

Electricity Production - Concept Map – Outline & Checklist

QUESTION:

Where does the electricity you receive at your house come from?

YOUR TASK:

Create a concept map showing the flow of energy, the creation of electricity, and transmission of electricity from an energy source to a house.

You will need:

scissors, large piece of paper, glue stick, pencil

Directions and Hints:

- Cut out the images from the concept map images sheets.
- Place the images loosely on the large sheet up paper in a logical manner that allows you to show how an energy source can be converted into electricity and then be transmitted to a house.
- **Hints:** the power plant is used for any fuel source that is burned. Most energy sources that are burned or use heat must generate steam to spin a turbine, which in turn spins a generator which produces the AC electricity. High voltage transmission lines transmit the electricity which must be stepped-down and then used in a house. Energy sources such as wind, tidal and hydro skip the steam creation in the power plant and directly rotate the turbines, etc. Solar power (one type-direct) creates electricity directly.
- Arrows show the direction of energy and electricity transfer. You must use descriptors over the arrows to describe the type of energy transfer and the process that is occurring.
- Some of the images will be used more than once.
- Transfer of energy from potential to kinetic must be labelled
- Description of what happens (generally) inside a power plant and the scientific principles behind how the generator works must be on the concept map. (see checklist/rubric)

Differentiation:

Students are urged to attempt the task at this point without further aid. Scaffolding can be used to help students along through discussion. An example can also be used to help students with the process with more or less information provided as needed.

EXAMPLE (one possible pathway)

Level 4 work will include pathways that connect the sun to the production of fossil fuels, rain to the filling of dams, rain and wind to the production of waves, moon to the production of tides.

