



**Year 8**

# Biology

## revision pack

### **Contents page:**

Page 2-4: What keeps organisms healthy?

Page 5-9: How do organisms grow and reproduce?

Page 10-12: Why are organisms so diverse?

Page 13-18: What is the chemistry of living things?

#### **Instructions:**

- 1) When starting revising a big question use the short summary and your own knoweldge to make a spider diagram in the space provided. The practice questions for each big question are broken into sections.
- 2) Before starting the practice questions for a section read the pages in the self-study pack that are noted at the top of each section.
- 3) Attempt all the practice questions in your book or on lined paper.
- 4) Check the answers using the markscheme in a green pen. Add any missing information to your spider diagram.

# What keeps organisms healthy?

*(A short summary of what we have learnt this year in answer to the big question above)*

Human health is about more than just the absence of disease. Good health is “state of complete physical, mental and social wellbeing.” This means we need to look after our mental and physical health if we are to remain healthy. To remain physically healthy, we need to maintain our physical fitness and eat a balanced diet. A balanced diet is one that includes all the main nutrients our body needs. If we eat too little, or too much, of any nutrient it can lead to ill health and cause disease. Our body transfers the energy we need from chemical stores in food. The amount we need to eat to get the energy we need is different for everyone and depends on our age, gender, size, and level of physical activity

Regular exercise is good for our health and physical fitness. Regular exercise increases our lung volume and strengthens our heart muscles. This means the body can supply more oxygen and glucose to our cells for respiration and improves our physical fitness. Physical fitness is our ability to carry out physical activities.

Task - Draw a spider-diagram summarising the information in the text above

## Knowledge Practise & Application:

Practise questions to test your recall of important knowledge and ability to apply this knowledge. *Italics note relevant self-study packs to refer to should you get stuck.*

### Part A: B5 Topic self-study pack – Lessons 01 - 09

1. What are the symptoms someone may be suffering from ill health?
2. What causes infectious diseases?
3. Give three causes of non-infectious diseases?
4. What causes diseases that can be inherited from our parents?
5. What happens in an asthma attack?
6. Why can asthma attacks be dangerous?
7. What is a nutrient?
8. What is a balanced diet?
9. Which of the main nutrients are sources of energy?
10. Which nutrient is used make new cells and repair tissues?
11. What are food tests used to test for?
12. Fibre is not a nutrient – why do we need it in our diet?
13. What is malnutrition?
14. How can too much fat in a diet lead to ill health?
15. How can having too little fat in a diet can lead to ill health?
16. How is energy stored in food?
17. How does the body transfer energy from food?
18. What unit is used to measure the amount of energy stored in food?
19. Name three factors that affect how much energy we need from our diet?
20. Give two long term effects of regular exercise
21. What is “physical fitness?”
22. What does resting heart rate mean?
23. If someone is physically fit will their heart rate return to rest quickly or slowly after exercise?
24. The information shown in the image is taken from a Baked bean can.
  - a. Which ingredient provides most of the protein in the can?
  - b. Why is protein important to the human body?
  - c. Give one group of substances, needed for a healthy diet, which is missing from the nutritional information.
  - d. Name one food, shown in the list of ingredients, which provides fibre.
  - e. Why is fibre important to the human body?
25. Toby is a vegan. He reports finding it hard to eat protein. Recommend two sources of protein suitable for him.
26. Ashley is planning on running a marathon (26 miles) race.
  - a. He asked for some advice about what to eat in the days before the race. What advice would you give him? Explain your answer.
  - b. Ashley reads he should eat a meal high in protein after the race. Explain why.
  - c. Why must Ashley continue to drink water during his race?
  - d. Why is water important to the human body?
  - e. Ashley has trained for 6 months for his marathon by running 5 times a week. How should his nutrient intake be different to a person who works in an office and does not run?
27. Suggest why a sedentary teenager needs more energy per day than a sedentary person in their 40s.
28. A man in his 40s changes from being very active to sedentary. He continues to eat the same amount of food each day. How might his body change?
29. A sedentary teenager starts the couch to 5k challenge. She continues to eat the same amount of food each day. How might her body change?

