AP ENVIRONMENTAL SCIENCE • EXERCISE SHEET

6.5 Fossil Fuels

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

Objective

Build the skills to answer exam questions on **fossil fuels**.

You must be able to:

- describe how **fossil fuels** 化石燃料 form and are used
- explain their environmental impacts (CO_2, pollution, extraction)
- state advantages and disadvantages

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.

Formation and use

Fossil fuels (coal, oil, natural gas) formed from ancient organisms buried and compressed over millions of years. They are burned to release energy —the world's main energy source.

Advantages

- **High energy density** (a lot of energy per unit).
- **Cheap** and reliable with existing infrastructure.

Disadvantages

- Burning releases **CO_2** (climate change) and pollutants (SO_2, particulates → acid rain, smog).
- **Extraction** damages land and water (mining, oil spills, fracking).
- **Nonrenewable** —will run out.

A worked judgement

Coal is cheap and energy-dense but produces the most CO_2 and air pollution of the fossil fuels, so it has the greatest climate impact.

2 Practice

Now apply the methods above.

2.1 How do fossil fuels form? [1]

2.2 State one advantage of fossil fuels. [1]

2.3 State one environmental disadvantage. [1]

3 Exam-style questions

3.1 Burning fossil fuels contributes to climate change mainly by releasing [1]

- **A** oxygen
- **B** carbon dioxide
- **C** water only
- **D** nitrogen gas

3.2 A country generates most of its electricity from coal.

(a) State two environmental impacts. [2]

(b) Explain one reason it still relies on coal despite these impacts. [2]

3.3 Explain why fossil fuels are described as a finite resource. [2]

4 Go further

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

- work through the **6.5 Fossil Fuels** lesson on the **Learn** page;
- read the **Fossil Fuels** section of the AP Environmental Science handout on the **Know** page.

Solutions

2.1 From ancient organisms buried and compressed over millions of years.

2.2 Any one: high energy density, cheap, reliable, existing infrastructure.

2.3 Any one: CO_2/climate change, air pollution, extraction damage.

3.1 B —carbon dioxide.

3.2 (a) Any two: CO_2 emissions, air pollution/acid rain, land/water damage from mining. (b) It is cheap, energy-dense, reliable, and the infrastructure already exists.

3.3 They form over millions of years —far slower than we use them —so the supply is limited and cannot be replaced on a human timescale.