an example and instruct the students to fill the table.]

ANSWER			ANSWER		
Region	Place	Type of Fabrics	Region	Place	Type of Fabrics
North	Lahore	Plain cotton, stripes and checks	West	Ahmedabad	Plain cotton, chintz
	Sirhind	Plain cotton, stripes and checks		Surat	Plain cotton, stripes and checks
	Samana	Plain cotton, stripes and checks, chintz		Birhanpur	Plain cotton, stripes and checks
South	Madras (Chennai)	Plain cotton, stripes and checks, chintz		Patan	Chintz, silk
	Petaboli	Plain cotton, chintz	East	Calcutta(Kolkata)	Plain cotton, stripes and checks, chintz
	Pondicherry (Puducherry)	Plain cotton, stripes and checks		Dhaka	Plain cotton, chintz
				Benaras	Silk
				Patna	Plain cotton, chintz

Instructions to the teacher:

- Teacher will organise, supervise and guide the activity.
- Besides PPT and wall mounted map, the teacher can encourage the students to use **atlas** to mark the places.
- The teacher can give a **short recall session** the next day to locate/show a place on the wall-mounted map and mention the fabrics weaved there.

Precautions:

- The maps can be arranged from the school or informed the previous day to the students to bring for the activity.
- The teacher should ensure that the students have noted the places and fabrics for their respective regions correctly ahead of the activity.

Troubleshooting: The teacher can have extra maps in case of need.

Thus we can learn about the major centres of weaving around the four regions in India during the 18th century.

Image Source:

India map: SSSVV gallery; keyword: India map

Time to teach	Asset Type	Theme	SubTheme
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20 Minutes	Suggested Activity	Trade & Industrialization	Crafts and industries of India industry , Crafts and industri Cotton Textile industry
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7. MS_Spinning and Weaving

Spinning and Weaving

[Notes to the Teacher: The teacher can play the video of the spinning and weaving process.]

- Weaving is a skilled occupation generally passed on from one generation to the next.
- In India the skilled weavers include communities of the Julahas or Momin weavers of north India the Tanti weavers of Bengal, and Sale, Devangs and Kaikollars of south India.



Spinning

Process of producing threads from cotton



Weaving

Process of interlacing threads vertically and horizontally at the right angles to produce fabric.

- Manufacturing fabrics includes two stages:

- **Spinning:** Spinning is the process of producing threads from cotton. The charkha and the takli were used for spinning and rolling threads. The thread was spun on the charkha and rolled on the takli. In most communities spinning was done by women.



The thread is spun on the **charkha**.



The thread is rolled on the **takli**.

- **Weaving:** Weaving is the process of interlacing threads vertically and horizontally at the right angles to generate a textile. By changing the way of weaving threads various fabric appearances are created. The task of weaving was generally done by men.



By changing the way of weaving threads various fabric appearances are created.

- **The process of weaving is followed by dyeing or printing.**

Image: Dyeing



Image: Printing



Indian weaving was well appreciated all around the world for the artistic and intricate work of the weavers.

Video source:

Spinning: <https://www.youtube.com/watch?v=AVleg4zFY1E>

Weaving: <https://www.youtube.com/watch?v=kxGsNatRzkg>

Image Sources:

Weaving: <https://pxhere.com/en/photo/768810>

Spinning: <https://pxhere.com/en/photo/1293965>

Charkha: <https://pixabay.com/photos/khadi-coarse-cloth-garag-india-233560/> Charkha 2:

<https://pixabay.com/photos/loom-weaving-thread-craft-pattern-4564228/> Takli:

<https://pxhere.com/en/photo/1116407>

Weaving: <https://pixabay.com/photos/cotton-spinning-khadi-coarse-cloth-233561/> Loom:

<https://pixabay.com/photos/weaving-loom-weaving-traditional-2571179/> Dyeing:

<https://pxhere.com/en/photo/934726>

Printing: <https://www.peakpx.com/483078/teal-red-orange-yellow-textile>

5 Minutes	Main Script	Trade & Industrialization	Crafts and industries of India industry , Crafts and industri Cotton Textile industry
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8. IA_Behind the Weavers

Behind the Weavers

(Note to the teachers: The teacher can introduce the topic by asking if the students can list few traditional occupations in India. The suggested answers can be farming, cattle rearing and weaving)

Handloom weaving and the occupations associated with it provided livelihood for millions of Indians.

The associated occupations of handloom weaving are:

- **Carpenters** : To make **charkha** (spinning wheel) and **looms**, the weavers needed the help of the carpenters.

Image : Carpenter



- **Blacksmiths**: For making **Takli** (spindles), **shuttles and other metallic spare parts**, the weavers depended on blacksmiths.

Image : Blacksmith



- **Dyers**: To get threads coloured or fabrics dyed , the dyers known as **rangrez** helped the weavers.

Image : Dyeing



- **Printers:** Skilled block printers known as **chhipigars** helped the weavers to print beautiful motifs on the woven fabrics.

Image: Block Printing



The work of the weavers was successful only with the support of skilled workers of associated occupations.

[Notes to the teacher: The teacher can encourage the students to suggest any other occupation they can relate to weaving.]

Image source:

<https://www.pexels.com/photo/blade-carpenter-carpentry-craft-461086/>

Blacksmith: https://www.flickr.com/photos/59292810@N07/6347672654 "Carl Gustaf Wittenströms Indien" by Tekniska museet is licensed under CC BY 2.0

<https://pixabay.com/photos/dyeing-color-factory-wool-fabric-15039/>

<https://pixabay.com/photos/printing-textiles-dyes-craftsman-453747/>

Time to teach	Asset Type	Theme	SubTheme
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3 Minutes	Interesting Asides	Trade & Industrialization	Livelihood of Workers, Craft of India, Cotton Textile industry of Workers, Crafts and industries of Cotton Textile industry
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9. MS_The Handloom Weaving Loses Its Importance

The Handloom Weaving Loses Its Importance

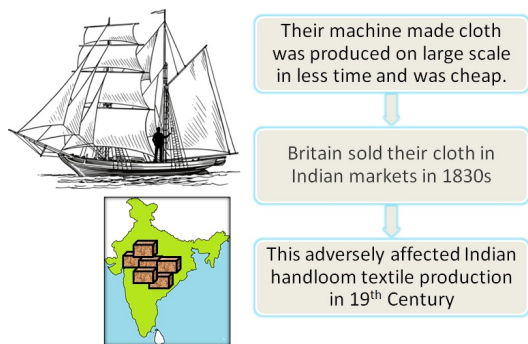
[Notes to the Teacher: The teacher can introduce the topic as follows:

Indian traditional weaving was much liked throughout the world. The **spinners and weavers of India** were famous for their exquisite skills in weaving. Trade flourished and spinners and weavers were highly regarded. But the **effect of industrialization** of cotton textile production in Britain reflected on **Indian traditional weaving.**]

❖ Britain could produce **large quantities** of cloth in **less time and money**. Being a colonial nation, they began selling their cotton cloth in India.

❖ In the 1830s British sold their goods in India and by the 1880s two-thirds of all the cotton cloths worn by Indians were made in **British mills**.

Image 1: British began selling their goods in India



❖ **Indian textile production was adversely affected by the industrialization in Britain.**

➤ They had **huge competition** with British textiles in the European and American markets.

