

Full Higher Separate content. ★ = Higher Tier. ◆ = Separate Science only.

**Q1. Distinguish between transpiration and translocation.**

**[3 marks]**

---

---

---

---

---

---

**Q2. Describe how THREE factors increase the rate of transpiration and explain the mechanism in each case.**

**[4 marks]**

---

---

---

---

---

---

---

---

---

---

---

**Total: 7 marks**

**Q1 (3 marks)**

*Distinguish between transpiration and translocation.*

- Transpiration: loss of water vapour from leaves through stomata — drives water up xylem [1]
- Translocation: transport of dissolved sugars (sucrose) through phloem from leaves to rest of plant [1]
- Transpiration: one direction (upward); translocation: both directions [1]

**Q2 (4 marks)**

*Describe how THREE factors increase the rate of transpiration and explain the mechanism in...*

- Higher temperature: water evaporates faster from cell surfaces → faster rate [1]
- Higher light intensity: stomata open wider → more water vapour escapes [1]
- Lower humidity: steeper concentration gradient between leaf and air → faster diffusion [1]
- Higher wind speed: water vapour carried away → maintains gradient [1] — any 3