SREE NARAYANA TRAINING COLLEGE, NEDUNGANDA

SAMPLE EVIDENCE SHOWING THAT ADEQUATE SKILLS ARE DEVELOPED IN STUDENTS FOR EFFECTIVE USE OF ICT FOR THE TEACHING LEARNING PROCESS

1. Preparation of Lesson Plans

Sample ICT integrated lesson plan

LESSON PLAN NO.: 5

Name of the Teacher: Swathy J. P.		Name of the School: G.H.S.S., Attingal	
Subject	: Science	Std. & Div.	: IX. B.
Unit	: Sound	Duration	: 40 minutes
Subunit	: Pitch of Sound	Date	: 11-01-2022

CURRICULAR STATEMENT

- Through experimentation, observation and discussion, the students acquire an awareness about the pitch of sound and its applications in daily life.
- The students get evaluated through their participation in group activities, presentation and experimentation skills.

CONTENT ANALYSIS

Terms: Medium, air, pitch, frequency, vibration, high pitch, low pitch

Facts:
1. Sound requires a medium to travel.
2. Pitch is a characteristic of sound.
3. Frequency increases with the vibration of the source.
4. Pitch increases with frequency.
5. Objects of different sizes and conditions vibrate at different frequencies.
6. Different objects produce sounds of different pitch.
7. A high pitch sound corresponds to a high frequency sound wave.
8. A low pitch sound corresponds to a low frequency sound wave.
9. The unit of pitch is hertz or cycles per second.

Concept: Pitch of sound and its applications

Definition: Pitch- Pitch of sound is the quality of a sound governed by the rate of vibrations producing it

Processes:
1. Framing slogans on creating awareness on the damages caused by very high-pitched sound
2. Constructing concept maps on the concept 'pitch'

LEARNING OBJECTIVE GRID

Objective Area	Anticipated Mental Processes/ Action Verbs	Product Outcomes
Remembering	Finds	Terms, Facts, Concept
	Recognises	Terms, Facts
Understanding	Classifies	Terms, Facts, Concept
	Summarises	Facts, Concept
Applying	Identifies	Terms, Facts, Concept
Analysing	Contrasts	Terms, Facts, Concept
Evaluating	Judges	Terms, Facts, Concept, Definition
	Opines	Terms, Facts
	Perceives	Terms, Facts, Concept
Creating	Composes	Concept, Processes
	Constructs	Terms, Facts, Concept, Definition, Processes

TEACHING-LEARNING RESOURCES

Video playing violin, piano and flute simultaneously, activity sheets, computer graphics to illustrate high pitch and low pitch sounds, and computer graphics to illustrate the damages caused by very high-pitched sounds on hearing, augmented reality video on the roaring of a gorilla.

ATTITUDES TO BE DEVELOPED

Curiosity, honesty, open- mindedness, creativity

PROCESS SKILLS TO BE ATTAINED

Observing, communicating, inferring, interpreting data

PUBLIC UNDERSTANDING OF SCIENCE (PUS) DOMAIN

Harmful effects of very high- pitched sounds

EXPECTED PRODUCT

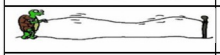
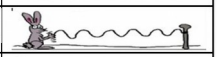
Activity sheet showing the

a) definition of pitch
b) waveforms and characteristics of both low pitch and high pitch sounds
c) examples of high pitch and low pitch sounds in everyday life
d) slogan for creating an awareness on the need for keeping people away from very high-pitched sounds

PRE REQUISITES

The students already know about the frequency, wavelength and time period of a sound wave, and their relationships with each other.

