**Separating Water Mass From Leaf Growth**

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A classroom growth simulation tracks leaf tissue during a light period. Its wet mass includes water. Its dry mass is the mass of everything except water. The model gives dry mass estimates for the same tissue without changing the tissue during the simulated test.

| **Record** | **Wet mass (g)** | **Dry mass (g)** |
|---|---|---|
| Start | 20.0 | 4.0 |
| End under light | 19.0 | 4.5 |
| End in matched dark trial | 19.0 | 3.8 |

**1** Which reading shows that dry matter increased in the light trial?

(1) Wet mass falls from 20.0 g to 19.0 g.

(2) Dry mass rises from 4.0 g to 4.5 g.

(3) Both trials end with 19.0 g wet mass.

(4) Dry mass in the dark trial is 3.8 g.

**2** Calculate how much water mass the tissue loses in the light trial. Show how both types of measurement are used. [1]

Answer and work

**3** A student says the tissue in the two trials must have gained or lost the same amount of dry matter because their final wet masses match. Use the records to evaluate the claim. [1]

Answer and work

**4** Explain how photosynthesis can contribute to a gain in dry matter even while wet mass falls in the light trial. [1]

Answer and work