

## KS3 Learning Checklist Biology

### Level 4

I know the position of the major organs in the body: the heart, lungs, liver, brain, kidney and stomach.

I know how long pregnancy usually lasts in humans.

I know the stages of the human life-cycle.

I can name two sources of protein.

I can name two sources of carbohydrate.

I can name two sources of fat.

I can explain why we need to eat fruit.

I know eyes detect light, ears detect sound and the nose and tongue detect chemicals.

I know the brain is in the head and is protected by the skull.

I can give examples of variation that is caused by the environment.

I can give examples of variation that are inherited

I know drugs affect my behaviour.

I know the chemicals found in a cigarette.

I know the five groups of vertebrates.

I know the conditions a plant needs for growth.

I know two conditions an animal needs to live.

I know that plants start a food chain.

I can identify the producer and consumer in a food chain.

I know the conditions that affect a population size.

I know the differences between a predator and prey.

I can explain what a pest is.

I know what pesticides are.

I know two materials that are recycled.

I know that burning fossil fuels causes pollution.

I know one way to conserve plants and animals.

I can name one endangered species.

I can name three ways diseases are spread.

I know that infectious diseases are caused by microbes.

I know two ways the body fights off infection.

I know one example of biological warfare

### Level 5

I can label the structures in all cells: nucleus, cytoplasm, membrane.

I can label the structures in a plant cell: cell wall, chloroplast, vacuole.

I know the role of the major organs.

I know the organs found in each of systems: circulatory, respiratory, digestive and nervous.

I know that the male sex cell is the sperm and it is produced in the testis.

I know that the female sex cell is the egg and it is produced in the ovary.

I know that fertilisation is when an egg joins to a sperm.

I know that fertilisation usually occurs in the oviduct.

I can label the male reproductive parts: testis, penis, glands, sperm tube.

I can label the female reproductive parts: ovary, oviduct, vagina, uterus, cervix.

I know the changes that occur in a male during puberty: voice breaks, hair grows on face and around genitals and in armpits, production of sperm, broadening of shoulders.

I know the changes that occur in a female during puberty: menstrual cycle starts, hips widen, breasts develop, hair grows in pubic area and in armpits.

I know that in both males and females there is a growth spurt during puberty.

I know that we need protein for growth, carbohydrate for energy and fats for protection and energy. I know that energy is used for growth, warmth and movement.

I know the route air takes when it enters the lungs.

I know some of the causes of heart disease.

I know ways of assessing my fitness.

I know the role of the brain.

I know why a reflex action is important.

I know that learning is improved by repetition.

I know the nucleus contains the genetic information.

I know the cause of variation is due to environmental *and* inherited factors and the interactions between them.

I can explain how a fertilised egg inherits information.

I can explain what a depressant does.

I can explain what a stimulant does.

I know alcohol is a depressant.

I know the harmful effects of smoking.

I know the characteristics of mammals, fish, birds, reptiles and amphibians.

I can explain how a plant absorbs light and water.

I can name the adaptations a plant or animal has to survive.

I know the arrows in a food chain show the direction of energy transfer.

I can explain what happens to the organisms in a food web if one organism disappears.

I can identify the main adaptations a predator has to survive.

I know that decomposers break down dead material.

I know bacteria and fungi are decomposers.

I know the conditions needed for dead material to rot.

I can explain what happens to the organisms in a food web if one organism disappears.

I know the effect of acid rain.

I know how to control the production of acid gases.

I know what the ozone layer does.

I know the effect of global warming.

I know how to sample an area.

I know how endangered species are conserved.

I can give two examples of conservation.

I know that the types of microbes that cause disease are bacteria, viruses and fungi.

I know two examples of viral and two of bacterial disease.

I can explain how one disease is spread and the symptoms it has.

I know that disinfectants kill microbes.

I can explain how to use an agar plate to show how effective disinfectants are.

### **Level 6**

I know the differences between a plant cell and an animal cell.