nutritional information		list of ingredients
100g provides:		haricot beans, tomato purée, water, sugar, modified starch, salt, paprika, onion powder, herb extracts, spices
energy	406 kJ	
protein	5.4 g	
total carbohydrate	17.6 g	
sugar	6.0 g	
fat	0.4 g	
fibre	3.7 g	

## Answers:

### Part A:

1. A change from their normal appearance or behaviour.
2. microorganisms
3. Lifestyle, environment and genetic information
4. Genetic information (genes, genome)
5. Air ways into lungs become inflamed and blocked.
6. Hard for the body to get enough oxygen
7. A chemical compound found in food that the body needs to stay healthy
8. A diet that provides the correct amounts of the main nutrients
9. Carbohydrates and lipids
10. proteins
11. Which nutrients are found in different foods
12. To help us digest food
13. Having too much, too little, or the wrong balance of nutrients in your diet
14. Can become overweight or obese which can cause heart disease
15. Can become underweight which can cause heart disease
16. chemical
17. By chemical reactions (mainly respiration).
18. Kilojoules
19. gender, age and level of activity
20. Increases lung volume and makes heart stronger
21. Our ability to carry out physical activities
22. The number of beats per minute when we are not exercising, are relaxed and calm
23. quickly
24.
  - a. Haricot beans
  - b. Used to make new cells and repair tissues
  - c. Vitamins and minerals
  - d. Haricot beans / tomato puree
  - e. Helps us digest food
25. Beans / pulses
26.
  - a. High carbohydrate and fat diet so he has enough energy stored for his race.
  - b. He will have damaged muscle tissues during the race, protein is needed to repair these tissues.
  - c. He will be sweating and exhaling whilst running a lot so will lose water by evaporation.
  - d. Means chemical reactions can happen in cells and blood can flow.
  - e. Exercise requires muscles to contract more which requires energy released from respiration. Therefore, he will be transferring more energy than the office worked. HE should therefore eat more carbohydrates and fats to ensure he has enough energy stored. He will also be damaging muscle tissue so may need to increase his protein intake to repair this damage.
27. The teenager is growing (even though they are sedentary) and this requires extra energy/food, but a person in their 40s is no longer growing.
28. He might gain body fat (or body mass), and could become obese, as he no longer needs to use some of the food (in cellular respiration) as a source of energy and it will be converted to fat and stored under the skin.
29. She might lose body fat (or body mass), and could become underweight, as she now needs more food for respiration as a source of energy and therefore will start to use up stores of fat and potentially muscle long term.

# How do organisms grow and reproduce?

*(A short summary of what we have learnt this year in answer to the big question above)*

All organisms have a life cycle which goes through different stages. All multicellular organisms grow by increasing the number of cells they are made of through cell division. The cell division that causes growth produces genetically identical body cells. This means all the body cells in an organism are genetically identical. All multicellular organisms go through stages of growth, development and reproduction. When an organism develops its body, or parts of it, change their shape or develop new functions. Humans develop the ability to sexually reproduce during puberty. Insects can go through much bigger changes – like changing from a caterpillar to a butterfly.

Flowering plants and animals have reproductive systems that produce and release gametes for sexual reproduction. Sexual reproduction is the fusing of male and female gametes (sex cells) – sperm and ovum in animals; pollen and ovules in plants. Gametes contain half the number of chromosomes as body cells. This means when two gametes fuse the fertilised egg (or seed) produced has a full set of chromosomes. A fertilised egg, or seed gets 50% of its genome from each parent. Sexual reproduction produces genetically varied offspring

Plants (and some animals) can also reproduce asexually by cell division. This produces offspring that are genetically identical to the parent.

