9 The water cycle: solid, liquid and gas

Moisture is all around us as invisible vapour. But when air gets cold, the vapour changes to water, or ice, in clouds and on the ground.

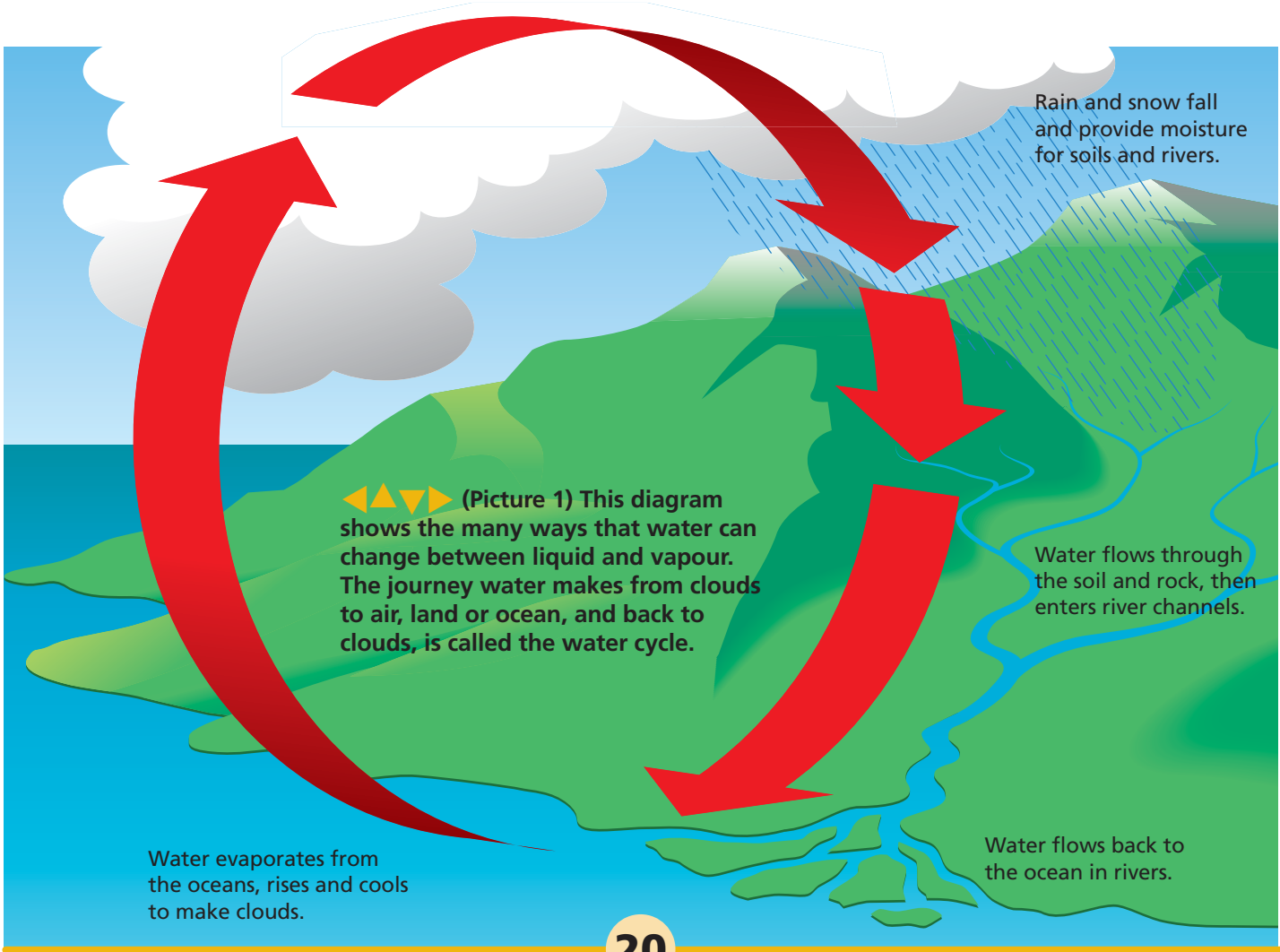
Water in the air occurs in three forms: gas (water vapour), liquid (cloud droplets and rain) and solid (ice crystals in the shape of snowflakes). By changing between gas, liquid and solid, water gives us rain, snow, moist air, oceans, rivers and lakes.

The never-ending change between the forms of water is called the **WATER CYCLE** (Picture 1).

How the water cycle works

Sunshine heats the ocean waters, giving the water enough energy to evaporate. Once turned into a gas, some of the water vapour is then carried high into the air by winds.

High in the air the heat begins to leave the water vapour, and it starts to condense onto particles of dust in the air, forming into tiny droplets. We see this as cloud.



(Picture 1) This diagram shows the many ways that water can change between liquid and vapour. The journey water makes from clouds to air, land or ocean, and back to clouds, is called the water cycle.

