

**TERM- 1**

**Month- April-May**

**Class – 8**

**Lesson plan**

**Topic- Force and pressure**

**Mode of teaching- zoom online classes**

**Learning objectives**

To understand force and various effects of force

To discuss the resultant force

To study about muscular force, mechanical force and frictional force

To learn about magnetic force, electrostatic force and gravitational force

To study about pressure and various applications of pressure

To learn about atmospheric pressure

**P K testing**

The teacher will ask the students

1. What changes do you observe when you apply force to

A football

A piece of clay

A swing

A stationary chair

**Vocabulary**

Stationary, resultant, contact force, gravity, manometer, capillaries, Pascal, atmospheric pressure, newton, magnetic force

**Explanation**

The students will recognize various changes observed by the force and the teacher will explain the units of force which are Newton and kgf. By showing

various videos(links attached) online, the teacher will explain the resultant force and addition and subtraction of forces.

The teacher will explain the various forces by performing different activities. Paper clips of iron are attracted by the magnet due to magnetic force. A charged comb attracts the pieces of paper due to electrostatic force. The teacher will introduce the term pressure

SI units of pressure are pascal.

Pressure= force/area

The teacher will perform various activities online so that the students relate pressure with liquids.

### **Procedure**

Starting with force and its kinds each and every concept will be discussed in detail through zoom class. The learners will be encouraged to watch the content related topics online during their free time.

The learners will be made aware of the current developments of this field. Various diagrams will be discussed in zoom session through screen sharing and the students will be asked to draw those themselves so that they have a better understanding. Learners will be asked to analyse their ideas by comparing it with the facts.

### **Innovative pedagogies**

1. Students will be asked to have a game of tug of war with equal number of members to learn about resultant force
2. They will be asked to see a bar magnet and how it attracts the iron piece.

### **Student participation**

1. The students will be involved in group discussions.
2. They will be encouraged to share their own observations.
3. Students will be encouraged to ask questions.
4. They will draw the various diagrams and figures in the class itself

### **Learning outcomes**

The learner will be able to

1. Classify various kinds of forces
2. Plan and conduct simple activities and experiments
3. explain various types of pressure
4. draw labelled diagrams for various activities
5. calculate resultant force for various kinds and number of forces acting on an object
6. uses scientific conventions to represent symbols and formula for force
7. applies scientific concepts in daily life

### **Resources**

NCERT TEXT BOOK

CORDOVA LEARNING SCIENCE

7 CBSE EXEMPLAR

EXTRA MARKS SLIDES

<https://youtu.be/loD5Ph0sY4A>

<https://youtu.be/Cvp6mLWbgaM>

<https://youtu.be/i42TaUiCNf0>

### **Assesment**

Following methods will be used to assess the grasping ability and acquisition of knowledge of the learners

1. Multiple choice questions via google form tests.
2. One word answers- oral test during online class.
3. Group discussions
4. Placards with related questions

### **Assignment - 1**

#### **True or false**

- a. Friction opposes the relative motion between two surfaces in contact.

- b. A force can act on an object with or without being in contact with it.
- c. Gases does not exert pressure on the walls of their container
- d. The force exerted by a charged body on another charged or uncharged body is known as gravitational force
- e. magnetic force is a contact force
- f. force of gravity is an attractive force
- g. Atmosphere pressure at high altitudes is less than the pressure at ground
- h. People at plains suffer from nose bleeding.