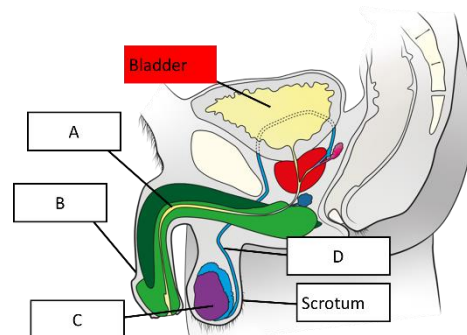
Task - Draw a spider-diagram summarising the information in the text above

## Knowledge Practise & Application:

Practise questions to test your recall of important knowledge and ability to apply this knowledge. *Italics note relevant self-study packs to refer to should you get stuck.*

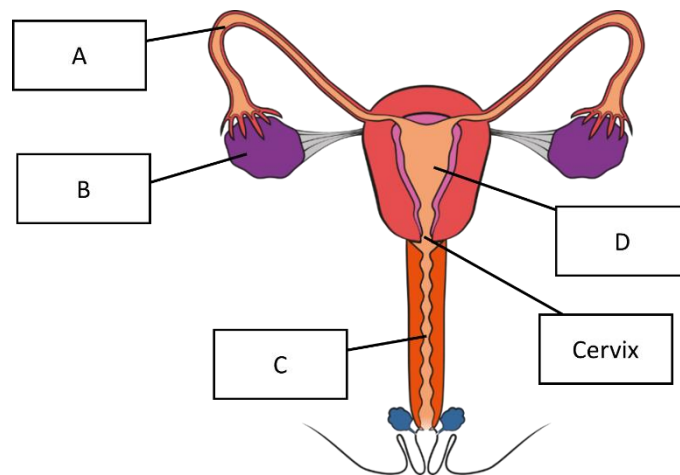
### Part A: B6 Topic self-study pack – Lessons 01 - 07

1. What is growth?
2. What causes multicellular organisms to grow?
3. What must a cell do before it divides?
4. How many new cells are produced when a cell divides?
5. How do new cells produced by cell division compare genetically?
6. What three stages are involved in the lifecycle of all animals and flowering plants?
7. What is sexual reproduction in animal?
8. When does growth occur in plants
9. What is development (of an organism)?
10. What is sexual reproduction in plants?
11. When do men begin producing sperm?
12. What is the role of the male reproductive system?
13. Which part of the male reproductive system produces sperm?
14. Which part of the male reproduce system releases sperm?
15. How does the number of chromosomes in a sperm cell compare to the number in a body cell?
16. When do women start releasing gametes?
17. What is the name of the female gamete cell produced by humans?
18. Which part of the female reproductive system releases gametes?
19. What is the role of the menstrual cycle?
20. What controls the menstrual cycle?
21. Where is sperm released into the female reproductive system?
22. Where does fertilisation occur in the female reproductive system?
23. Where does the genetic material in a fertilised ovum come from?
24. What organ does a human embryo develop inside?
25. What organ supplies nutrients and removes waste from a foetus?
26. What type of reproduction produces offspring that are genetically identical?
27. What type of reproduction produces offspring which are genetically different?
28. Why does sexual reproduction produce genetically varied offspring?
29. The figure shows a diagram of the male reproductive system. Name labels A – D.
30. The table show the number of chromosomes found in different mammals. How many chromosomes are present in the different types of cells found in these mammals? Copy and complete the gaps in the table



Organism	Number of chromosomes in a body cell	Number of chromosomes in a female sex cell	Number of chromosomes in a male sex cell	Number of chromosomes in a fertilised egg cell
Human	46			
Tiger		19		
Elephant			28	

