

Subject: Social Science

Topic: Bricks and Bridges

Standard: IV

No. of periods: 10

Teaching Aids:

Images of stilt house, tent, bungalow, building, images of bridges- suspension, truss, cable stayed, movable bridge, cantilever bridge, text book, smart board, PPT, Crafts, Music, Sports and Computer.

Message:

This lesson makes the student aware about the scientific development in construction of bridges.

Value:

Science teaches us about how technology is developed and used. Social Science helps us to understand the impact of technology on common man's life. It shows the extent of his dependence on modern technology and also his dependence on them like modern houses and bridges.

Learning Objectives:

1. Students will be able to identify different types of materials used in constructing the house.
2. They will also be able to tell about different steps involved in brick making and thus understand the importance of using strong materials in constructing houses as well as bridges.
3. Students can easily tell about different types of bridges and their uses.

Period 1:

Warm up session:

The teacher starts the session by showing some pictures of houses like stilt house, tent, bungalow and buildings.





The teacher asks the students,

1. Identify the different types of houses?
2. Are all these houses made up of same material?
3. Which materials do you think we use to build them?

Expected answers:

1. Stilt house, tent, bungalow and buildings.
2. No, they are made of different materials.
3. Mud, cloth, bricks, cement, steel, glass, cement, wood etc.

The teacher tells students that different types of materials are used for building houses, in olden days as well as in modern times.

The teacher asks some probing questions to the students,

1. In olden days how did people cross the rivers?
2. How do people cross the rivers now?

Expected answer:

1. They crossed rivers by using boats, ships or by swimming.
2. They cross river by using a bridge.

Thus, the teacher introduces the topic “Bricks and Bridges” by stating that different materials are required to build different types of houses and there are many types of bridges too. So, let us learn something more about them in our topic “Bricks and Bridges”

The teacher continues the session by asking various questions to the students.

Q: Which type of house do you live?

R: We live in flats, buildings, bungalow etc.

Q: Have you seen houses in villages?

R: Yes, they are like huts, mud houses etc.

The teacher explains to her students about temporary houses and permanent houses based on the material used for constructing them.

Temporary house: Huts, tent, log cabins use mud, thatch, straw, bamboo and wood.

Permanent house: Bungalows, flats, villas, havelies use bricks, stones, cement, iron, glass, wood.

Teacher notes valid points on the class board.

The teacher then narrates story of Lokhan, a boy living in village Dong across river Lohit in a small hut. One day his father Ali took him to his construction site by crossing a bamboo bridge. There lokhan gets excited by seeing modern building being constructed by using bricks and other materials.

5 students read the taught portion.

Period 2:

Recapitulation of lesson is done by asking riddles.

<u>Who am I:</u> I am made of cloth? I am made by using logs of wood? I am a very strong type of house?	<u>Answers:</u> Tent Log cabin. Permanent house
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The teacher continues with Lokhan’s story.

Ali explains Lokhan different steps involved in brick making process.

Teacher also explains the same to the students. Teacher uses the example of making a cake in an oven with various steps involved like sorting the flour, mixing water and required materials, shape of mould and cake and finally baking of cake in an oven.

Steps involved in brick making process:

1. **Mining**- Clay is mined and stored in open to remove oxides.
2. **Tempering** - Clay is mixed to make a dough.
3. **Moulding**- Mixture is put in moulds to make bricks.
4. **Drying**- Mould is emptied in drying areas. Bricks are dried uniformly.
5. **Firing**- The bricks are arranged in a kiln for baking to make them strong.

The teacher notes valid points on the class board.

Further, the teacher continues with Lokhan’s story. Lokhan compares his small hut with the building. Lokhan then meets Ayaan who is manager’s son. Here Ayaan is surprised to know that Lokhan crossed a Bamboo Bridge because he had seen different types of bridges but not a bamboo bridge.

5 students read the lesson till the brick making process.

Period 3:

Recapitulation of lesson is done by asking students to solve unscrambled words puzzle based on steps of brick making:

1. pertemng 2. iinmng 3. oumldngi 4. kibang	Tempering Mining Moulding Baking
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The teacher explains students about different bridges seen by Ayaan by showing pictures of the same on the smart board.

