Chapter-9: Work and Simple Machines

KWL Chart	
What I know	What I want to know

Work sheet- 1

Work and uses of Simple Machine

I. Fill in the blanks:

1.Work is said to be done when applied_____

moves the body through some distance.

2._____is the ability or capacity to do wok.

3. We use _____to make our work easier.

1.Force, distance 2. Energy 3.force

II. Observe the pictures given below and classify them into simple or complex machine.

Simple machine	Complex machine
Nail cutter	Washing machine
Stapler	Crane
scissors	Bicycle
Forceps	computer

III. Some everyday tasks are given below. Write what kind of a machine can be used to perform each of these tasks:

a. Cutting an apple-_____

b. Putting up a picture frame on a wall-

_____

c. Chopping a log of wood-_____

d. Drawing water from a well-_____

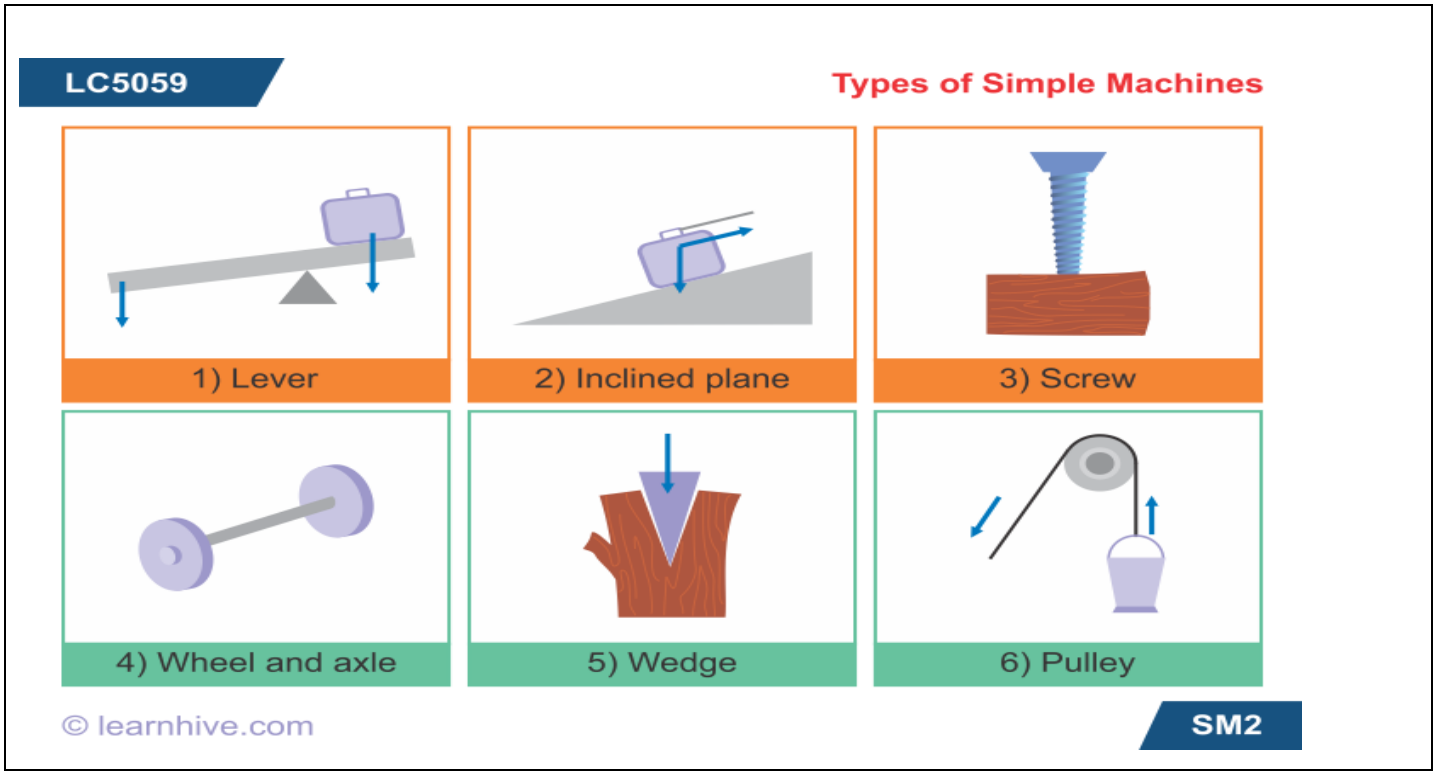
e. Cutting paper-_____

Ans. a. knife b. screw c. axe d. pulley e. scissors

Worksheet -2

Types of simple machines

I.Draw and name six types of simple machines we use.



