Lesson Plan

Subject: S1 Integrated science
Sub-topic: Comparing the features of animal and plant cells
Duration: 2 lessons (70 minutes)

Objectives

After the lesson, students should be able to:

(1) Identify plant cells and animal cells.
(2) Identify basic structures of both animal and plant cells.
(3) Distinguish between both cell types by describing their similarities and differences.
(4) Express the similarities and differences between comparable items verbally and in written form.

Teaching procedures

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| Step 1 | 5 mins Setting the context | **Revising how to use a microscope**  
- Ask students to demonstrate how to use a microscope to observe a sample.  
  *When you are looking at the image, can you see something different from the sample? [Laterally & vertically inverted]* | Samples  
Microscope  
Screen |
| Step 2 | 30 mins Deconstruction and modeling  
Guided construction  
Independent construction | **Preparing a mount of onion epidermis and identifying the structures**  
- Demonstrate how to prepare a temporary mount of onion skin cells.  
- Ask students prepare their own slide.  
- Introduce cytoplasm, cell membrane and vacuole.  
- Ask students to write the labels on their worksheet.  
- Ask students to consolidate the structures by labelling another plant cell.  
*When teaching the students how to observe and identify the features of the cell, break the questions into small bits of knowledge so the language is equally ‘small’. For example:*  
**Q:** Is the onion made of one cell or many cells? [Many]  
**Q:** What is the shape of these cells? Draw a cell on your worksheet – allow 3 mins.  
**Q:** Is there something surrounding the cell? What does it look like? [Cell wall]  
**Q:** Can you see a dark, round structure inside the cell? Do all the cells have the dark, round structure? How do call this dark, round structure? [Nucleus] | Worksheet  
Forceps  
Cover slip and slide  
Dropper  
Iodine  
Tissue paper  
Onion  
Scissors |
15 mins Independent construction  Identifying the structures of an animal cell and comparing both cell types orally  
• Give students a photo of animal cell and a plant cell and ask them to label the plant cells according to what they have learned.  
• Ask students to state the common structures of both cell types and then the differences of both cell types.  
Screen  
Worksheet  
Blackboard

Step 2 15 mins Guided construction  Independent construction  Distinguishing the items to be compared from students' description on the blackboard and comparing the similarities and differences between animal and plant cells  
• Guide students to distinguish items to be compared from the students' descriptions on the blackboard  
  * Let us look at the board together. Can you see some similar things here between animal and plant cells? [Both have cell membranes…]  
  * Yes, so what we are comparing here is whether it has a cell membrane or not.  
• Group students in fours and ask them to complete the comparison table within 5 minutes.  
• Ask several groups to write down their answers on the board.  
• Ask those groups who have written their answers on the board to present their answers in complete sentences — spoken.  
• Comment on their answers according to the accuracy of the science but also how accurately they have expressed the similarities and differences.  
• Model other ways of expressing the similarities and differences between two objects.  
  * It is really common in our daily life that we always have to compare things. We therefore have to learn more ways of expressing similarities and differences between two objects.  
• Ask students to complete their own sentences within 5 minutes.  
• Ask students to pair up and present their examples to their group mate.  
Blackboard  
Worksheet  
Exercise(1)  
Timer

Step 3 10 mins Independent construction  Ensuring students can express the similarities and differences between animal cells and plant cells verbally and non-verbally  
• Ask a few students to present their answers to the class.  
• Conclude the main point learnt and consolidate their knowledge on how to compare similarities and differences between two objects.  

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