31. The diagram shows the female reproductive system. Name labels A – D.



32. Plants can reproduce sexually and asexually. Compare asexual and sexual reproduction

## Answers

### Part A:

1. An increase in the number of cells an organism is made of
2. Cell division
3. Enlarge and make a copy of its genetic information
4. Two new cells
5. They are genetically identical
6. Growth, development and reproduction
7. When gametes fuse to form a fertilized egg.
8. From when they germinate until they die
9. When an organism (or parts of it) change shape or function
10. When gametes fuse to form a seed.
11. During puberty
12. To make and release sperm
13. Testes
14. Penis (through the urethra)
15. Half the number
16. During puberty
17. ovum
18. ovaries
19. To control when a ovum is released and when the uterus lining develops
20. Hormones (chemical messengers)
21. The vagina
22. The fallopian tubes
23. 50% from a sperm cell and 50% from the ovum cell
24. The uterus
25. The placenta
26. Asexual
27. sexual
28. Because 50% of the genetic material comes from each parent.
29. A – urethra  
B – Penis  
C – Testes (accept testicle)  
D – sperm duct
30. See table:

Organism	Number of chromosomes in a body cell	Number of chromosomes in a female sex cell	Number of chromosomes in a male sex cell	Number of chromosomes in a fertilised egg cell
Human	46	23	23	46
Tiger	38	19	19	38
Elephant	56	28	28	56

31. A – Fallopian tube (accept oviduct)  
B – ovary  
C – Vagina  
D – uterus
32. One parent in asexual reproduction

Two parents in sexual reproduction

Offspring genetically identical in asexual reproduction

Offspring genetically different in sexual reproduction

# Why are organisms so diverse?

*(A short summary of what we have learnt this year in answer to the big question above)*

Biologists classify all living things into five kingdoms. Each kingdom contains millions of species that can be classified into smaller and smaller 'groups within groups.' The classification system can be used to work out how closely related species are. The smaller the level of classification that two species have in common the more closely related they are. Humans are part of the animal kingdom but all the species most closely related to us are now extinct. Our closest living relatives are chimpanzees, gorillas and orangutans.

Carl Linnaeus developed the first version of our classification system. He classified organisms using their observable characteristics. Developments in technology, like microscopes, have massively increased our knowledge of living things and the cells they are made of. Knowledge of cells has allowed biologists to develop Linnaeus system into the 'five kingdom' model. However, we still use Linnaeus system of classifying organisms in each kingdom into smaller and smaller 'groups within groups.' We also still use his system of giving each species a unique binomial name.

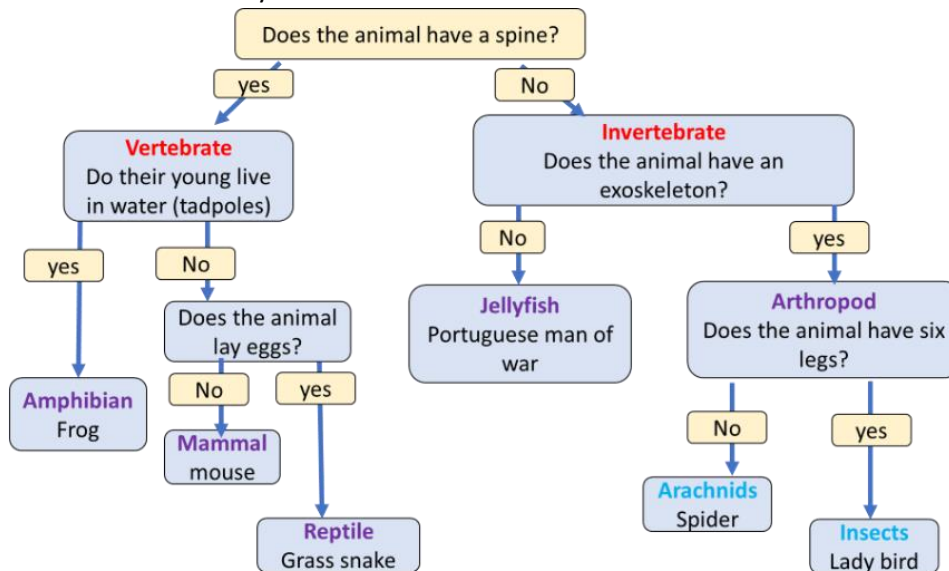
Task - Draw a spider-diagram summarising the information in the text above