<table>
<tr><th>Classroom Interaction Procedure</th><th>Expected Pupil Response</th></tr>
<tr><td><u>Introduction</u>
The teacher plays a video in which a violin, piano and flute are played at the same time. The teacher then asks:

Are there any differences in the sounds we receive?</td><td>The students identify that the sounds
• travel through the same medium, that is, air
• arrive at their ear at the same time, and
• travel at the same speed irrespective of the source
But the sounds received are different due to difference in pitch.</td></tr>
<tr><td><u>Presentation</u>
The teacher divides the students into groups with 5-7 students in each group and provides activity sheets for each group, provided with the following statement for the definition of pitch and motivates the students to identify and correct the errors, if any, in groups, and rewrite the correct definition.
'Pitch is the quality of sound governed by the rate of stillness producing it'</td><td>The students detect the error and write the correct definition as
'Pitch is the quality of sound governed by the rate of vibrations producing it'</td></tr>
<tr><td>The teacher asks the students to record the characteristics of low pitch and high pitch sounds in the activity sheet provided earlier.
<table><tr><th>LOW PITCH SOUND</th><th>HIGH PITCH SOUND</th></tr><tr><td>  </td><td>  </td></tr><tr><td>Characteristics:</td><td>Characteristics:</td></tr><tr><td>• oscillations</td><td>• oscillations</td></tr><tr><td>• frequency</td><td>• frequency</td></tr><tr><td>• wavelength</td><td>• wavelength</td></tr></table></td><td>A sample activity sheet answered by the students, based on their observations and discussions, is as shown:
<table><tr><th>LOW PITCH SOUND</th><th>HIGH PITCH SOUND</th></tr><tr><td>  </td><td>  </td></tr><tr><td>Characteristics:</td><td>Characteristics:</td></tr><tr><td>• Slow oscillations</td><td>• Rapid oscillations</td></tr><tr><td>• Low frequency</td><td>• High frequency</td></tr><tr><td>• High wavelength</td><td>• Low wavelength</td></tr></table></td></tr>
</table>

<table>
<tr><td>The teacher presents labeled cards showing the instances of high pitch and low pitch sounds in everyday life in a shuffled manner and encourages the students to categorise them meaningfully through group discussion into high pitch and low pitch sounds, and record them in the activity sheet.</td><td>The students categorise the cards and record them in the activity sheet as follows:
<table><tr><th>High pitch sounds</th><th>Low pitch sounds</th></tr><tr><td>• Sound of Women
• Chirping of birds
• Fire alarm
• Siren
• Whistle</td><td>• Sound of Men
• Roaring of lion
• Sound of ship horn
• Sound of a moving truck
• Thud when a heavy object falls down</td></tr></table></td></tr>
<tr><td>The teacher presents a computer graphics to illustrate the examples of high pitch and low pitch sounds.</td><td>The students recognize the examples of high pitch and low pitch sounds.</td></tr>
<tr><td>The teacher presents computer graphics to the students based on the damages caused by high-pitched sounds on hearing, which prompts them to express their enriched viewpoints regarding the ideas generated.</td><td>The students listen to the graphics and comprehend the views of the other team members and express their enriched views as follows:
Since high-pitched sounds are more damaging than low-pitched sounds, the frequency or pitch can have some effect on hearing loss, as noise may tire out the inner ear, causing temporary hearing loss.</td></tr>
<tr><td>The teacher encourages the students to frame slogans within task groups for creating an awareness on the need for keeping people away from very high-pitched sounds, considering the damages caused by high-pitched sounds, and record it in the activity sheet.</td><td>The students express their concern and commitment towards others on the necessity for keeping people away from very high-pitched sounds in the form of a slogan as
'Flee from Very High-pitched Sounds,
Safeguard your Hearing'</td></tr>
<tr><td>With the help of an augmented reality video on the roaring of a gorilla, the teacher probes the students about the effect caused by it to the ear.</td><td>The students recognise that though the roar of gorilla is very loud, it is not harmful to the ear.
They summarise as follows:
• All loud sounds are not harmful to the ear
• Only very high- pitched sounds cause damage to hearing</td></tr>
</table>

Consolidation The teacher summarises the learned concepts and enters into the review session.	The students recollect the learned things.

