

Alternate Educational Plan for the Month of February 2021-22

Class: 9th std

Subject: Science

Month: February

Chapter: 1. Structure of the atom

2. Sound

Sl. No.	Month /Week	Important Learning competencies	Learning activities	Evaluation
1.	1 st week	<ul style="list-style-type: none"> Identifies the charged particles in the matter. 	<ul style="list-style-type: none"> ➤ Experiment of Combing dry hair, then the comb attracts small pieces of paper. ➤ Rub a glass rod with a silk cloth and bring the rod near an inflated balloon. ➤ Discussing the reasons for the change in the two experiments above. <p style="text-align: center;">You tube link:https://youtu.be/NVmdapLA5l4</p>	1. What do we call the fundamental unit of an element?
		<ul style="list-style-type: none"> Learn about the inventions of electrons and protons. 	<ul style="list-style-type: none"> ➤ Discussing how Electrons were invented by J.J. Thomson. ➤ Watch video of J.J. Thomson's invention of Electrons You tube link: https://youtu.be/-7XsA5gwJn4 ➤ Discussing how Protons were invented by E. Goldstein ➤ Watch video of E. Goldstein's invention of Protons. You tube link: https://youtu.be/gV_TBUQBLug e-samveda lesson's video link :https://youtu.be/MFxbvCOJ12k 	2. Name the scientist who invented electrons in the atom. 3. Name the scientist who invented the protons in the atom. 4. Which particle has a positive charge in the atom? 5. Which particle has a negative charge in the atom?

		<ul style="list-style-type: none"> learn about the structure of the atom and the various models of the atom. 	<ul style="list-style-type: none"> ➤ Discussion of Thomson's atomic model. ➤ Display the chart of Thomson's atomic model. ➤ Watching the video Thomson's atomic model. ➤ You tube link: https://youtu.be/8pBEIOzwtFc ➤ Discussion of Rutherford's atomic model. ➤ Display the chart of Rutherford's atomic model. ➤ Watching the video Rutherford's atomic model. ➤ You tube link: https://youtu.be/TbAa9K41PVM ➤ Discussion of Rutherford's atomic model. ➤ Display the chart of Rutherford's atomic model. ➤ Watching the video Rutherford's atomic model. You tube link: https://youtu.be/fm2C0ovz-3M e-samveda lesson's video link: https://youtu.be/QXuvDO1Kcek 	<p>6.List the important features of Thomson's atomic model.</p> <p>7.List the important features of Rutherford's atomic model.</p> <p>8. Draw the Niels Bohr's atomic model and list the important features. (Page number 37 & 38 of text Book)</p>
2.	2nd week	<ul style="list-style-type: none"> Learn about the invention of neutrons. 	<ul style="list-style-type: none"> ➤ Introducing the inventor of neutrons, J. Chadwick. ➤ Explaining the position and charge of neutrons in the atom. ➤ Identification of neutrons with the help of an atomic model diagram chart. ➤ You tube link: https://youtu.be/dMRUeoNirM 	<p>9.Name the scientist who invented the neutron in the atom.</p>

		<ul style="list-style-type: none"> • They know the method of the distribution of electrons in different shells of the atom. 	<ul style="list-style-type: none"> ➤ Introducing the shells around the nucleus of the atom. ➤ Calculating the number of electrons in each shell. ➤ Preparation of an electronic distribution model of various elements. <p>You tube link: https://youtu.be/EMDrb2LqL7E</p>	<p>10. Write a formula to calculate the number of electrons in an atomic shell.</p> <p>11. Name the shells around the atom and write their distribution of electrons.</p>
		<ul style="list-style-type: none"> • Know the Valency or combining capacity of elements. 	<ul style="list-style-type: none"> ➤ Understanding of Valency of Elements. ➤ Discussing valence electrons. ➤ Making a Valency Table of Elements ➤ Identification of various types valencies of metals and alloys. <p>➤ You tube link: https://youtu.be/XWag7trUxeo</p>	<p>12. Define the valency or combining capacity of elements. (Text book page number 50)</p>
		<ul style="list-style-type: none"> • Know the atomic number and atomic mass number of elements. 	<ul style="list-style-type: none"> ➤ Will discuss the atomic number and the atomic mass number of elements. ➤ Prepare a table of atomic number and atomic mass number of different elements. ➤ Displaying the table of atomic number and atomic number of different elements. <p>➤ You tube link: https://youtu.be/N_1a11Wc-KA</p>	<p>13. Write the difference between atomic number and the atomic mass number of elements.</p>
		<ul style="list-style-type: none"> • Know the Isotopes and Isobars. 	<ul style="list-style-type: none"> ➤ Interpreting isotopes and introducing examples. ➤ Prepare and display isotope table. ➤ List the applications of isotopes. ➤ Interpreting isobars and introducing examples. ➤ Prepare and display isobars table. 	<p>14. Write the difference between Isotopes and Isobars. (Text book page number 52) e-samveda lesson's video link: https://youtu.be/Lut2lkUb1Y4</p>