# Knowledge Practise & Application:

Practise questions to test your recall of important knowledge and ability to apply this knowledge. *Italics note relevant self-study packs to refer to should you get stuck.*

## Part A: B6 Topic self-study pack – Lessons 01 - 03

1. What do biologists use to classify organisms?
2. What do all organisms in a classification group have in common?
3. Do organisms classified into different groups share any characteristics?
4. What do biologists use to classify, and organism based on its observable characteristics?
5. Which biologist developed the first modern system of classification?
6. What was the largest level of classification in Linnaeus’ system?
7. How did Linnaeus classify the organisms inside each kingdom?
8. Why have biologists developed and improved Linnaeus system?
9. How many kingdoms are there in the modern classification system?
10. How many parts are there to a species’ binomial name?
11. Are species that have small classification levels in common closely or distantly related?
12. Are species that only have large classification levels in common closely or distantly related?
13. What has happened to the species most closely related to humans?
14. What living species are humans most closely related to?
15. The image shows a classification key:



- a. Name the animal most closely related to the grass snake
  - b. Name the animal(s) most closely related to the frog.
  - c. Define vertebrate
  - d. Define mammal
16. The image shows details about three animals.
- a. State which two species are most closely related
  - b. Explain your answer.
  - c. Give the binomial name of an elephant.

	Elephant	Zebra	Horse
<b>Kingdom</b>	Animalia	Animalia	Animalia
<b>Phylum</b>	Chordata	Chordata	Chordata
<b>Class</b>	Mammals	Mammals	Mammals
<b>Order</b>	Proboscidea	Perissodactyl	Perissodactyl
<b>Family</b>	Elephantidae	Equidae	Equidae
<b>Genus</b>	Loxodonta	Equus	Equus
<b>Species</b>	africana	capensis	ferus

**Answers:**

**Part A:**

1. Their observable characteristics
2. At least one observable characteristic
3. yes
4. A key
5. Carl Linnaeus
6. Kingdoms
7. Into smaller and smaller 'groups within groups'
8. Technology has improved our knowledge of organisms (of cells)
9. five
10. Two parts
11. closely related
12. Distantly related
13. They have become extinct
14. Chimpanzees, orangutans and gorillas
15.
  - a. Mouse
  - b. Mouse or grass snake
  - c. An animal with a backbone
  - d. AN animal with a backbone that does not lay eggs (accept gives birth to live young).
16.
  - a. Horse and zebra
  - b. As we move down the chart the groups get smaller. The smaller the group the more closely related species in it are.  
Zebra and horse are in the same genus which is the second smallest group.  
Their binomial names will show they are very closely related as the first work will be the same
  - c. *Loxodonta Africana*

# What is the chemistry of living things?

*(A short summary of what we have learnt this year in answer to the big question above)*

Chemical reactions take place in all cells. Two important chemical reactions are photosynthesis and respiration.

All animal and plant cells transfer the energy they need from oxygen and glucose in a chemical process called respiration. Respiration is an exothermic reaction as energy is transferred to the surroundings (the cell) by the reaction. Cellular respiration in plant and animals takes place in the mitochondria. The overall equation for respiration is: **oxygen (g) + glucose (aq) → carbon dioxide (g) + water (l)**

Plants are called producers because they can produce their own carbohydrate food (glucose). Animals can only get carbohydrate foods by consuming plants or other animals.