REVIEW

1) Why do we hear sounds from different sources differently?
2) Define pitch.
3) What are the characteristics of high-pitch sounds?
4) What are the characteristics of low-pitch sounds?
5) Give some examples of high pitch sounds in everyday life.
6) Give some examples of low pitch sounds in everyday life.
7) What are the damages caused by high-pitched sounds on hearing?

FOLLOW-UP ACTIVITY

⇒ Construct a concept map to depict the relationships between the learned ideas in the concept 'pitch'.

CHALKBOARD SUMMARY

11-01-2022 — Std.: IX.B.

I Period — Physics — Str.: 39/42

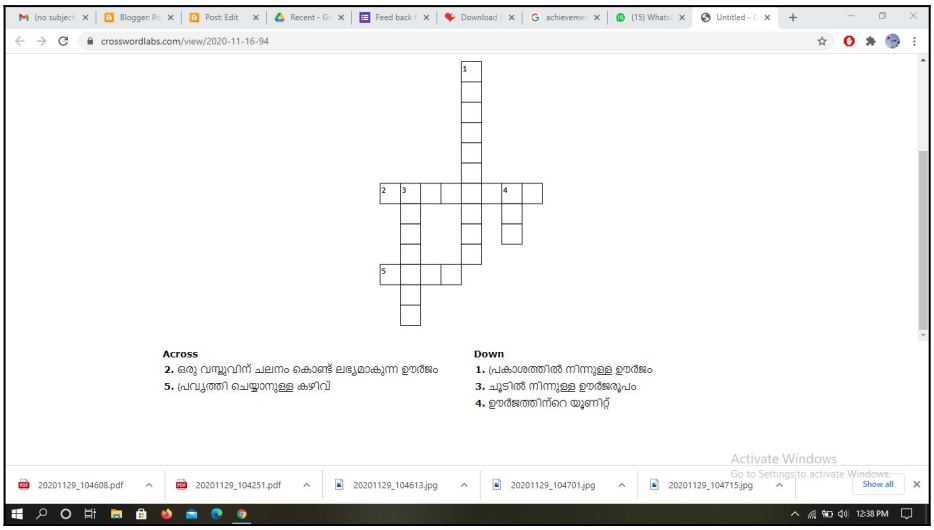
Pitch of Sound

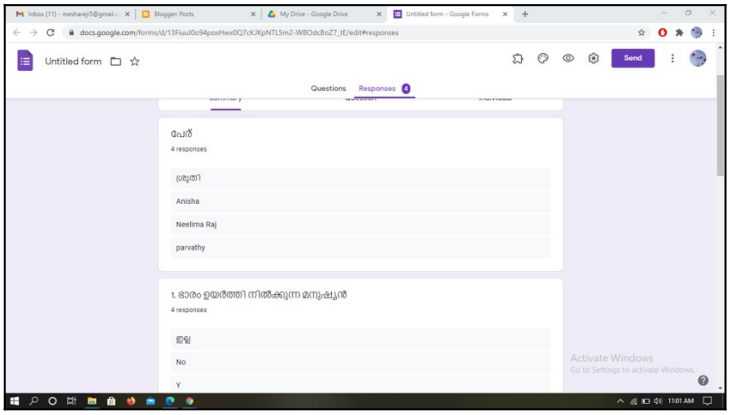
Same medium
Same speed
Same time
} Heard as different➔ Pitch