3	3rd week	<ul style="list-style-type: none"> • Will interpret the concept of the sound. 	<ul style="list-style-type: none"> ➤ Close the eyes of children and engage them to perceive and recognize the sounds of various vehicles, animal noises and instruments. ➤ conduct the Activities 12.1, 12.2 and 12.3. <p>Samveda link of sound lesson.</p> <ul style="list-style-type: none"> ➤ https://youtu.be/XRWsEUZ-dFY 	<ol style="list-style-type: none"> 1) Write an essay on the uses of Sound in everyday life. 2) Give an example of "Sound is a form of energy."
		<ul style="list-style-type: none"> • will explain the production of sound. • will explain the propagation of sound through demonstration. 	<ul style="list-style-type: none"> ➤ Using a video or simulator to explain the sound waves compression and rarefactions. ➤ https://youtu.be/GkNJvZINSEY ➤ Demonstrating by bell jar experiment. 	<ol style="list-style-type: none"> 3) How does the sound from a vibrating object reach our ears? 4) Explain how the sound of temple bell will reach us. 5) What conclusions do you draw from the Bell Jar experiment?
		<ul style="list-style-type: none"> • Experimenting to learn that "medium is necessary for sound transmission". 	<ul style="list-style-type: none"> ➤ Conduct Activity 12.4 and tell them to observe carefully. ➤ Prepare a sound Wave Chart, Recognizing the amplitude and frequency. ➤ Listening the different types sounds in on mobile, Tambourine, the harmonic tones of various instruments, the roaring of the lion, the sounding of the sounds of the machines and explain them soft sound and loud sound etc. 	<ol style="list-style-type: none"> 6) Which property of the sound wave determines the Compressions, Rarefactions?

		<ul style="list-style-type: none"> • Will justify Sound waves are longitudinal waves • Will describe the characteristic of sound wave by its frequency, amplitude and speed. 	<ul style="list-style-type: none"> ➤ Explaining them how the wavelength and frequency are constant. ➤ Group discussion to compare the speed of sound in solid, liquid and gas. <p>Samveda part -2 link</p> <ul style="list-style-type: none"> ➤ https://youtu.be/2xes5nKgFQ0 	<p>7) How are the wavelength and frequency of a sound wave related to its speed?</p> <p>Solve text book page number 176</p>
		<ul style="list-style-type: none"> • Will distinguish the Compressions, Rarefactions, soft sound and loud sound. 	<ul style="list-style-type: none"> ➤ Conduct Activity 12.5 ➤ Applications of Ultrasound link ➤ https://youtu.be/yZty_W8ySng 	<p>8) Collect more information about Sonic Boom.</p> <p>9) What is Reflection of sound?</p> <p>10)How do bats catch prey using ultrasonic noise?</p> <p>11)Does the Sound follow the law of light reflection?</p>
4.	4 th week	<ul style="list-style-type: none"> • $V = \mu$ Will interpret this equation. 	<ul style="list-style-type: none"> ➤ Instructing the children to prepare the chart. ➤ Collection of data from Internet. 	<p>12)A sound wave travels at a speed of 339 m s^{-1}. If its wavelength is 1.5 cm, what is the frequency of the wave?</p>
		<ul style="list-style-type: none"> • They will compare the speed of sound in different media. 	<ul style="list-style-type: none"> ➤ Explaining the paragraph 12.5.1 	<p>Text book page number 12 questions</p>

