Carbon Dioxide Cycle

Oxygen - Carbon Dioxide Cycle
KHub
Subject/Grade Level: Grade 7/ 1st Year High School Integrated Science
Title: Oxygen-Carbon Dioxide Cycle
Competency: Students are able to explain the functions and importance of the different chemical cycles found in the ecosystem, and understand the state of the environment being affected due to harmful human activities.
KCh Learner Values: Cooperation (everyone doing their part in making sure society functions smoothly)
Critical Issues: Concern for the well-being and maintenance of nature
I. Objectives:
at the end of the session, the students should be able to

- understand and explain the functions and importance of the different chemical cycles (Carbon cycle, Oxygen cycle, Oxygen-Carbon Dioxide cycle, Water cycle, Photosynthesis, and Photolysis) to an ecosystem
- understand the impact that human activities (negative or positive) have in the different chemical cycles found in nature

II. Essential Understanding
Living things are interdependent on nature and the chemical cycles found in nature because of their function in producing gases needed by living things/the ecosystem.

Human activities have a significant impact on the environment and its processes

III. Essential Questions
There are many different chemical cycles happening in our ecosystems. Are these cycles interdependent on each other just as living things are dependent on each other?

The different living things in our environment are interdependent on each other for providing the necessary gases and nutrients that support life, which are being provided by the different chemical cycles found in our ecosystems. Are there any activities that can have effects (negative or positive) on our environment and our dependence on it?
IV. Summary of the Episode

The episode describes the path of energy, from the sunlight to the different compounds produced by cells that provide energy. Also described are the different interrelated chemical cycles occurring in nature and how these are important for the ecosystem.
The episode also discusses human activities and their impact on the environment and the chemical cycles
- Pollution in the environment affecting the chemical cycles and their output of chemicals
- Deforestation, which is a major cause of flooding, and increasing Global Warming and their effects on the chemical cycles

V. Pre-viewing/ Motivation
Before the film viewing, the teacher should introduce the topic for the day, and divide the class into pairs.
Ask the class to illustrate the water cycle and describe the different steps or processes involved based on what they already know, and include at least three questions about the cycles which will be included in the later discussion.

VI. Viewing Proper
Before the viewing proper, the teacher will introduce the video, explaining to the students what the video will discuss, what its title is, and where the video is from. The teacher will also instruct the students to take down notes on the important points of the video.
Video: KHub (Grade 7/ 1st Year High School Integrated Science)
Oxygen - Carbon Dioxide Cycle

VII. Post Viewing
Questions (re the episode)
1. What was the program about? Did you learn anything new?
2. Do you think the program discussed the topic well? Why, or why not?
Review questions (re content)
1. What is a chemical cycle? What were the different cycles discussed in the video?
2. What are the functions/significance of the different chemical cycles?
3. Cite other possible effects of the impact that human activities have on the chemical cycles.

Group Activity
1. The teacher will divide the class into four groups. For the first two groups, one will improvise a short skit about the process of Photosynthesis and its components, the other group will improvise a skit about the process of the Water Cycle. For the next two groups, one group will improvise a skit about the effects of Global Warming, and the other will improvise a skit about flooding due to pollution and logging.

VIII. Synthesis and Valuing
Discussion about the state of the environment, the worsening of Global Warming, and the effects it will have on communities now and in future years:
- cite additional examples (can be from the news) about problems in our environment due to Global Warming and due to pollution caused by humans
- possible situations in the future if ever Global Warming and pollution will continue and increase
- Given that the worsening state of the environment can have negative effects on humans, what actions are the different sectors of society (e.g. industrial, media, education, government), in cooperation with other sectors, currently doing in maintaining our environment? Can the students think of other possible actions?

IX. Homework
Ask the students to make a summary of their learnings and make a short reflection paper based on these.

Cell Parts and Functions

Cell Parts and Functions

Subject/Grade Level: *High School Biology Class*

Title: *Cell Parts and Functions*

Competency: *Name the different parts of a cell and its function.*

KCh Learner Values: *Importance of Teamwork*

Instilling in students the importance of health and wellness.

I. Objectives

At the end of the session, students should be able to:

- Name the parts of the the cell.
- Cite the function/s of each cell part.
- Draw the entire cell and its organelles.
- Recite the Modern Cell Theory.
- Trace the history and scientists of cell discovery.

II. Essential Understanding

- The cell is the basic unit of all living things.
- There are lots of scientists and theories laid in history before we came up with the current modern cell theory.
- The cell contain the deoxyribonucleiuc acid which serves as the hereditary blue print of all living things.

III. Essential Questions

- What are the important roles of cells in the body and that of other living things?
- Who are the great minds behind the discovery of cell and its parts and functions?

IV. Summary of the Episode

The episode on “Cell Parts and Functions” traces the discovery of the cell for about 200 years ago. Renowned scientists in the discovery of cells and the postulation of the modern cell theory are featured in this video. The different parts of the cell were presented in various visual formats. The function of each part is mentioned and some important processes within the cell were named to point out the importance of the tiny bit of life.

V. Pre Viewing (Motivation)

The teacher will write the different parts of the cell on the board or in a manila paper and the students will have to identify the actual figure of those while watching the video. The students will also be asked to identify the functions of each cell part.

VI. Viewing Proper

The students will be asked to write down notes about the information they are getting from the video.

VII. Post Viewing

The actual activity will be done at this time. The class will be divided into 3 groups: (1) cell part cut-out, (2) cell part name and (3) the part’s function. The students will be asked to pair the cut-outs (cell organelles) to the names and functions.

VIII. Synthesis and Valuing

Our body is composed of various macro parts and the entire system won’t work harmoniously if a single part is ailing or dysfunctional. This relationship can be traced down up to the cellular level. There’s a lot of secrets and mystery that is hidden in the smallest compartments of a cell. Even the blue print of all living things are located in the cell. If a problem occurs at the cellular level, there will definitely be a domino effect to the bigger parts and systems of the body.

The body parts should always have good teamwork so it would perform its specific task. Same goes with group of people such that if people lose coordination and camaraderie, there will be no unity.

IX. Homework

The teacher will ask the students to check for more cellular processes by reading books, surfing the internet or interviewing an expert (i.e. doctor, teacher, etc.) and then will ask the students to present their findings in the next meeting. The students should present their report creatively like in a form of a role play or by using materials.