

Pre- Content/Content / Post –content	Learning Outcome/Objectives	
<u>Pre- Content:</u>	<u>General</u>	<u>Specific</u>
Students know that how do objects move? Teacher will ask questions and motivate the students and introduce the lesson by recalling everyday experiences – how things at rest start moving, how a moving body comes to rest, how direction of motion of a moving body changes? <u>Content:</u> • Force • Types of Forces • Pressure in Liquids • Pressure In Gases • Atmospheric Pressure <u>Post-Content:</u> The student at the end of the chapter should be able to comprehend the following concepts. • List the effects of a force • Discuss the types of forces • Relationship between pressure and area. • Determine atmospheric pressure and its effects.	Students will be able to: • explain the concept of force its types and pressure in liquids, gases. • develop definition for pressure. • analyze the variation of pressure in liquids with depth. • apply the knowledge to answer questions like – why don't we get crushed due to atmospheric pressure and why do we face the problem of nose bleeding at high atitudes.	Students will be able to: • develop the definition of friction • classify force into various types. • distinguish between contact and non-contact forces. • recognize the effects of force. • deduce formula for pressure due to solids. • perform an activity to conclude that liquids also exert pressure. • comprehend atmospheric pressure as the pressure exerted by gases. • list importance of atmospheric pressure in daily life.

Home Work / Assignments

- Exercise questions
- Extra questions
- Worksheets

Teacher's Activity	Student's Activity	Teacher's Observation and Remedial action taken
Teacher will: <u>Annexure 11 (A)</u> initiate the activity by giving the students to perform the activities to understand force as a push or a pull. <u>Annexure 11 (B)</u> initiate the activity by providing a heavy object and ask the students to experience the force and calculate the net force <u>Annexure 11 (C)</u> initiate the activity by giving the students to perform the activities to understand the effect of force. discuss the concept of Non-Contact Forces with the help of ICR content <u>Annexure 11 (D)</u> demonstrate an activity to show the variation of pressure in liquids with height. <u>Annexure 11 (E)</u> demonstrate an activity to show liquids exert pressure on the sides of the container. <u>Annexure 11 (F)</u> explain an activity to show liquids exert equal pressure at the same depth.	Students will <u>Annexure 11 (a)</u> actively participate in the activity and classify the actions as a push or a pull in the table. <u>Annexure 11 (b)</u> perform the activity and record the observations in their notebooks <u>Annexure 11 (c)</u> comprehend the effects of forces and actively participate in the activity and complete the table. list the effects of forces in their notebook and then discuss them in the class. <u>Annexure 11 (d)</u> perform the activity using their activity kits in pairs and record their observations <u>Annexure 11(e)</u> perform the activity using their activity kits in pairs and record their observations <u>Annexure 11(f)</u> perform the activity using their activity kits in pairs and record their observations.	

Teaching Aids – Active Inspire boards, ICR, Materials required for activities, worksheets and textbook, Activity Kits
Methodology / Innovative Methods: Activity based teaching, Know to Unknown, Discussions, Activity method, brainstorming sessions.

Interdisciplinary Links – English- Improves expression and vocabulary. Maths- Re-ordering and interpreting readings.
Art- Neatness in drawing the diagrams.

HOD

Coordinator

Vice-Principal

Principal

➤ **ANNEXURE11(A)**

Teacher initiated the activity by providing the necessary arrangements.

➤ **ANNEXURE11(a)**

Students will classify the actions as PULL or PUSH and complete the table below.

S. No.	Description of the situation	Action- Pushing, pulling, picking, hitting, lifting, lowering, flying, kicking, throwing, shutting, flicking	Action can be grouped as – Push/Pull
1.	Moving a book placed on a table		
2.	Opening or shutting the door		
3.	A football player taking a penalty kick		
4.	Moving a loaded cart		
5.	A cricket ball hit by a batsman		

ANNEXURE11(B), 11 (b)

ACTIVITY NO. 11 – HOW TO CALCULATE THE NET FORCE?

Subject	Science
Class	VIII
Chapter/Unit	Force and Pressure
Topic	Net force
Time	30 minutes
Nature of Activity	Pair work

What will I learn (Learning Outcome)?

Will comprehend that the strength of a force is usually expressed by its magnitude. Also, if the direction or the magnitude of the applied force changes, its effect also changes.

Skills: Applying and Analyzing

What I have to do?

To experimentally comprehend the concept of net force on an object.

What do I require?

A heavy box or a cupboard or a heavy table and two person.

What do I need to know?

A **force** is a push or pull upon an object resulting from the object's *interaction* with another object. Whenever there is an *interaction* between two objects, there is a force upon each of the objects. It is a physical quantity that changes- the state of rest or uniform motion, shape or size of an, speed and direction of an object.

➤ **Teacher's Activity**

Teacher will-

1. explain the topic of net force.
2. make arrangements for the activity.
3. make pairs of the students and will explain the steps of the activity.
4. ensure that each participant of the pair performs the activity on his/her own.

How will I proceed?