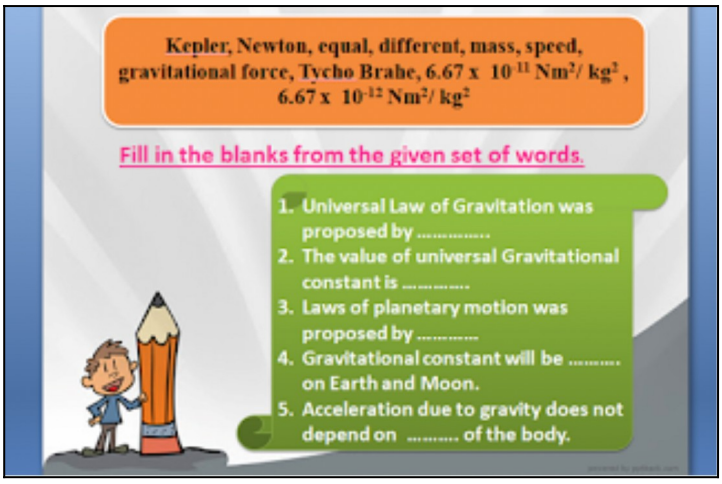
Low pitch sounds
High pitch sounds

2. Developing Assessment Tools for both Online and Offline Learning

Assessment Tools like Google Form, Crosswordlabs etc. used

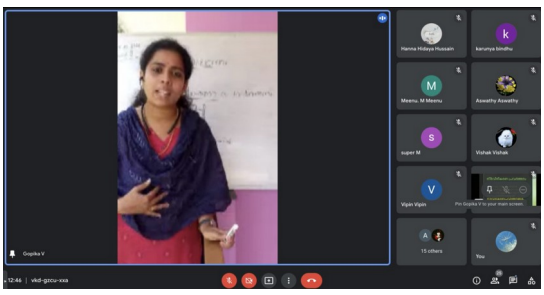


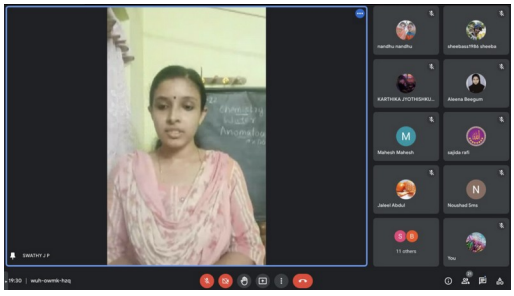




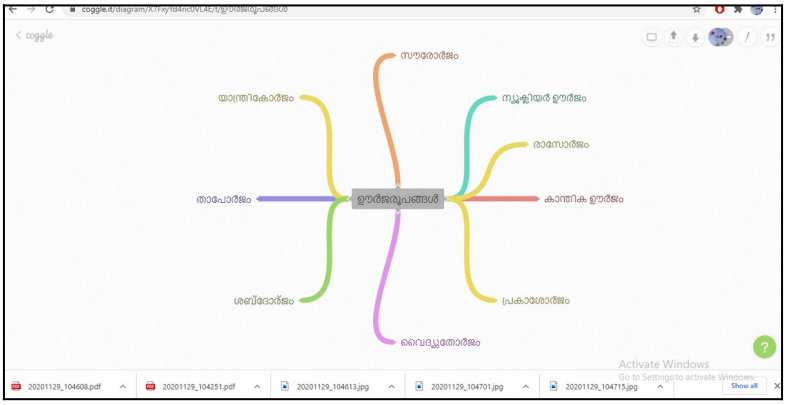
3. Effective Use of Social Media/ Learning Apps/ Adaptive Devices for Learning

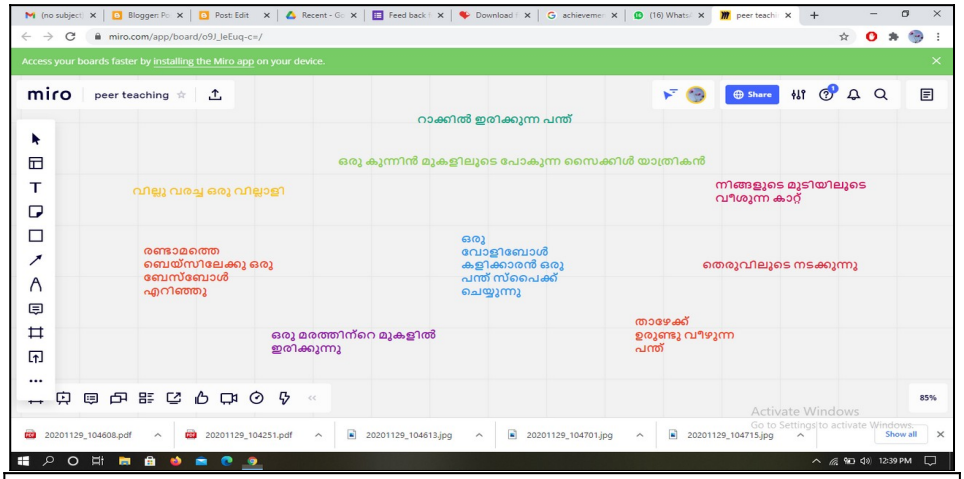
Online class in the Google Meet Platform

