



**Continuing  
Professional  
Development (CPD)  
Program for  
Primary School  
Teachers for the  
Academic Year  
2022-23**



**General Science  
Session Plans**

**DIRECTORATE OF PROFESSIONAL  
DEVELOPMENT KHYBER PAKHTUNKHWA**

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Vide **Letter No. 3327-29/DCTE/DPD-IP/CPD/Session Plan/Primary. Dated 07-07-2022.**

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## **PREFACE**

In 2017, the Continuing Professional Development (CPD) programme was launched by the Elementary and Secondary Education Department (E&SED), Government of Khyber Pakhtunkhwa, as it is a regular feature of the professional career of the Primary School Teachers (PSTs) across all districts of the province. The purpose of CPD is to enhance student learning by continually improving teachers' professional knowledge and skills through emerging teaching learning methods including ICT based cooperative learning.

The CPD programme is comprised of four components; these are Self-Reflection (SR), Classroom Observation (CRO), Quarterly Monitoring Meeting (QMM) and Professional Development Days (PDDs).

Professional Development Day (PDD) is the core element of the CPD programme. Overall, eight Professional Development Days (PDDs) are held in an academic year, attending by all primary school teachers. Keeping in view the evolving needs of ICT in the field of education, video based session plans have been developed for the academic year 2022-23. The contents of all the session plans, PDDs have been fully aligned with textual material of the relevant grades.

This document (PDD Session Plans) introduces the structure, design, and delivery mechanism of the PDDs. It provides detailed guidelines to facilitators along with tips on facilitation and teaching-learning strategies/methods.

I hope these session plans will enhance teaching skills and knowledge of the facilitators in order to conduct the PDDs effectively which will further augment the teaching skills of the teachers for efficient and effective delivery in the classroom.

**Gohar Ali Khan**

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## PDD-01 Video Based Session

**Topic:** Parts of Plants

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Relates structures of the plants to their functions i.e. roots to absorb water and nutrients and anchor the plants, leaves make food, the stem transport water and food, flowers produce seeds and seeds produce new plants.

**Required materials:** PDD-1-Videos, charts, markers etc.

**Activity 1.1:**

**30 min**

1. Divide the trainee teachers into manageable groups.
2. Share the video with the trainee teachers.  
*NOTE: Please make sure that the video is available to all groups.*
3. Ask the trainee teachers to watch the video till **0:21** pause and ask:
  - i. Which things were compared in the video?
  - ii. Is the comparison method useful in teaching science?
4. Take responses from 2/3 trainee teachers.
5. Resume the video and pause at **1:07**.
6. Ask trainee teachers to work in the same groups and discuss the following:
  - i. Why do we give examples from daily life in our lessons?
  - ii. What are the benefits of giving examples from the surrounding?
  - iii. Do you give such examples while teaching parts of plants?
  - iv. Share a few examples you used in the classroom.
7. Take responses from 2/3 groups.
8. Resume the video and pause at **4:19**.
9. Ask trainee teachers to work in groups and discuss the following:
  - i. Which strategies were used for teaching parts of plants in this video?
  - ii. How do you teach different parts of plants by showing a plant?
10. Take responses from 2/3 trainee teachers.
11. **Conclude** the activity by sharing the following:
  - i. Teaching learning process can be made effective by giving examples from surrounding.
  - ii. Comparison is an effective technique so that to differentiate and resembles different structures and functions.

**Topic:** Vertebrates and Invertebrates

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Classify animals in term of vertebrates and invertebrates with examples and analyze the similarities and differences in vertebrates and invertebrates.

**Required materials:** PDD-1-Videos, charts, markers etc.

**Activity 1.2:**

**30 min**

1. Share the video with trainee teachers.  
*NOTE: Please make sure that the video is available to all groups.*
2. Ask the trainee teachers to watch the video till **1:27** pause and ask:
  - i. How often do we ask closed ended question?