**Assignment – 2- Fill in the blanks**

- a. An example of a non-contact force is \_\_\_\_\_.
- b. The pressure exerted by air around us is known as \_\_\_\_\_.
- c. SI unit of force is \_\_\_\_\_.
- d. Application of force can change the \_\_\_\_\_ or \_\_\_\_\_ of an object.
- e. Force exerted by our muscles is called \_\_\_\_\_ force.
- f. Direction of force of friction is always \_\_\_\_\_ to the direction of motion.
- g. Force per unit area is called \_\_\_\_\_.
- h. The force exerted by a charged body on another charged or uncharged body is known as \_\_\_\_\_
- i. Force has \_\_\_\_\_ as well as \_\_\_\_\_

**TERM – 1**

**Month- July- August**

**Lesson plan**

**Class 8**

**Topic- Friction**

**Mode of teaching- zoom classes online**

**Learning Objectives-**

To recognize friction as a force

To differentiate between static and kinetic friction

To learn about advantages and disadvantages of friction

To understand the various ways to reduce friction

To understand fluid friction

### **P K testing-**

The teacher will introduce the topic by asking the students during online class

1. What do you feel on a windy day?
2. Is it easy to ride a bicycle on grass or on road?
3. Why is it easy to pull a suitcase with wheels?

### **Vocabulary-**

Static friction, limiting friction, kinetic friction, sliding friction, rolling friction, fluid, weight, ball bearings, Interlock, maximum, fluid, rollers, streamlined, necessity

### **Explanation-**

The teacher will explain all the topics while reading from the book as well as explaining every topic. Various diagrams and activities will be shown to students by using the screen share mode of zoom classes.

### **Procedure-**

The teacher will explain the concept of friction by rubbing any two surfaces and explain the interlocking forces of the surface.

The teacher will explain the types of friction-

Static friction

Limiting friction

The teacher will give various examples to make sure that the students understand the concept. Various factors affecting the friction will be discussed.

### **Student participation-**

1. The students were involved in group discussions and they were motivated to share their own observations from daily life during online zoom sessions.

2. They will be encouraged to ask questions.
3. They will draw the various diagrams and sketches in the class with the teacher.

### **Recapitulation-**

The students will be asked questions online so that they have complete understanding of each and every concept.

1. What is the cause of friction?
2. What is the difference between static and kinetic friction?
3. Why sliding friction is better than rolling friction?
4. How is friction a necessary evil. Explain

### **Learning outcomes-**

1. The students will be able to examine the effect friction has on moving objects
2. They will understand the relationship between types of surface and frictional force
3. Classify various types of friction
4. Plan and conduct simple activities and experiments
5. explain various advantages and disadvantages of friction
6. draw labelled diagrams for various activities
7. applies scientific concepts in daily life

### **Innovative pedagogies-**

1. The students will be shown various pictures using screen share during online class to identify the various types of friction.
2. Various activities will be discussed during the class so that they have a better understanding of each concept

### **Resources-**

<https://youtu.be/e9zkdrV8Yhc>

<https://www.youtube.com/watch?v=e9zkdrV8Yhc>

[https://youtu.be/rVxE-MOWi\\_E](https://youtu.be/rVxE-MOWi_E)

Physics for middle classes class 8

Pearson IIT foundation series class 8

### **Assignment – 1 – Extra questions**

Q1. Why do we slip when we step on a banana peel?

Ans. The inner side of banana peel being smooth and slippery reduces the friction between the sole of our shoes and the surface of road. Thus, we slip on it.

Q2. Why the sole of our shoes is grooved?

Ans. The grooves are made in the soles of shoes to increase friction with the ground so that the shoes get a better grip on the floor and we can walk safely.

Q3. Why a vehicle slows down when brakes are applied?

Ans. When brakes are applied, the brake pads press against the discs of the rotating car wheels. This produces friction between brake pads and the discs, making the wheels to slow down and ultimately stop.

Q4. Why it is convenient to pull the luggage fitted with rollers?

Ans. Rolling reduces friction. It is always easier to roll than to slide a body over another. That is the reason it is convenient to pull the luggage fitted with rollers.

## **TERM – 1**

**Month- September**

**Lesson plan**

**Class - 8**

**Topic- chemical effects of electric current**

**Mode of teaching- zoom online class**

**Objectives-**

To define conductors and insulators

To learn how to use an electric tester

To understand the term electrical conductivity

To learn the various terms used to describe chemical effects of current

To list various uses of electroplating and electrolysis

### **P K testing-**

The teacher will introduce the topic by asking the students about good conductors and bad conductors of electric current during online session

1. Why only copper wires are used for electric wiring?
2. Do you know, how artificial jewelry is made?
3. Can liquids also conduct electric current?

