

Obj No	8 Organisms	Started (/) Completed	Level Achieved
	8.3.1 Gas exchange		
1	Name the parts of the gas exchange system		1 2 3 4 5 6 7 8
2	State that the parts of the gas exchange system are adapted to their function		1 2 3 4 5 6 7 8
3	State that the composition of the air inhaled and exhaled are different using data provided		1 2 3 4 5 6 7 8
4	Describe the structure of the gas exchange system		1 2 3 4 5 6 7 8
5	Describe how the parts of the gas exchange system are adapted to their function		1 2 3 4 5 6 7 8
6	Interpret data given to compare the difference in the composition of inhaled and exhaled air		1 2 3 4 5 6 7 8
7	Describe the gas exchange system as an organ system, linking the organs		1 2 3 4 5 6 7 8
8	Explain how the adaptations of the parts of the gas exchange system help them perform their function		1 2 3 4 5 6 7 8
9	Interpret data given to explain the difference in the composition of inhaled and exhaled air		1 2 3 4 5 6 7 8

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	8.3.2 Breathing		
1	State what happens to the ribcage and diaphragm during inhaling and exhaling		1 2 3 4 5 6 7 8
2	State what each part of the bell-jar model represents		1 2 3 4 5 6 7 8
3	State a value of lung volume		1 2 3 4 5 6 7 8
4	Describe the processes of inhaling and exhaling		1 2 3 4 5 6 7 8
5	Describe how a bell jar can be used to model what happens during breathing		1 2 3 4 5 6 7 8
6	Explain how to measure lung volume		1 2 3 4 5 6 7 8
7	Use appropriately calibrated apparatus to obtain a lung volume		1 2 3 4 5 6 7 8
8	Explain how the actions of the ribcage and diaphragm lead to inhaling and exhaling		1 2 3 4 5 6 7 8
9	Explain the similarities and differences between the bell jar and the breathing system		1 2 3 4 5 6 7 8
10	Explain in detail how to measure lung volumes		1 2 3 4 5 6 7 8
11	Use appropriately calibrated apparatus to obtain an accurate lung volume, evaluating the precision of instruments involved		1 2 3 4 5 6 7 8

Obj No	8 Organisms	Started (/) Completed	Level Achieved
	8.3.3 Drugs		
1	Name some recreational and medicinal drugs		1 2 3 4 5 6 7 8
2	State one effect of a drug on health or behaviour		1 2 3 4 5 6 7 8
3	Make observations during an experiment		1 2 3 4 5 6 7 8
4	Describe the difference between recreational and medicinal drugs		1 2 3 4 5 6 7 8
5	Describe the effects of drugs on health and behaviour		1 2 3 4 5 6 7 8
6	Interpret experimental observations to draw simple conclusions		1 2 3 4 5 6 7 8
7	Explain why people take different medicinal and recreational drugs		1 2 3 4 5 6 7 8
8	Explain how recreational drugs can have a negative effect on people's lifestyles		1 2 3 4 5 6 7 8
9	Record accurate and detailed observations from an experiment to draw detailed conclusions, and evaluate methods		1 2 3 4 5 6 7 8

Obj No	8 Organisms	Started (/) Completed	Level Achieved
	8.3.4 Alcohol		
1	Name one effect of alcohol on health or behaviour		1 2 3 4 5 6 7 8
2	State whether alcohol affects conception and pregnancy		1 2 3 4 5 6 7 8
3	Record results in a given table and plot a graph of results obtained		1 2 3 4 5 6 7 8
4	Describe the effect of alcohol on health and behaviour		1 2 3 4 5 6 7 8
5	Describe the effect alcohol has on conception and pregnancy		1 2 3 4 5 6 7 8
6	Design a results table and plot subsequent experimental data on an appropriate graph		1 2 3 4 5 6 7 8
7	Explain in detail how alcohol affects health and behaviour, detailing its effect on life processes		1 2 3 4 5 6 7 8
8	Explain the importance of providing information about drinking to the general public, not just pregnant women		1 2 3 4 5 6 7 8
9	Record data in a well-organised table (with headings and units) and plot an appropriate graph to present results		1 2 3 4 5 6 7 8