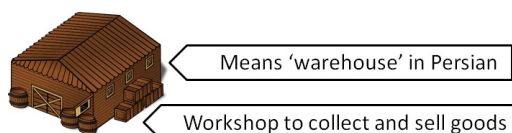
➤ **Heavy duties** were imposed on imports of Indian textiles into Britain.

➤ Even in the **local markets** cloth produced in Britain were sold.

❖ **Britain created many problems for the local weavers in India :**

➤ '**Aurang**' were the warehouses commonly used by the **local weavers in India till the 19th century**. The local weavers used Aurang to store cloth before selling. The **British abolished** the use of Aurangs during their rule. The weavers could not find any place to store their goods anymore.

Image 2: Aurang in Persian means 'warehouse' or 'workshop'.

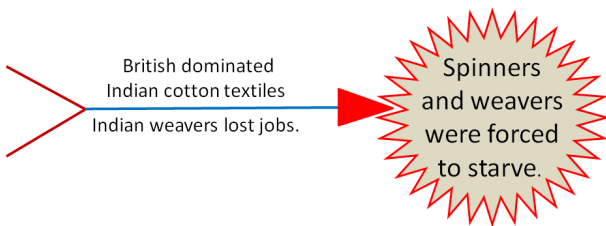


> **European agents** stopped paying advances to the local weavers to weave cloth. With **no orders to weave cloth** they lost their livelihoods.

❖ Many spinners and weavers especially from **Bengal** lost their jobs and were forced to **starve**.



Starvation of spinners and weavers



❖ Eventually many spinners and weavers who lost their jobs changed their occupations and became **agricultural labourers, migrant labourers, plantation workers in Africa and South America**.

❖ Thus **Indian weaving** which was once considered as the **world's largest trade** declined slowly due to the **industrialization and colonization of the British**.

❖ However, handloom weaving in India did not totally vanish. There were still **preferences for Indian handloom** textiles due to the following reasons:

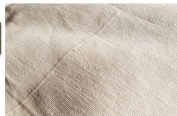
Among rich and middle class people:

Cloth with traditional designs or saris with intricate borders used by them could not be made by machines.



Among poor people:

Coarse cloth used by them were not produced by machines.



New weaving centres emerged at places like Sholapur and Madurai in the late 19th century.

[The teacher can conclude by giving a short note on the efforts made in early 20th century to revive handloom weaving in India]

Efforts were made to revive the handloom weaving in India during the National Movement :

The domination of the British textiles in India prevailed the whole 19th century. It was only in the early 20th century that efforts were made to revive the dying handloom weaving.

❖ **Mahatma Gandhi** encouraged boycott of imported textiles and insisted on the use of hand-spun and handwoven cloth, **Khadi**.

❖ In 1931 **Indian National Congress** adopted the symbol of **charkha** on the centre of the tricolour flag to promote Indian weaving.

Image 4: Mahatma Gandhi encouraged the use of Khadi



Image 5: Indian National Congress flag with Charkha



Image source:

<https://pixabay.com/vectors/currency-dollar-euro-exchange-rate-3727015/>

<https://pixabay.com/vectors/building-map-storage-game-playing-48716/>

Load: Created using shapes

Sari: <https://www.pexels.com/photo/online-sarees-online-womens-wear-online-saris-online-party-wear-1426874>

Khadi: <https://pixabay.com/photos/woven-fabric-texture-cloth-fiber-2607340/>

Mahatma: https://commons.wikimedia.org/wiki/File:Gandhi_spinning.jpg#/media/File:Gandhi_spinning.jpg;

Public Domain: Unknown author - gandhiserve.org

Flag: https://commons.wikimedia.org/wiki/File:1931_Flag_of_India.svg; Public Domain: Author: Nicholas (Nichalp)

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Main Script	Trade & Industrialization	The decline of Indian textile: Indian textiles

10. VC_Being empathetic

Being empathetic

[Notes to the teacher: The teacher can begin a brainstorming session with the students]

“By the beginning of the nineteenth century, English made cotton textiles successfully ousted Indian goods

from their traditional markets in Africa, America and Europe. Thousands of weavers in India were now thrown out of employment."

The hardships faced by the Indian weavers led to their starvation during the British rule. If only British had some empathy for the weavers, this could've been averted.

Q 1: What do you understand by empathy?

(let students come out with their definitions)

The teacher may explain that empathy is feeling someone's pain and taking action to help.

Q 2: Are empathy & sympathy the same? What is the difference?

(let students come out with their definitions)

The teacher may explain that while sympathy stops with understanding others' feelings and being compassionate, empathy goes one step further. Empathy is the ability to step into someone else's shoes and help them.

Let us look at this story:

Stephen was a hardworking boy. He lost his father at a very young age. His mother Elizabeth was trying to get a well-paying job to support Stephen. When she got a clerical job in a company, she accepted it as a temporary position while she looked for something better.

On her second or third day in her workplace, she received a phone call from Stephen. He needed a pair of gloves for the Cricket League in school. She explained that as a single mother, money was very tight, and her first salary would have to go for paying bills. She promised him that she would surely buy it later.

When Elizabeth arrived for work the next morning, her manager asked her to come to his room. Elizabeth wondered if she had done something wrong the day before.

She was anxious and bewildered.

The manager handed her a box and said, "This is a pair of gloves for Stephen. I overheard you talking to your son yesterday. I know that it is hard to explain things to kids because they may not understand how important it is to pay bills before you can buy gloves. You know we can't pay good people like you as much as we would like to; but we do care, and I want you to know you are important to us."

The thoughtfulness, empathy and love of this manager caused her to change her mind to look for something better. She stayed long enough to become a manager in the same company.

[Notes to the teacher: The teacher can continue the discussion.]

1. Do you agree that the store manager was empathetic? If yes, why?

(let children come out with their views)

Suggested answer: The manager did not just stop at listening to Elizabeth's conversation with her son. He went one step ahead by stepping into her shoes, understanding her predicament and helped her by gifting a pair of gloves for her son. The smallest act of empathy had the potential to turn her life around.

2. Who do you think is benefited by the acts of empathy? Receiver or Giver?

(let children come out with their views)

Suggested answer: Acts of empathy not only benefit receivers of the kind act but give a sense of satisfaction and happiness to the giver as well. Hence both receiver and giver are benefited.

Time to teach	Value Type	Value Sub Type	Value Attribute
8 Minutes	Love		Stories

11. MS_Cotton Mills in India

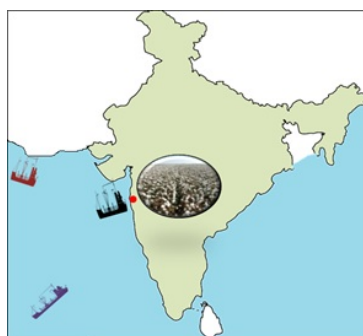
Cotton Mills in India

[Notes to the Teacher: The teacher can introduce the topic as follows:

We know that India was known for cotton textiles much before industrialisation. Bombay was an important trading centre in India for cotton textiles as it was located on the coast. In those times, trade was mostly via sea routes. The British brought their goods to India in ships and sold them.]

- **Bombay (now Mumbai)** was an important port for the export of raw cotton from India. The **black soil** of western India was suitable for **growing cotton**. Hence easy supply of the raw materials was possible from Bombay.