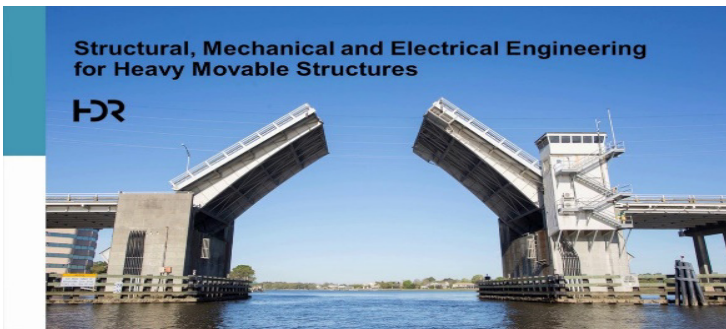
1. Suspension Bridge- Earlier made of wood and rope, now made of steel. Eg: Lakshaman Zhula in Uttarakhand.



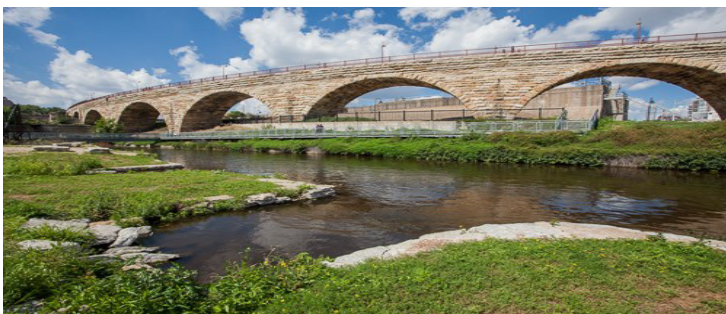
2. Cantilever Bridge: They support the load through diagonal bracing with truss formations both and below the bridge. Eg: Howrah Bridge in Kolkata



3. Movable Bridge: At particular fixed time in a day, they move and allow the large cargo ships to pass. Eg. Tower bridge, London, England.



4. Arch Bridge: Arch structure is made for this type of bridge. Eg. Godavari Arch Bridge, Rajahmundry, Andhra Pradesh.



5. Truss Bridge: Triangular shaped truss are formed. Metallic material is used for such bridges. Mostly they are rail-road bridges. Eg. Bogibeel bridge, Assam.



6. Beam Bridge: This bridge uses beams for the support. Eg. Mahatma Gandhi Setu, Bihar.



7. Cable-stayed Bridge: This bridge uses Cables for the support. Eg. Bandra- Worli sea link.



5 students read the lesson.

Period 4: Reading of the lesson is done and textual answers are discussed.

Textual Exercises:

Something to know

A. Tick the correct option:

1. Lokhan lives in the state of -Arunachal Pradesh.
2. The material which helps in making a building strong-Cement.
3. Bridges help in the easy movement of-Vehicles.
4. The house that uses strong material-Apartment.

B. Fill in the blanks:

1. Lokhan went to a construction site where his father works.
2. Bricks are made at a kiln.
3. Ayaan has never crossed a rope bridge.
4. The earlier Suspension Bridges were made of wood and bamboo.
5. The development in science and technology has enabled us to construct strong bridges.

C. Name the type of bridges as per the given clues:

1. Earlier, it was made up of wood and rope- Suspension
2. It uses short cables attached to pillars-Cable-stayed
3. It uses truss formations below and above the bridge- Cantilever
4. It is built across a river- Bridge

Value based questions:

A mall is being constructed in Mumbai. People are working day and night to complete the project. Viren, an electrician was standing on an iron ladder with bare feet. While working, he got an electric shock.

1. What precautions Viren could have taken before starting his work?

Ans) He could have put on his slippers.

2. What should you do in such an emergency?

Ans) In such a situation we should not touch him directly, try to move that person away from ladder with wooden stick and provide that person a pair of slippers.

3. What is the importance of awareness and responsibility in performance of our duties?

Ans) Due to awareness and sense of responsibility, we all can perform our duties with greater capabilities without risking our lives.

Map skill to be done in the Notebook.