Plants use a chemical process called photosynthesis to produce the carbohydrate food (glucose) that all their cells need for respiration. All plants need carbon dioxide, water and energy from light to photosynthesis. Photosynthesis is an endothermic reaction which transfers energy from light (from the sun). The overall equation for photosynthesis is: **carbon dioxide (g) + water (l) → oxygen (g) + glucose (aq)**

Task - Draw a spider-diagram summarising the information in the text above

## Knowledge Practise & Application:

*Practise questions to test your recall of important knowledge and ability to apply this knowledge. Italics note relevant self-study packs to refer to should you get stuck.*

### Part A: B8 Topic self-study pack – Lessons 01 - 05

1. Why are plants called producers?
2. What three things does a plant need for photosynthesis?
3. What are the two reactants in photosynthesis?
4. What chemical substances are produced by photosynthesis?
5. Is photosynthesis exothermic or endothermic?
6. Where does photosynthesis take place in a plant cell?
7. Give the word equation for photosynthesis.
8. What reaction do animal and plants cells use to provide them with energy?
9. Does respiration transfer energy to or from a cell?
10. What substances does respiration transfer energy from?
11. Is respiration an exothermic or endothermic reaction?
12. Where does respiration take place?
13. What is the word equation for respiration?
14. What chemical reaction takes place in all plant cells?
15. Where does respiration take place in a plant cell?
16. Where does photosynthesis take place in a plant cell?
17. Do all plant cells photosynthesise?
18. Why do all plant cells need water to stay alive?
19. What is the word equation for anaerobic respiration (in animals)?
20. Why might muscle cells respire anaerobically during exercise?
21. Does aerobic or anaerobic respiration transfer more energy from glucose?
22. Why can muscle cells only respire anaerobically for a short time?
23. What type of respiration does not require oxygen?
24. Name the site of photosynthesis in all plant cells
25. Write the word equation for photosynthesis
26. Which gas is produced in photosynthesis?
27. Which of the following statements is correct? Copy the correct sentence into your book.
  - i. Energy is transferred from the environment during photosynthesis
  - ii. Energy is transferred to the environment during photosynthesis
  - iii. Energy is made during photosynthesis
  - iv. Energy is broken down during photosynthesis
28. Which gas is used in photosynthesis?
29. What type of energy does a plant use in photosynthesis?
30. Name the green pigment found inside plant cells
31. What type of reaction is photosynthesis?
32. Green plants can make glucose. Plants need energy to make glucose. How do plants get this energy?
33. Three identical plants were grown for a week. They were treated in exactly the same way, except they each received different amounts of sunlight per day, as shown in this table. The plants didn't have any source of light other than sunlight. Which plant do you think will have produced the most glucose after one week? Explain your answer.
34. What are the two products of photosynthesis?
35. Explain why photosynthesis is an example of endothermic reaction

Plant	Hours of sunlight received per day
A	3
B	7
C	10

36. A scientist studied three different types of plant cell (taken from the same plant) under a microscope. She recorded the average number of chloroplast she found in each type of cell, as shown in this table. Suggest which type of plant cell (1-3) is likely to have the highest rate of photosynthesis. Explain your answer

Type of plant cell	Average number of chloroplasts
1	20
2	0
3	51

37. Copy and complete the sentences below

Respiration is a chemical \_\_\_\_\_ that occurs inside the \_\_\_\_\_ of all living things. It releases the stored \_\_\_\_\_ from \_\_\_\_\_ to allow the organism to \_\_\_\_\_, keep warm and grow.

### Cells, Reaction, Glucose, Energy, Move

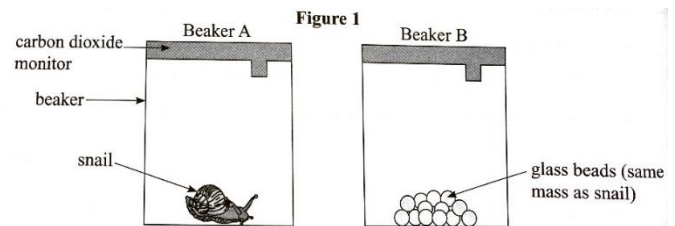
38. State the sub-cellular structure at which respiration occurs.  
 39. What reactants does aerobic respiration require?  
 40. Write the word equation for aerobic respiration.  
 41. Name the chemical process that releases energy when it takes place in the cells of the body.  
 42. Name the substances produced by respiration.  
 43. This diagram shows the equation for aerobic respiration.