Obj No	8 Organisms	Started (/) Completed	Level Achieved
	8.3.5 Smoking		
1	Name an effect of tobacco smoke on health		1 2 3 4 5 6 7 8
2	State whether or not tobacco smoke affects the development of a foetus		1 2 3 4 5 6 7 8
3	Interpret secondary data and present this data on a bar chart		1 2 3 4 5 6 7 8
4	Describe the effects of tobacco smoke on health		1 2 3 4 5 6 7 8
5	Describe the effects of tobacco smoke on pregnancy		1 2 3 4 5 6 7 8
6	Present secondary data using an appropriate method, interpreting this data to draw conclusions		1 2 3 4 5 6 7 8
7	Explain how smoking causes disease		1 2 3 4 5 6 7 8
8	Explain which chemicals in tobacco smoke affect the development of a foetus		1 2 3 4 5 6 7 8
9	Interpret and present secondary data in an appropriate manner, drawing conclusions, and extrapolating data from trends shown		1 2 3 4 5 6 7 8

Obj No	8 Organisms	Started (/) Completed	Level Achieved
	8.4.1 Nutrients		
1	Name some nutrients in a given diet		1 2 3 4 5 6 7 8
2	Name the nutrients required by the human body		1 2 3 4 5 6 7 8
3	Extract nutritional information from food packaging		1 2 3 4 5 6 7 8
4	Describe the components of a healthy diet		1 2 3 4 5 6 7 8
5	Explain the role of each nutrient in the body		1 2 3 4 5 6 7 8
6	Interpret nutritional information on food packaging to identify a healthy food		1 2 3 4 5 6 7 8
7	Explain what makes a food a healthy option		1 2 3 4 5 6 7 8
8	Explain how each nutrient contributes to a healthy, balanced diet		1 2 3 4 5 6 7 8
9	Interpret nutritional information to make health comparisons between foods		1 2 3 4 5 6 7 8

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	8.4.2 Food tests		
1	State that food can be tested for starch, lipids, sugar, and protein		1 2 3 4 5 6 7 8
2	State that food tests show colour changes		1 2 3 4 5 6 7 8
3	Use appropriate techniques to carry out a food test safely		1 2 3 4 5 6 7 8
4	Describe how to test foods for starch, lipids, sugar, and protein		1 2 3 4 5 6 7 8
5	Describe the positive result for each food test		1 2 3 4 5 6 7 8
6	Use appropriate techniques to carry out a range of food tests safely		1 2 3 4 5 6 7 8
7	Explain why testing food for starch, lipids, sugar, and protein is important		1 2 3 4 5 6 7 8
8	Explain the meaning of positive or negative results in terms of the food tests		1 2 3 4 5 6 7 8
9	Use appropriate techniques to carry out a full range of food tests safely, interpreting the findings, and relating them to everyday situations		1 2 3 4 5 6 7 8

Obj No	8 Organisms	Started (/) Completed	Level Achieved
	8.4.3 Unhealthy diet		
1	State one potential problem for someone with an unhealthy diet		1 2 3 4 5 6 7 8
2	State that different people require different amounts of energy		1 2 3 4 5 6 7 8
3	Collect experimental data and record observations		1 2 3 4 5 6 7 8
4	Describe some health issues caused by an unhealthy diet		1 2 3 4 5 6 7 8
5	Calculate the energy requirements of different people		1 2 3 4 5 6 7 8
6	Collect experimental data and draw conclusions from results obtained		1 2 3 4 5 6 7 8
7	Explain how an unhealthy diet causes health issues		1 2 3 4 5 6 7 8
8	Explain that different people require different amounts of energy, using energy calculations and data to support explanations		1 2 3 4 5 6 7 8
9	Interpret experimental data and suggest ways to improve the experiment		1 2 3 4 5 6 7 8

