

Exercise walk-through

8.9

Solid Waste Disposal

AP Environmental Science

Waste and sewage

Landfills bury waste; a sanitary landfill lines the base and captures leachate & methane.

Best order: reduce, reuse, recycle;
compost food scraps.



Landfill: line, capture leachate, manage methane

Where solid waste actually goes

sanitary land-fills

buried in lined cells to limit **leachate** ; takes land and can still leak

incinerators

burning cuts the *volume* sharply but emits air pollutants and leaves toxic ash

composting

organic waste returned to soil – the cheapest diversion there is

e-waste

phones, computers, televisions – small in volume, but loaded with **toxic metals**

garbage patches

ocean-dumped plastic gathered by currents into vast floating fields far out at sea

The hierarchy is **reduce**, **reuse**, **recycle** – and reducing is best because waste you never make needs no disposal at all.

Exercises 2.1-2.3

2.1 What is leachate?

[1]

2.2 What gas is produced as landfill waste decomposes?

[1]

2.3 State one advantage of incineration.

[1]

Exercises 2.1-2.3

2.1 What is leachate? [1]

2.1

- Liquid that seeps through waste and can pollute groundwater
-

2.2 What gas is produced as landfill waste decomposes? [1]

2.2

- Methane
-

2.3 State one advantage of incineration. [1]

2.3

- Any one: reduces waste volume, can generate energy

Exercise 3.1

3.1 A liner is placed at the bottom of a landfill to

[1]

☐

A produce methane

B stop leachate contaminating groundwater

C burn the waste

D add nutrients

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3.1 B

- stop leachate contaminating groundwater

Exercise 3.2 (a)

3.2 A city debates a landfill vs an incinerator.

(a) State one advantage and one disadvantage of the landfill.

[2]

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[2]

(a)

- Landfill – advantage: cheap; disadvantage: uses land / leachate / methane

Exercise 3.2 (b)

3.2 A city debates a landfill vs an incinerator.

(b) State one advantage and one disadvantage of the incinerator.

[2]

Exercise 3.2 (b)

3.2 A city debates a landfill vs an incinerator.

(b) State one advantage and one disadvantage of the incinerator. [2]

(b)

- Incinerator – advantage: reduces volume / energy; disadvantage: air pollution / toxic ash / cost

Exercise 3.3

3.3 Explain how landfill methane can be turned from a problem into a resource. [2]

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3.3

- The methane can be **captured** and burned as fuel to generate electricity, turning a greenhouse-gas problem into an energy source