Subject: Science

Level: Standard 3

Strand: Conservation and Sustainability

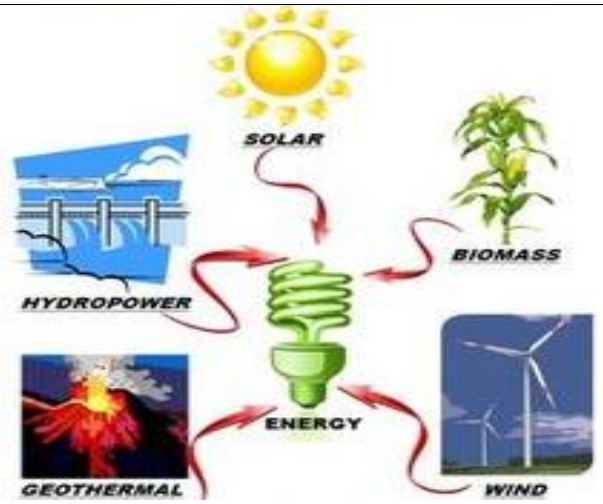
Topic: Differentiate between fossil fuels and alternative forms of energy

Key Points:

- Fossil fuels formed from dead plant and animals that decomposed over millions of years.
- Fossil fuels are found deep inside the Earth.
- The three most important fossil fuels are coal, petroleum and natural gas.
- Fossil fuels are used to provide energy for:
    - making electricity, which uses coal for heating of homes in cold climates
    - transportation,which uses petroleum to provide fuel for vehicles
    - cooking stoves,which uses natural gas.
- Fossil fuels produce a lot of pollution when burned.
- They are also non-renewable resources.(revision)
- There is only a limited amount of fossil fuel and it is not possible to make more.
- Eventually all the fossil fuels will be used.
- Alternative forms of energy may also be renewable energy
- Types of renewable energy sources are solar energy, wind power, hydroelectric energy, biomass energy such as firewood, geothermal energy. (revision)
- Renewable energy sources can be replenished.
- Less pollution is produced by renewable energy.

Activity

1. TABLE 1: Complete the table.

Alternative Fuels	Fossil Fuels
	Draw examples of fossil fuels:
Renewable	----------
----------	All will eventually be used
Causes low levels of pollution	----------

2. Match each word with an appropriate statement below:

NAME OF ENERGY: Biomass, Fossil Fuel, Geothermal, Hydroelectric, Nuclear, Solar,Wind.

STATEMENTS DESCRIBING TYPES OF ENERGY.

(i). Water is used to generate electricity._____

(ii). Renewable energy from plants or animals._____

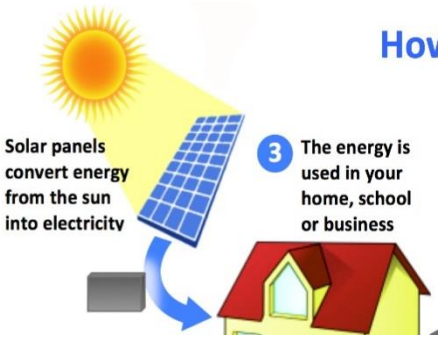
(iii). Uses light from the sun. _____

(iv). Heat from within the earth produces steam and hot water. _____

(v). Formed long ago, within the earth. _____

(vi). Uses the movement of air. _____

3: Solar energy at work!

 **Solar cooker**	 **Solar cells**	 **Solar water heaters**
Energy transformations: Sunlight→_____	Energy transformations: Sunlight → _____-→ _____	Energy transformations: Sunlight → _____

Assessment

4.Compose a definition of the term “alternative” energy source.