I know the role of each structure in a plant cell.

I know the role of each structure in an animal cell.

I can explain what a tissue is.

I can explain what an organ is

I know the role of the umbilical cord and amniotic fluid during pregnancy

I know the word equation for respiration.

I know the role of cilia and mucus in cleaning the lungs.

I know where oxygen enters the blood and is transported to the cells.

I can give the pathway for a reflex action.

I can explain how learning by reward and learning by punishment occur.

I can explain the difference between the nucleus, chromosomes, DNA and genes.

I know the difference between reliability and accuracy when taking measurements.

I can use data from identical twins to identify which features are inherited and which features are caused by the environment.

I can explain what a clone is.

I can explain how artificial selection is carried out.

I know what tolerance and addiction mean.

I know the symptoms of withdrawal.

I can explain why smoking causes heart disease.

I can classify unfamiliar organisms.

I know the gases used and produced in photosynthesis.

I can construct a pyramid of numbers from given data.

I can explain why not all the energy is passed on from a predator to a prey.

I can explain the advantages and disadvantages of using pesticides.

I can explain why pollution occurs.

I can explain how acid rain is caused.

I can explain why global warming occurs.

I can explain the purpose of conservation.

I know the infection cycle explains how microbes cause disease.

I can explain the difference between infection and symptoms.

I know how white blood cells prevent disease.

I know the role of antibodies.

I know the difference between disinfectants and antiseptics

### **Level 7**

I can explain how a cell is adapted to its role.

I know what stem cells are.

I can explain how some of the problems caused by organ damage have been overcome using technology.

I can explain how a sperm is adapted for its role.

I can explain the role of the placenta in the exchange of oxygen and food from the mother's blood to the baby's blood and carbon dioxide and other wastes from the baby's blood to the mother's blood.

I know the difference between breathing and respiration.

I can explain why the pulse rate increases with exercise.

I can explain how a nerve cell is specialised for its role.

I can design experiments to investigate how complex learning occurs.

I can explain how learning changes the behaviour of an animal.

I can explain why problems are caused by inbreeding, for example in pedigree dogs.

I can give a reasoned argument on whether alcohol should be banned.

I can give a reasoned argument on the effects of cannabis.

I can give a reasoned argument on which the worst drug is.

I can explain how the cells of the stem are adapted to transport water.

I can write down the word equation for photosynthesis.

I can explain how a leaf cell is adapted to carry out photosynthesis.

I can explain why a leaf gives off oxygen in the day and carbon dioxide at night.

I can explain why pyramids of numbers are not always produced.

I can construct pyramids of numbers for parasitic food chains.

I can interpret complex predator-prey graphs.

I can explain why food chains usually have a maximum of five links.

I can give a reasoned argument for the need to control carbon dioxide emissions.

I can explain what is meant by the 'cost' of becoming green.

I can give a reasoned argument for conservation.

I can explain how vaccines work.

I can explain the case for and against the use of vaccines.

I can explain how to find out which strength of disinfectant is not effective against bacteria

### **Level 8**

I can explain how the working of a pump and the heart are similar.

I can explain the benefits and cost of aggression to a species.

I can explain the ethical factors associated with genetics and provide reasoned arguments.

I can give a detailed explanation of how smoking causes breathlessness.

I can identify the evidence that needs to be collected to show the effect of drugs and explain how it is used.

I can explain how energy is changed from light energy to energy in a carnivore.

I can explain why not all the energy reaches the carnivore.

I can construct pyramids of energy.

I can explain the effect of the accumulation of pesticides on a food chain.

I can analyse evidence from different 'pressure' groups, to produce a reasoned argument for or against an environmental problem.

I can understand why scientific ideas may change in relation to the short- and long-term effects of environmental change caused by pollution.

I can explain the evidence to support the germ theory for disease.

I can use the immune response model to explain how allergies are caused, how vaccines work

and why some people never catch a disease.