3. Take responses from 2/3 trainee teachers.
4. Make **pairs** of the trainee teachers and ask them to discuss and write the uses of **close ended** questions.
5. After taking responses share the facilitators input about closed ended questions.

**Facilitators input:**

A closed ended question is a **question which can be answered with a specific response**, such as, 'yes' or 'no'. Closed questions are often used by teachers to check understanding by asking students to recall specific, factual information. Closed questions with therefore provide limited information and insight (previous knowledge) from the students.

**Examples of closed-ended questions are:**

1. Do you like birds?
2. Do you like animals?
3. Is dog has a backbone?
4. Is snake has a backbone?
5. Do animals crawl?

9. Resume the video and pause at **8:50**
10. Divide the trainee teachers into four groups.
11. Provide each group an already prepared flash card having a question.

|                             |   |
|-----------------------------|---|
| Flash card 1<br>For group 1 | Which pedagogical methods were used in this video?                    |
| Flash card 2<br>For group 2 | How can you use these pedagogical skills in the classroom?            |
| Flash card 3<br>For group 3 | What did you learn from this video?                                   |
| Flash card 4<br>For group 4 | why do you give examples while teaching vertebrates and invertebrates |

12. Invite a presenter from each group and tell him/her to share their noted or written answer in front of the rest of the trainee teachers.
13. Appreciate the trainee teachers for their valid responses and provide suggestions for further improvements.
14. **Conclude** the activity by sharing the following points:
  - i. Concept checking questions are important to understand level of learners.
  - ii. Compare and contrast strategy is useful to differentiate among various things.
  - iii. Giving suitable examples is important in teaching learning process for clarity of concepts.
15. At the end, ask trainee teachers to design an activity by using the learning of the session. Any method /technique learnt today:
  - a) Apply the activity in classroom.
  - b) Write reflection:
    - Name of activity (model).
    - Which materials were required to implement the activity?
    - Implementation method of activity.
    - What went well?
    - What did not go well?

- What are the areas of improvement?
- c) Ask your fellow teacher /HT to observe your class.  
d) Share their reflection in the forthcoming PD day.

**What have we learnt in today's session?**

Use the following statement(s) to highlight the key learning(s) points of the session:

- Learnt different techniques to teach **parts of plants along with their function.**
- Learnt different techniques to teach **vertebrates and invertebrates along their characteristics.**





## PDD-02 Video Based Session

**Topic:** Transmission of Diseases

**35 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Recognize that microorganisms get transmitted into humans and spread infectious diseases.

**Required materials:** PDD-02-Videos, charts, markers etc.

**Activity 2.1:**

**35 min**

1. Divide the trainee teachers into manageable groups.
2. Share the video with trainee teachers.  
***NOTE: Please make sure that the video is available to all groups.***
3. Ask the trainee teachers to watch the video till **1:50** pause and ask:
  - i. How do you ensure the active participation of learners while teaching a lesson?
4. Take responses from 2/3 trainee teachers.
5. Resume the video and pause at **6:24**.
6. Clear the concept of trainee teachers about **one-minute essay** by using facilitators input.

**Facilitators input:**

### **One –minute essay**

To use the One-Minute Paper, an instructor stops class two or three minutes early and asks students to respond briefly to some variation on the following two questions: “What was the most important thing you learned during this class?” and “What important question remains unanswered?”

### **Benefits of one-minute paper activity**

One-Minute Papers provide immediate feedback to instructors and allows quick response to students. This advantage is especially important in classrooms, where many issues and questions have limited life spans and time is always in short supply.

8. Make pairs and ask them to **think write and share** the significance of one-minute essay in teaching methods.
9. Take responses from 2/3 pairs.
10. Resume the video and pause at **10:18**.
11. Make two groups of the trainee teachers.
12. Assign group I to write the merit of matching type items and assign group II to write the demerit of matching type items.
13. Take responses from each group.
14. **Conclude** the activity by sharing the following points:
  - i. While starting a lesson it is important to make students active by asking questions.
  - ii. One-minute essay is a useful technique to judge the students understanding after teaching a topic.

