Year 10 Science: The water cycle part 2: evaporation, clouds and precipitation

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. What is the name for water vapour leaving a plant through its leaves?

2. Moist air is blown up over the Kaimai Range. Explain why clouds often form over the hills.

3. What is the difference between hail and sleet?

4. In the bowl model, what does the ice on the cling film represent, and what is one limitation of this part?

5. It rains somewhere on Earth every day, yet the total amount of water on Earth does not go up. Why not?

Fix the mistake

6. Correct this statement: "Water only evaporates when it is heated until it boils."

7. Correct this statement: "Rising air cools because it is moving further from the warm ground."

8. Correct this statement: "Hail is just frozen rain, so it only falls in cold weather."

9. Correct this statement: "Two dishes holding 100 mL each will dry at the same rate, because they hold the same amount."

Answer key (for parents and tutors)

1. What is the name for water vapour leaving a plant through its leaves?
   Transpiration.
2. Moist air is blown up over the Kaimai Range. Explain why clouds often form over the hills.
   The air is forced to rise; higher up the pressure is lower, so it expands and cools; once it cools to its dew point the water vapour condenses into droplets, forming cloud.
3. What is the difference between hail and sleet?
   Hail is lumps of ice built up in layers as strong updraughts in a thunderstorm carry them up and down; sleet is a mix of rain and snow, or snow that has partly melted as it falls.
4. In the bowl model, what does the ice on the cling film represent, and what is one limitation of this part?
   The cold air high in the atmosphere where vapour condenses; a limitation is that real air cools mainly by rising and expanding, not by touching something cold.
5. It rains somewhere on Earth every day, yet the total amount of water on Earth does not go up. Why not?
   Water is not created by rain; rain is water that evaporated earlier. The total is fixed and just keeps cycling, so precipitation is balanced by evaporation and transpiration.
6. Correct this statement: "Water only evaporates when it is heated until it boils."
   Evaporation happens from the surface at any temperature, just faster when the water is warm, the air is dry and windy, and the surface is large.
7. Correct this statement: "Rising air cools because it is moving further from the warm ground."
   It cools because the air pressure is lower higher up, so the rising air expands, and expanding air cools.
8. Correct this statement: "Hail is just frozen rain, so it only falls in cold weather."
   Hail grows in layers as strong thunderstorm updraughts carry ice up and down through the cloud, so it often falls in summer storms.
9. Correct this statement: "Two dishes holding 100 mL each will dry at the same rate, because they hold the same amount."
   The wider dish dries faster, because more of its particles are at the surface where they can escape.