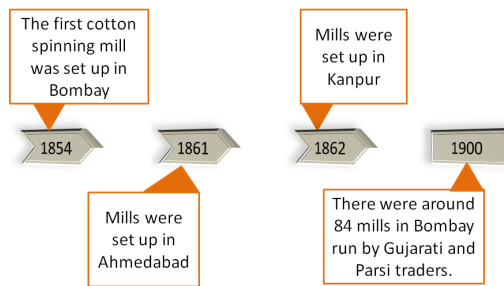
Image 1: Bombay - an important port for trade



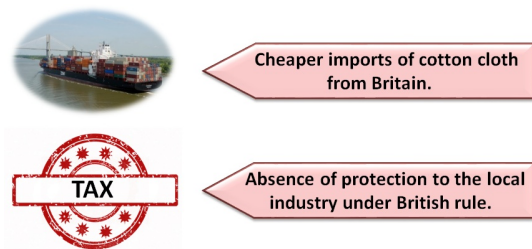
- So with industrialization and new innovations in cotton textile industries, setting up of cotton mills in and around Bombay was an easy choice for trade in India. Thus in 1854, The first cotton spinning mill was set up in Bombay. By 1900, there were around **84 mills in Bombay** run by Gujarati and Parsi traders.
- Mills were set up in other nearby cities like **Ahmedabad (in 1861)** and **Kanpur (in 1862)**. This resulted in

demand for labourers in the cities. Many artisans, agricultural labourers and poor farmers and even many handloom spinners and weavers who lost their livelihoods, shifted from the villages to work in the mills.

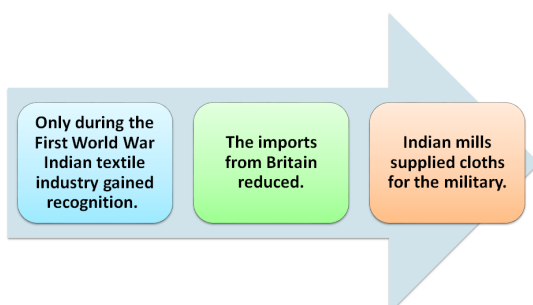
Image 2: Coming up of Mills in India - TIMELINE



- **Mostly women** worked in the **spinning departments** and **men in the weaving departments**.
- **But the cotton mills in India had to face many problems within a few decades.**
- **Cheaper imports of cotton cloth from Britain:** As the British produced large quantities of cloth in less time and money, they sold goods in India for cheaper rates. The people bought British goods and hence local mills were not encouraged much.
- **Absence of protection to the local industry due to colonisation:** In order to promote industrial development, the government has to provide concessions that favour the local manufacturers. But the British being a colonial government did not support Indian cotton mills. The British imposed huge taxes on local goods . With not much support by the British, the local producers could not thrive.



- **It was only during the First World War when Indian textile industry gained recognition.**
- The British needed to supply their goods for the war and hence **the imports from Britain declined**
- **The Indian factories** were given orders to produce cloth for **military supplies** during the war.



- Thus, we can infer that industrialization led to the rise of cotton mills in India. But it took some time for the mills to gain importance due to colonisation.

Image source:

India map: SSSVV gallery; keyword: India map

Cotton field; <https://www.peakpx.com/618861/white-cotton-flower-field>

Ship: <https://openclipart.org/detail/234104/woodcargo-vessel>

Stamp: <https://pixabay.com/illustrations/stamp-template-red-empty-pattern-814699/>

Time to teach	Asset Type	Theme	SubTheme
6 Minutes	Main Script	Trade & Industrialization	Indian Textiles and the World Textiles and the World Mark

12. IA_Smelting in India

Smelting in India

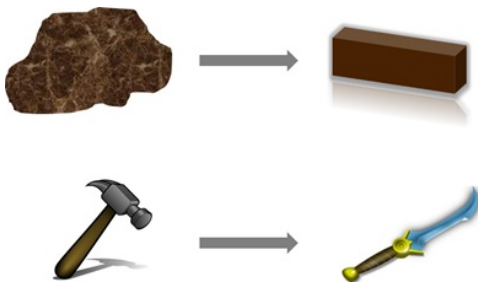
[Notes to the teacher: The teacher can begin the topic as follows:

The two basic industries developed during industrialization were textile industry and Iron and steel industry. Let us explore the development of iron and steel industries in India.

Iron and steel were produced in India traditionally by a method called smelting.]

- **Smelting** is a process of extracting metals by heating the ores to very high temperatures.
- Many metals including **silver, iron and copper** are obtained by the process of smelting.
- Smelting is also used to melt the used metal to convert into **new objects**.

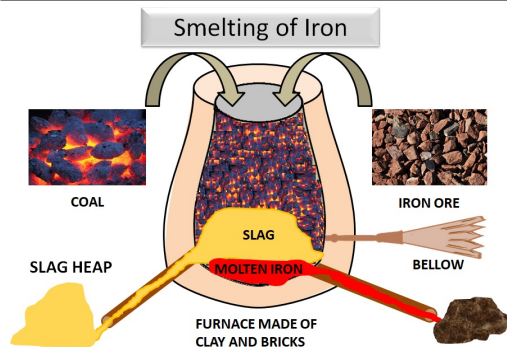
Image 1: What is smelting?



The traditional process of smelting steel in India:

- **Iron ore** and **charcoal** are added in big **furnaces made of clay and bricks**. The furnaces are heated to very high temperatures.
- **Bellow**, an equipment that pumps air, is used to supply oxygen inside the furnace.
- By skillfully controlling the temperature using the bellows, high quality iron is produced.

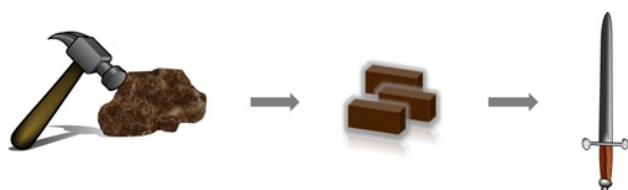
Image 2: Iron Smelting



(Notes to the teacher: The teacher can use the animated illustration from the PPT to explain the process step-wise.)

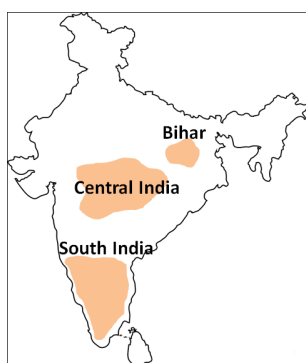
- The molten iron that is formed is hammered into blocks and are used for making weapons and instruments.

Image 3: Molten iron to weapon



- The **impurities** from the ores get separated out of the furnace in **molten form**. These impurities are called **slags**. Deposits of slags discarded by the smelters after the smelting process are called **slag heaps**.
- A special steel called **wootz steel** famous during the 19th century is also made from smelting process.
- **Agarias** of **Central India**, smelters from **Bihar (Palamau)** and **south India** produced high quality iron and steel by the traditional smelting process.

Image 4: Traditional Indian iron smelters



The process of iron smelting was very common in India till the 19th century as iron ore was easily available and the smelters had the skills to produce high quality metals.

Image sources:

Iron ore: OC- Anuradha Ramkumar; ramji.anu@gmail.com

Iron block: OC- Anuradha Ramkumar; ramji.anu@gmail.com

Hammer: <https://openclipart.org/detail/4793/hammer>

Knife: <https://openclipart.org/detail/4955/knife>

Diagram and illustrations: OC using paint and ppt. ,shapes; Anuradha Ramkumar; ramji.anu@gmail.com

Pic Coal: <https://pixabay.com/photos/barbecue-charcoal-grill-embers-hot-386602/>

Pic Iron ore: <https://publicdomainpictures.net/en/view-image.php?image=129805&picture=red-rock-background-2>

Sword: <https://openclipart.org/detail/8291/simple-sword>

India map: SSSVV gallery; keyword: India map

Time to teach	Asset Type	Theme	SubTheme
3 Minutes	Interesting Asides	Trade & Industrialization	Smelting, Smelting

13. MS_What is Wootz

What is Wootz?

