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

Respiration releases energy from glucose. All living organisms respire continuously.

- Aerobic: glucose + oxygen → CO■ + water (+energy as ATP) — in mitochondria
- Anaerobic (animals): glucose → lactic acid (+small energy)
- Anaerobic (yeast/plants): glucose → ethanol + CO■ (+small energy) = fermentation
- Aerobic releases FAR more energy than anaerobic
- Oxygen debt: extra O■ after exercise to break down lactic acid

Key Terms

Aerobic respiration	Uses oxygen, produces lots of ATP, in mitochondria
Fermentation	Anaerobic respiration in yeast — ethanol + CO■
Oxygen debt	Extra oxygen needed after anaerobic exercise to break down lactic acid

■ **Exam Tip:** Aerobic = lots of energy. Anaerobic = little energy. Animals: lactic acid. Yeast: ethanol + CO■. Know both equations.