



Kings Langley School

Unlocking Potential for Life

I can do statements

KS4 - Year 11

Biology



B10 The human nervous system	Check 1	Check 2	Check 3	Check 4
I can define homeostasis.				
I can explain why internal conditions need to be maintained.				
I can identify stimuli, receptors, coordination centres and effectors in examples of nervous and chemical responses.				
I can describe the pathway of impulses from receptor to effector.				
I can describe how information is passed along neurones.				
I can evaluate a method and describe how accuracy could be improved.				
I can describe how reflex actions are fast and automatic.				
I can describe the events involved in a reflex action.				
I can describe the function of synapses.				

B11 Hormonal coordination	Check 1	Check 2	Check 3	Check 4
I can explain why the pituitary gland is known as a 'master gland'.				
I can describe the role of hormones released by endocrine glands.				
I can describe what happens when blood glucose levels become too high or too low.				
I can describe the difference in the causes of Type 1 and Type 2 diabetes.				
I can explain why Type 1 diabetes is treated with insulin injections.				
I can explain how Type 2 diabetes can be treated by changes to diet and exercise.				
I can describe how the production of insulin for people with diabetes has developed over time.				
I can describe the function of adrenaline and thyroxine.				
I can interpret and explain diagrams of negative feedback control.				
I can compare and contrast the changes to boys and girls during puberty.				
I can name the hormones involved in the menstrual cycle.				
I can name the glands that produce the hormones oestrogen, progesterone, LH and FSH.				
I can describe the function of the hormones that control the menstrual cycle.				
I can explain how contraceptives work.				
I can list the advantage and disadvantage of different contraceptives.				
I can describe what is meant by infertility and suggest reasons for it.				
I can describe the steps used in IVF.				
I can outline the issues surrounding IVF.				

B13 Reproduction	Check 1	Check 2	Check 3	Check 4
I can describe the differences between asexual and sexual reproduction.				
I can describe the advantages and disadvantages of sexual and asexual reproduction.				
I can design a model to show why variation is produced in offspring from sexual reproduction but not in asexual reproduction.				
I can describe the processes of mitosis and meiosis.				
I can explain how meiosis halves the number of chromosomes in gametes and fertilisation restores the full number.				
I can solve simple probability questions.				
I can describe the relationship between DNA, genes, and chromosomes.				
I can describe some of the benefits of studying the human genome.				
I can explain why genome projects are costly and take a long time.				
I can use the terms allele, dominant, recessive, homozygous and heterozygous correctly.				
I can describe a phenotype when given the genotype.				
I can use a Punnett square diagram to predict the outcome of a monohybrid cross using the theory of probability.				
I can carry out a genetic cross to show sex inheritance.				
I can use direct proportion and simple ratios to express the outcome of a genetic cross.				
I can name examples of inherited disorders, such as cystic fibrosis and polydactyly.				
I can use a genetic cross to explain how inherited disorders are passed on.				
I can outline the methods used to screen embryos.				
I can state advantages and disadvantages of embryo screening.				