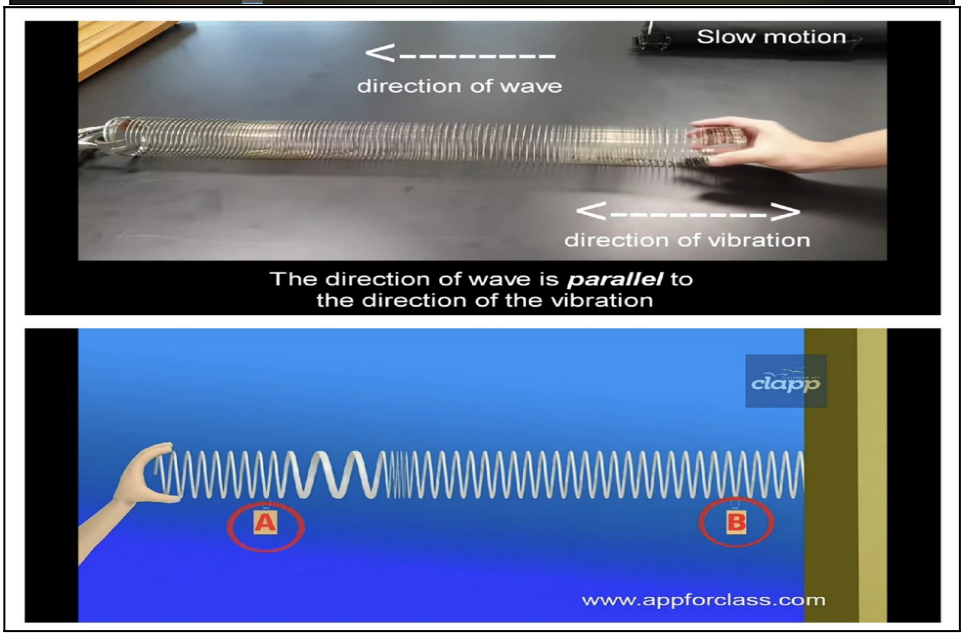




Content Transaction through Learning Apps like Coggle, Micro etc.

