AP ENVIRONMENTAL SCIENCE • EXERCISE SHEET

4.6 Watersheds

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

Build the skills to answer exam questions on **watersheds**.

You must be able to:

- define a **watershed** 流域 (drainage basin)
- explain how land use affects water quality in a watershed
- describe runoff collecting into rivers

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.

What a watershed is

A **watershed** (drainage basin) is all the land that drains into a **common body of water** (a river, lake, or ocean). Rain that falls anywhere in it flows toward that water.

Runoff collects

Water runs downhill, collecting into streams that join into rivers. Everything on the land —soil, fertilizer, pollutants —can be carried along with it.

Land use affects water quality

Because runoff carries whatever is on the land, **agriculture** (fertilizer, pesticides), **cities** (oil, sewage), and **construction** (sediment) all affect the quality of the water downstream.

A worked link

Fertilizer applied anywhere in a river's watershed can wash into the river, raising nutrient levels and causing eutrophication downstream.

2 Practice

Now apply the methods above.

2.1 Define a watershed. [1]

2.2 How does water move within a watershed? [1]

2.3 Name one land use that can pollute a watershed. [1]

3 Exam-style questions

3.1 A watershed is best described as the land that [1]

- **A** contains no water
- **B** drains into a common body of water
- **C** is always a desert
- **D** cannot be polluted

3.2 A farm sits within a river's watershed.

(a) Explain how fertilizer from the farm can reach the river. [2]

(b) State one effect on the river. [1]

3.3 Explain why protecting an entire watershed, not just the river itself, is important for water quality. [2]

4 Go further

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

- work through the **4.6 Watersheds** lesson on the **Learn** page;
- read the **Watersheds** section of the AP Environmental Science handout on the **Know** page.

Solutions

2.1 All the land that drains into a common body of water.

2.2 It runs downhill, collecting into streams and rivers.

2.3 Any one: agriculture, urban/city runoff, construction.

3.1 B —drains into a common body of water.

3.2 (a) Rain washes fertilizer off the fields as runoff, which flows downhill through the watershed into the river. (b) Eutrophication / algal blooms (or nutrient pollution).

3.3 All land in the watershed drains to the same water, so pollution anywhere in it can reach the water; protecting the whole basin prevents that.