_____

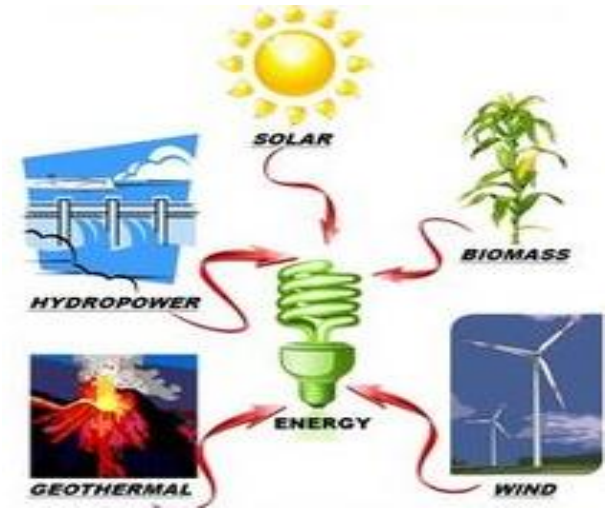
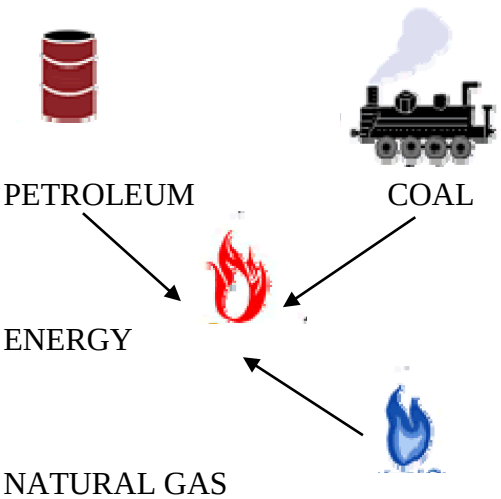
5. Countries are being encouraged to use more alternative sources of energy instead of fossil fuels.Give two benefits of this.

_____

_____

Answer Key

1.TABLE 1: Any similar drawing for fossil fuels, with the components of energy, petroleum, coal and naturalgas, is acceptable.

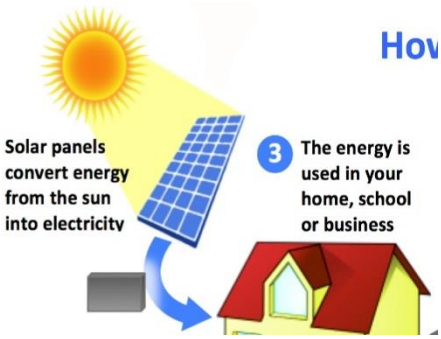
Alternative Fuels	Fossil Fuels
	
Renewable resource	**Non- renewable resource**
It is constantly replaced or replenished	All will eventually be used
Causes low levels of pollution	**Causes high levels of pollution**

2. STATEMENTS DESCRIBING TYPES OF ENERGY AND NAME OF ENERGY

(i). Water is used to generate electricity.	Hydroelectric
(ii). Renewable energy from plants or animals.	Biomass
(iii). Uses light from the sun.	Solar
(iv). Heat from within the earth produces steam and hot water.	Geothermal
(v). Formed long ago, within the earth.	Fossil Fuel

(vi). Uses the movement of air. Wind

3.

 **Solar cooker**	 **Solar cells**	 **Solar water heaters**
Energy transformations: Sunlight →**Heat**	Energy transformations: Sunlight→**Electricity-→ Other forms**	Energy transformations: Sunlight →**Heat**

4. Alternative sources of energy are any means other than fossil fuels (coal, gasoline and natural gas) used to produce energy.

5. Countries are being encouraged to use more alternative sources of energy instead of traditional sources.Give two benefits of this.

(i) It is constantly replaced or replenished, so it will not finish

(ii) It causes low levels of pollution so the world will be less polluted.

Acknowledgement

Activity with Picture	**Reference**
1. Table 1: Alternative Fuels	https://www.solarschools.net/knowledge-bank/energy/sources
3. Solar cooker	https://www.homesciencetools.com/article/how-to-build-a-solar-oven-project/
3. Solar cell	http://clipart-library.com/clipart/1621844.htm
3. Solar water heaters	http://www.sunpowr.com/