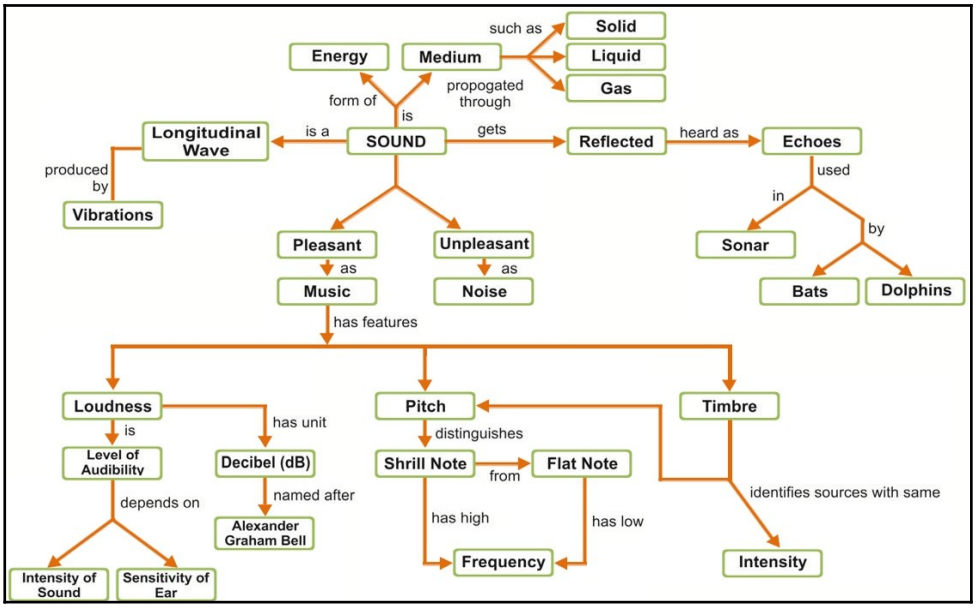




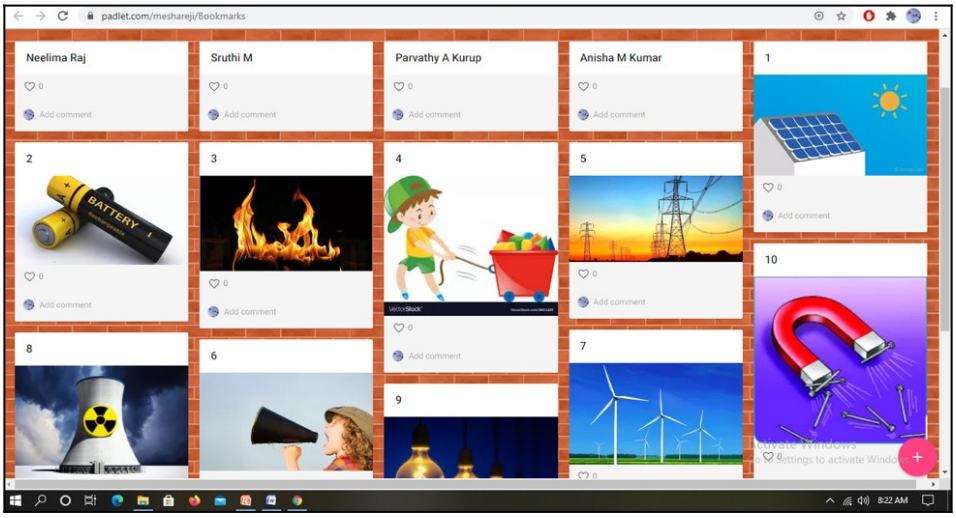


4. Identifying and Selecting/ Developing Online Learning Resources

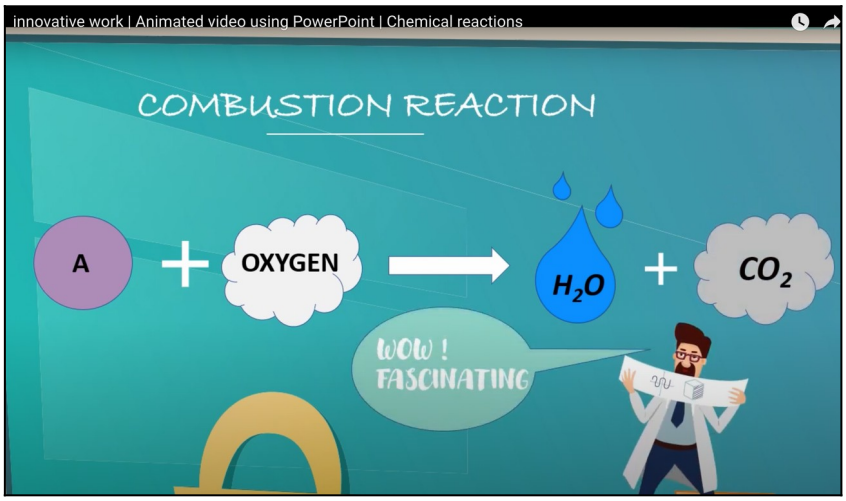
Digital concept map on the topic 'Sound'