**Topic: Biotic and Abiotic Factors**

**25 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- **Explain biotic (plants, animals and humans) and abiotic factors (light, temperature, soil and water) and their linkages.**

**Required materials:** PDD-02-Videos, charts, markers etc.

**Activity 2.2:**

**25 min**

1. Divide trainee teachers into manageable groups.
2. Share the video with trainee teachers.  
*NOTE: Please make sure that the video is available to all groups.*
3. Ask the trainee teachers to watch the video till **1:12** pause and ask:
  - i. How do you ensure the physical, intellectual, emotional and social development of learners?
4. Take responses from 2/3 trainee teachers and tell them that active participation of learner in different activities can ensure their holistic development.
5. Resume the video and pause at **5:21**.
6. Make four group of the trainee teachers.
7. Assign group I and III to write note on **the significance of posing questions**
8. Assign group II and IV to write note on **the significance of assessment (formative assessment)**.
9. Resume the video and pause at **7:45**.
10. Take responses form the groups.
11. **Conclude** the activity by sharing the following points:

**Posing questions are important as they:**

- a) Helps to clarify thoughts.
- b) Helps to elicit interest of audience.
- c) Clears or reduces your doubts.
- d) Improve your knowledge.

**Benefits of assessment for learning**

- a) Improve learning skills.
- b) Increased students' engagement.
- c) Get more academic achievement.
- d) Become self-learner.
- e) Provide ways to get objective.

**12. At the end, ask trainee teachers to design an activity by using any method /technique learnt today:**

- a) Apply the activity in classroom.
- b) Write reflection:
  - Name of activity (model).
  - Which materials were required to implement the activity?
  - Implementation method of activity.
  - What went well?
  - What did not go well?
  - What are the areas of improvement?
- c) Ask your fellow teacher /HT to observe your class.
- d) Share their reflection in the forthcoming PD day.

### What have we learnt today?

Use the following statement(s) to highlight the key learning(s) points of the session:

- Learnt different techniques to teach microorganisms get transmitted into humans and spread infectious diseases.
- Learnt different techniques to teach **biotic (plants, animals and humans) and abiotic factors (light, temperature, soil and water) and their linkages.**



## PDD-03 Video Based Session

**Topic: Structure of Maize and Chickpea Seeds (Monocot and dicot)**

**60 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Compare and contrast the structure and function of chickpea and maize seed.

**Required materials:** PDD-03-Videos, charts, markers etc.

### Activity 3.1:

**60 min**

1. Divide trainee teachers into manageable groups.
2. Share the video with trainee teachers.  
***NOTE: Please make sure that the video is available to all groups.***
3. Ask the trainee teachers to watch the video till **1:30** pause and ask:

What are concept checking questions (CCQs)?

4. Take responses from 2/3 trainee teachers.
5. Share about CCQs from facilitators input

#### Facilitators input:

##### Concept checking questions

Concept Checking Questions, also known as CCQs, check students' understanding of complex aspects of the difficult science concepts, such as structure, characteristics and functions. The teacher asks multiple questions to ensure that the student comprehends the concepts and does not have any problems with what they've just learned.

6. Resume the video and pause at **3:22**.
7. Make two groups of the trainee teachers.
  - a) Assign group I to make a presentation on **which strategies do you use to share or transfer learned content among learners?**
  - b) Assign group II to make a presentation on **which strategies do you use to revise learned content among learners?**
8. Take responses from presenter of each group.
9. Conclude the activity by sharing:
  - i. Concept checking questions are very important for the formative assessment of students.
  - ii. Sharing and revision of content among learners are significant to strengthen the concepts.
10. At the end, ask trainee teachers to design an activity by using any method /technique learnt today:
  - i. Apply in classroom
  - ii. Write reflection:
    - Name of activity ( model)
    - What materials were required to implement the activity?
    - Implementation method of activity.
    - What went well?
    - What did not go well?
    - What are the areas of improvement?

- iii. Ask your fellow teacher /HT to observe your class.
- iv. Share their reflection in the forthcoming PD day.