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	8.4.4 Digestive system		
1	Name the main parts of the digestive system		1 2 3 4 5 6 7 8
2	State what is meant by digestion		1 2 3 4 5 6 7 8
3	Identify the main structures in the digestive system on a model		1 2 3 4 5 6 7 8
4	Describe the structure and function of the main parts of the digestive system		1 2 3 4 5 6 7 8
5	Describe the process of digestion		1 2 3 4 5 6 7 8
6	Give a structured account of digestion		1 2 3 4 5 6 7 8
7	Explain how each part of the digestive system works in sequence, including adaptations of the small intestine for its function		1 2 3 4 5 6 7 8
8	Explain why food needs to be digested		1 2 3 4 5 6 7 8
9	Give a detailed explanation of digestion in sequence		1 2 3 4 5 6 7 8

Obj No	8 Organisms	Started (/) Completed	Level Achieved
	8.4.5 Bacteria and enzymes in digestion		
1	Name some enzymes used in digestion		1 2 3 4 5 6 7 8
2	State where bacteria are found in the digestive system		1 2 3 4 5 6 7 8
3	Record measurements from an experiment		1 2 3 4 5 6 7 8
4	Describe the role of enzymes in digestion		1 2 3 4 5 6 7 8
5	Describe the role of bacteria in digestion		1 2 3 4 5 6 7 8
6	Record experimental data using a suitable results table		1 2 3 4 5 6 7 8
7	Explain how enzymes affect the rate of digestion		1 2 3 4 5 6 7 8
8	Explain how some bacteria improve health		1 2 3 4 5 6 7 8
9	Record experimental data using a suitable results table, and evaluate the quality of the data obtained		1 2 3 4 5 6 7 8

Obj No	9 Ecosystems	Started (/) Completed	Level Achieved
	9.3.1 Aerobic respiration		
1	State the requirements for aerobic respiration		1 2 3 4 5 6 7 8
2	Give the name of the process by which energy is released in cells		1 2 3 4 5 6 7 8
3	Plan an experiment to measure breathing rates		1 2 3 4 5 6 7 8
4	State the word equation for aerobic respiration		1 2 3 4 5 6 7 8
5	Describe the process of respiration		1 2 3 4 5 6 7 8
6	Plan an investigation to measure the effect of exercise on breathing rates		1 2 3 4 5 6 7 8
7	Explain how the reactants for respiration get into the cells		1 2 3 4 5 6 7 8
8	Explain the process of aerobic respiration		1 2 3 4 5 6 7 8
9	Plan an investigation to explain the effect of exercise on respiration rates		1 2 3 4 5 6 7 8

Obj No	9 Ecosystems	Started (/) Completed	Level Achieved
	9.3.2 Anaerobic respiration		
1	State the products of anaerobic respiration		1 2 3 4 5 6 7 8
2	State one difference between aerobic and anaerobic respiration		1 2 3 4 5 6 7 8
3	Identify one source of error in data collected		1 2 3 4 5 6 7 8
4	State the word equation for anaerobic respiration		1 2 3 4 5 6 7 8
5	Describe the differences between aerobic and anaerobic respiration		1 2 3 4 5 6 7 8
6	Evaluate data collected, suggesting possible sources of error		1 2 3 4 5 6 7 8
7	Explain the uses of the products from anaerobic respiration		1 2 3 4 5 6 7 8
8	Explain the differences between the two types of respiration		1 2 3 4 5 6 7 8
9	Evaluate data collected, showing awareness of potential sources of random and systematic errors		1 2 3 4 5 6 7 8
10	Explain in detail how to measure lung volumes		1 2 3 4 5 6 7 8
11	Use appropriately calibrated apparatus to obtain an accurate lung volume, evaluating the precision of instruments involved		1 2 3 4 5 6 7 8