II. Define:

1. Define Simple machine

A simple machine is a device or a tool that makes our work easier, faster and more convenient.

III.A huge rock has blocked a road after a land slide. What could be done to remove/move the rock from the road easily?

A rigid rod or stick acts as a lever to lift the load easily.

Worksheet - 3 Lever and its parts

I. Define

1. Lever

A lever is a board or rigid rod that helps us to lift or move things.

2. Fulcrum

The point of support in a lever or the fixed point around which a lever can turn around.

3. Effort

It the force that needs to be applied.

4. Load

The object that is to be moved is called load.

Worksheet - 4

Lever – First Order of Lever

I**. Fill in the blanks:**

a. A lever can be moved about a fixed point called the_____.

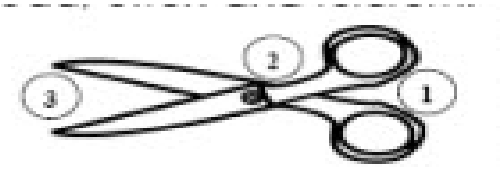
b. In a first-class lever, the _____is in between the load and effort.

c. Lever that kids sit on; often found on a playground. _____

d. Type of simple machine made up of a bar that moves on a fixed point, or fulcrum. _____

a. Fulcrum b. Fulcrum c. See-saw d. Lever

II. Identify the order of the lever and label Effort, Fulcrum and Load.



Type of lever- First order of lver

1.Effort 2. Fulcrum 3. Load

III. Sanjam and Reegha went to the park and sat on sea- saw. Can you help them to identify the type of lever by locating the position of fulcrum, load and effort?

Its first order of lever.

The fulcrum lies in the middle with effort at one end and load in the other end.

Work sheet -5

Second order of Lever

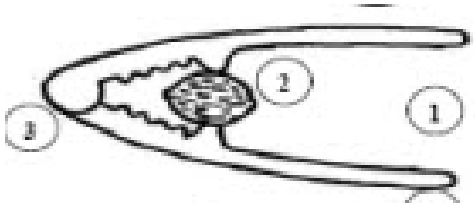
I. Fill in the blanks

1. A _____is an example of a second-class lever.

2. _____ lies between the effort and fulcrum in a second-class lever.

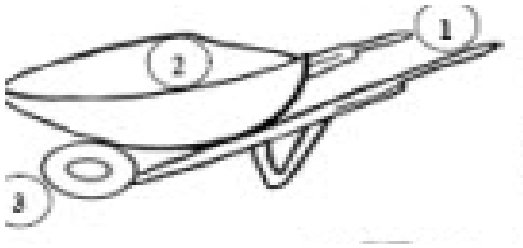
1. Nut cracker 2. Load

II. Identify the order of the lever and label Effort, Fulcrum and Load.



Type of lever –second order of lever

1.Effort 2 Load 3 Fulcrum



Type of lever –second order of Lever

1 Effort 2 Load 3 Fulcrum

Work sheet - 6

Third order of Lever

I. Fill in the blanks

1. In a third-class lever, the _____is at the middle.

2. Tongs and forceps are the common examples of levers of

_____ Order.

1. Effort 2. Third

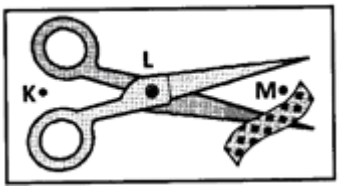
II. Match the following:

A	B
1. Tongs	a. Wedge
2. Staircase	b. lever
3. Bottle lid	c. Inclined plane
4. Knife	d. Screw

1. b 2. C 3. D 4. a

III. Choose the correct answer.

1. The figure shows a pair of scissors. Which points marked K. L and M represent the fulcrum, effort and load? Tick the right answer.