	<ul style="list-style-type: none"> • Will make a list of uses of Reflection of sound, Reverberation and multiple reflection. 	<ul style="list-style-type: none"> ➤ Analysing the paragraph 12.3.2 ➤ Solving the problem Example 12.2 	13) List the speeds of the different media as given in Table -12.1
	<ul style="list-style-type: none"> • Will Classifies the range of auditory sound. 	<ul style="list-style-type: none"> ➤ Samveda part-3 link ➤ https://youtu.be/ojudS2L7H2s 	14) An echo returned in 4s What is the distance of the reflecting surface from the source, given that the speed of sound is 342 m s^{-1} ?
	<ul style="list-style-type: none"> • Lists the structure, function and uses of sonar. 	<ul style="list-style-type: none"> ➤ Link of structure and function sonar. ➤ https://youtu.be/V_BT-fnggiE 	

Activity sheet-1

Answer the following questions

1. What are the proton and neutrons collectively called?

2. The atomic number of an element is 11. Write the name of the element and its valency.

3. Draw the electron distribution structure of O-8.

4. Name the subatomic particle which has charge -1?

5. Name the subatomic particle which has charge +1?

6. Explain Thomson's atomic model with a diagram.

Activity sheet-2

I. The following questions are given multiple choices. Write the correct answer along with letter of alphabet.

- 1) Number of protons in ${}_{20}\text{Ca}^{40}$ -
a) 23 b) 11 c) 20 d) 35
- 2) Number of electrons required to complete the Octate electronic configuration in Carbon is-
a) 4 b) 2 c) 6 d) 8
- 3) Radio Isotope in the Cancer Treatment is -
a) Iron b) iodine c) uranium d) cobalt
- 4) The formula used to find the maximum number of electrons in the shell -
a) N^2 b) $2n^2$ c) $n/2$ d) $3n^2$

II. Match the following.

A	B
K	32
L	18
M	8
N	2

III. Write the Differences.

Atomic Number	Atomic Mass Number

Isobars	Isotopes

Activity sheet-3

1) Name the fundamental particles of an atom

2) List the main points of Thomson's atomic theory.

3) Distribute the electrons in different shells of the following elements, find the valence electrons and valency.

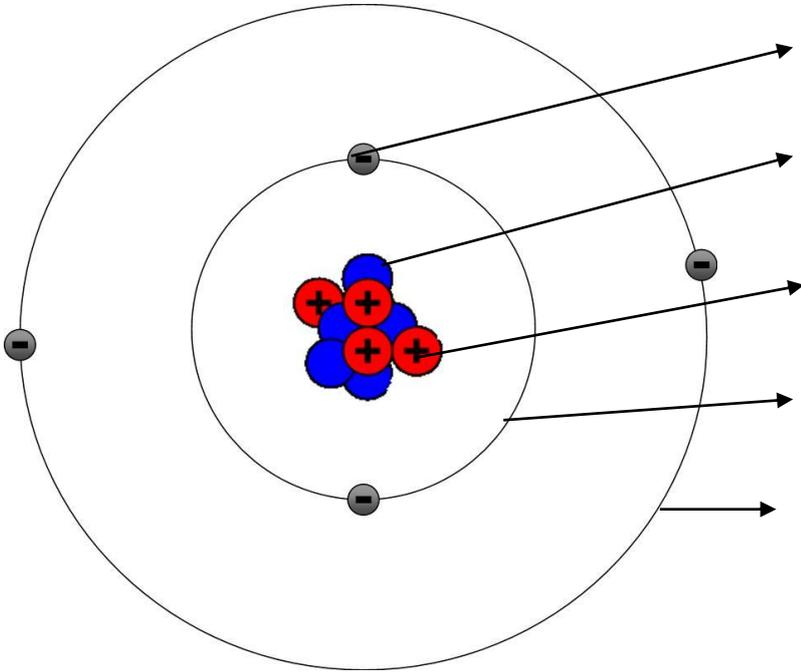
Element	Z	K	L	M	N	Valence electrons	Valency
Carbon	6						
Neon	10						
Aluminium	13						
Phosphorous	15						
Argon	18						
Calcium	20						
Iron	26						
Copper	29						

4) Find the proton, neutron, electron, valence electron and valency of the following elements.

