8 Waste, sewage, and health – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
sanitary landfills			
Sewage treatment			
LD50			
Pathogens			

Recall

In Part A you met water pollution. Now waste, sewage, and toxic chemicals:

- We throw away huge amounts of rubbish.
- Sewage must be cleaned before it returns to rivers.
- Some substances are far more poisonous than others.

Each idea has a short worked example before the Practice.

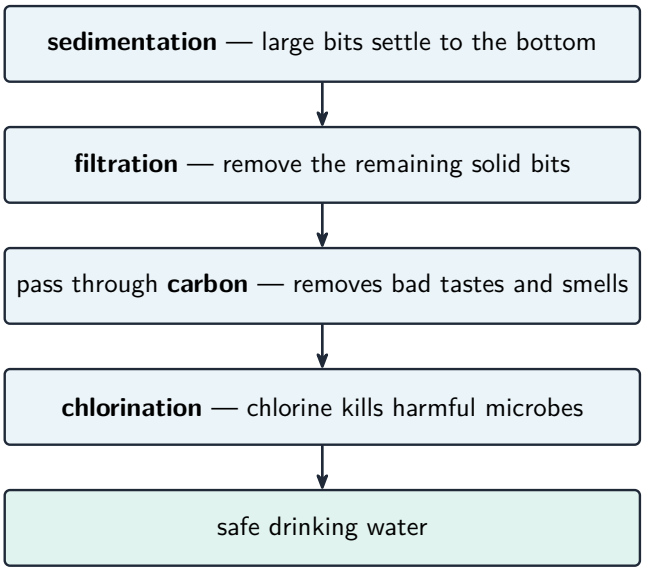
New ideas

■ 1 Solid waste

Rubbish is buried in **sanitary landfills** or burned in incinerators. Both have costs, so the best approach is **reduce, reuse, recycle** – reducing waste is best of all.

■ 2 Sewage treatment

Sewage treatment cleans wastewater in stages: settling out solids, then bacteria breaking down organic matter, and sometimes removing nutrients and disinfecting. This protects rivers from disease and nutrient pollution.



3 How toxic is it? (LD50)

The **LD50** is the dose that kills **half** of a test population. A **lower** LD50 means a **more toxic** substance – less is needed to be deadly.

Worked example. Chemical A has an LD50 of 5 mg/kg and chemical B has 500 mg/kg. A is 100 times more toxic, because far less of it is lethal.

4 Pathogens

Pathogens (disease-causing microbes) spread through contaminated water and food, causing diseases like cholera. Clean water and good sanitation are the main defences.

Watch out: a **lower** LD50 means **more** toxic (a small dose is deadly). Don't read a bigger number as "more dangerous" – it is the other way round.

Practice

Try these in order. The methods are all above.

2.1 State the "reduce, reuse, recycle" order and which is best. [2]

2.2 Describe, in order, the main stages of sewage treatment. [2]

2.3 State what the LD50 of a substance measures. [2]

2.4 Chemical X has an LD50 of 10 mg/kg and chemical Y has 200 mg/kg. State which is more toxic and by how many times. [2]

2.5 State how pathogens most commonly spread, and one way to prevent it. [2]