**What have we learnt today?**

Use the following statement(s) to highlight the key learning(s) points of the session:

- Learnt different techniques to teach **the structure and function of chickpea and maize seed.**



## PDD-04 Video Based Session

**Topic: Biodegradable and Non-Biodegradable Materials**

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Differentiate between biodegradable and non-biodegradable materials.
- Investigate possibilities and suggest way to reduce non-biodegradable materials.

**Required materials:** PDD-04-Videos, charts, markers etc.

### Activity 4.1:

**30 min**

1. Make manageable groups of trainee teachers.
2. Share the video with trainee teachers.
- NOTE: Please make sure that the video is available to all groups.**
3. Ask the trainee teachers to watch the video till **1:10** pause and ask:
  - i. How do you develop interest of the students while teaching?
4. Take responses from 2/3 trainee teachers.
5. Ask trainee teachers to write the names of various types of AV aids that they use during teaching.
6. After taking responses, share the facilitators input about benefits of using AV aids.

#### Facilitators input.

##### Benefits of using AV aids:

- Enhance teacher's skills which help to make teaching-learning process effective.
- Make learners active in the classroom.
- It helps to visualize theoretical things.
- It makes the classroom interesting for better learning.

7. Make pairs of the trainee teachers and ask them to write and share the significance of AV aids from their classroom experiences.
8. Appreciate the trainee teachers for their valid responses and experiences.
9. Conclude the activity by sharing the following points:
  - i. The use of AV aids in teaching learning process increase student's motivation, interest and engagement.

**Topic: States of Water**

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Describe and demonstrate the states of water (i.e. melting, freezing, boiling, evaporation and condensation)

**Required materials:** PDD-04-Videos, charts, markers etc.

### Activity 4.2:

**30 min**

1. Make manageable groups of trainee teachers.
2. Share the video with trainee teachers.
- NOTE: Please make sure that the video is available to all groups.**
3. Ask the trainee teachers to watch the video till 1:03 pause and ask:
  - i. When a teacher should use AV aids?
4. Take responses from 2/3 trainee teachers.
5. Resume the video and pause at 3:27.

6. Make pairs of the trainee teachers and ask them to note and write, **what are the essential steps in the demonstration –performance method of teaching?**
7. Take response from a few pairs.
8. Share the facilitators input by clearing various **steps of demonstration**.

**Facilitators input.**

| <b>Six steps of demonstration</b>   |
|---|
| <ol style="list-style-type: none"> <li>I. Planning and preparation.</li> <li>II. Introduction of the lesson.</li> <li>III. Presentation of subject matter.</li> <li>IV. Demonstration.</li> <li>V. Teaching aids.</li> <li>VI. Evaluation.</li> </ol> |

9. Appreciate the trainee teachers for their valid responses and give suggestions for improvement.
10. **Conclude** the activity by sharing the following points:
  - i. AV aids are enhancers to create interest in the teaching learning process.
  - ii. Demonstration method is essential by involving various senses to make learning effective.
  - iii. It develops interest in the learners and motivates them for their active participation.
11. **At the end, ask trainee teachers to design an activity by using the learning of the session. Any method /technique learnt today:**
  - a) Apply the activity in classroom.
  - b) Write reflection:
    - Name of activity ( model)
    - Which materials were required to implement the activity?
    - Implementation method of activity.
    - What went well?
    - What did not go well?
    - What are the areas of improvement?
  - c) Ask your fellow teacher /HT to observe your class.
  - d) Share their reflection in the forthcoming PD day.

**12. What have we learnt today?**

Use the following statement(s) to highlight the key learning(s) points of the session:

- Learnt strategies to teach **and differentiate between biodegradable and non-biodegradable materials.**
- Learnt different strategies to teach, **describe/demonstrate the states of water (i.e., melting, freezing, boiling, evaporation and condensation)**



## PDD-05 Video Based Session

**Topic:**

**Shadow Formation**

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Explain the formation of Shadow. Predict the location, size and shape of a shadow from a light source relative to the position of objects.