${}_{19}\text{K}^{39}$
${}_{6}\text{C}^{12}$

Activity sheet-4

1) Watch the atomic model, name the element and its parts.



1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

Activity sheet-5

I. Note the picture below and answer the questions given.



You are moving towards the boy playing the guitar.

1. Does the move vary in Sound intensity? _____

2. What difference then? _____

3. How does the Sound reach your ear?

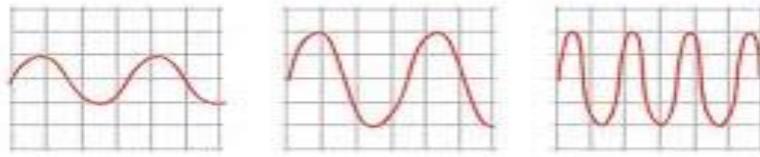
4. Now you are moving away from the boy playing the guitar, What is the difference in the intensity of sound? What is the reason for this?

II. identify soft sound and loud sound.



Activity sheet-6

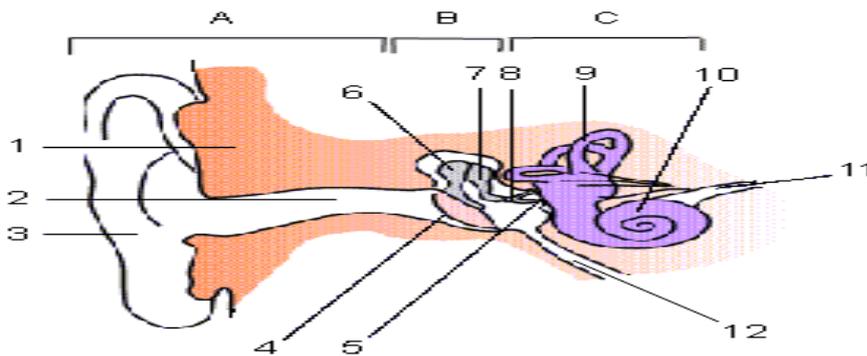
I. In the images below, identify the of amplitude, wavelength, high pitch sound, low pitch sound of sound waves



II. Perform the following activities using Tuning fork available at your school.

- 1] Do the vibration of tuning fork, listen to vibrations.
- 2] Note the difference by hitting the vibrating surface of tuning fork to the top of the water-filled plate. Record the change.
- 3] To a transition light weight plastic ball touch the vibrating surface of tuning fork Record the change.
- 4] Perform the bell jar experiment, record the procedure and conclusions.

III. Identify parts of the human ear and complete the table below.



1	What indicates A, B, C	
2	What is the another for outer Ear	
3	Where the ear drum is present?	
4	Where does the perceived sound pass?	
5	What is the effect of compression on the ear drum?	
6	Where does the sound waves amplify?	
7	Where is the cochlea?	
8	What is the function of cochlea?	

Activity sheet-7

I. Match the following.

Sl. No.	A	B	Answer
1	Sound waves	Ultrasound	
2	Amplitude	Multiple reflection of sound	
3	Sonar	need media	
4	Stethoscope	Maximum displacement from mean position	

II. Create the following images and identify the parts

1) Density waveform sound wave propagated by a vibrating nature.

2) Reflection of sound

Activity sheet-8

I. Answer the following questions.

1) What is Sound? How it is produced?

2) Name three types of Sounds based on the range of sounds.

3) What is Medium? What caused this?

4) List the uses of ultrasound.

5) The frequency of sound is 100Hz. How many times does it vibrate in a minute?

6) The voice is clearly unheard if spoken in empty buildings. What is the reason?

7) Explain briefly the principle and working of Stethoscope.

8) At 25°C, state the speed of sound in iron, oxygen and water and compare the speed in solid, liquid, and gas.