Obj No	9 Ecosystems	Started (/) Completed	Level Achieved
	9.3.3 Biotechnology		
1	State what is meant by fermentation		1 2 3 4 5 6 7 8
2	Name the organism used to make bread, beer, and wine		1 2 3 4 5 6 7 8
3	Make observations about the rising of bread dough in an investigation		1 2 3 4 5 6 7 8
4	Write the word equation for fermentation		1 2 3 4 5 6 7 8
5	Describe how bread, beer, and wine are made		1 2 3 4 5 6 7 8
6	Carry out an investigation to investigate the effect of temperature on fermentation, recording measurements and drawing a conclusion		1 2 3 4 5 6 7 8
7	Explain how the process of fermentation works in relation to the word equation		1 2 3 4 5 6 7 8
8	Explain why temperature is important in the making of bread, beer, and wine		1 2 3 4 5 6 7 8
9	Carry out an investigation to investigate the effect of temperature on fermentation, using results to draw a conclusion, and suggest one way to minimise error		1 2 3 4 5 6 7 8

Obj No	9 Ecosystems	Started (/) Completed	Level Achieved
	9.4.1 Photosynthesis		
1	State where photosynthesis occurs in a plant		1 2 3 4 5 6 7 8
2	State the products of photosynthesis		1 2 3 4 5 6 7 8
3	State how to test for the presence of oxygen		1 2 3 4 5 6 7 8
4	Describe the process of photosynthesis		1 2 3 4 5 6 7 8
5	State the word equation for photosynthesis		1 2 3 4 5 6 7 8
6	Carry out an experiment to prove that oxygen is produced during photosynthesis		1 2 3 4 5 6 7 8
7	Explain the importance of photosynthesis in the food chain		1 2 3 4 5 6 7 8
8	Explain how the plant obtains the reactants for photosynthesis		1 2 3 4 5 6 7 8
9	Carry out and record observations for an experiment to prove that oxygen is produced during photosynthesis		1 2 3 4 5 6 7 8

Obj No	9 Ecosystems	Started (/) Completed	Level Achieved
	9.4.2 Leaves		
1	Name the main structures of a leaf		1 2 3 4 5 6 7 8
2	State the function of the chloroplasts in a leaf		1 2 3 4 5 6 7 8
3	Use observations from the underside of a leaf to label a diagram		1 2 3 4 5 6 7 8
4	Describe the structure and function of the main components of a leaf		1 2 3 4 5 6 7 8
5	Explain the distribution of the chloroplasts in a leaf		1 2 3 4 5 6 7 8
6	Make observations of stomata from the underside of the leaf, and record observations as a labelled diagram		1 2 3 4 5 6 7 8
7	Explain how the structures of the leaf make it well adapted for photosynthesis		1 2 3 4 5 6 7 8
8	Explain the role of chloroplasts in photosynthesis		1 2 3 4 5 6 7 8
9	Make observations of stomata from the underside of the leaf, and record as a labelled diagram with annotations		1 2 3 4 5 6 7 8

Obj No	9 Ecosystems	Started (/) Completed	Level Achieved
	9.4.3 Investigating photosynthesis		
1	Carry out an experiment to test for the presence of starch in a leaf		1 2 3 4 5 6 7 8
2	List the factors that affect the rate of photosynthesis		1 2 3 4 5 6 7 8
3	State two experiments which can be used to prove photosynthesis has taken place		1 2 3 4 5 6 7 8
4	Carry out and record observations for an experiment to test for the presence of starch in a leaf		1 2 3 4 5 6 7 8
5	State the relationship between temperature, light intensity, and availability of carbon dioxide and the rate of photosynthesis		1 2 3 4 5 6 7 8
6	State the relationship between temperature, light intensity and availability of carbon dioxide and the rate of photosynthesis		1 2 3 4 5 6 7 8
7	Carry out and record observations for an experiment to test for the presence of starch in a leaf, explaining results obtained		1 2 3 4 5 6 7 8
8	Describe why low temperature, shortage of carbon dioxide, and shortage of light limit the rate of photosynthesis		1 2 3 4 5 6 7 8
9	State and explain which method of investigating photosynthesis could be used to measure the rate of photosynthesis		1 2 3 4 5 6 7 8

