Blast-off : Puberty & Reproduction

Page 5

1. **energy**
2. **growth**
3. **respiration**
4. **carbohydrates**
5. **bread**
6. **protein**
7. **damaged**
8. **meat**
9. **minerals**
10. **iron**
11. **oxygen**
12. **oranges**
13. **fibre**
14. **chemical**
15. **blood**

Page 7

1. **Missing Food Type**: Vitamins.
2. **Ingredients High in Protein**: Chicken, eggs.
3. **Importance of Fiber**: Fiber helps keep food moving through the digestive system and prevents constipation.
4. **Ingredients High in Fiber**: Brown rice, peas, red peppers.
5. **Sources of Minerals and Vitamins**: Peas, red peppers, eggs.

Page 8

6. **Table Completion**:
    - **Carbohydrates**: Provides energy.
    - **Proteins**: For growth and repair.
    - **Fats**: Stores energy.
7. **Importance of Carbohydrates in the Body**: Carbohydrates are the primary source of energy, fuelling daily activities and bodily functions.
8. **Importance of Water in the Diet**: Water is essential for hydration, helps with digestion, and facilitates chemical reactions in the body.

Page 18:

1. **What are enzymes?**
   Enzymes are biological catalysts that speed up chemical reactions in the body.
2. **What enzyme breaks down starch into glucose?**
   Amylase.
3. **What enzyme would be found in the stomach?**
   Protease (pepsin specifically digests proteins in the stomach).
4. **Why does food need to be digested?**
   Food needs to be digested to break down large, insoluble molecules into small, soluble molecules that can be absorbed into the bloodstream.
5. **What are the two substances that make up lipids?**
   Fatty acids and glycerol.

Matching Keywords to Descriptions:

- **Ingestion**: the taking in of substances, e.g., food and drink, into the body through the mouth.
- **Mechanical digestion**: the breakdown of food into smaller pieces without chemical change to the food molecules.
- **Chemical digestion**: the breakdown of large, insoluble molecules into small, soluble molecules.
- **Absorption**: the movement of small food molecules and ions through the wall of the intestine into the blood.
- **Egestion**: the passing out of food that has not been digested or absorbed, as faeces, through the anus.

Page 21:

1. **teeth**
2. **enzymes**
3. **oesophagus**
4. **peristalsis**
5. **acid**
6. **pancreas**
7. **small**
8. **bile**
9. **fats**
10. **villi**
11. **water**
12. **rectum**
13. **anus**

Page 25

3.

- (a) (i) **Useful gas from lungs**: Oxygen (1 mark)
    - (ii) **Useful substance from intestine**: Glucose or nutrients (1 mark)
- (b) **Blood clot stops an organ working**: Prevents blood flow, depriving the organ of oxygen and nutrients (1 mark)
- (c) **How a scab protects**: Acts as a barrier to prevent bacteria from entering the body (1 mark)

Page 26

4.

- (a) **Does evidence support that all acids cure scurvy?**: No, only oranges and lemons helped; other acids were ineffective (1 mark)
- (b) (i) **Independent variable**: Type of food given (1 mark)
    - (ii) **Dependent variable**: Recovery from scurvy (1 mark)

- (c) **New prediction about scurvy**: Vitamin C or citrus fruits, not acids alone, can cure scurvy (1 mark)
- (d) **Why more than one week is needed**: Scurvy symptoms take time to change, so longer observation is necessary (1 mark)

Page 28

10.

- (a) **Why 37°C for the water bath**: Body temperature, optimum for enzyme activity (1 mark)
- (b) **Why gelatin cut in pieces digested faster**: Increased surface area speeds up enzyme action (1 mark)
- (c) **Why boiling stops enzyme function**: Boiling denatures enzymes, altering their shape and preventing function (1 mark)
- (d) (i) **Products of protein digestion**: Amino acids (1 mark)
    - (ii) **Why digest protein for growth and repair**: Proteins need to be broken down into amino acids for absorption and use in cells (1 mark)

Page 30

6.

- (a) (i) **Letter for stomach**: C (1 mark)
    - (ii) **Letter for small intestine**: D (1 mark)
    - (iii) **What carries glucose from intestine**: Blood or bloodstream (1 mark)
- (b) **Why athletes take glucose**: Provides quick energy (tick the correct box) (1 mark)
- (c) (i) **Most sugar in lunch**: Clare (1 mark)
    - (ii) **Most fat in lunch**: Nadia (1 mark)
    - (iii) **Why too much fat is bad**: Can lead to heart disease, obesity, or other health issues (1 mark)

Page 32

7.

- (a) (i) **Why chips are crisper than boiled potatoes**: Chips contain less water (1 mark)
    - (ii) **Where most fiber is in baked potato**: Skin (1 mark)

- (b) **Vitamin C in 200g servings**:
    - **Chips**: 18 mg (1 mark)
    - **Baked potato**: 28 mg (1 mark)
- (c) **Diet and organs harmed**:
    - Too much fat → Heart
    - Not enough fiber → Intestine
    - Not enough calcium → Bones (3 marks total)

Page 34

13.

- (a) (i) **Why football uses up reserves faster than bowling**: Football requires more energy (2260 kJ vs 1030 kJ) due to its higher intensity (1 mark)
    - (ii) **Two effects of alcohol on performance**:
        - Reduces reaction time
        - Impairs coordination and judgment (2 marks)
- (b) **Why glucose is quicker than starch for energy**: Glucose is readily available for absorption, while starch needs to be broken down first (1 mark)

Page 36

3.

- (a) **Substance removed in skimmed milk**: Fat (1 mark)
- (b) (i) **Substance for strong bones and teeth**: Calcium (1 mark)
    - (ii) **How substances are carried around the body**: By the bloodstream or circulatory system (1 mark)

Page 37

15.

- (a) (i) **Nutrient providing most energy in cheese**: Fat (1 mark)
    - (ii) **Nutrient providing most energy in wholemeal bread**: Carbohydrate (1 mark)
    - (iii) **Nutrient needed for growth and repair**: Protein (1 mark)
- (b) **Amount of cheese for 45g protein**: 200g (tick correct box) (1 mark)

- (c) **Missing nutrient type for balanced diet**: Fiber or water (1 mark)

Page 38

- (d) (i) **Calcium for a breast-feeding woman**: 1200 mg (1 mark)
    - (ii) **Why extra calcium is needed**: To support milk production and maintain her own bone health (1 mark)

Page 39

16.

- (a) (i) **Reducing plaque to prevent tooth decay**: Plaque contains bacteria that produce acid; reducing it lowers acid production, protecting enamel (1 mark)
    - (ii) **Why alkaline toothpaste helps**: Neutralizes the acid, preventing it from eroding enamel (1 mark)
- (b) **Why boys looked at teeth before and after brushing**: To measure how much plaque was removed by brushing (1 mark)

Page 40

- (c) (i) **Why smaller grid squares are better for measuring plaque**: Provides a more accurate measurement (1 mark)
    - (ii) **Estimate area covered by plaque**: Based on grid, answer will vary (1 mark if reasonable estimate based on visible area)