**Required materials:** PDD-05-Videos, charts, markers etc.

**Activity 5.1:**

**30 min**

1. Ask trainee teachers to work individually.
2. Share the video with trainee teachers.  
*NOTE: Please make sure that the video is available to all trainee teachers.*
3. Ask the trainee teachers to watch the video till **1:21** pause.
4. Write the following questions on the writing board and ask trainee teachers to write their answers in their writing pads.
  - i. How can we clarify science concepts effectively at primary level?
  - ii. Do you use daily life examples while teaching science? Share few examples.
  - iii. How can these examples ensure students engagement and enhance their understanding?
5. Take responses on each question from 2/3 trainee teachers.
6. Make pairs of the trainee teachers and assign them the given questions to **think –write-share**.
  - i. How can we link everyday life with science concepts?
  - ii. Relate at least two different science concepts with daily life.
7. Take responses from 2/3 trainee teachers.
8. Resume the video and pause at **3:22**.
9. Ask participants:
  - i. Which pedagogical technique was used for teaching shadow of an object in the video?
  - ii. List steps used in video for demonstrating the location and size of shadow?
10. Take responses from 2/3 trainee teachers and conclude the activity by providing the following input:

### Facilitator input:

Science is basically an observation, theory and experiment getting results. Connecting science to student's everyday life experiences is very important. Science can be made interesting and understandable by giving examples from daily life. Demonstrating science phenomenon with the help of using AV aids can raise student's interest and thinking ability.

**Topic:**

**Electric Current**

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Explain and provide reasoning that a simple electric circuit requires a complete electrical pathway

**Required materials:** PDD-05-Videos, charts, markers etc.



**Activity 5.2:****30 min**

1. Make manageable groups of trainee teachers.
2. Share the video with trainee teachers.  
*NOTE: Please make sure that the video is available to all groups.*
3. Ask the trainee teachers to watch the video till 1:41 pause and ask to discuss the following questions:
  - i. How can we develop interest of students in teaching learning process?
  - ii. How AV aids could be helpful for teachers to make their lesson interesting and effective?
  - iii. Share your experiences while teaching with and without proper use of AV aids.
4. Take responses from 2/3 trainee teachers.
5. Appreciate and encourage them to share their responses/experiences.
6. Highlight the importance of AV aids in teaching with the help of facilitators input.

**Facilitator input**

Audio visual aids are important tools for teaching learning process. It helps the teacher to present the lesson effectively. AV aids help students to learn and clear the concepts better and for long term. Use of AV aids improves student's critical and analytical thinking. It helps to remove abstract concepts through visual presentation. However, improper and unplanned use of AV aids cannot achieve the required objectives effectively. Therefore, teachers should need to be well prepared to maximize the benefits of AV aids.

7. Resume the video and pause at **3:05**.
8. Ask trainee teachers to brainstorm on:
  - i. Why do we ask questions during teaching learning process?
9. Take responses from 2/3 trainee teachers.
10. Now make four groups of trainee teachers and named them as Group A, B, C, and D.
11. Instruct them to work in groups and prepare a presentation on the following assigned tasks:

| Group | Assign task   |
|-------|---|
| A     | What is effective questioning?                                |
| B     | How do questions engage students and promote their responses? |
| C     | How do questions develop the student's cognitive abilities?   |
| D     | Steps involved for planning questions.                        |

11. Invite representative of each group to share their group task.
12. Encourage participants to ask relevant questions.
13. Conclude the activity with the help of facilitator input.

## Facilitator Input

Effective questioning provides open conversation in the classroom. Inspire deeper intellectual thought, and promote student to student and student to teacher interaction. Effective questions focus on eliciting the process, i.e. the how and why.

### Effective questioning:

- Facilitates learning through active discussion.
- Empowers students to feel confident about their ideas.
- Improves speaking and listening skills.
- Builds critical thinking skills.
- Teaches respect for other people's opinions.
- Helps students to clarify their understanding.
- Motivates students and develops an interest of a topic.
- Allows teachers to check students' understanding.