### **New words**

circuit, conductivity, diode, filament, cations, anions, electrode, cathode, anode, electrolyte, electroplating, electric current, electrolyte, electrolysis

### **Explanation**

All the topics will be introduced during the online class one by one. The topics will be made clear to the students with the help of various online videos and activities shared through zoom share feature. The learners will be encouraged to watch the content related topics online during their free time. The learners will be made aware of the current developments of this field. Various diagrams will be discussed in the class and the students will be asked to draw those themselves so that they have a better understanding. Learners will be asked to analyse their ideas by comparing it with the facts

### **Procedure-**

The teacher will discuss about the open and closed circuit and will explain the problems related to circuits by showing the diagrams during online session. By showing the picture of a LED, the teacher will discuss it by showing its positive and negative terminals. The teacher will discuss the various terms related to chemical effects of electric current.

By using the share screen option, the teacher will explain the process of electroplating.

### **Student participation-**

The students will be asked to watch various activities online to show that distilled water is a bad conductor of electricity. They will be asked to observe cells at home so that they could check the positive and negative terminals of a cell.

### **Recapitulation-**

The teacher will ask the students to

1. Give examples of Conductors and insulators.
2. To describe the commonly used terms to understand the chemical effects of electric current
3. How is electroplating useful to us in our life?

### **Learning outcomes**

1. The students should be able to differentiate between conductors and insulators
2. The students will be able to identify the two terminals of a battery/cell.
3. The students will understand the importance of electroplating in real life.

### **Innovative pedagogies**

1. Audio visual aids will be used so that each and every concept is clear to the students
2. A visit to physics lab will be done to have a look at the various cells, electrodes and batteries present in the lab.

### **Art integration**

1. While drawing various diagrams, the students learn to draw and label the diagrams.
2. While doing the role play for electrolysis the students will be able understand the concept deeply

### **Resources**

[https://www.youtube.com/watch?v=6NAzllZ\\_qYI](https://www.youtube.com/watch?v=6NAzllZ_qYI)

<https://youtu.be/zWJsvcF9cAQ>

### **Assesment**

Following methods will be used to assess the grasping ability and acquisition of knowledge of the learners

1. Multiple choice questions via google form tests.
2. One word answers- oral test during online class.
3. Group discussions
4. Placards with related questions

### **Assignment- 1**

#### **fill in the blanks**

1. Electrolysis is used for \_\_\_\_\_ one metal over another metal.
2. A combination of cells is known as \_\_\_\_\_ .
3. In liquid the moving charges are called \_\_\_\_\_ .
4. The driving force that carries charges around a circuit is \_\_\_\_\_ force.
5. Electric current is the flow of negatively charged particles called \_\_\_\_\_.
6. An electric current can bring about a \_\_\_\_\_ change.
7. An \_\_\_\_\_ when dissolved in water, breaks up into ions.
8. \_\_\_\_\_ are materials that allow electricity to flow through them.
9. \_\_\_\_\_ are also called as insulators.
10. A source of electricity is called a \_\_\_\_\_ .

### **ASSIGNMENT- 2**

#### **State True/ False**

1. Natural water that runs down the hills is 100% pure water
2. Formation of a new chemical compound by electricity is electrolysis.
3. Kerosene is a nonelectrolyte.
4. Lemon juice is an electrolyte.
5. All liquids conduct electricity.

6. Passing electric currents through a conducting liquid causes chemical changes.
7. Electrolysis is an application of electroplating.
8. Vinegar is a conductor of electricity.
9. A solution that contains oppositely charged ions conducts electricity.
10. Glucose solution is an electrolyte and hence conducts electricity.
11. Every ion has both positive as well as negative charges.
12. Electricity is a form of energy.