[Notes to the teacher : The teacher may start the topic with the description of Tipu sultan and his sword, and then relate it to the wootz steel.]

The sword of Tipu Sultan:

- Tipu Sultan, popularly called as ‘Tiger of Mysore’ ruled the Mysore Kingdom from 1782 to 1799. He fought four wars with the British.
- He died fighting the British with his sword in his hand.
- Tipu’s sword had gold on the steel handle bearing quotations from the Koran and engraved with messages on his war victories. The bottom of the handle had the tiger head.

Image 1: Tipu Sultan



Tipu’s swords and Wootz

- Tipu’s swords were hard and very sharp with **flowing water patterns**. They could easily rip through the opponent’s armour.
- Such swords were made of a special steel called **Wootz**. They were crafted by unique craftsmen from south India. **Francis Buchanan, a famous geologist** travelled around Mysore in 1800 and recorded the

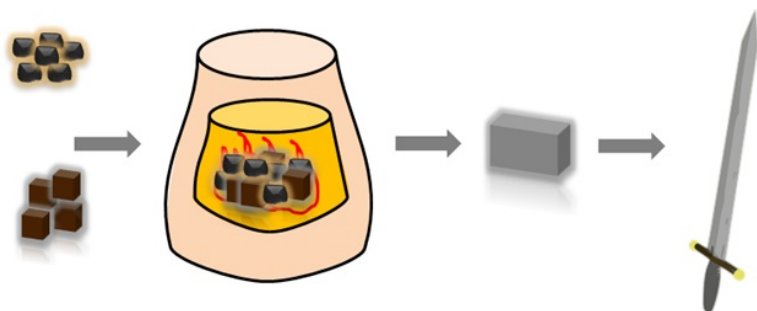
Image 2: Tipu's Swords



Making of wootz steel

- Wootz steel is produced by the process of smelting. The raw materials, **iron and small carbon crystals** (fine pieces of charcoal) are added into **small clay pots** and heated in the **furnaces**.
- **By skillfully controlling the temperature** of the furnaces, high quality wootz steel is produced. The characteristic water flowing pattern of wootz steel is brought out through this process.
- The molten wootz steel is then beaten into blocks called **ingots**. **Utensils, implements and weapons** are made with these steel ingots. These ingots were also exported from India to many **European countries for making armoury**.

Image 3: Making of wootz



- The word 'Wootz' comes from the root words '**ukku**' in Kannada, '**hukku**' in Telugu and '**urukku**' in Tamil and Malayalam meaning steel.

Image 4: GO- Wootz means steel



[Note to the teacher: Teacher may draw the sketch on the board to teach this.]

Wootz steel popular in olden days

- The raw materials required for wootz steel was abundantly available and hence till the late 19th century there were iron smelters working on hundreds of furnaces to produce high quality wootz for making armoury.
- European scientist, Michael Faraday, who discovered electricity and electromagnetism, was fascinated by Indian wootz and researched it for 4 years (1818-22).
- The swords made of wootz used in olden times are displayed at the British museum.

Image 5: Michael Faraday



Thus wootz steel was highly popular in olden times and India was the centre for one of the finest wootz steel in the world.

Image source:

Michael Faraday: <https://www.flickr.com/photos/29528454@N04/4108204909> (Attribution- ROBERT HUFFSTUTTER)

https://commons.wikimedia.org/wiki/File:Tippu_Swords_in_summer_palace.JPG

https://commons.wikimedia.org/wiki/File:Tipu_Sultan_BL.jpg

<https://openclipart.org/detail/36883/sword>

illustration of Making of wootz: Original creation: Anuradha Ramkumar; ramji.anu@gmail.com

Time to teach	Asset Type	Theme	SubTheme
6 Minutes	Main Script	Trade & Industrialization	The sword of Tipu Sultan ar The sword of Tipu Sultan ar

14. DD_Iron and steel in daily lives

Iron and Steel in Daily Lives

Notes to the Teacher: The teacher can brainstorm by asking the students to look around the classroom and name a few products that are made of iron and steel.

The suggested answer could be classroom furniture, fan, window grills, stationery, door handles, pin nibs, tiffin boxes.

Image 1: Things made of iron and steel in the classroom



[The teacher can then give the introduction to the topic as follows:]

The use of iron and steel is almost everywhere. Iron and steel are highly important in daily lives. Iron is highly preferred due to the fact that it is cheap as it is abundantly available in our country.

Domestic Use:

- Iron is essentially used at home. It can be found in the **kitchen, living room, bathroom** – in every part of home and in many products. **Stainless steel** is used in the kitchen accessories, cutlery and cookware.
- Washing machines, cooking stoves, microwave ovens and refrigerators including the motors, contain steel in varying amounts. About **75% of the average appliance** by weight is **steel**.

Image 2: Domestic uses of iron and steel



Stainless steel is used in the kitchen accessories, cutlery and cookware.

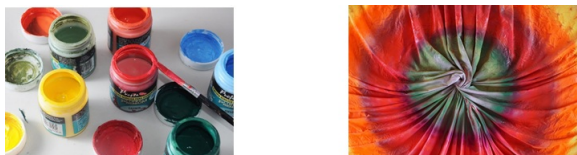
Washing machines, cooking stoves, microwave ovens, refrigerators and their motors, all contain iron and steel.



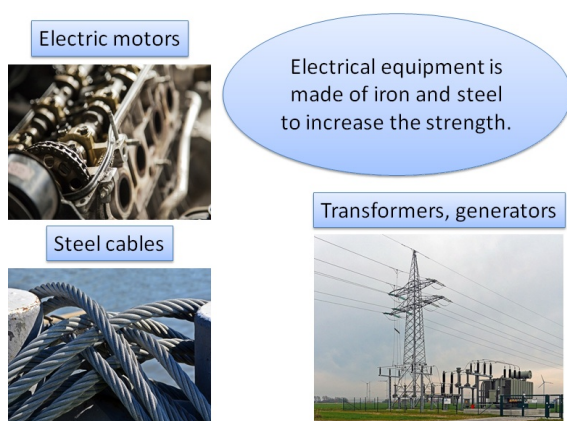
About 75% of the average appliance by weight is steel.

Commercial Use:

- Iron oxide pigments are used in dyeing cloth.
- It is also used as a colouring agent for paints.

Image 3: Commercial uses of iron and steel**Electrical Equipment :**

- Transformers, generators, electric motors and cables are made from iron and steel.

Image 4: Electrical equipment made from of iron and steel**Mechanical Equipment :**

- The use of steel includes mechanical equipment like bulldozers, tractors, machinery that makes car parts and cranes.
- Hand tools such as hammers and shovels are made of iron and steel to work efficiently.

Image 5: Mechanical equipment made from iron and steel**Architecture and Construction :**

- The roofs, internal walls, ceilings of buildings and bridges are made with reinforcing bars and steel sheets to increase strength and durability of the structures.

Image 6: Uses of iron and steel in architecture and construction

The roofs and walls of buildings and bridges are constructed with iron bars and steel sheets to increase strength and durability.