## 14. At the end,ask trainee teachers to design an activity by using the learning of the session. Any method/technique learnt today:

- a) Apply the activity in classroom.
- b) Write reflection:
  - Name of activity (model).
  - Which materials were required to implement the activity?
  - Implementation method of activity.
  - What went well?
  - What did not go well?
  - What are the areas of improvement?
- c) Ask your fellow teacher/HT to observe your class.
- d) Share their reflection in the forthcoming PD day.

## What have we learnt today?

Use the following statement(s) to highlight the key learning(s) points of the session:

- Learnt different techniques to teach and explain the formation of Shadow. Predict the location, size and shape of a shadow from a light source relative to the position of objects.
- Learnt different techniques to teach and explain and provide reasoning that a simple electric circuit require complete electrical pathway.



## PDD-06 Video Based Session

**Topic: Composition and Characteristics of Different Soils**

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Investigate the composition and characteristics of different soils

**Required materials:** PDD-06-Videos, charts, markers etc.

### Activity 6.1:

**30 min**

1. Divide trainee teachers into five groups.
2. Share the video with trainee teachers.  
*NOTE: Please make sure that the video is available to all groups.*
3. Ask the trainee teachers to watch the video till **0:44** pause.
4. Instruct trainee teachers to work on the following assign task and prepare a presentation:  
Group A: Briefly describe the technique used in this video?  
Group B: How imaginative thinking helps to develop the interest of learners in learning process?  
Group C: What is hypothetical problem?  
Group D: How hypothetical problem technique can be helpful in understanding the hard areas in science?  
Group E: How creativity skills of learners can be developed while using hypothetical problem method?
5. Invite representative of each group to present their assign task.
6. Conclude the activity with the help of facilitators input.

#### Facilitator's input:

Hypothetical problem technique:

- Hypothetical problem technique is also called speculative and supposition technique.
- Hypothetical problem evaluates to handle a problem.
- The situation used in this method is thought provoking.

7. Resume the video and pause at **3:44**.
8. Ask trainee teachers to work in pairs and discuss the below questions:
  - i. What types of AV aids have been used in the video?
  - ii. Do AV aids make the teaching process easier? If yes how.
9. Take responses from 2/3 pairs and conclude the activity by highlighting the importance of use of chart paper, models and daily life examples.

**Topic: Magnet and Its Types****30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Explain different types of magnets (permanent, temporary and electromagnets).

**Required materials:** PDD-06-Videos, charts, markers etc.

**Activity 6.2:****30 min**

1. Divide trainee teachers into manageable groups.
2. Share the video with trainee teachers.  
***NOTE: Please make sure that the video is available to all groups.***
3. Ask the trainee teachers to watch the video till **2:04** pause and ask:
  - i. How different types of magnets were described and differentiated in the video?
  - ii. Which method of teaching is used in this video?
  - iii. Did you find this technique is useful in teaching of science? How.
4. Give them time to think.
5. Take responses from 2/3 trainee teachers.
6. Clear the concept of prompt sentence for effective teaching by sharing the facilitators input.

**Facilitators input:**

Prompting is an instructional strategy in which verbal and non-verbal communication skills are used to help students to learn new skills or behavior.

**The aim of prompt sentence is to:**

Provide an environment in which students are involved by using their cognitive and physical abilities.

**Significance of prompt sentence in teaching learning process:**

Prompts are teaching tools that we use in classroom to boost up the interest of students.