- What is A in the equation?
- What is B in the equation?

44. Explain the difference between respiration and breathing  
 45. An experiment was set up using two sealed beakers, each with a carbon dioxide monitor attached. The setup is shown below. The percentage (%) of carbon dioxide in the air in both beakers was measured at the start of the experiment and again after 2 hours. The results are shown in the table

- Suggest one ethical consideration that must be taken into account during this experiment
- Describe and explain the results for Beaker A
- What would happen to the level of oxygen in Beaker A after 2 hours? Explain your answer.
- In the experiment Beaker B was set up in the same way as Beaker A but with glass beads instead of a snail. Suggest why Beaker B was used in the experiment.

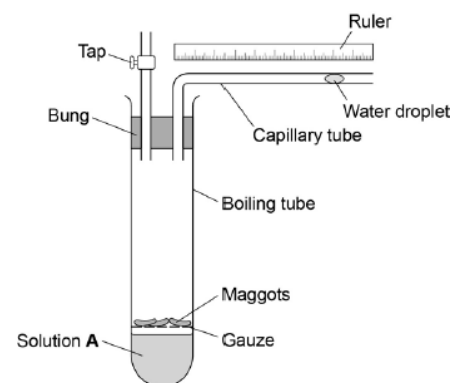


Time (hours)	% carbon dioxide in the air	
	Beaker A	Beaker B
0	0.04	0.04
2	0.10	0.04

46. Explain why muscle cells contain more mitochondria compared to bone cells

47. A student investigates the rate of respiration in maggots. The diagram shows the equipment he uses.

- Why does the student put the maggots on gauze?
- When maggots respire they take in a gas from the air and release a different gas. Solution A absorbs the gas released. At the start of the investigation the student records the distance of the water droplet from the bend in the capillary tube. Explain what happens to the water droplet as the maggots respire.



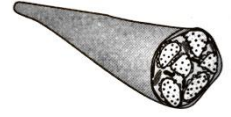
48. What is meant by the term 'anaerobic'?  
 49. Explain when the body uses anaerobic respiration  
 50. Give the word equation for anaerobic respiration in animals  
 51. Use the word in bold to complete the two spaces in the passage.

Anaerobic respiration can occur when an athlete does vigorous exercise. This is because there is not enough ... in the body. The product of anaerobic respiration is ...

**Carbon dioxide**    **lactic acid**    **nitrogen**    **oxygen**    **water**

52. Give the word equation for aerobic respiration.

53. Compare the reactants, products and the amount of energy produced for anaerobic respiration with those from aerobic respiration.
54. Which type of respiration releases more energy from glucose?
55. Respiration is a process which takes place in living cells. What is the purpose of respiration?
56. State the product of anaerobic respiration in animals
57. Describe the process of respiration which takes place in human beings when oxygen is not available and give an effect.
58. The image shows a muscle cell. Compare aerobic respiration and anaerobic respiration in muscle cells.
59. The table below shows the amount of energy released by aerobic and anaerobic respiration. Suggest why human cells might respire anaerobically, even though only a small amount of energy is transferred.
60. Lactic acid production during exercise affects an athlete's performance. Explain why lactic acid is produced during exercise.
- 61.