Iron bars for building construction



Gates and window grills

Transport Industry:

- **The body structure and exterior, including the doors of motor vehicles** such as cars, trains, buses and even ships and parts of planes are made using iron and steel.

Image 7: Uses of iron and steel in modes of transport.**Medical**

- **The medical field highly depends on steel. Doctors use surgical instruments** made from high quality stainless steel that are non-rusty.

Image 8: Medical uses of iron and steel

[The teacher can encourage the students to list other uses of iron and steel in their daily lives.]

Image source: Classroom: <https://www.publicdomainpictures.net/en/view-image.php?image=20108>

Fan: <https://pixabay.com/vectors/ceiling-fan-electrical-isolated-air-309623/>

Door latch: <https://openclipart.org/detail/242726/doorlatch-with-lock>

Scissors: <https://pixabay.com/vectors/cut-scissors-tool-1295044/>

<https://www.publicdomainpictures.net/en/view-image.php?image=24838&picture=safety-pins>

Kitchen sink: <https://pxhere.com/en/photo/1114318>

Chair: <https://www.pexels.com/photo/abandoned-broken-broken-down-cement-279616/>

<https://www.maxpixels.net/Seventies-Refrigerator-Fridge-freezer-Retro-Freezer-2420419>

<https://www.pxfuel.com/en/free-photo-oucjs>

<https://pixabay.com/vectors/washing-machine-gray-housework-29789/>

<https://pixabay.com/vectors/alarm-bell-doorbell-electric-2027136/>

<https://www.peakpx.com/483078/teal-red-orange-yellow-textile>

<https://pxhere.com/en/photo/1112450>

<https://pxhere.com/id/photo/885497>

Transformer: <https://pixabay.com/photos/high-voltage-feed-windstrom-1290375/>

Motor: <https://pixabay.com/photos/motor-machine-mechanical-engine-768750/>

Steel cable: <https://pixabay.com/photos/rope-knot-steel-cable-secure-1609688/>

Tractors: <https://pixabay.com/photos/traffic-tractor-agriculture-lanz-2767943/>

Crane: <https://pixabay.com/photos/excavators-crane-heavy-crane-5556325/>

Bulldozer: <https://pixabay.com/photos/heavy-equipment-bull-dozer-3412130/>

Tools; <https://pixabay.com/photos/tools-construct-craft-repair-864983/>
<https://pixabay.com/photos/bridge-steel-construction-2692595/>

<https://pixabay.com/photos/town-hall-goal-iron-gate-4578081/>

<https://pixabay.com/photos/steelworkers-concrete-formwork-1029665/>

<https://pixabay.com/vectors/truck-box-car-vehicle-delivery-2181037/>

<https://pixabay.com/photos/train-locomotive-luxembourg-143847/>

<https://pixabay.com/photos/ship-cargo-vessel-container-5349847/>

<https://pixabay.com/photos/aircraft-airplane-flying-airport-4885805/>

Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Day-to-day Relevance	Trade & Industrialization	Iron and steel factories come up and steel factories come up

15. MS_Decline of traditional smelting in India

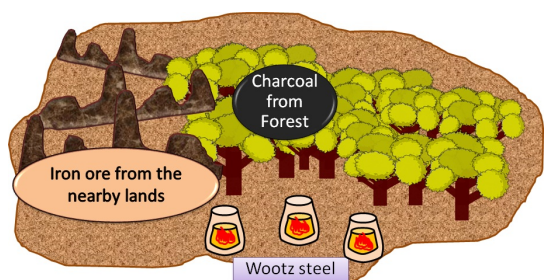
Decline of traditional smelting in India

[Notes to the teacher: The teacher can introduce the topic as follows by explaining how smelting was commonly prevalent in India till the late 19th century]

Traditional smelting was a common occupation in India.

- **Wootz** steel was traditionally produced with specialised skill of **smelting iron**.
- The raw materials for making iron and steel namely **iron ore and charcoal** were easily available for the smelters.
- The iron ore was available from the **nearby lands** while charcoal was procured from the **nearby forests**. The furnaces were mostly made of **easily accessible clay and sun-dried bricks**.
- The person who works in a smelting unit or the owner of the unit is referred as **smelter**. The factory or the installation for smelting a metal too is known as smelter. Generally **men** did the smelting process and **women** worked on bellows to pump air for burning charcoal.
- Iron and steel were widely used to make **implements and armoury**. So smelting was a common occupation especially in **Bihar (Palamau) and Central India (Agaria community)** till the late 19th century

Image 1: Illustration-Easy supply of raw materials for making wootz



- The Geological Survey of India found large deposits of slag heaps in alluvial tracts of **north, central, west and south India**. This proved that smelting prevailed in India for **centuries**.

Image 2: Slag heap

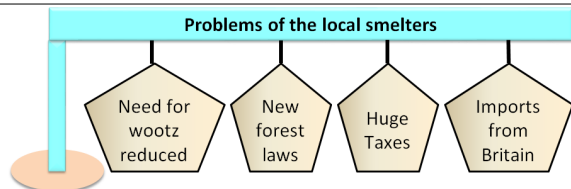


Traditional smelting declines:

However, smelting in India flourished only till the end of the nineteenth century. The Indian iron and steel smelters faced many problems.

- When **British defeated the Nawabs and Rajas**, and conquered India, the kings and rulers of India lost their power. There were no more wars between the rulers and the **need for armoury was reduced**. Hence the requirement of wootz steel also reduced considerably.
- **New forest laws** : The British implemented new forest laws that banned people from entering the reserved forests. The local smelters could neither get iron ore nor collect wood for charcoal.
- **Huge taxes**: In some areas where the forest access was given, the iron smelters had to pay huge tax to the forest department for every furnace they used. The smelters could not gain profits after paying taxes. This affected their livelihoods.
- **Imports of iron and steel from Britain**: Iron and steel was being imported from Britain by the late nineteenth century. The blacksmiths made utensils and instruments from the imported iron. This greatly reduced the need for local iron smelting.

Image 3: Problems of the the local smelters of India



[Notes to the teacher: While displaying the above slide in the PPT, the teacher can refer to the above mentioned details to explain the problems of the local smelters one by one.]

Smelters abandoned their furnaces

- Thus iron and steel smelting, once the most common occupation throughout the country for many centuries, declined eventually. Many smelters **discarded their furnaces** and left their places **in search of new jobs**.
- **The Agarias** community in the **Central India** were popular smelters. In the late 19th century there was a series of **famines** and so Agarias lost their livelihoods. Many of them migrated to other places and took new jobs, leaving their occupation forever.
- Hence hundreds of furnaces which were once producing large quantity of **high grade wootz steel** were abandoned.

Image source:

<https://search.creativecommons.org/photos/7880a16e-a7df-4fd0-93fa-69ae43d7ce94>

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Time to teach	Asset Type	Theme	SubTheme
8 Minutes	Main Script	Trade & Industrialization	Abandoned furnaces in villa furnaces in villages

16. SA_Industrialization of Iron and steel in India

Industrialization of Iron and steel in India

[Notes to the teacher: The teacher can refer to the notes on the history of Industrialization of iron and steel in India given at the end of the asset. Based on the content the teacher may assign students for the suitable roles.]

Aim: To enact a roleplay on industrialization of iron and steel in India.