A)

Fulcrum	Effort	Load
K	L	M

B)

Fulcrum	Effort	Load
K	M	L

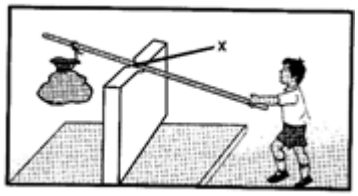
C)

Fulcrum	Effort	Load
L	K	M

D)

Fulcrum	Effort	Load
L	M	K

2. In the given figure, what is 'X'?



A) Fulcrum

B) Load

C) Effort

D) Force

III. How will you differentiate first class, second class and third-class lever? Give two examples for each.

First order of lever- In the first order Fulcrum lies in the middle with load at one and effort at the other end.

Example- A pair of scissors, a seesaw

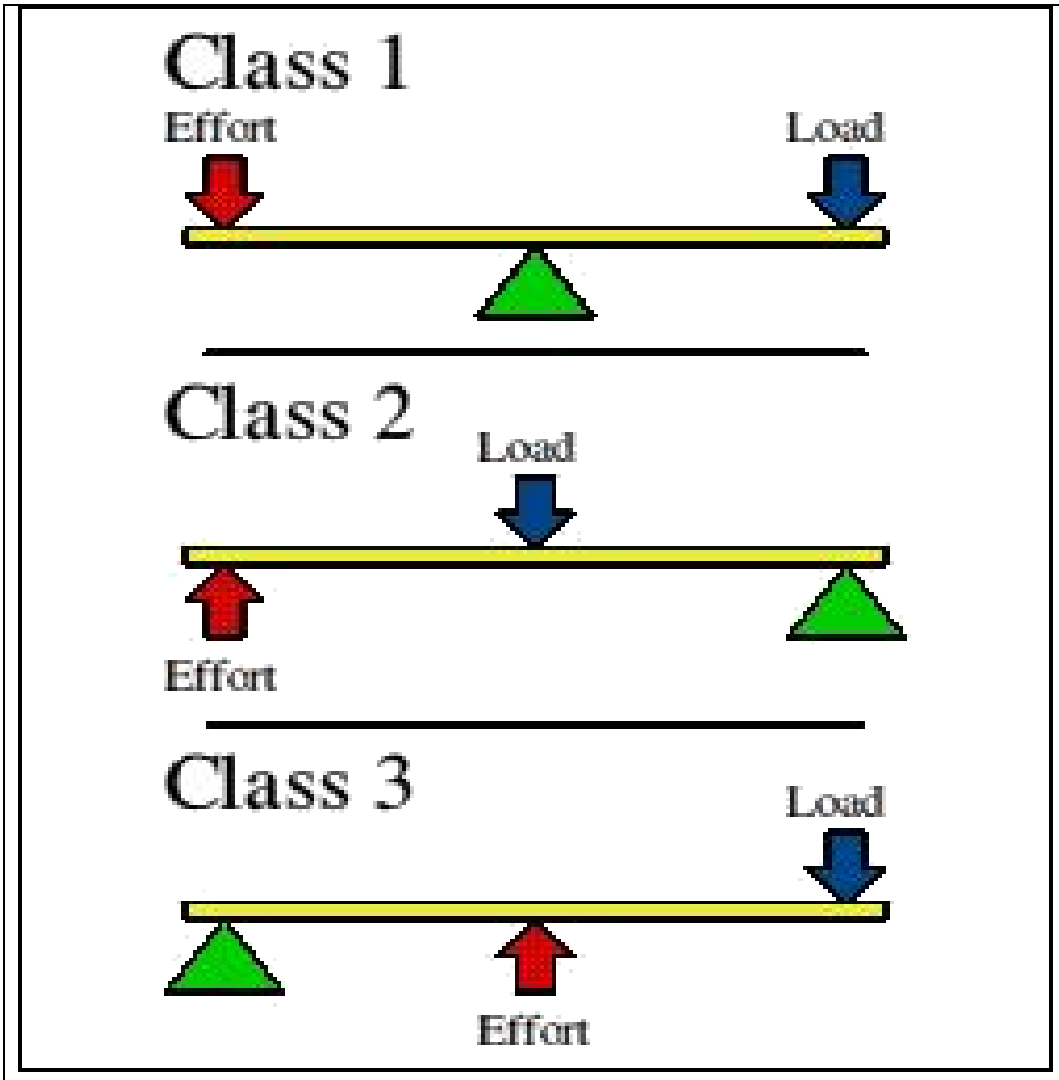
Second order of lever- In the second order, the load lies in the middle with effort at one end and fulcrum at the other end.