Obj No	9 Ecosystems	Started (/) Completed	Level Achieved
	9.4.4 Plant minerals		
1	Name the minerals required by plants		1 2 3 4 5 6 7 8
2	State that nitrates are essential for plant growth		1 2 3 4 5 6 7 8
3	Record measurements of plant growth		1 2 3 4 5 6 7 8
4	Describe how a plant uses minerals for healthy growth		1 2 3 4 5 6 7 8
5	Explain the role of nitrates in plant growth		1 2 3 4 5 6 7 8
6	Record measurements in a table, and calculate arithmetic means of results		1 2 3 4 5 6 7 8
7	Explain deficiency symptoms in plants		1 2 3 4 5 6 7 8
8	Explain how proteins are made for plant growth		1 2 3 4 5 6 7 8
9	Record measurements in a table, and calculate arithmetic means of results, giving answers to the correct number of significant figures		1 2 3 4 5 6 7 8

Obj No	KS3 Biology - Genes	Started (/) Completed	Level Achieved
	10.3.1 - Natural selection		
1	State how survival rates differ for successful adaptation		1 2 3 4 5 6 7 8
2	State that organisms have changed over time, giving examples		1 2 3 4 5 6 7 8
3	Create a simple evolutionary sequence		1 2 3 4 5 6 7 8
4	Describe the process of natural selection		1 2 3 4 5 6 7 8
5	Describe how organisms evolve over time		1 2 3 4 5 6 7 8
6	Create an evolutionary family tree, giving justification for the route chosen in the tree		1 2 3 4 5 6 7 8
7	Explain how natural selection leads to evolution		1 2 3 4 5 6 7 8
8	Explain how scientists know that organisms have changed over time		1 2 3 4 5 6 7 8
9	Create an evolutionary family tree, and present reasoned arguments to justify the structure of the tree		1 2 3 4 5 6 7 8

Obj No	KS3 Biology - Genes	Started (/) Completed	Level Achieved
	10.3.2 - Charles Darwin		
1	State what is meant by peer review		1 2 3 4 5 6 7 8
2	Name the process by which organisms evolve		1 2 3 4 5 6 7 8
3	Describe the process of peer review		1 2 3 4 5 6 7 8
4	Describe the evidence that Darwin used to develop his theory of natural selection		1 2 3 4 5 6 7 8
5	Explain the importance of peer review to scientists		1 2 3 4 5 6 7 8
6	Explain how Darwin used the evidence from finches to develop his theory of natural selection and evolution		1 2 3 4 5 6 7 8

Obj No	KS3 Biology - Genes	Started (/) Completed	Level Achieved
	10.3.3 -Extinction		
1	State what is meant by the term extinct		1 2 3 4 5 6 7 8
2	State what is meant by biodiversity		1 2 3 4 5 6 7 8
3	Extract information from scientific text about a possible theory for dinosaur extinction		1 2 3 4 5 6 7 8
4	Describe some factors that may lead to extinction		1 2 3 4 5 6 7 8
5	Use examples to describe the difference between an area of high biodiversity and area of low biodiversity		1 2 3 4 5 6 7 8
6	Interpret evidence provided in scientific texts to explain the most likely theory for dinosaur extinction		1 2 3 4 5 6 7 8
7	Explain some factors that may have led to extinction		1 2 3 4 5 6 7 8
8	Explain how a lack of biodiversity can affect an ecosystem		1 2 3 4 5 6 7 8
9	Interpret evidence provided in a range of scientific texts to explain the most likely theory for dinosaur extinction		1 2 3 4 5 6 7 8