## **TERM – 2**

**Month- October- November**

**Class – 8**

**Lesson plan**

**Topic – Sound**

**Mode of teaching- zoom online class**

**Learning objectives-**

To understand that sound is caused by vibrations

To know about the various musical instruments

To identify the sound from musical instruments

To understand how sound is produced and propagated by humans

To acquire knowledge whether sound requires a material medium to propagate or not

To analyse the working of human ear

To learn about amplitude, time period n frequency

To distinguish between loudness n pitch

To differentiate between noise n music

To understand noise pollution and methods to control it.

**P K testing**

The teacher will ask the following questions during online class to introduce the lesson

1. Have you heard musical instruments like guitar and tabla in your music class?
2. Can you differentiate between music and noise?
3. Can you hear all sounds produced by all living and non- living organisms?

### **Vocabulary**

Vibration, medium, vacuum, frequency, amplitude, pitch, larynx, decibel, hertz, canals

### **Explanation**

The teacher will discuss will discuss the following using various pictures and videos using screen share option on zoom.

1. How sound is created with a vibrating object?
2. Speed of sound in different media
3. Pitch, loudness and quality will be discussed in detail
4. Structure of human ear will be discussed in detail
5. Reflection of sound and echo will be discussed in detail
6. Noise and music will be discussed

### **Procedure**

Starting with sound and its cause, each and every concept will be discussed in detail. The learners will be encouraged to watch the content related topics online during their free time. The learners will be made aware of the current developments of this field. Various diagrams will be discussed in the class and the students will be asked to draw those themselves so that they have a better understanding.

Learners will be asked to analyse their ideas by comparing it with the facts. Actual pictures will be shown during zoom sessions.

### **Innovative pedagogies**

1. Students will be shown pictures of various musical instruments

2. Students will be asked to create jal tarang at home and experience the various different sounds created.

### **Art integration**

1. Knowledge of drawing is required to understand the complex diagram of human ear
2. Harmful effects of noise pollution will teach the students to be considerate about the firecrackers they burst during Diwali festival.

### **Integration with other domain**

1. When echo and various forts are discussed, it creates an interest of students in history and various monuments.
2. Discussion about the science behind various musical instruments create the interest of students in art and playing of instruments

### **Student participation**

1. The students will be involved in group discussions.
2. They will be encouraged to share their own observations.
3. Students will be encouraged to ask questions during online classes
4. They will draw the various diagrams and figures in the class itself.

### **Learning outcomes-**

Understand that sound is caused by vibrations

Know about the various musical instruments

Identify the sound from various musical instruments

Understand that how sound is produced and propagated by human ear

Acquire knowledge whether sound requires a material medium to propagate or not

analyse the working of human ear

Define amplitude, time period n frequency

Distinguish between loudness n pitch

Differentiate between noise n music

Understand about noise pollution and its control

**RESOURCES:**

[https://youtu.be/s86O-K\\_cjcg](https://youtu.be/s86O-K_cjcg)

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7 CBSE EXEMPLAR

EXTRA MARKS SLIDES

**ASSESSMENT:**

Following methods will be used to assess the grasping ability n acquisition of knowledge of the learners

1. Mcq's which will be discussed through goggle form testing
2. One word questions will be asked during online oral tests.
3. Group discussions
4. Placards with related questions

**Assignment- 1**

**Answer the following.**

1. What does voice box or larynx of human produces?
2. In which medium sound propagates the maximum?
3. Name the sound producing organ in human.
4. What is vibration?
5. Do all bodies produce sound?

**TERM – 2**

**Month- November -December**

**Class 8**

**Lesson plan**

**Topic – Light**

## **Mode of teaching- zoom online classes**

### **Learning Objectives**

- To define reflection in plane mirrors
- To understand the laws of reflection
- To identify multiple images formed in a plane mirror
- To learn how to construct a Kaleidoscope
- To explain the structure of human eye
- To list out the ways to protect our eyes
- To understand how braille can be used for visually handicapped people

### **P K testing**

The teacher will ask the following questions during online class

1. Do you know the differences between regular and diffused reflection?
2. Do you know the light from sun rays is made up of different colors?
3. Do you know about the parts of human eye?