7. Conclude the activity by sharing the following:
  - i. Sentence prompt is a hint to a learner to help them focus on the specific topic.
  - ii. In informal assessment a teacher does not evaluate students' performances on same grade but focus on observing students' performance and progress at different stages of their learning time frame.
9. **At the end, ask trainee teachers to design an activity by using any method /technique learnt today:**
  - i. Apply in classroom
  - ii. Write reflection
    - Name of activity ( model)
    - Which materials were required to implement the activity?
    - Implementation method of activity.
    - What went well?
    - What did not go well?
    - What are the areas of improvement?
  - iii. Ask your fellow teacher /HT to observe your class
  - iv. Share their reflection in the forthcoming PD day

**What have we learnt today?**

**Use the following statement(s) to highlight the key learning(s) points of the session:**

- Learnt different techniques to teach investigate the composition and characteristics of different soils
- Learnt different techniques to teach different types of magnets (permanents, temporary and electromagnet)



## PDD-07 Video Based Session

|               |                     |               |
|---------------|---------------------|---------------|
| <b>Topic:</b> | <b>Solar System</b> | <b>60 min</b> |
|---------------|---------------------|---------------|

**Objectives:** After this session, the teacher will be able to teach students to:

- Describe and demonstrate the solar system with planets revolving around the sun.

**Required materials:** PDD-07-Videos, charts, markers etc.

|                      |  |               |
|----------------------|--|---------------|
| <b>Activity 7.1:</b> |  | <b>60 min</b> |
|----------------------|--|---------------|

1. Divide the trainee teachers into six groups.
2. Share the video with participants.  
*NOTE: Please make sure that the video is available to all groups.*
3. Ask the participants to watch the video till 3:44 and pause.
4. Assign each group the given task:

| Groups  | Assigned tasks   |
|---------|--|
| Group 1 | How does the presenter motivate the learners in the beginning of the video?                            |
| Group 2 | How the pedagogical skills of a teacher effect the learners understanding ability?                     |
| Group 3 | What do you think why short quiz is a suitable technique to explain various concepts in science?       |
| Group 4 | How can short quiz technique is applied in the classroom?  |
| Group 5 | What are effective strategies for designing short quiz?  |
| Group 6 | Do you think why short quiz at the end of lesson is the way to consolidate lesson and assess learning? |

5. Take presentation from each group. Encourage trainee teachers to ask questions for clarification.
6. Now make pairs of the participants.
7. Write the following questions on the writing board.
  - i. How can you teach the solar system with the help of pictures/models?
  - ii. Why do we use scientific models for teaching a concept in science?
8. Take responses from 2/3 pairs encourage and appreciate them and tell them that pictorial diagram or AV aids are necessary tool to attract the attention of the learners.
9. Now ask participants: **Have you used Role play in teaching science? Share your experiences.**
10. Take their responses and encourage their participation.
11. Discuss with them the techniques of conducting role play with the help of facilitator input.
12. Make manageable groups of trainee teachers and ask them to generate ideas how we can teach solar system through Role play.
13. Take responses of the trainee teachers.

### **Facilitator Input**

Role play is a form of experimental learning, students take on assign role and act out those roles through a scripted play. The role play can be carried out one to one or as a group. Role playing exercises encourage students to think more critically about complex and hard subject.

14. **Conclude** the activity by sharing:

- i. Short quiz is an assessment tool that judge the understanding level of students. Short quiz is an excellent way to know the difficulty level of topic.
  - ii. Pedagogical techniques are important in the effective delivery of content.
15. At the end, ask participants to design an activity by using the learning of the session. Any method/technique learnt today:
- a) Apply the activity in classroom
  - b) Write reflection:
    - Name of activity ( model)
    - Which materials were required to implement the activity?
    - Implementation method of activity.
    - What went well?
    - What did not go well?
    - What are the areas of improvement?
  - c) Ask your fellow teacher /HT to observe your class.
  - d) Share their reflection in the forthcoming PD day.

**What have we learnt today?**

Use the following statement(s) to highlight the key learning(s) points of the session:

- Learnt different techniques to teach describe and demonstrate the solar system with planets revolving around the sun.



## PDD-08 Video Based Session

|               |                               |               |
|---------------|-------------------------------|---------------|
| <b>Topic:</b> | <b>Technical Model Making</b> | <b>30 min</b> |
|---------------|-------------------------------|---------------|

**Objectives:** After this session, the teacher will be able to teach students to:

- Use spirit level/water level to level different objects (table, picture, frame etc.)