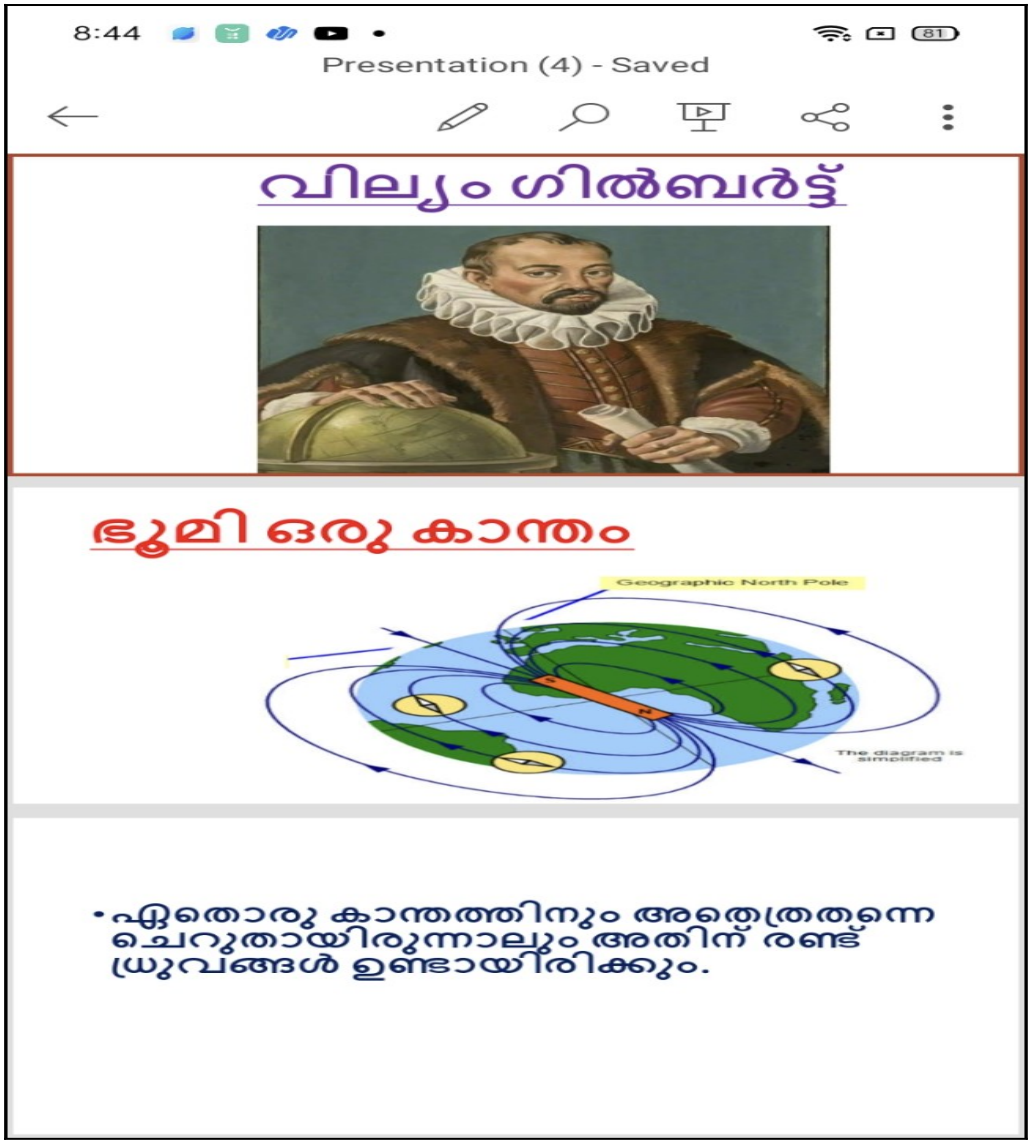
Padlet created



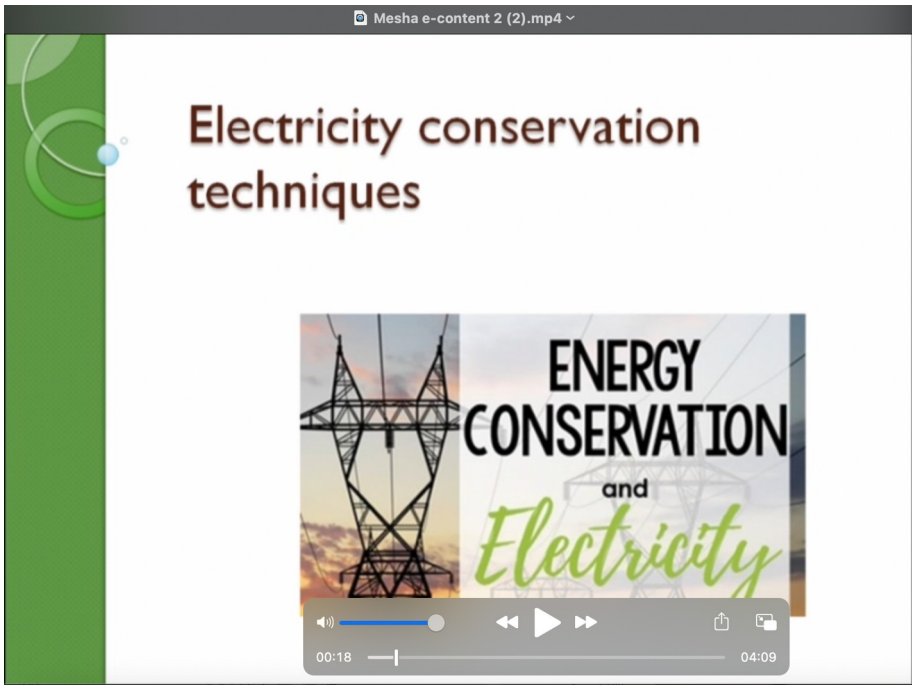
Videos made by students to deliver the content



Online Content Transaction through PPTs



5. **Evolving Learning Sequences (learning activities) for Online as well as Face-to-Face Situations**



ACTION SCRIPT OF E-CONTENT DEVELOPED

Topic: Energy Conservation

Duration: 4 m 9 s

Prepared by Mesha R.

Sl. No.	Video	Audio
1	Slide showing text 'Awareness programme on energy conservation'.	Music
2	Teacher's presentation and slide showing electricity conservation techniques.	In order to conserve electricity in the home, and schools there is the huge needfor us to use electricity more efficiently. Indeed, this is a corporate as well as an individual responsibility
3	Teacher's presentation and slide which describes lighting	Replace your standard lights with CFLs. Clean your light bulb frequently. Layersof dust can absorb up to 30% of the light from the lamps. Switch off lights in room,toilets, bathrooms when not in use.
4	Teacher's presentation and slide showing picture to switch off light and bulb	Please switch off the light and fan beforeyou leave.
5	Teachers' presentation and Slide showing electric iron box.	To make maximum use of electricity for ironing, please iron garments in bulk. Remember to turn the iron off when youhave finished ironing. Remove the plug from the socket
6	Teacher's presentation and slide showing air conditioner	All the windows and doors to an air-conditioned room must be as tight as possible to prevent hot air from entering the room. To allow free circulation of air,don't place objects in front of the unit. Avoid direct sunlight into the room, use curtains or reflective glaze.
7	Teacher's presentation and slide showing refrigerator	The efficiency of the refrigerator depends on how efficiently it removes heat from thebox into the surroundings and how long it can keep its contents cool. Keep refrigerators away from direct sunlight. Clean the coils at the back of the refrigerator as often as possible. Dirt buildsup makes the refrigerator waste energy. Don't put the refrigerator close to a hotobject. Decide what you want from therefrigerator before you open it.
8	Teacher's presentation and slide showing mobile chargers.	Mobile phone chargers could also consume up to 10 watts if left on, even though thephone may not be connected
9	Slide showing text of thank you	Music

Sree Narayana Training College ★ Nedunganda ★ Pin:695307

PRINCIPAL
Sree Narayana Training College
Nedunganda, Pin: 695307