

# Extreme Energy Worksheet

Name: \_\_\_\_\_

**1. Draw lines connecting the dots to match each type of energy with its description.**

- |                          |  |
|--------------------------|--|
| Kinetic energy •         | • Energy released by atomic nuclei                         |
| Sound energy •           | • Energy in electric and magnetic fields                   |
| Electromagnetic energy • | • Energy involved in breaking or forming of chemical bonds |
| Nuclear energy •         | • Vibrations that travel through air                       |
| Chemical energy •        | • Stored energy  |
| Potential energy •       | • Energy of a moving body                                  |

**2. In each example below, energy is changing from one form to another. In the blank space, name the type of energy being produced.**



**Electric light globe**    electrical energy → \_\_\_\_\_ energy and heat energy



**Running**    chemical energy from food → \_\_\_\_\_ energy and heat energy



**Hitting a drum**    kinetic energy → \_\_\_\_\_ energy and heat energy



**Batteries in a circuit**    chemical energy → \_\_\_\_\_ energy

**3. Choose a word from the box to complete each sentence.**

electromagnetic	renewable	glow worms
chemiluminescence	waves	potential
kinetic	conservation	expand
coal	lightning	magnetic

- If something is moving it has \_\_\_\_\_ energy.
- If an object is held at some height above the ground, it has \_\_\_\_\_ energy.
- 90% of the electricity used in New South Wales is generated by burning \_\_\_\_\_.
- Wind, solar, hydro and geothermal power are examples of \_\_\_\_\_ energy sources.
- When most substances absorb heat energy, they \_\_\_\_\_.
- Radio waves and gamma waves are two examples of \_\_\_\_\_ radiation.
- Some animals use the Earth's \_\_\_\_\_ field to navigate when they migrate.
- \_\_\_\_\_ transmit energy from one place to another.
- During a storm, static electricity can build up in clouds and cause \_\_\_\_\_.
- If a chemical reaction produces light, this is called \_\_\_\_\_.
- Bioluminescence is the emission of light from animals such as \_\_\_\_\_.
- The law of \_\_\_\_\_ of energy states: "Energy cannot be created nor destroyed but it can change from one form to another."

**4. Circle the correct response.**

Which of the following is TRUE of a solid:

- a) Takes the shape of its container
- b) Has tightly packed particles
- c) Can be compressed
- d) Has particles with a lot of energy

The unit for measuring energy is called a:

- a) Amp
- b) Volt
- c) Watt
- d) Joule

Which of the following is NOT an electromagnetic wave?

- a) Light
- b) Sound
- c) Mobile phone signals
- d) Gamma radiation

A build up of static electricity in clouds can lead to:

- a) Rain
- b) Tsunamis
- c) Lightning
- d) Earthquakes

Platypuses, sharks and some fish use electro-receptors to:

- a) Hunt for prey
- b) Find a mate
- c) Communicate
- d) Kill their prey

Loggerhead turtles navigate their migration across the ocean by:

- a) Carrying a compass
- b) Changing the strength and direction of the Earth's magnetic field to suit their needs
- c) Detecting electrical impulses in the ocean water
- d) Detecting changes in the strength and direction of the Earth's magnetic field

Luminol is used by forensic investigators at crime scenes to detect traces of:

- a) Hydrogen peroxide
- b) Blood
- c) Copper
- d) Bleach

Glow worms use bioluminescence to:

- a) Navigate
- b) Attract tourists
- c) Attract prey
- d) Grow bacteria

**5. For each electricity generator listed in the table indicate whether it uses a renewable or non-renewable source of energy and state one advantage and one disadvantage for generating electricity in this way.**

Electricity generator	Renewable or non-renewable	Advantage	Disadvantage
Solar cell	<input type="checkbox"/> renewable <input type="checkbox"/> non-renewable	<ul style="list-style-type: none"> <li>• No noise or air pollution. Radiation from the sun is readily available.</li> </ul>	
Coal-fired power station	<input type="checkbox"/> renewable <input type="checkbox"/> non-renewable		
Nuclear power station	<input type="checkbox"/> renewable <input type="checkbox"/> non-renewable		
Hydroelectric power station	<input type="checkbox"/> renewable <input type="checkbox"/> non-renewable		<ul style="list-style-type: none"> <li>• Dams are used to harness the flow of water in a river and this can damage the natural ecosystem.</li> </ul>
Wind turbine	<input checked="" type="checkbox"/> renewable <input type="checkbox"/> non-renewable		
Geothermal power station	<input type="checkbox"/> renewable <input type="checkbox"/> non-renewable		