Setting of the Activity: Indoor/Classroom/Role Play

Number of students to enact the play: 10

Materials required:

- **Script of the Role Play**
- **Props:**
 - Turban for Agarias - 3
 - loads for Agarias to carry - 3 (can be sacks filled with light things to carry behind the back/ baskets to

carry on the heads)

- British hats - 3 (two for British and one for Charles Weld)

Procedure:

1. The teacher can select 10 students for the role play a week before the actual day of enactment.
2. Assign the characters to the students.
3. The students can be given the script of the role play. The students can note down their dialogues their notebooks for practicing later.
4. On the selected day they can enact the play in front of the class or assembly.
5. After the roleplay the students may be given a worksheet to evaluate their understanding.

Characters:

1. Charles Weld
2. Dorabji Tata
3. Agarias(3)(only one with dialogue)
4. British(2)
5. Narrators(3)

Role play Script:

Narrator 1: It was in 1904, the hot month of April when Charles Weld, an American geologist and Dorabji Tata, the eldest son of Jamsetji Tata were surveying Chhattisgarh of the present days for iron ore deposits. In order to build an iron and steel plant they needed fine quality iron ore and a good source of water.

Charles Weld: We have spent many months searching for a place to set up a modern iron and steel plant in India.

Dorabji Tata: My father Jamsetji Tata is ready to invest a large amount of money for this. Let's keep exploring places to get what we want.

Narrator 2: One day, during their travel, Weld and Dorabji reached a small village that belonged to the traditional iron smelters called Agarias.

[Agarias coming with loads towards them]

Dorabji Tata(to Agarias): From where are you carrying these loads of iron ore?

Agaria 1: We are collecting the iron ore for iron smelting from those hills. They are called Rajharia hills. There are lots of iron ore deposits in those hills.

Charles Weld(to Dorabji): Let us go to the hills and find out more.

[Weld and Tata go to the hills and explore]

Charles Weld: These are the good quality deposits of iron ore. But the region is dry and water necessary for the iron and steel plant is not available. So we cannot set up a factory here. Let us continue to search for a more suitable place for the factory.

Narrator 3: Interestingly, the Agarias helped in the discovery of a source of iron ore that later supplied the Bhilai Steel Plant. A few years later in 1912, a large area of forest was cleared on the banks of the river Subarnarekha.

Dorabji Tata: Let us build a factory here. We can get both iron ore and water supply from the nearby areas. Let the factory be named Tata Iron and Steel company(TISCO). Let's create a new industrial township and name it 'Jamshedpur'.

Narrator 1: Thus Tata Iron and Steel Company was established in 1912 and the township Jamshedpur was developed. During that time India was importing steel from Britain. Britain was expanding the railways in India to enable better transport.

Narrator 2: This created a huge market for rails made from iron and steel that Britain produced. But in 1914 the First World War began. The British faced problems in exporting iron and steel to India.

British 1: We have to meet the demands of war in Europe. So we cannot export iron and steel to India. Let us give the orders to TISCO to supply rails for Indian Railways.

British 2(to Dorabji): We need your company to supply rails for the expansion of railways in India. We also need you to provide supplies for the war.

Dorabji (to British): Sure, our TISCO can make rails and even produce shells and carriage wheels necessary for you during the war.

Dorabji (looking at the audience): We have expanded our factory further by building new powerhouses and boiler houses. TISCO has become the biggest steel company in India.

Narrator 3: By 1919, Britain was buying 90 percent of the steel manufactured by TISCO and became the largest steel supplier within the British empire.

Narrator 1: Just like cotton textile industries in India, industrial expansion of iron and steel also occurred only during the First World war. The British imports into India reduced and the market for local goods increased. The nationalist movement and industrial development in India forced the British to lose their colonial control over India.

Instructions:

Teacher can

- announce a day for the role-play a week ahead,
- help the students to arrange for relevant props for their roles.
- take permission to present it in the assembly or ground or conduct the role-play in the class,
- give the dialogues to the selected students a week ahead,
- explain every student his or her role and instruct them to learn the dialogues. They can be encouraged to use their own words if possible.
- give a rehearsal for the students before enacting in front of the audience with the props.

Conclusion:

- Students present the role-play well.
- Students have a better understanding of industrialization of iron and steel in India.

Troubleshoot:

- The teacher can assign substitute students for the roles in case of absentees.
- Teacher should have the script in hand to guide the students.

Worksheet:

1. Expand TISCO. What is the current name of TISCO? [**Answer: Tata Iron and Steel Company; Tata Steel Limited**]
2. _____ and _____ travelled around Chhattisgarh to explore iron ore deposits. [**Answer: Charles Weld and Dorabji Tata**]
3. Father of Dorabji Tata: _____ [**Answer: Jamsetji Tata**]
4. _____ were carrying loads of iron deposits from Rajhara hills.[**Answer: Agarias**]
5. Tisco was set up on the banks of river _____[**Answer: Subharnarekha**]
6. Match the year with the events.

Year	Events
1. 1904	a) First World War
2. 1912	b) Britain bought 90% of the steel manufactured by TISCO.
3. 1914	c) TISCO established
4. 1919	d) Charles Weld and Dorabji went on survey

[**Answer: 1-d; 2-c; 3-a; 4-b**]

7. Why did the British import steel into India? [**Answer: The British found a market for their steel in expansion of railways in India. Secondly, they did not trust the quality of Indian steel.**]

8. How did TISCO expand its company to increase its supply? [**Answer: TISCO expanded its company by building new powerhouses and boilers**].

9. What impact did World War 1 make on the industries in India?

[**Answer:**

- **The British reduced importing goods into India.**
- **They also needed industrial supplies for the first world war.**
- **These enabled the Indian industries to grow and supply for the needs.]**

[Note to the Teacher: Content for teacher's reference]

History of industrialization of iron and steel in India

It was in 1904, the hot month of April when **Charles Weld**, an American geologist and **Dorabji Tata** were surveying Chhattisgarh for iron ore deposits. They spent many months planning to set up a modern iron and steel plant in India. **Jamsetji Tata**, the father of Dorabji was an industrialist and was ready to invest a large amount of money for this. In order to build an iron and steel plant they needed fine quality iron ore and a good source of water.

One day, during their travel Weld and Dorabji reached a small village that belonged to the traditional iron smelters called **Agarias**. They were carrying loads of iron ore from a nearby hill. Weld and Dorabji reached the hill called **Rajhara** Hills and explored it. They could find good quality deposits of iron ore there. But the region was dry and water necessary for the iron and steel plant was not available. So they continued to search for a more suitable place to set up their factory. Interestingly, the Agarias helped in the discovery of a source of iron ore that later supplied the Bhilai Steel Plant.

A few years later in 1912, a large area of forest was cleared on the banks of the **river Subarnarekha** and a factory named **Tata Iron and Steel Company (TISCO)** with an industrial township named **Jamshedpur** was

set up. They got both water and iron ore deposits nearby.

In those times during the late nineteenth century, India was importing steel that was manufactured in Britain. **Expansion of the railways** in India created a huge market for rails made from iron and steel that Britain produced. In 1914 when the **First World War** broke out, Britain had to meet the demands of war in Europe. Hence, imports of British steel into India declined and the Indian Railways depended on TISCO for supply of rails.

TISCO produced **shells and carriage wheels** for the first world war. To meet the demands TISCO expanded its capacity by constructing new **powerhouses and boiler houses**. Thus by 1919, Britain was buying 90 percent of the steel manufactured by TISCO. TISCO became the **biggest steel company** within the British empire.

Just like in the case of development of the **cotton textile industries in India**, industrial expansion of iron and steel also occurred only when British imports into India declined and the market for local goods increased. This happened only during the First World War and after. Slowly the nationalist movement and industrial development in India forced the British to lose their colonial control over India.