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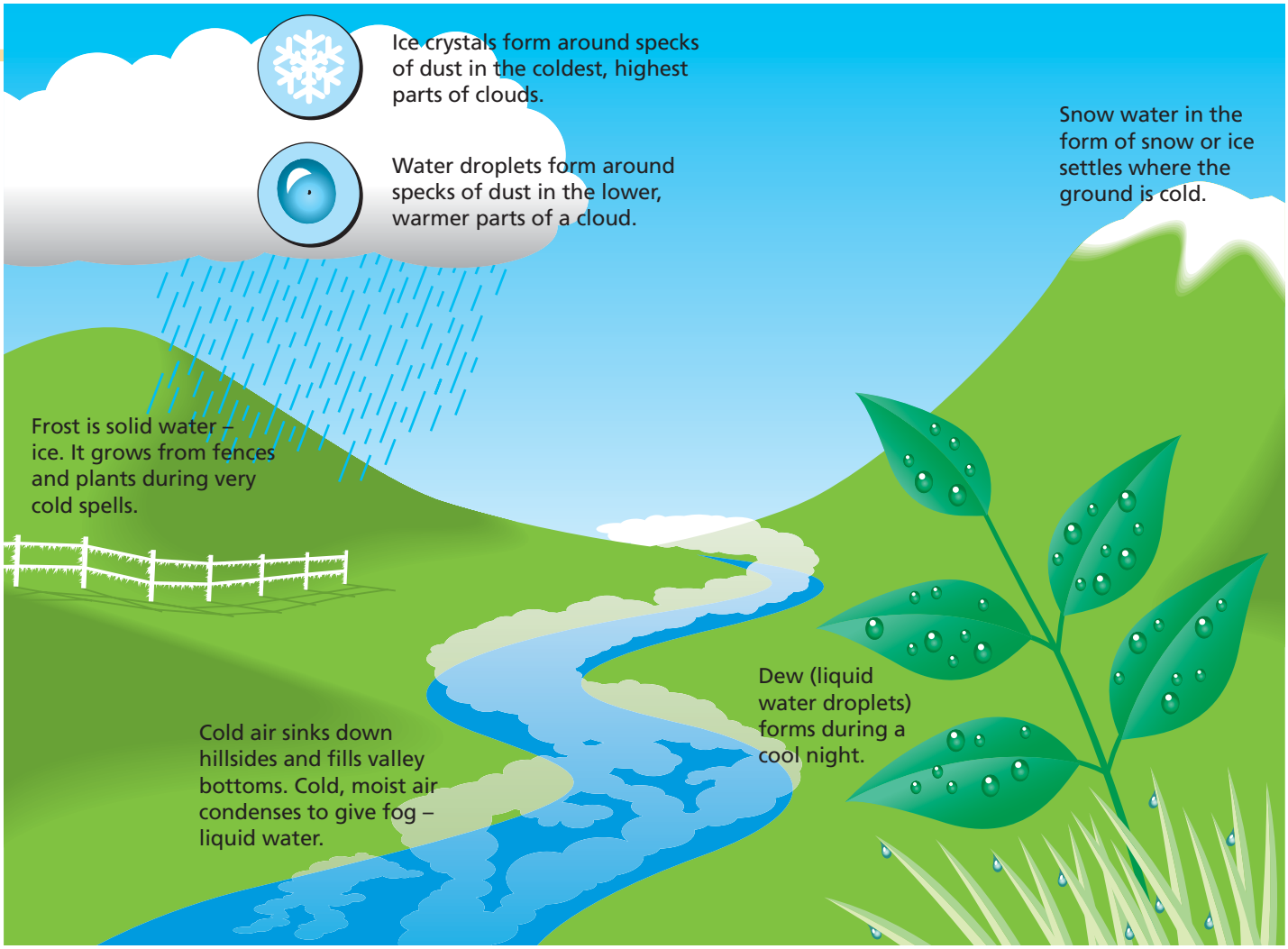

In some clouds, the air is so cold that water vapour turns directly into ice and snowflakes form.

▲ (Picture 2) This diagram shows the many ways that water can change between liquid and vapour. The journey water makes from clouds to air, to land or ocean, and back to clouds, is called the water cycle.

From clouds to ground

Water droplets and snowflakes are carried about by the winds, often colliding and growing bigger. When they are big and heavy, they fall from the air as rain or snow.

Some air close to the ground also cools enough for water vapour to change to liquid water to give **DEW** (Picture 2).

Water droplets that reach the ground make surfaces like leaves, roofs and the ground wet. Once the ground is wet, any more rain that falls will seep into the soil, eventually reaching rivers and flowing back to the sea. At the end of each rainstorm, water evaporates off the wet surfaces and goes back into the air.

Plants take water from the soil through their roots, and lose it as vapour through their leaves, providing another route for water to get back into the air.

Summary

- **The water cycle uses changes between solid, liquid and gas to carry water around the world.**

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