Mark the states where the following bridges are located:

1. Lakshman Jhula-Uttarakhand
2. Howrah Bridge-West Bengal
3. Golden Bridge-Tamil Nadu
4. Bandra Sea Link Bridge-Mumbai

Something to do:

1. Delhi Metro Rail Corporation is working on extending the metro rail network across the city Delhi. List the people involved in making a metro bridge.
 - a. Engineer
 - b. Mason
 - c. E. Shreedharan
 - d. Electrician
 - e. Architect

- f. Labour
- g. Contractor
- h. Glazier-one who fits glass

2. Identify the types of bridges

- a. Beam bridge
- b. Arch bridge

3. Name any four tools used by a carpenter, painter, tailor, electrician, mason and plumber.

Carpenter	Painter	Tailor	Electrician	Mason	Plumber
Hammer	Brush	Scissors	Screw driver	Trowel	Clamp
Anvil	Trowel	Tape	Drill	Jointer	Hammer
Saw	Ladder	Needle	Chisel	Hammer	Hole saw
Auger	Paint roller	Sewing Machine	Screw	Chisel	Rib-joint pliers

4. Which type of bridges should be constructed at the following places and why?

	Type of bridge	Reason
a) Between mountains	<u>Suspension bridge</u>	<u>They can cover long distance</u>
b) Across the river	<u>Cantilever bridge</u>	<u>They support load through diagonal bracing.</u>
c) To ease road traffic	<u>Flyovers</u>	<u>They ease the movement of Traffic.</u>

Period 5: Question and answers are given in note book.

D. Answer the following questions: (Notes)

Q1.List the types of materials used in making a temporary house and a permanent house.

Ans) The materials used for making a temporary and a permanent house are as follows:

- A) Temporary house- mud, thatch, straw, bamboo, wood etc.
- B) Permanent house- bricks, stones, cement, iron rods, glass, wood etc.

Q2. Write two benefits of modern building materials.

Ans) The two benefits of modern building material are-

- a) It makes the building strong.
- b) It keeps us safe from rough weather, robbers and wild animals.

Q3. What is a bridge? How is it useful?

Ans) A structure that is built over a river, road or railway track to allow people and vehicles to cross from one side to the other is called a bridge.

They help in easy movement of people, goods and vehicles.

Period 6: Question and answers are continued in the note book.

Q4. Briefly explain any two types of bridge.

Ans) 1. SUSPENSION BRIDGE- It can cover a long distance. The earlier suspension bridges were made of wood and rope. But now they are made of steel.

Eg: Lakshman Jhula

2. CANTILEVER BRIDGE- They support load through diagonal bracing. It often uses truss(tie up) formation both below and above the bridge.

Eg: Howrah Bridge

EXTRA QUESTION:

Q5) Differentiate between life of Lokhan and life of Ayaan.

Life of Lokhan	Life of Ayaan
1. Lokhan is a village boy.	1. Ayaan is a city boy.
2. It is easy for Lokhan to cross a bamboo bridge.	2. Ayaan has never crossed a bamboo bridge.
3. He is not familiar with bridges other than the bamboo bridge.	3. He has seen many types of bridges.
4. He is the son of a worker at the construction site.	4. Ayaan is the son of the manager of that construction site.

Activity: To collect pictures of different type of bridges and paste them along with their names.

[Integrated with Art]

Period 7: Memory game activity based on types of bridges will be conducted in the class.

[Integrated with art]

Dictation will be conducted in the class.

Learning outcome: Students will be able to identify different types of bridges, material used, places where they are constructed etc.

(**Dictation words**- tempering, mining, moulding, firing, technology, bridge, cantilever, truss, vehicles, beam)

Period 8: Worksheet will be discussed in the class.

Period 9: PPT will be shown and discussed in the class.

Remark :

The content of this lesson is suitable for the children of 4th standard as the lesson progresses in an attractive manner, making the students aware of the contributions made by man.

The students would learn the song titled Three Piggies in the Music Period.

The students will take inputs from the Art and Craft teacher how to make bridges in their period. The students would then create a bridge using any of the prescribed links given to them.

The sports teacher would explain and teach them certain knots which would be useful to them.

The teacher would demonstrate the brick making in the class.