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Suggested Activity	Trade & Industrialization	Tata Iron and Steel Compar Tata Iron and Steel Compar

17. IA_Industrialization in Japan

Industrialization in Japan

[Notes to the teacher: The video attached with this asset can be played for teaching this asset. The video can be paused if necessary to understand and assimilate the concept.]

Story of industrialization in Japan

In 1868, while India was under the British rule, Japan was an independent nation. The country was governed by The Meiji regime which believed that Japan had to encourage industrialization in order to resist the Western domination. Hence many measures were taken to promote the growth of industries.

- Japan developed postal and telegraph services, steam powered shipping and railways.

Image 1: Developments of postal, shipping and railways



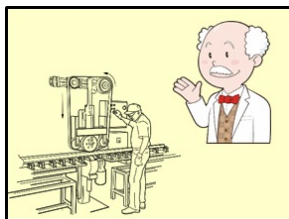
- The banks set up by the government provided generous loans to establish industries.

Image 2: Generous bank Loans



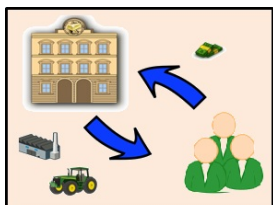
- **Japan adapted many advanced technologies** from the western countries. **Experts** from abroad trained Japanese professionals.

Image 3: New Technology from foreign experts



- **The Japanese government started large industries** and then sold them to business families at cheap rates.

Image 4: Japanese Government promoted large industries



The government had a fear of conquest by the foreign countries. To safeguard the country from conquests, there was a rapid growth of technology and industries. The industrial development majorly catered to the **military needs**.

The growth of industrialization in Japan in the late nineteenth century depicts a **contrast** to that of India.

Barriers for development of industries in India

- **India was under the colonial influence of the British, who were marketing only their goods.**
- **Indian industrialists** were not supported or protected by the British to develop industries. Hence the growth of industries was not noticeable in India during the British rule.

Thus colonial domination **created barriers** for the growth of industries in India.

Image source used in the content and video:

Osaka: <https://pixabay.com/photos/osaka-port-port-of-osaka-japan-2281899/>

Japan flag: OC; AnuradhaRamkumar ; ramji.anu@gmail.com

Meiji: https://commons.wikimedia.org/wiki/File:NSRW_Mutsuhito.png

Post office: <https://www.goodfreephotos.com/vector-images/japanese-postal-box-vector-clipart.png.php>

Bank: <https://openclipart.org/detail/303725/yen-bank>

Man: <https://openclipart.org/detail/395/man-in-suit>

Trains: <https://openclipart.org/detail/194971/intercity-rosso-v11>

ship: <https://openclipart.org/detail/322884/cargo-ship>

Expert: <https://openclipart.org/detail/312420/science-professor>

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Govt. help: <https://openclipart.org/detail/304609/public-productive-credit>

India map: <https://openclipart.org/detail/221174/india>

British: <https://openclipart.org/detail/4515/naval-captain>

goods: <https://pixabay.com/vectors/parcel-package-packaging-box-575623/>

British flag: <https://pixabay.com/vectors/english-flag-flag-uk-flag-2881651/>

BGM: <https://www.youtube.com/watch?v=yaO8nQxYda4> CC licence (reuse allowed)

Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Interesting Asides	Trade & Industrialization	Early years of industrialization Early years of industrialization

18. QA_Weavers, Iron smelters and Factory Owners-Recap

Weavers, Iron smelters and Factory Owners-Recap

[Notes to the teacher:

- **The teacher can discuss parts I to VI in the class. PPT can be used to display the questions. Sufficient time can be given for every question. The teacher can ensure that all students participate.**
- **Parts VII, VIII, IX, X can be given as a home assignment. The questions can be written on the blackboard or read aloud for the students to copy in their notebooks. Date of submission can be given by the teacher to evaluate the answers.]**

I. Choose the correct answer:

Q1- _____ on the west coast was an important port for trade in India during the early 17th century.

- A) Bombay
- B) Chennai
- C) Kolkata

Answer: A) Bombay

Q2- The Agarias were traditional iron smelters from _____.

- A) South India
- B) East India
- C) Central India

Answer: C) Central India

Q3- In the 18th century _____ came to be known as 'Workshop of the World'.

- A) France
- B) Britain
- C) Portugal

Answer: B) Britain

Q4- Before the 18th century _____ was the largest producer of cotton textiles in the world.

- A) India
- B) Britain
- C) China

Answer: A) India

Q5- Tipu's sword was made of _____.

- A) Pure Gold
- B) Wootz steel
- C) Copper

Answer: B) Wootz steel

II. State true or false. Correct the false statements.

Q1- Indian Swaraj Party adopted the symbol of charkha on our national flag in 1931.

(Answer: False: Indian National Congress adopted the symbol of charkha on our national our national flag in 1931)

Q2- TISCO came up in the city of Jamshedpur.

(Answer: True)

Q3- Spinning jenny was invented by Richard Arkwright in 1764.

(Answer: False: Spinning jenny was invented by John Kaye in 1764)

Q4- Industrialization in India was rapid during the British rule.

(Answer: False: Industrialization in India was slow during the British rule.)

Q5- The smelting furnaces were built with clay and sun-dried bricks.

(Answer: True)

III. Give one term for the following:

1. The specialist traditional block printers- **(Answer: Chhipigars).**
2. Means warehouse in Persian- **(Answer: Aurang).**
3. Called as Ukku in Kannada- **(Answer: Wootz steel).**
4. Traditional cloth dyers- **(Answer: Rangrez).**
5. An equipment used to pump air into the smelting furnaces- **(Answer: Bellow).**

IV. Match the following

Type of fabric	Characteristics
1. Chintz	A) Mosul, Iraq
2. <u>Jamdani</u>	B) Small floral printed cotton
3. Muslin	C) Tie and Dye
4. <u>Bandhana</u>	D) Gold embroidery on fine muslin
	E) Printed Wool

[Answers: 1-B; 2-D; 3-A; 4-C]

V. Mention the year for the following events

Events	Year
Calico Act	1720
First cotton mill set up in Bombay	1854
Tata Iron and Steel Company began producing steel	1912
First world war	1914

VI. Give two reasons for each

1. Traditional weaving and smelting in India declined during the British rule.

Answer

- **Britain began promoting their goods in India.**
 - **The lack of protection for traditional weaving and smelting by the British government**
2. **Textiles industries in India developed during the first world war.**

Answer

- **The textile imports from Britain declined.**
- **Indian industries were given orders to produce cloth for military supplies.**

3. **Handloom weaving did not completely vanish from India.**

Answer

- **Some fabrics with traditional designs and intricate borders could not be produced by machines. These fabrics had a demand among both rich and middle class people..**
- **Textile manufacturers in Britain did not produce the coarse cloth used by the poor people in India.**

VII. Questions to Ponder

[Notes to the Teacher: The teacher can give sufficient time for the students to think. The teacher can encourage the students to get as many responses as possible.]

