

Exercise walk-through

The Hydrologic (Water) Cycle ■ 1.7

eXercise

You must be able to

- name the processes (**evaporation** 蒸发, **transpiration** 蒸腾, condensation, **precipitation** 降水, runoff, infiltration)
- describe how water moves between reservoirs
- explain how humans alter the cycle

Method — The processes

The **water cycle** moves water by:

- **Evaporation** — liquid water becomes vapor.
- **Transpiration** — water evaporates from plant leaves.
- **Condensation** — vapor forms clouds.
- **Precipitation** — rain/snow falls.
- **Runoff** — water flows over land to rivers/oceans.
- **Infiltration** — water soaks into the ground (groundwater).

Method — Reservoirs

Water is stored in oceans (most), ice caps, groundwater, lakes/rivers, and the atmosphere.

Method — Human disturbance

Paving land increases runoff and reduces infiltration; **deforestation** reduces transpiration; **withdrawing groundwater** faster than it recharges depletes aquifers.

Method — A worked link

Cutting a forest reduces transpiration and infiltration, so more water runs off quickly, raising flood risk and lowering groundwater recharge.

Practice 2.1 ■ 1 mark

What is transpiration?

Solution 2.1

Worked steps

Evaporation of water from plant leaves **B1**.

Practice 2.2 ■ 1 mark

What process soaks water into the ground?

Solution 2.2

Method: The processes

Worked steps

Infiltration **B1**.

Practice 2.3 ■ 1 mark

Name the largest reservoir of water.

Solution 2.3

Worked steps

The oceans **B1**.

Exam-style 3.1 ■ 1 mark

Water evaporating from plant leaves is called

A precipitation

B infiltration

C transpiration

D runoff

Solution 3.1

Method: The processes

A precipitation

B infiltration

C transpiration



D runoff

Worked steps

C — transpiration.

Exam-style 3.2 ■ 2 marks

A city paves over a large grassy area.

- (a) Explain the effect on runoff and infiltration.
- (b) State one consequence of increased runoff.

Solution 3.2

Method: The processes

Worked steps

(a) Paving increases runoff (water flows over the hard surface) and reduces infiltration (less soaks in) **M1** **A1**. (b) Any one: flooding, less groundwater recharge, more erosion/pollution carried to rivers **B1**.

Exam-style 3.3 ■ 2 marks

Explain how deforestation changes the local water cycle.

Solution 3.3

Method: The processes

Worked steps

Fewer trees means less transpiration and less infiltration (roots no longer hold water), so more water runs off quickly and groundwater recharge falls **M1** **A1**.