	Energy in kJ transferred from 1 g of glucose
Aerobic respiration	16.1
Anaerobic respiration	1.2

## Answers:

### Part A:

1. They produce their own food (by photosynthesis)
2. Water, carbon dioxide and light
3. Water and carbon dioxide
4. Glucose and oxygen
5. Endothermic as it transfers energy from surroundings
6. chloroplasts
7. carbon dioxide + water → glucose + oxygen
8. respiration
9. Respiration transfers energy to the cell
10. Oxygen and glucose
11. Exothermic
12. Mitochondria
13. oxygen (g) + glucose (aq) → carbon dioxide (g) + water (l)
14. respiration
15. mitochondria
16. chloroplasts
17. No
18. To store and transport dissolved substances
19. Glucose (aq) → lactic acid (aq)
20. Cells need extra energy, and the body cannot supply oxygen fast enough
21. Aerobic respiration transfers more energy from glucose
22. Lactic acid causes tiredness and cramps
23. Anaerobic respiration
24. Chloroplast
25. Carbon Dioxide + Water → Glucose + Oxygen
26. Oxygen
27. Energy is transferred from the environment during photosynthesis
28. Carbon Dioxide
29. Light Energy
30. Chlorophyll
31. Endothermic
32. Light is absorbed by chlorophyll for use in photosynthesis
33. Plant C because it received the most hours of sunlight, so it will have photosynthesis for longer. AS photosynthesis produced glucose, it will have produced the most glucose
34. Glucose and Oxygen
35. Because it absorbs light energy from the environment.
36. Plant cell 3 because this type of plant cell contains the most chloroplasts. Chloroplasts are the site of photosynthesis and contains chlorophyll which is needed for plants to photosynthesise.
37. Respiration is a chemical **reaction** that occurs inside the **cells** of all living things. It releases the stored **energy** from **glucose** to allow the organism to **move**, keep warm and grow.
38. Mitochondria
39. Oxygen and Glucose
40. Glucose + Oxygen → Carbon Dioxide + Water
41. Respiration
42. Carbon Dioxide and Water
43.
  - a. Oxygen
  - b. Water

44. Respiration is a chemical reaction which takes place in all cells, breathing is the mechanical process of inhaling and exhaling air
- 45.
- Snail must have enough oxygen for whole experiment (2 hours) / Snail must not be allowed to dry out
  - % of Carbon Dioxide in the air has increased over the two hours because the snail gives out carbon dioxide as it respire
  - It will have decreased because the snail will have used up oxygen as it respired.
  - Act as a control to show that it was the snail producing carbon dioxide and not just the presence of something in the beaker.
46. Because more energy is required by muscle cells for muscle contraction allowing movement.
- 47.
- To stop them falling in the solution / To stop them drowning (in the solution)
  - The oxygen in the boiling tube is used up in respiration and the carbon dioxide released from respiration is absorbed by solution A  
Which causes a pressure difference, so air is drawn into the tube bringing the water droplet with it.
48. Without oxygen
49. When the body cannot get enough oxygen to the mitochondria for respiration
50. Glucose → Lactic Acid
51. Anaerobic respiration can occur when an athlete does vigorous exercise. This is because there is not enough oxygen in the body. The product of anaerobic respiration is lactic acid
52. Glucose + Oxygen → Carbon Dioxide + Water
53. Anaerobic does not require oxygen aerobic does / aerobic more efficient (aerobic releases more energy) / the products of aerobic respiration are carbon dioxide and water whereas anaerobic respiration produces lactic acid.
54. Aerobic
55. Release energy from glucose
56. Lactic Acid
57. Any three from
58. In mitochondria
59. Glucose breaks down to give lactic acid (or glucose → lactic acid)
60. Lactic acid is painful
61. Anaerobic respiration leaves an oxygen debt
62. Anaerobic provides body with source of energy when no oxygen available
63. Less efficient than aerobic respiration
64. Anaerobic does not require oxygen aerobic does / aerobic more efficient (aerobic releases more energy) / the products of aerobic respiration are carbon dioxide and water whereas anaerobic respiration produces lactic acid.
65. When not enough oxygen is available, allows cells to still release some energy from stored glucose
66. Produced during anaerobic respiration when not enough oxygen is available. This is because the body's demand for energy for muscle contractions exceed its ability to get oxygen to the working muscles quick enough.