➤ **Student's Activity**

1. Look for a heavy object in your surroundings.
2. Push the heavy object alone in any direction, say to the right.



3. I will ask my friend partner to help me in pushing the object to the right (i.e. in the same direction).



4. I will ask friend now to push the object from the opposite side to the left (i.e. in the opposite direction).



5. Now one of us pull it and the other push it.



What have I observed?

S. No.	Situations	Will the object move?	In which direction will the object move? (right/left)
1.	Only one person is pushing the object.		
2.	Two people are pushing the object in the same direction.		
3.	Two people are pushing the object in the opposite direction.		
4.	One person is pulling and the other is pushing the object.		

What have I learnt?

1. When forces are applied in the same direction, the total or net force is said to be equal to the _____ of these forces.
2. When forces are applied in the opposite directions, the net force is the _____ of the two forces and acts in the direction of the larger force.
3. When forces applied in opposite directions have equal magnitudes, the net force is _____.

What am I curious to learn?

- Lets us try to identify the directions and magnitudes of net force by observing the direction in which the rope moves in the game of tug of war.
- Let us try to study the effect of force on a given surface and hence find the relationship between force, pressure and area

Let me evaluate myself

1. What do you understand by the term net force?

2. Give two examples each of situations in which you push or pull to change the state of motion of objects.

3. What happens when two forces having equal magnitude act in same direction?

4. Two persons are applying forces on two opposite sides of a moving cart. The cart still moves with the same speed in the same direction. What do you infer about the magnitudes and direction of the net force applied.

5. Use the diagram to answer the following question:



a) Calculate the net force acting on the object

b) Will the object move? If yes, then in which direction?

➤ **ANNEXURE11(C)**

Teacher initiated the activity by providing the necessary arrangements.

➤ **ANNEXURE11(c)**

Students will complete the table given below.

S. No.	Description of situation	Action of force	
		Change in state of motion- Yes/No	Change in shape- Yes/No
1.	Pressing a lump of dough		
2.	Sitting on the bicycle seat		
3.	Stretch a rubber band suspended from a hook/nail fixed on a wall		
4.	Put a weight on a plastic or metal scale kept between two bricks		

ANNEXURE11 (D), 11 (d)

Activity- Factors affecting liquid pressure

Chapter- Force and Pressure

Class -VIII

Duration: 30 minutes

Nature of activity: Group

Learning Outcome: Students will be able to perform an activity to conclude that pressure exerted by liquids depends on the height of the water column.

What we have to do?

To show that liquid pressure depends only upon the height of the liquid column and not the volume of the liquid.

What do we require?

Three to four transparent plastic bottles of different capacities (1.5 litre, 1 litre and 0.5 litre), Nail or compass to make holes in the bottle, Cello tape, Meter scale, Paper cup, a wooden stool or table to be used as a stand, water.

What do you need to know?

Force is an interaction that will change the motion of an object. Pressure depends on force and surface area.

How do we proceed?

Teacher's activity:

Teacher will arrange activity kits with the above mentioned material(except the plastic bottle) and will give instructions to the students for the activity.

Student's activity:

1. Take three transparent plastic bottles of different capacities. Mark them as A, B and C.
2. Make one hole on the side of each of the bottle at the same distance from the base of the bottles.
3. Seal these holes with cello tape.
4. Make a mark near the top of the bottle of the least height. Measure the height of this mark from its bottom. Make marks at this height in the remaining two bottles too.
5. Fill each bottle with water using a paper cup. Note that the level of water is the same in all the bottles (till the mark made on each bottle). Count the number of cups used to fill each of the bottles.
6. Place one of the bottles on the wooden stool or table. Remove the cello tape from the hole. The water stream will come out of the hole.
7. Mark the point at which the water stream falls on the floor.
8. Measure the distance of this mark from the base of the stand.
9. Repeat the same steps with all the bottles and tabulate the reading in Table given below.

What have you observe?

Bottle	Distance of the mark from the stand (cm)
A	
B	
C	

What have you learnt?

1. In the above activity, will you get the same observation if the level of water in each bottle was different?

What more can we do?

The teacher will guide the students to perform the following activity.

- Take a long plastic bottle. Make three holes at different heights .Seal the holes with one long piece of cello tape. Fill the bottle with water. Place this bottle on a wooden stool or table and remove the tape. Observe the water streams coming out of the three holes. Water stream from which of the holes falls the farthest from the bottle. Give reason.

➤ **ANNEXURE11(E)**

Teacher will demonstrate an activity to show that liquids exert pressure on the sides of the container.

➤ **ANNEXURE11(e)**

Students will take a plastic bottle. Fix a cylindrical tube near the bottom (by heating the bottom with a hot glass rod, under the teacher's supervision). Cover the mouth with a balloon. Now one of the students fill the bottle up to half and record the observation and draw the conclusions.



➤ **ANNEXURE11(F)**

Teacher will demonstrate that liquid exerts same pressure at the same depth.

➤ **ANNEXURE11(f)**

The students will take a plastic bottle and make small holes of equal size on the opposite sides of the bottle (by heating the bottom with a hot glass rod, under the teacher's supervision).

Now fill the bottle with water and record your observations and draw the conclusions.

