

Solutions

Each answer shows the steps, then the **result**.

2.1

- biting and cutting: **incisors**

2.2

- physical digestion makes pieces smaller, giving a **larger surface area** for enzymes

3.1 B

- emulsifying **breaks large fat drops into small droplets**
- A is lipase; C is a second job of bile; D is absorption

3.2

(a)

- bile is stored in the **gall bladder**

(b)

- small droplets have a **much larger surface area**
- so lipase can digest the fat **faster**

3.3

- molars and premolars **chew and grind** food

3.4

(a)

- **incisors**: biting and cutting
- **canines**: tearing
- **premolars**: grinding and chewing
- **molars**: grinding food to a paste

(b)

- physical digestion breaks food into smaller **pieces** without changing the molecules
- it **increases the surface area**
- enzymes then act on far more of it, so chemical digestion is **faster**

(c)

- bile **neutralises** stomach acid so enzymes have the right pH
- it **emulsifies** fat, raising the surface area for lipase

(d)

- **churning** is physical — pieces smaller, molecules unchanged

- acid breaking down protein is **chemical** digestion