**Required materials:** PDD-08-Videos, charts, markers etc.

|                      |  |               |
|----------------------|--|---------------|
| <b>Activity 8.1:</b> |  | <b>30 min</b> |
|----------------------|--|---------------|

1. Ask trainee teachers to work individually.
2. Share the video with trainee teachers.  
*NOTE: Please make sure that the video is available to all trainee teachers.*
3. Ask the trainee teachers to watch the video till **00:50** pause and pose the following questions:
  - i. Which instrument is used to find the level of a surface?
  - ii. How do we know that students have got the concept?
  - iii. Why probing questions are necessary during practical demonstration?
4. Take responses from 2/3 trainee teachers and tell them that probing questions during practical demonstration is necessary for concept clarification, checking and building critical thinking skills.
5. Now make suitable groups of trainee teachers. Assign them the following task.
6. Draw a table on the writing board.

| How do you provoke critical thinking by using a demonstration method? | While teaching a concept in science what ways are used for active participation of learners? |
|---|--|
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |
|   |  |

7. Make two groups of trainee teachers and create a competition.
8. Allow groups to think for 2/3 minutes. Then invite group I to fill column one and group II to fill column II.
9. Trainee teachers will come alternatively from each group to fill the table on the writing board.
10. Both the groups have five minutes to fill the columns after five minutes the trainee teachers will decide that which group is the winner.
11. Conclude the activity by sharing the following points:
  - i. Demonstration generates critical thinking, which is pivotal to create brainstorming in the mind of learners/observer as well as recall various concepts pertaining to the topic.



- ii. By teaching a concept through demonstration or doing it practically creates an environment of active participation.

**Topic:** First Aid Box

**30 min**

**Objectives:** After this session, the teacher will be able to teach students to:

- Use first aid box to dress a wound

**Required materials:** PDD-08-Videos, charts, markers etc.

**Activity 8.2:**

**30 min**

1. Ask trainee teachers to work individually.
2. Share the video with trainee teachers.  
**NOTE: Please make sure that the video is available to all groups.**
3. Ask the trainee teachers to watch the video till **1:23 pause** and float the following question:
  - i. What is the best way to teach practical concepts?
4. Take responses from 2/3 trainee teachers and tell them that use of videos and pictures support learning of new contents, concepts and ideas.
5. Now ask them make pairs and **think – pair – share** on the following:
  - i. What are the effective uses of videos and pictures in teaching practical concepts?
  - ii. Share ideas and strategies for using videos/pictures in the classroom
6. Conclude the activity by sharing the proper and effective use of videos and pictures enhanced student understanding of practical concepts.
7. Resume video and pause at **3:15** and ask to brainstorming on the following question:
  - i. How teacher taught the use of first aid box in the video?
9. Take random responses and tell them that the teacher used real life situation in teaching the use of first aid box.
10. Initiate a discussion on:
  - i. Have you ever used real life situation in classroom to solve a problem?
11. Invite participants and encourage them to share their experiences. Focus discussion on identification of problem/concept in science and its possible solution through real life situation.
12. Conclude the activity by telling that applications of theoretical material in real-life situations make content easier to understand, it stimulates critical thinking and develop problem solving abilities.
13. At the end, ask participants to design an activity by using the learning of the session. Any method /technique learnt today:
  - a) Apply the activity in classroom
  - b) Write reflection:
    - Name of activity ( model)
    - Which materials were required to implement the activity?
    - Implementation method of activity.
    - What went well?
    - What did not go well?
    - What are the areas of improvement?
  - c) Ask your fellow teacher /HT to observe your class.
  - d) Share their reflection in the forthcoming PD day.

### What have we learnt today?

Use the following statement(s) to highlight the key learning(s) points of the session:

- Learnt different techniques to teach use of spirit level/water level to level different objects (table, picture, frame etc.,)
- Learnt different techniques to teach use of first aid box to dress a wound.

