*This is the **Higher Combined** version — includes Higher Tier content. Some Separate-only details are omitted.*

Glucose produced in photosynthesis is used or converted for various purposes in the plant.

- Respiration: glucose is broken down in mitochondria to release energy (ATP) for all metabolic processes.
- Starch: glucose is converted to starch for storage (in leaves, roots, seeds). Starch is insoluble — does not affect osmosis.
- Cellulose: glucose is used to make cellulose for cell walls — provides structural support.
- Sucrose: glucose is converted to sucrose for transport in phloem to other parts of the plant.
- Amino acids: glucose + nitrate ions from soil → amino acids → proteins. Nitrates are absorbed from soil by active transport.
- Lipids: converted to fats and oils for energy storage (especially in seeds).

★ **HT** Starch is the storage form because it is insoluble (no osmotic effect) and compact. Sucrose is the transport form because it is soluble.

Key Terms

Starch	Insoluble storage polysaccharide made from glucose — stored in leaves, seeds and roots
Cellulose	Structural polysaccharide making up plant cell walls — made from glucose
Translocation	Transport of sucrose through phloem from leaves (source) to other parts of plant (sinks)

■ **Exam Tip:** Learn all SIX uses of glucose: respiration, starch, cellulose, sucrose, amino acids/proteins, lipids. These 6 uses come up as a list question worth 4-6 marks.