Example- Nutcracker, bottle opener etc

Third order of Lever- In the second order, the effort lies in the middle with load at one end and fulcrum at the other end.

Example- Fishing rod, a pair of forceps etc.

II. Draw the diagrammatic representation of first class, second class and third class lever, giving two examples each along with it.



Work sheet - 7

Inclined plane

I. Name the following:

1. Type of simple machine that is a flat surface with one end higher than the other. _____

Inclined plane

II. Think and answer:

1. It's difficult to load heavy drums on to the truck. Name the simple machine which can make your work easier.

Inclined Plane can make the work easier.

2. Define: Inclined Plane

Inclined plane is a simple machine with a flat surface whose one end higher than the other. Eg. A slide, a staircase, road going up a hill.

III. Choose the correct answer.

A simple machine used to move the object to a higher place is the

A) Wedge.

B) Wheel and axle.

C) Inclined plane.

D) Pulley.

Worksheet -8

Screw

I. Name the following:

1. Type of simple machine that is spiral-shaped and pulls two things together. _____

Screw

II. Think and answer:

Both a nail and a screw are used to hold things together. But a screw holds things much firmly. Why?

Ans-This is because of the threads present in a screw.

III. Choose the correct answer.

The picture shows a jar with its lid. What kind of a simple machine is a jar lid?

A) Ramp

B) Pulley

C) Screw

D) Wedge

Worksheet – 9

Wedge

I. Name the following:

1. A simple machine used to separate something; made up of two inclined planes back-to-back. _____

2. Wedge used for chopping wood. _____

1. Wedge 2. Axe

II. Define: Wedge

A wedge is a simple machine which has two inclined planes together, back to back. Eg. Knife, axe, nail.

II. Choose the correct answer

1. Each of these simple machines contains a _____

A) Wheel and axle

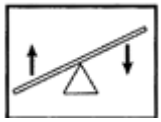
B) Lever

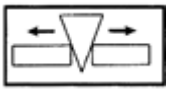
C) Pulley

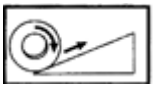
D) Wedge

2. Which of the following pictures shows how a wedge works?

A) 

B) 

C) 

D) 

Worksheet -10

Pulley, wheel and axle

I. Correct and rewrite the following statements by changing the highlighted word.

1. A **lever** is a wheel with a groove in its circular edge.
2. A wheel and rope make a simple machine called **screw.**
3. A door knob is an example for **pulley**.

1. Pulley 2. Pulley 3. Wheel and axle

II. Identify me:

1. I am a simple machine. I am used to raise or lower curtains.

   _____

2. I have wheel and axle arrangement. I am used to open the door.

   _____

3. I am a simple machine. I have a wheel and a shaft.

   _____

1. Pulley 2. Door knob 3. Wheel and axle

III. Answer the following:

1. A pulley ease our work. How?

A pulley is used to lift heavy objects .It can change the direction of force applied. Hence, pulley eases our work.

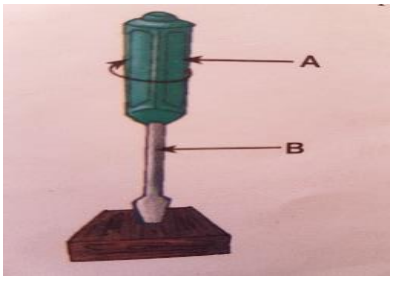
2. For what purpose do we use a wheel and axle arrangement?

Wheel and axle is used to move heavy loads by applying small effort. Examples – screwdriver, bicycle wheel, steering wheel of a car, doorknob, knob of a water tap.

3. An electric fan is made of several simple machine. Where would you find a wheel and axle?

The blades of fan act as wheel and the center knob as axle.

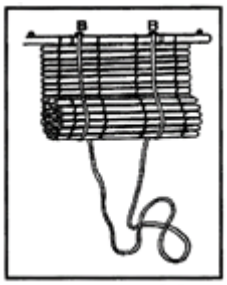
4. Observe the below carefully and identify the parts that act as wheel and the axle respectively.