### **Vocabulary**

Incident ray, normal, reflected ray, diffused, luminous, kaleidoscope, sclera, choroid, cornea, retina, iris, pupil, vitreous, aqueous

### **Explanation**

The teacher will discuss the following one by one by the help of diagrams shared through screen share

1. The laws of reflection
2. Formation of images by a plane mirror
3. Multiple image formation in kaleidoscope
4. The structure of human eye
5. Power of accommodation
6. Defects of human eye

## **Procedure**

Starting with light each n every concept will be discussed in detail n class.

The learners will be encouraged to watch the content related the topics online

The learners will be made aware of the current developments of this field.

Various diagrams will be discussed in the class and the students will be asked to draw those themselves so that they have a better understanding.

Learners will be asked to analyse their ideas by comparing it with the facts

Actual pictures will be shown during online class.

## **Recapitulation**

The students will be able to answer the following

1. What is reflection of light?
2. What are the laws of reflection?
3. What are the characteristics of the image formed by the plane mirror?
4. What are luminous and non -luminous objects?
5. What is a kaleidoscope?
6. Define persistence of human eye
7. Define dispersion of light.

## **Innovative Pedagogies**

1. Students will make a kaleidoscope with the help of youtube tutorial and understand in detail how multiple images are formed
2. Students will be requested to go online and look at braille texts.

## **Integration with other domain**

1. While discussing the diagrams for reflection, the students will learn about the mathematical concept of normal
2. While discussing the formula for the number of multiple images formed, the students will learn how to put vales in a formula and do calculations
3. With the discussion of various defects of eye, the students will be equipped to help the persons better who have certain eye deficiencies

## **Art integration**

Knowledge of drawing will be required by the students to draw the various diagrams related to reflection of light in plane mirror.

## **Student Participation**

1. The students will be involved in group discussions during online sessions.
2. They will be encouraged to share their own observations
3. Students will be encouraged to ask questions during zoom sessions.
4. They will draw the various diagrams and figures in the class themselves with the teacher.

## **Learning Outcomes**

The students will be able to

1. Plan and conduct simple activities and experiments
  2. explain various types of reflection in plane mirrors
  3. applies scientific concepts in daily life
  4. understand laws of reflection
  5. identify multiple images formed
  6. construct a kaleidoscope
  7. explain the structure of human eye
  8. list out the ways to protect eyes
- understand
8. how braille can be used for visually handicapped people

## **Assessment**

Following methods will be used to assess the grasping ability n acquisition of knowledge of the learners

1. Mcq's in the form of google forms
2. One word answers during online oral tests
3. Group discussions

4. Placards with related questions

### Resources

1. Learning science and cordova
2. Extra mark slides
3. <https://youtu.be/sZXVS1uSCeg>
4. <https://youtu.be/OrobTDEYs2M>

### Assignment- 1- Fill in the blanks

- (1) The \_\_\_\_\_ at the point of incidence is called the normal.
  - (2) \_\_\_\_\_ is a light sensitive screen in human eye.
  - (3) When two mirrors are kept parallel to each other the number of images is \_\_\_\_\_.
  - (4) Kaleidoscope works on the principle of \_\_\_\_\_.
  - (5) The splitting of white light into its constituent colours is called \_\_\_\_\_.
  - (6) The coloured part of eye is \_\_\_\_\_.
  - (7) The \_\_\_\_\_ muscles alter the \_\_\_\_\_ of the eye lens.
  - (8) The normal value for a \_\_\_\_\_ is approximately 25cm.
  - (9) Droplets of water split sunlight to form a spectrum known as \_\_\_\_\_.
  - (10) \_\_\_\_\_ can be corrected by using a concave lens of suitable focal length.
  - (11) Refraction occurs because the \_\_\_\_\_ of light is different in different medium.
  - (12) When white light passes through a prism, it is \_\_\_\_\_.
  - (13) In a Kaleidoscope, the mirrors make an angle of \_\_\_\_\_ with each other.
  - (14) The English Braille system uses \_\_\_\_\_ dots.
  - (15) Lateral displacement takes place due to refraction in a \_\_\_\_\_.
6. How is sound produced?
  7. Name a musical instrument which produces sound by blowing air into it.