Obj No	KS3 Biology - Genes	Started (/) Completed	Level Achieved
	10.3.4 -Preserving biodiversity		
1	State what is meant by an endangered species		1 2 3 4 5 6 7 8
2	Name one way of protecting endangered species		1 2 3 4 5 6 7 8
3	Identify simple patterns in data		1 2 3 4 5 6 7 8
4	Describe what is meant by captive breeding		1 2 3 4 5 6 7 8
5	Describe some techniques used to prevent extinction		1 2 3 4 5 6 7 8
6	Use data from a graph to describe the effect of Project Tiger on the local tiger population		1 2 3 4 5 6 7 8
7	Explain some of the advantages and disadvantages of captive breeding		1 2 3 4 5 6 7 8
8	Explain how the techniques used to prevent extinction work		1 2 3 4 5 6 7 8
9	Link ideas given in the text to explain data presented in a graph		1 2 3 4 5 6 7 8

Obj No	KS3 Biology - Genes	Started (/) Completed	Level Achieved
	10.4.1 - Inheritance		
1	State what is meant by DNA		1 2 3 4 5 6 7 8
2	State what is meant by a chromosome		1 2 3 4 5 6 7 8
3	State what is meant by a gene		1 2 3 4 5 6 7 8
4	Describe the relationship between DNA, genes, and chromosomes		1 2 3 4 5 6 7 8
5	Describe how chromosomes from both parents combine to form offspring		1 2 3 4 5 6 7 8
6	State what is meant by a mutation		1 2 3 4 5 6 7 8
7	Explain how a change in DNA may affect an organism		1 2 3 4 5 6 7 8
8	Explain how a change in DNA may affect the future offspring of an organism		1 2 3 4 5 6 7 8
9	Explain why gametes have 23 chromosomes, but normal body cells contain 46 chromosomes		1 2 3 4 5 6 7 8

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	10.4.2 -DNA		
1	Build a model of the DNA molecule		1 2 3 4 5 6 7 8
2	Name four scientists who worked on the structure of DNA		1 2 3 4 5 6 7 8
3	Describe the structure of DNA		1 2 3 4 5 6 7 8
4	Describe how scientists worked together to discover the structure of DNA		1 2 3 4 5 6 7 8
5	Explain why it is important for scientists to work together		1 2 3 4 5 6 7 8

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	10.4.3 - Genetics		
1	Explain why it is important for scientists to work together		1 2 3 4 5 6 7 8
2	State that genetics allows us to track alleles from one generation to the next		1 2 3 4 5 6 7 8
3	Complete a Punnett square to state how many offspring will have a particular characteristic		1 2 3 4 5 6 7 8
4	Describe the difference between dominant and recessive alleles		1 2 3 4 5 6 7 8
5	Use a Punnett square to show what happens during a genetic cross		1 2 3 4 5 6 7 8
6	Trace characteristics through a family tree using Punnett squares, giving answers as percentages and ratios		1 2 3 4 5 6 7 8
7	Explain how dominant or recessive alleles can be expressed as external features		1 2 3 4 5 6 7 8
8	Explain how to use a Punnett square to predict the outcome of a genetic cross		1 2 3 4 5 6 7 8
9	Trace characteristics through a family tree using Punnett squares, calculating the probability of different outcomes		1 2 3 4 5 6 7 8

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	10.4.4 - Genetic modification		
1	State what is meant by genetic modification		1 2 3 4 5 6 7 8
2	Name a product produced by genetically modified organisms		1 2 3 4 5 6 7 8
3	Name a product produced by genetically modified organisms		1 2 3 4 5 6 7 8
4	Describe some advantages of producing products through genetic modification		1 2 3 4 5 6 7 8
5	Describe how an organism can be genetically modified to display a desired characteristic		1 2 3 4 5 6 7 8
6	Analyse advantages and disadvantages of producing products through genetic modification		1 2 3 4 5 6 7 8