

6.9 Hydroelectric Power

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

KEY WORDS dam 大坝 • hydroelectric 水电 • reservoir 水库 • fossil fuels 化石燃料

Objective

Build the skills to answer exam questions on **hydroelectric power**.

You must be able to:

- describe how a **dam** 大坝 generates electricity
- state advantages (renewable, no CO₂) and disadvantages (habitat, displacement)
- explain effects on rivers and fish

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.

■ How it works

Hydroelectric power uses falling or flowing water (usually from a **dam**) to spin turbines and generate electricity. It is **renewable** and emits no CO₂ during operation.

■ Advantages

- Renewable, low-carbon, reliable.
- Reservoirs provide water storage and flood control.

■ Disadvantages

- The **reservoir floods** land, destroying habitat and displacing people.
- **Blocks fish migration** (e.g. salmon) unless fish ladders are built.
- **Traps sediment**, starving downstream areas of nutrients.
- Changes river flow and temperature.

■ A worked judgement

A large dam gives clean, reliable power but floods a valley, blocks fish, and traps sediment — significant ecological trade-offs.

2 Practice

Now apply the methods above.

2.1 What spins the turbines in a hydroelectric plant? [1]

2.2 State one advantage of hydroelectric power. [1]

2.3 State one disadvantage. [1]

3 Exam-style questions

3.1 A major ecological drawback of a large dam is that it [1]

- | | |
|---|---|
| A | B |
| C | D |
- A produces CO₂
B blocks fish migration and floods habitat
C uses fossil fuels
D cannot store water

3.2 A country builds a large dam for electricity.

(a) State one benefit and one environmental cost. [2]

(b) Explain how the dam affects fish and sediment. [2]

3.3 Explain why hydroelectric power is renewable and low-carbon. [2]