8 Waste, sewage, and health – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
sanitary landfills	卫生填埋场			
Sewage treatment	污水处理			
LD50	半数致死量			
Pathogens	病原体			

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.

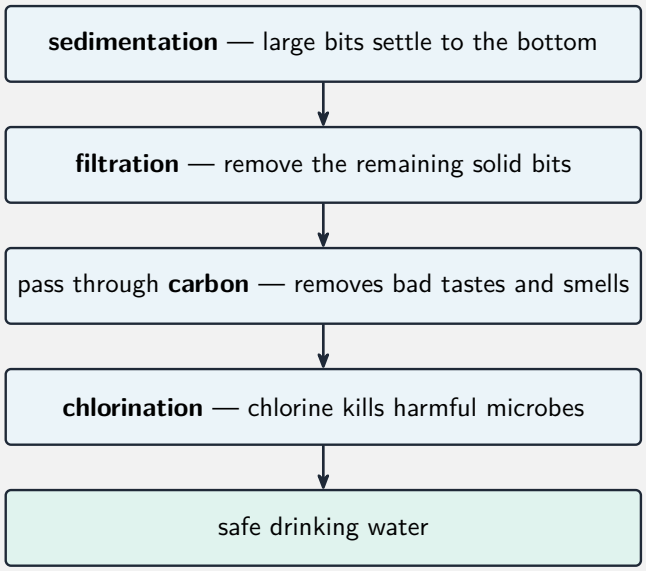
New ideas

1 Solid waste

Rubbish is buried in **sanitary landfills** 卫生填埋场 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 污水处理 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** 半数致死量 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 病原体 (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]