## **Assignment- 2**

### **State true/ false**

- (a) Sound cannot travel in vacuum. (T / F)
- (b) The number of oscillations per second of a vibrating object is called its time period. (T / F)
- (c) If the amplitude of vibration is large, sound is feeble. (T / F)
- (d) For human ears, the audible range is 20 Hz to 20,000 Hz. (T / F)
- (e) The lower the frequency of vibration, the higher is the pitch. (T / F)
- (f) Unwanted or unpleasant sound is termed as music. (T / F)
- (g) Noise pollution may cause partial hearing impairment. (T/F)

## **TERM – 2**

### **Month- January**

### **Class 8**

### **Lesson plan**

### **Topic – Stars and the solar system**

### **Mode of teaching- zoom online classes**

### **Learning Objectives**

- To learn about moon and phases of moon
- To understand the solar system
- To learn the characteristics of various planets
- To discuss meteors, meteorites, comets.

### **P K testing**

The teacher will ask the following questions while introducing the lesson during online class

1. Do you see stars at night?
2. Do sometimes stars appear to form a certain shape?

3. Have you heard about the big bang theory?

### **Vocabulary**

astronomy, phases, spiral, lunar, crescent, waning, helium, rotation, elliptical, meteors

### **Explanation**

The teacher will discuss the following one by one  
phases of moon

Arrangement of various planets in solar system

Various characteristics of each and every planet

Meteors, meteorites, galaxies, constellations in detail

### **Procedure**

Starting with stars, planet and constellations each n every concept will be discussed in detail n class. The learners will be encouraged to watch the content related the topics online. The learners will be made aware of the current developments of this field.

Various diagrams will be discussed in the class and the students will be asked to draw those themselves so that they have a better understanding. Learners will be asked to analyse their ideas by comparing it with the facts Actual pictures will be shown by screen share during zoom class

### **Innovative Pedagogies**

1. Students will be asked to study about the various space scientists of India
2. Students will be asked to create the various shapes of constellations using match sticks in their notebooks

### **Integration with other domain**

1. While discussing the diagrams of constellations, the students will learn about the solar system.
2. While discussing various satellites, the students will develop interest in space programs of India.

## **Art integration**

Knowledge of drawing will be required by the students to draw the various diagrams related to constellations.

## **Student Participation**

1. The students will be involved in group discussions during online classes.
2. They will be encouraged to share their own observations.
3. Students will be encouraged to ask questions during zoom sessions.
4. They will draw the various diagrams and figures in the class themselves

## **Learning Outcomes**

The students will be able to answer the following

1. What is moon? What are the phases of moon?
2. What is the arrangement of various planets in solar system?
3. What are the various characteristics of each and every planet?
4. Define meteors.
5. What are the various constellations?

## **Assessment**

Following methods will be used to assess the grasping ability and acquisition of knowledge of the learners

1. Mcq's using google forms
2. One word answers during online oral tests
3. Group discussions
4. Placards with related questions

## **Resources**

1. Learning science and cordova
2. Extra mark slides
3. <https://youtu.be/0h8EFLldudo>
4. <https://youtu.be/5GUop7k-1SQ>

## Assignment- 1

### Fill in the blanks:

- (a) The planet which is farthest from the sun is \_\_\_\_\_.
- (b) The planet which appears reddish in colour is \_\_\_\_\_.
- (c) A group of stars that appear to form a pattern in the sky is known as a \_\_\_\_\_.
- (d) A celestial body that revolves around a planet is known as a \_\_\_\_\_.
- (e) Shooting stars are actually not \_\_\_\_\_.
- (f) Asteroids are found between the orbits of \_\_\_\_\_ and \_\_\_\_\_.