**Lesson 3: Composition of primary science textbook**

1. **5 steps of teaching learning activities in new primary science textbooks**

New primary science textbooks from Grade 1 to Grade 5 provide following lesson flows.

**Students’ activities**

**Teacher’s activities**

**Step (1) Key Question**

This step is used to stimulate students to be ready to learn, enable them to connect their prior knowledge with the key question, and to focus on what to observe and learn.

**Step (2) Let’s try**

This step exposes children to activities that enable them to make practical observations by themselves. Teachers avoid telling the science ideas before starting activities. Rather, they allow children to develop keen to observations and find out science ideas based on what they have learned from observations. In this way, teachers can support and guide children to achieve the lesson objectives and learning outcomes.

**Step (3) References**

This step provides additional interests and relevant information to encourage children to learn on their own. Some references (For example: Grade 1, Lesson 2-1: Differences of body parts, Page 24) reinforce students’ better understanding by providing additional information. Teacher can assess students’ understanding on this kind of reference. Other kind of references (For example: Lesson 1-3: Changes in environment, page 16) support students’ continuous learning, and they are not intended to be used for assessment.

**Step (4) I understand (Performance by student)**

This step tells if students have successfully achieved the teaching and learning objectives and outcomes. In this step, teacher should not explain the answers nor let students to read “I understand” parts in the textbooks beforehand. Instead, teachers asks questions after children have done the activities and/ or when facilitating the discussion based on children’s observation. At this point, children express what they have learned in their own words. If many ideas are not correct, teacher should decide if the lesson has to be taught again and/or in the different ways.

**Step (5) Summary (Performance by teacher) and exercise**

This step provides additional support to Step 4 (I understand). Teacher summarizes clearly the main science ideas and the thinking skills developed in the lesson. This is the step where children’s learning are assessed. Exercises should be done at schools as far as possible, and better not to be given as homework.

**Sample of Students’ activities and Teacher’s activities**

**Ref: Grade 1, Lesson 2.1**

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| --- | --- | --- |
|  | **Students’ activities** | **Teacher’s activities** |
| **Step 1**  **Key Question** | Look at the body parts of friends, and think that body parts of others are different. | Stimulate students’ curiosity, encourage and facilitate their thinking. |
| **Step 2**  **Let's try** | Trace a body of a friend on a paper, compare each other’s, and think how different they are. | Facilitate students’ observation, encourage them if they hesitate to observe and/or compare with others’ body. |
| **Step 3**  **References** | Look at the reference, and find differences of the same body parts by comparing like the reference shows. | Encourage students who has difficulties to tell the differences of the same body parts. |
| **Step 4**  **I understand** | Generalize that people have different body parts. | Facilitate students who concluded in wrong way or misunderstood. |
| **Step 5 - Summary and Exercises** | Confirm their understanding and ask teacher for some unclear points. | Conclude key concepts of the lesson, check the students’ understanding and give feedback. |

**Lesson 3: Worksheet**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Assigned lesson: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
|  | **Students’ activity** | **Teacher’s activity** |
| **Step 1**  **Key Question** |  |  |
| **Step 2**  **Let's try** |  |  |
| **Step 3**  **References** |  |  |
| **Step 4**  **I understand** |  |  |
| **Step 5**  **Summary and Exercises** |  |  |

**Lesson 4: Worksheet**

Group: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Assigned lesson: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
|  | **Students’ activity** | **Teacher’s activity** |
| **Step 1**  **Key Question** |  |  |
| **Step 2**  **Let's try** |  |  |
| **Step 3**  **References** |  |  |
| **Step 4**  **I understand** |  |  |
| **Step 5**  **Summary and Exercises** |  |  |

**Lesson 4: Inquiry based learning in science**

What is inquiry based learning? Students learn by inquiry when learning is focused on ‘finding out’. Learning science by inquiry involves students asking questions then exploring and investigating natural phenomena through manipulating materials. Inquiry thus involves gaining experiences and making observations before explanations for those experiences. With their teacher’s support, students are then able to answer their own questions.

Inquiry based learning actively engages students in learning, it stimulates the students’ curiosity and excitement of discovery and it provides an authentic experience of the nature of real science. Moreover, inquiry based learning facilitates the developments of inquiry skills and provides personal and concrete experience of natural phenomena as a basis for developing explanations and when the teacher helps students use their existing knowledge to develop new explanations. All of these conditions for effective learning in science are satisfied when the teacher uses an inquiry approach.

In the science class room, teacher uses a central question to frame a curriculum unit or module. Students answer this central question for themselves, discovering and learning through a series of guided discussions, experiments, and hands-on activities over several class periods. Teachers find that students are more engaged in what they're learning, and have a wider context for understanding the material rather than just hearing a lecture or memorizing facts.

Source:

Vanille Dawson and Grady Venville (2007), “the art of teaching – Primary Science –“

https://www.edutopia.org/practice/inquiry-based-learning-science-classroom