B1 Topic 1 Revision tracker

BIOLOGY

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
1.1 Demonstrate an understanding of how biologists classify organisms according to how closely they are related to one another including: **a** Species **b** Genus **c** Family **d** Order **e** Class **f** Phylum **g** The Five Kingdoms			
1.2 Describe the main characteristics of the five kingdoms including **a** Animalia			
b Plantae			
c Fungi			
d Protoctista			
e Prokaryotae			
1.3 Explain why scientists do not classify viruses in any of the five kingdoms and regard them as non-living.			
HSW 11 Present information, develop an argument and draw a conclusion, using scientific, technical and mathematical language, and ICT tools			
1.3 Describe the main characteristics of invertebrates and vertebrates (including the idea that all vertebrates have a spinal cord and therefore are chordates).			
1.4 Describe the main characteristics of the phylum chordate as animals with a supporting rod running the length of the body, an example of this being the backbone in vertebrates.			
1.5 Explain how scientists place vertebrates into groups based on **a** oxygen absorption methods – lungs, gills and skin **b** reproduction – internal or external fertilisation, oviparous or viviparous **c** thermoregulation – homeotherms and poikilotherms			
b reproduction – internal or external fertilisation, oviparous or viviparous			
c thermoregulation – homeotherms and poikilotherms			
1.6 Demonstrate an understanding of the problems associated with assigning vertebrates to a specific group based on their anatomy and reproduction methods and why many vertebrates are difficult to classify.			
HSW 2 Describe how data are used by scientists to provide evidence that increases our scientific understanding.			
1.7 Discuss why the definition of a species as organisms that produce fertile offspring may have limitations: some organisms do not always reproduce sexually and some hybrids are fertile species.			
H 1.8 Explain why binomial classification is needed to identify and			

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study species			
1.9 Explain how accurate classification may be complicated by: **H b** hybridisation in ducks			
H c ring species			
1.19 Explain the role of the scientific community in validating new evidence, including the use of: **a** scientific journals			
b the peer review process **c** scientific conferences			
c scientific conferences			
HSW 14 Describe how scientists share data and discuss new ideas, and how over time this process helps to reduce uncertainties and revise scientific theories			
H 1.8 Explain why binomial classification is needed to identify, study and conserve species, and can be used to target conservation efforts			
1.9 Explain how accurate classification may be complicated by: **a** variation within a species			
1.10 Construct and use keys to show how species can be identified			
HSW 1 Explain how scientific data is collected and analysed			
1.13 Describe variation as continuous or discontinuous			
1.14 *Investigate the variations within a species to illustrate continuous variation and discontinuous variation*			
1.11 Explain how organisms are adapted to their environment and how some organisms have characteristics that enable them to survive in extreme environments, including deep-sea hydrothermal vents and polar regions			
1.15 Interpret information or variation using normal distribution curves			
1.16 Demonstrate an understanding of the causes of variation, including: **a** genetic variation – different characteristics as a result of mutation or reproduction			
b environmental variation – different characteristics caused by an organism's environment (acquired characteristics)			
HSW 10 Use both qualitative and quantitative approaches to collecting data			
1.12 Demonstrate an understanding of Darwin's theory of evolution by natural selection including **a** variation			
b over-production			
c struggle for existence			
d survival			
e advantageous characteristics inherited			

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f gradual change			
H 1.17 Demonstrate an understanding of how speciation occurs as a result of geographical isolation			
1.18 Explain how evidence from DNA research and the emergence of resistant organisms support Darwin's theory			
HSW 2 Describe the importance of creative thought in the development of hypotheses and theories			
1.20 Describe the structure of the nucleus of the cell as containing chromosomes, on which genes are located			
1.21 Demonstrate an understanding that genes exist in alternative forms called alleles which give rise to differences in inherited characteristics			
HSW 13 Explain how and why decisions that raise ethical issues about uses of science and technology are made			
1.22 Recall the meaning of, and use appropriately, the terms: dominant, recessive, homozygous, heterozygous, phenotype and genotype			
1.23 Analyse and interpret patterns of monohybrid inheritance using a genetic diagram and Punnett squares			
1.24 Calculate and analyse outcomes (using probabilities, ratios and percentages) from monohybrid crosses			
HSW 11 Present information using scientific conventions and symbols			
1.25 Describe the symptoms of the genetic disorders: **a** sickle cell disease			
b cystic fibrosis			
H 1.26 Evaluate the outcomes of pedigree analysis when screening for genetic disorders: **a** sickle cell disease			
b cystic fibrosis			
HSW 13 Describe the social, economic and environmental effects of decisions about the uses of science and technology			

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