A- Wheel B- Axle

IV. Choose the correct answer.

1. Kavita uses a downward pulling force on the rope to make the blind go up. Which simple machine is being used?



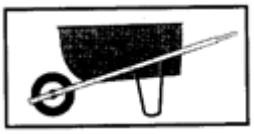
A) Pulley

B) Lever

C) Wheel

D) Inclined plane

2. Which two simple machines does this device use to make work easier?



A) An inclined plane and a pulley

B) A wheel and axle and a wedge

C) Gears and a lever

D) A wheel and axle and a lever

3. Match the following simple machines in column-I with their respective uses given in column-II.

	Column - I		Column - II
p.	Pulley	i.	To fix two objects.
q.	Wedge	ii.	To lift heavy objects
r.	Screw	iii.	To cut objects

A) p-ii, q-i, r-iii

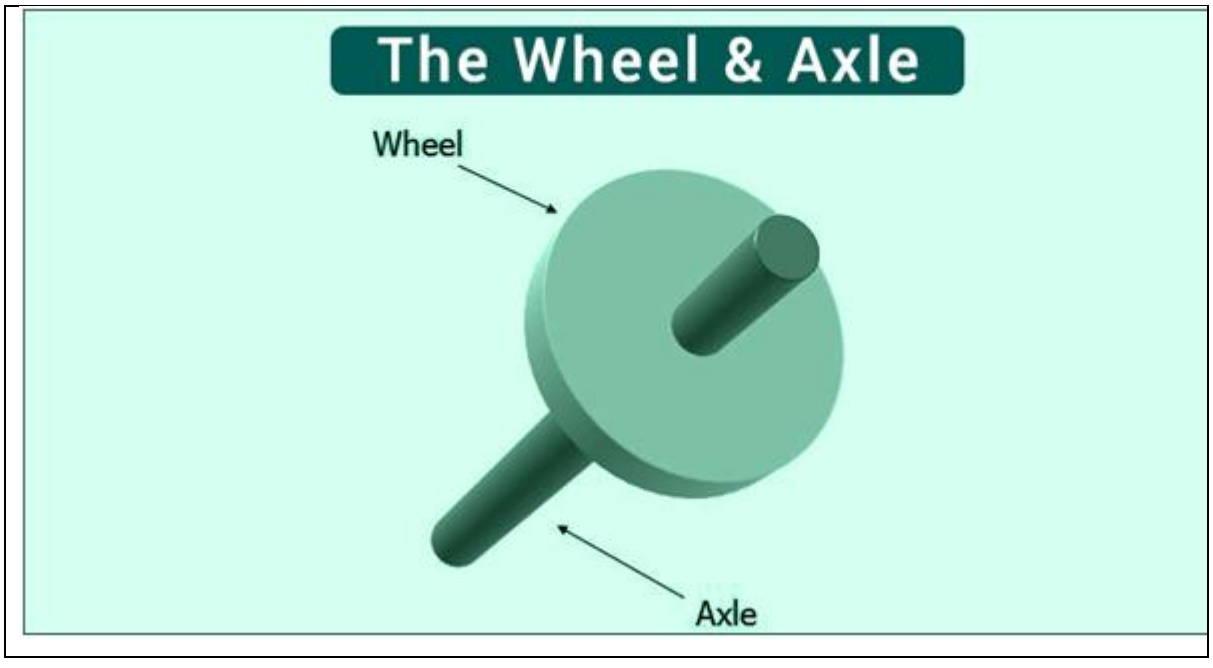
B) p-ii, q-iii, r-i

C) p-i, q-iii, r-ii

D) p-iii, q-i, r-ii

Diagrams

I. Draw wheel and axle



What I learnt

My Questions

TEXT BOOK REFERENCE

Textbook Exercises	Reference/Page No.	Status √ Completed/Pending
1. Fill in the empty boxes	Page No 110	Completed/Pending
2. Put on your thinking cap	Page No 110	Completed/Pending
3. Match the following	Page No 110	Completed/Pending
4. Correct and rewrite the sentences	Page No 110	Completed/Pending
5. Tick the correct option	Page No 111	Completed/Pending
6.Cross word Puzzle	Page No 113	Completed/Pending

Activity-

*Draw and name six types of simple machines we use in our daily life in the worksheet booklet.

*Yardstick activity-Design a vehicle will be done in the class.

*Make a model of any one simple machine.