*This is the **Higher Separate** version — includes all Higher Tier content (marked ★) and all Separate Science content.*

The digestive system breaks large, insoluble food molecules into small, soluble ones that can be absorbed.

Required Practical: Food tests: iodine (starch), Benedict's (reducing sugar), biuret (protein), emulsion (lipid).

- Mouth: mechanical digestion + amylase (starch → sugars)
- Stomach: protease + HCl (pH 2 — kills bacteria, activates pepsin)
- Small intestine: bile (emulsifies fats) + amylase + lipase + protease from pancreas. Absorption via villi
- Large intestine: water absorbed, faeces formed
- Villi: large SA, thin walls, capillary network — efficient absorption
- Enzymes: amylase (starch → sugars), protease (proteins → amino acids), lipase (fats → fatty acids + glycerol)

Key Terms

Bile	Emulsifies fats — from liver, stored in gall bladder
Villi	Finger-like projections in small intestine — increase SA for absorption

■ **Exam Tip:** Bile is NOT an enzyme — it emulsifies (physically breaks up) fat droplets. Examiners often test this distinction.