D.A.V. PUBLIC SCHOOL, THANE 2020-21



SUBJECT: SOCIAL SCIENCE

Topic: Bricks and Bridges

Std.-IV
Name-

Worksheet no.-5

I. Unscramble the term and explain it in few lines:

1) TIANCEEVRL RDIGEB 	CANTILEVER BRIDGE They support load through diagonal bracing.
2) OULMDNGI	MOULDING A process in which a lump of mixture is put into metal mould.
3) EABM RDIGEB 	BEAM BRIDGE Beam bridge is supported with several beams.
4) IINNMG	MINING A process in which clay is mined and stored in an open area.

5) ABCLE TAYSED RDIGEB



CABLE-STAYED BRIDGE

It uses short cables that are attached to pillars.

II. Answer the following questions:

1. Name the material used for making temporary house with example?

2. Name the material used for making permanent house with example?

3. Name the steps of brick making process?

III) Draw any one type of house and colour it:

Permanent house	Temporary house

IV) Complete the passage using the help box:

Kolkata, Howrah, Rabindra Setu, 1943, cantilever, 14th June, 100000, Hoogly, Bay of Bengal,

_____ Bridge is a bridge with a suspended span over the Hooghly River in West Bengal, India. Commissioned in _____, the bridge was

S	T	R	A	W	D	R	A	D	P
T	E	M	P	O	R	A	R	Y	F
E	M	U	E	O	Y	M	G	N	L

originally named the New Howrah Bridge, because it replaced a pontoon bridge at the same location linking the two cities of _____ and Kolkata(Calcutta). On _____ 1965 it was renamed _____ after the great Bengali poet Rabindranath Tagore, who was the first Indian and Asian Nobel laureate. It is still popularly known as the Howrah Bridge. The bridge is one of four on the _____ River and is a famous symbol of Kolkata and West Bengal. The other bridges are the Vidyasagar Setu(popularly called the Second Hooghly Bridge), the Vivekananda Setu, and the newly built Nivedita Setu. It weathers the storms of the _____ region, carrying a daily traffic of approximately _____ vehicles and possibly more than 150,000 pedestrians, easily making it the busiest cantilever bridge in the world. The third-longest cantilever bridge at the time of its construction, the Howrah Bridge is currently the sixth-longest bridge of its type in the world.

Period 10: Class test will be conducted in the class and the ppt presentation will be shown to the students.

Bricks and Bridges(Pull Out Worksheet)

I.Find out the words related to the topic and note them.

† bengal2
We2st

E	P	D	R	D	I	C	L	A	Y
L	E	W	M	Y	N	B	A	Z	O
A	R	N	A	P	G	R	S	S	V
D	I	G	N	O	H	I	S	R	E
F	N	R	E	L	I	C	P	Q	R
G	G	F	N	Y	J	K	L	V	W
C	A	N	T	I	L	E	V	E	R

II. Read the following and rewrite the correct statements:

1. **Moulding** is the process in which clay is mixed with water to make a dough.

2. A **Suspension** bridge uses short cables that are attached to the pillars.

3. **Bungalow** is made up of canvas or nylon.

4. In the **tempering** process, the mould is emptied in a drying area.

5. **Temporary** houses are built with bricks , stones, cement, glass etc.

6. The earlier **flyover** bridges were made of wood and rope.

II. MAP SKILL : LESSON 5

On a Political map of India, mark the states where the following bridges are located:

1. Lakshman Jhula- UTTARAKHAND 2. Howrah Bridge-WEST BENGAL

3. Golden Bridge –TAMIL NADU

4. Bandra Sea Link Bridge-MAHARASHTRA



CLASS TEST

5 MARKS

Q1) Fill in the blanks:

(2 marks)

1. Flyovers are constructed in the city to ease the traffic.
2. Clay is mixed with water to make a dough.

Q2) Answer the following:

(3 marks)

1. Name any 3 types of bridges.

Ans) 1.Suspension bridge 2. Cantilever bridge 3. Truss bridge.

2. What is a bridge? How is it useful?

Ans) A structure that is built over a river, road or railway track to allow people and vehicles to cross from one side to the other is called a bridge. They help in easy movement of people, goods and vehicles.

Remarks: The lesson bricks and bridges makes the students aware about scientific development in construction of bridges and enhances their knowledge.