

Lesson Plan

Level: F.1 Integrated Science

Topic: Chapter 4 – energy

Class size: 32

Setting: 2 students/ group

Duration: 1-2 periods

1. Describe how electricity is generated in a traditional, hydro-electric and nuclear power station.
2. State the energy conversions in different methods of generating electricity.

Learning cycle 1

Objective: Students are able to describe how electricity is generated in a traditional power station and state the energy conversions in the process.

Setting:

Explain how energy can be obtained. (Energy cannot be created or destroyed. It can be transformed from one form to another.)

Remind students the common fuels used in traditional power station.

Modeling:

Show an animation explaining how electricity is generated in traditional power station.

Guided construction:

Use a labeled diagram and sentence puzzles to guide students to describe the process of generating electricity in traditional power station.

Guide students to explain the cause and effect pattern.

Independent construction:

Students in small groups report their findings in the descriptions to the class.

(e.g. What is the pattern in the sentences?)

Students point out the energy conversion in different stages of the process.

Learning cycle 2:

Objective: Students are able to describe how electricity is generated in a hydro-electric power station and state the energy conversions in the process.

Setting:

Clarify the major difference between a traditional power station and a hydro-electric power station, different forms of energy to turn the turbine.

Modeling:

Show an animation to visualize how electricity is generated in a hydro-electric power station.

Guided construction:

Use a labeled diagram and a series of questions to guide students to describe the process of generating electricity in a hydro-electric power station.

Independent construction:

Students put all the answer together to answer the question:

Explain how electricity is generated in a hydro-electric power station.

Students point out the energy conversion in different stages of the process.

Learning cycle 3:

Objective: Students are able to describe how electricity is generated in a nuclear power station and state the energy conversions in the process.

Setting:

Explain what nuclear power is.

Modeling:

Show a labeled diagram to illustrate how electricity is generated in a nuclear power station.

Guided construction:

Students use the clarified concept to find the source of energy in the process.

Independent construction:

Students explain how electricity is generated in a nuclear power station.

Students point out the energy conversion in different stages of the process.