B14 Variation and evolution	Check 1	Check 2	Check 3	Check 4
I can list some examples of variation in plants and categorise as being due to genetic, environmental causes or both.				
I can suggest reasons why identical twins will start to show variation as they get older.				
I can use data to explain why studying identical twins helps scientists investigate which traits have genetic causes.				
I can explain how a mutation may lead to a new phenotype.				
I can describe the steps that take place during evolution by natural selection.				
I can analyse data from an activity modelling natural selection.				
I can explain the process of selective breeding.				
I can explain why humans have used selective breeding.				
I can explain what inbreeding is and why it is a problem in dog breeding.				
I can describe the steps used in genetic engineering to produce GM organisms.				
I can analyse data to describe why growing GM crops maybe be beneficial to a farmer.				
I can outline the potential benefits and risks of genetic engineering.				
I can describe economic and ethical concerns that people may have about cloning animals.				
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B15 Genetics and evolution	Check 1	Check 2	Check 3	Check 4
I can describe how fossils are formed.				
I can describe how fossils are evidence for evolution by natural selection.				
I can explain why the fossil record is not complete.				
I can describe how other organisms can cause an animal or plant to become extinct.				
I can suggest a hypothesis for why an organism became extinct.				
I can explain how fossil diagrams show how the horse has evolved.				
I can suggest the effects of an asteroid, comet or meteorite strike on Earth.				
I can explain how environmental change can cause mass extinctions.				
I can identify strengths and weaknesses in two different theories of mass extinction.				
I can describe how antibiotic resistant bacteria evolve.				
I can explain why scientists need to develop new antibiotics.				
I can create an information sheet outlining important facts about antibiotic resistant bacteria to the public.				
I can describe the classification system developed by Carl Linnaeus, to include the order of the taxonomic groups.				
I can identify genus and species from a scientific name.				
I can explain why a binomial naming system is useful.				
I can describe how organisms are divided in the three domain system.				
I can describe why the three domain system was proposed.				
I can draw several conclusions from a simple evolutionary tree.				

B16 Adaptations, interdependence, and competition	Check 1	Check 2	Check 3	Check 4
I can define the terms community, population, habitat, ecosystem, abiotic factor, biotic factor.				
I can describe what a stable community is and give an example.				
I can suggest how one species relies on another.				
I can describe how a factor influences the distribution of organisms.				
I can record measurements of abiotic factors.				
I can explain how to use a quadrat and transect to estimate population size.				
I can design a method to estimate a population using a sampling technique.				
I can calculate range, mean, median and mode in order to analyse results.				
I can use information to suggest factors that animals are competing for in a given habitat.				
I can explain tactics that help an animal compete for a resource.				
I can describe how the distribution of a species has changed because of competition.				
I can suggest factors that plants are competing for in a given habitat.				
I can explain why plants use seed dispersal.				
I can describe the methods plants use to outcompete others or avoid competition.				
I can suggest features that an organism may have in order to survive in a given habitat.				
I can explain how adaptations allow an organism to survive in its habitat.				
I can classify adaptations as structural, behavioural or functional.				
I can calculate surface area to volume ratio.				
I can describe how animals are adapted to live in hot, dry and cold habitats.				
I can explain how a plant adaptation allows it to survive in its habitat.				
I can explain why plants need to reduce water loss by transpiration.				
I can display data using a graph and describe what it shows.				

B17 Organising and ecosystem	Check 1	Check 2	Check 3	Check 4
I can identify producers, primary consumers, secondary consumers, tertiary consumers, predators and prey in a food web.				
I can describe what happens to a population in a food web when another changes.				
I can plot data as a line graph and explain the pattern of predator and prey populations.				
I can explain why decomposers are important to a stable ecosystem.				
I can explain the importance of recycling substances.				
I can describe the events in the decay cycle.				
I can describe the events in the carbon cycle.				
I can explain why the carbon cycle is vital to life on Earth.				
I can write word equations for photosynthesis, respiration and combustion.				

B18 Biodiversity and ecosystems	Check 1	Check 2	Check 3	Check 4
I can describe why a good level of biodiversity is important to the future of the human species.				
I can describe some effects of human population growth.				
I can describe how sewage, fertilisers, pesticides and herbicides pollute the land and water.				
I can describe the process of eutrophication and bioaccumulation.				
I can describe how acid rain is formed.				
I can plan an investigation to find out how acid rain affects the germination of seeds.				
I can explain the effects of deforestation and peat removal.				
I can categorise reasons for and effects of deforestation as environmental, social, economic and/or political.				
I can use the terms greenhouse effect, global warming and climate change correctly.				
I can describe in detail the biological consequences of global warming.				
I can describe programmes to reduce negative effects on ecosystems and explain how they work.				