AP ENVIRONMENTAL SCIENCE • EXERCISE SHEET

6.1 Renewable and Nonrenewable Resources

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

Objective

Build the skills to answer exam questions on **renewable and nonrenewable energy resources**.

You must be able to:

- classify energy sources as **renewable** 可再生 or **nonrenewable** 不可再生
- give examples of each
- explain the difference in supply

1 Worked examples

Study these first. Each one shows the method for a question type used later —follow the steps and you can do the Practice and Exam-style questions yourself.

Renewable vs nonrenewable

- **Renewable** energy is replenished naturally on a human timescale: solar, wind, hydro, geothermal, biomass.
- **Nonrenewable** energy is finite, formed over millions of years: coal, oil, natural gas, and nuclear (uranium).

Why the difference matters

Nonrenewable sources will eventually **run out** and cannot be replaced quickly; renewable sources can supply energy indefinitely if managed well.

A worked classification

Sunlight and wind are **renewable**; coal and uranium are **nonrenewable** (uranium is renewable... no —it is a finite mined element, so nonrenewable).

Note on biomass

Biomass (wood, crops) is **renewable** if replanted as fast as it is used, but can be unsustainable if harvested too fast.

2 Practice

Now apply the methods above.

2.1 Classify solar energy. [1]

2.2 Classify coal. [1]

2.3 Name two renewable energy sources. [2]

3 Exam-style questions

3.1 Which is a nonrenewable energy source? [1]

- **A** wind
- **B** solar
- **C** natural gas
- **D** geothermal

3.2 A country relies mostly on coal and oil.

(a) Classify these sources. [1]

(b) Explain why this reliance is a long-term problem. [2]

3.3 Explain why biomass can be either renewable or unsustainable, depending on use. [2]

4 Go further

You are now ready for the real exam questions on this subtopic:

- work through the **6.1 Renewable and Nonrenewable Resources** lesson on the **Learn** page;
- read the **Renewable and Nonrenewable Resources** section of the AP Environmental Science handout on the **Know** page.

Solutions

2.1 Renewable.

2.2 Nonrenewable.

2.3 Any two: solar, wind, hydro, geothermal, biomass.

3.1 C —natural gas.

3.2 (a) Nonrenewable. (b) These finite sources will eventually run out and cannot be replaced on a human timescale, so the energy supply is not secure long-term.

3.3 If trees/crops are replanted as fast as they are burned, biomass is renewable; if harvested faster than they regrow, it is depleted and unsustainable.