1. **What would you do if you were a traditional weaver/iron smelter during the 19th century suffering from the decline of traditional occupations?**

[Hints: If I was a traditional weaver/iron smelter during the 19th century

- **I would have changed my occupation.**
- **I would have protested against the British rule.**
- **I would have left the country for better prospects.]**

2. **How different might the industrial development in India be if there was no British rule?**

[Hints: If there was no British rule

- **India might have continued to be the world's largest textile producers in the world.**
- **India might have experienced a speedy industrialization.**
- **The support and protection of industries might have enabled the economic growth of the country. India might have become a richer country during the early industrialization.**
- **Industrialization might have also led to unemployment. If one machine can do the work of many**

people, the livelihoods of people might have been affected.]

VIII. Give short answers

[Notes to the Teacher: The following can be a home assignment. The teacher can give a week's time for the submission of the assignment.]

1. Define smelting.

Answer:

- Smelting is the process of obtaining a metal from the ore by heating it to a very high temperature.
- Smelting is also used to convert old used metal into new.

2. Why was Bombay an important port for the trade of cotton in India?

Answer:

- Bombay is near the black soil region of western India where cotton was grown.
- Transport and trade of cotton was easy from Bombay. Hence Bombay was an important port for the export of raw cotton from India to England and China.

3. Why was the act passed by the British called the Calico Act?

Answer:

- In 1720, the British government enacted the Calico Act that banned the use of printed cotton textiles in England.
- The Calico Act was made to particularly stop the use of the calico fabrics that were exported from Calicut, Kerala in India . Hence the act was particularly called as Calico act.

IX. Answer the following

1. Mention any 3 special features of the swords of Tipu Sultan.

Answer:

- Tipu Sultan sword was hard and had a sharp edge.
- This sword was made from a special type of high carbon steel called Wootz produced in south India.
- The sword had a characteristic flowing water pattern.

2. Write a note on the development of TISCO during the first world war.

Answer:

- There was a decline in the imports of British steel into India. So TISCO began supplying rails to Indian Railways.
- TISCO produced shells and carriage wheels for the war.
- By 1919 the British government bought 90 per cent of the steel manufactured by TISCO.
- TISCO became the largest steel producer in the British empire.

X. Activity

Discuss among friends/ refer in the school library or internet to find the state famous for the following crafts in India:

1. Madhubani Painting: (Answer: Bihar)
2. Patachitra art: (Answer: West Bengal)
3. Dokra murals: (Answer: Madhya Pradesh)
4. Zardosi dress: (Answer: Uttar Pradesh)
5. Bamboo and cane work: (Answer: Assam)
6. Warli paintings: (Answer: Odisha)
7. Channapatna dolls: (Answer: Karnataka)
8. Tanjore Painting: (Answer: Tamil Nadu)
9. Mirror worked dresses: (Answer: Gujarat)
10. Kolhapuri leather chappal: (Answer: Maharashtra)
11. Walnut wood carving: (Answer: Kashmir)
12. Kullu shawls: (Answer: Himachal Pradesh)

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Assessments	Trade & Industrialization	Traders Big and Small, The Sultan and Wootz steel, The Indian textiles, Tata Iron and Steel - Jamshedpur, Smelting, Livelihood of Iron Workers, Iron and steel factories in India, Indian textiles in Europe, Indian Textiles and the World, years of industrialization in India, Cotton Textile Industries of India, Cotton Textile Abandoned furnaces in village and Small, The sword of Tipu Sultan, Wootz steel, The decline of Tata Iron and Steel Company, Smelting, Livelihood of World, steel factories come up in India, In textiles in European market and the World Market, Early industrialization in Japan, Cotton Textile Industries of India, Cotton Textile Abandoned furnaces in village

19. MS_Summary-Weavers, Iron Smelters and Factory Owners

Summary-Weavers, Iron Smelters and Factory Owners

- Industrialization of Britain had effects on the **traditional cotton textile and iron and steel production** in

India.

- **Spinning** is the process of making threads from cotton and **weaving** is the process of making fabric with the thread.
- India was the **largest cotton producer** in the world in the 17th century.
- Till the 18th century India produced many types of fabrics like **muslin, chintz, calico, Jamdani** which were famous in the world.
- The British enacted the **Calico Act in 1720** and banned the use of printed cotton Indian fabric in England.
- There was **rapid industrialization in Britain** during the 19th century. Britain was called 'The workshop of the world'.
- New technologies such as **spinning Jenny and spinning frame** were invented to develop textile industries in Britain.
- British used India to sell their machine made goods and **made huge profits**.
- The **traditional weaving lost** its markets and many traditional spinners and weavers starved as they lost their livelihoods.
- Industrialization led to the **coming up of cotton mills** in India. In 1864, the first cotton mill was set up in Bombay.
- However due to the British rule the growth of cotton mills was only during the **first world war**.
- **Iron and steel industry** was another important industry that developed as a result of industrialization in Britain.
- **Smelting** is the process of extracting metals from ores or used metals.
- In India **traditional smelting** was a common occupation till the British rule. **Indian wootz steel** was world famous.
- Lack of support and protection from the British government led to the **decline of Indian traditional smelting**.
- Many smelters **abandoned their furnaces** and shifted their occupations.
- Industrialization led to the setting up of iron and steel industries in India in the early 20th century. The first steel plant, **TISCO**, was established in **Jamshedpur in 1912**.
- However the growth of iron and steel industries picked up only during the **first world war**.

Image 1: Cotton textile industry

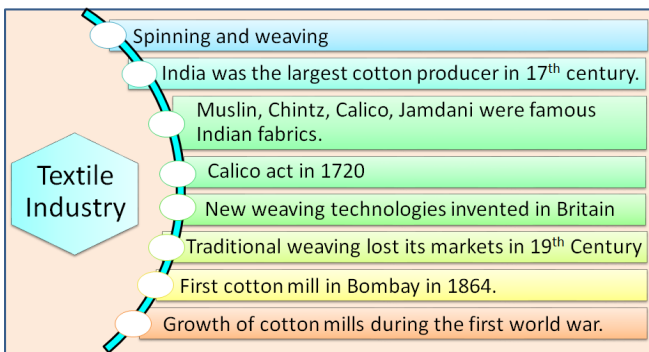
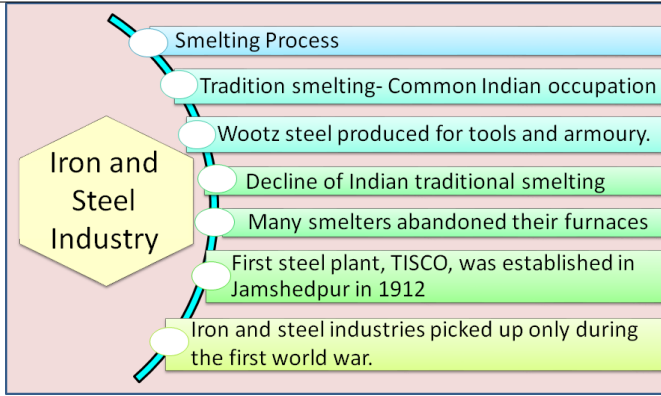


Image 2: Iron and steel Industry



Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Main Script	Trade & Industrialization	Traders Big and Small, The Sultan and Wootz steel, The Indian textiles, Tata Iron and Steel - Jamshedpur, Smelting, Livelihood of Iron and steel workers, Iron and steel factories in India, Indian textiles in Europe, Indian Textiles and the World, years of industrialization in India, Cotton Textiles, Abandoned furnaces in villages and Small, The sword of Tipu Sultan, Wootz steel, The decline of traditional smelting, Tata Iron and Steel Company, Livelihood of workers in steel factories, Iron and steel in the world market, Early industrialization in Japan, Cotton Textiles, Abandoned furnaces in villages