You could sign up to <https://cognitoedu.org/home.html> for a more personalised revision experience

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| **Topic**  | **Student Checklist** | **Revision need?** | **Link** |
| **4.5.1 Homeostasis** | Describe what homeostasis is and why it is important stating specific examples from the human body |  | <https://www.youtube.com/watch?v=XMsJ-3qRVJM&list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g&index=43> |
| Describe the common features of all control systems |  |
| **4.5.2 The human nervous system** | State the function of the nervous system and name its important components |  | <https://www.youtube.com/watch?v=HiuXfbwND9s&list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g&index=44> |
| Describe how information passes through the nervous system |  |
| Describe what happens in a reflex action and why reflex actions are important |  |
| Explain how features of the nervous system are adapted to their function, including a reflex arc (inc all types of neurone and the synapse) |  |
| *Required practical 7: plan and carry out an investigation into the effect of a factor on human reaction time* |  | <https://www.youtube.com/watch?v=Ws5qVXYHRnQ> |
| **4.5.3 Hormonal coordination in humans** | Describe the endocrine system, including the location of the pituitary, pancreas, thyroid, adrenal gland, ovary and testis and the role of hormones |  | <https://www.youtube.com/watch?v=BvpPCn1rwsw&list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g&index=45> |
| State that blood glucose concentration is monitored and controlled by the pancreas |  | <https://www.youtube.com/watch?v=77oyUdNZ054> |
| Describe the body's response when blood glucose concentration is too high |  |
| Explain what type 1 and type 2 diabetes are and how they are treated |  |
| **HT ONLY: Describe the body's response when blood glucose concentration is too low** |  |
| **HT ONLY: Explain how glucagon interacts with insulin to control blood glucose levels in the body** |  |
| Describe how water, ions and urea are lost from the body |  | <https://www.youtube.com/watch?v=gWnIFIdDeto> |
| Describe the consequences of losing or gaining too much water for body cells  |  |
| Describe what happens at puberty in males and females, inc knowledge of reproductive hormones |  | <https://www.youtube.com/watch?v=Gf_WLrXAqIA> |
| Describe the roles of the hormones involved in the menstrual cycle (FSH, LH and oestrogen) |  | <https://www.youtube.com/watch?v=Gf_WLrXAqIA&list=PLidqqIGKox7X5UFT-expKIuR-i-BN3Q1g&index=48> |
| **HT ONLY: Explain how the different hormones interact to control the menstrual cycle and ovulation** |  |
| Describe how fertility can be controlled by hormonal and non-hormonal methods of contraception (giving specific examples from the spec) |  | <https://classroom.thenational.academy/lessons/contraception-chh3ct> |
| **HT ONLY: Explain how hormones are used to treat infertility, inc the steps in IVF** |  | <https://classroom.thenational.academy/lessons/artificial-control-of-fertility-higher-cgu6ac> |
| **HT ONLY: Evaluate the risks and benefits of fertility treatments** |  |
| **HT ONLY: Describe the functions of adrenaline and thyroxine in the body, and recall where they are produced** |  | <https://www.youtube.com/watch?v=_Mts354VC7A> |
| **HT ONLY: Explain the roles of thyroxine and adrenaline in the body as negative feedback systems** |  |

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| **4.6.1 Reproduction** | Describe features of sexual and asexual reproduction |   |  <https://www.youtube.com/watch?v=Fh9b6a-3DLQ> |
| Describe what happens during meiosis and compare to mitosis |   | <https://classroom.thenational.academy/lessons/meiosis-and-fertilisation-60u3ed> |
| Describe what happens at fertilisation |   |
| Describe the structure of DNA and its role in storing genetic information inside the cell |   |  <https://www.youtube.com/watch?v=TQ_iCf8mzMA> |
| Explain the term 'genome' and the importance of the human genome (specific examples from spec only) |   |
| Describe how characteristics are controlled by one or more genes, including examples |   |  <https://www.youtube.com/watch?v=zNEtVaNQ0s8>  |
| Explain important genetic terms: gamete, chromosome, gene, allele, genotype, phenotype, dominant, recessive, homozygous and heterozygous |   |
| Explain and use Punnet square diagrams, genetic crosses and family trees |   | <https://classroom.thenational.academy/lessons/genetic-inheritance-higher-c5jk4t> |
| **HT ONLY: Construct Punnet square diagrams to predict the outcomes of a monohybrid cross** |   |
| Describe cystic fibrosis and polydactyly as examples of inherited disorders |   |  <https://www.youtube.com/watch?v=Q4hSQJ0bl9g> |
| Evaluate social, economic and ethical issues concerning embryo screening when given appropriate information |   |   |
| Describe how the chromosomes are arranged in human body cells, including the function of the sex chromosomes |   |   |
| Explain how sex is determined and carry out a genetic cross to show sex inheritance |   |  <https://classroom.thenational.academy/lessons/sex-determination-crup8t> |
| **4.6.2 Variation and evolution** | Describe what variation is and how it can be caused within a population |   | <https://classroom.thenational.academy/lessons/variation-and-natural-selection-part-1-ccv3at> <https://classroom.thenational.academy/lessons/variation-and-natural-selection-part-2-cmwk8d> |
| Describe mutations and explain their influence on phenotype and changes in a species |   |
| Explain the theory of evolution by natural selection |   |
| Describe how new species can be formed |   |  <https://classroom.thenational.academy/lessons/evolution-and-extinction-cnk3gd> |
| Describe what selective breeding is  |   |  <https://classroom.thenational.academy/lessons/selective-breeding-71hk0e>  |
| Explain the process of selective breeding, including examples of desired characteristics and risks associated with selective breeding |   |
| Describe what genetic engineering is, including examples, and how it is carried out |   |  <https://classroom.thenational.academy/lessons/genetic-engineering-part-1-64v3gt> |
| Explain some benefits, risks and concerns related to genetic engineering |   |  <https://classroom.thenational.academy/lessons/genetic-engineering-part-2-cngkgd> <https://classroom.thenational.academy/lessons/genetic-engineering-part-2-cngkgd> |
| **HT ONLY: Explain the process of genetic engineering, to include knowledge of enzymes and vectors** |   |
| **4.6.3 The development of understanding of genetics and evolution** | Describe some sources of evidence for evolution |   |  <https://classroom.thenational.academy/lessons/evolution-and-extinction-cnk3gd> |
| Describe what fossils are, how they are formed and what we can learn from them |   |  <https://classroom.thenational.academy/lessons/evidence-for-evolution-part-2-6thk8d>  |
| Explain why there are few traces of the early life forms, and the consequences of this in terms of our understanding of how life began |   |
| Describe some of the causes of extinction |   |  <https://www.youtube.com/watch?v=DhJ4Mo-ptD4> |
| Describe how antibiotic-resistant strains of bacteria can arise and spread (inc MRSA) |   |  <https://www.youtube.com/watch?v=HdroY9UOG9k>  |
| Describe how the emergence of antibiotic-resistant bacteria can be reduced and controlled, to include the limitations of antibiotic development |   |
| **4.6.4 Classification** | Describe how organisms are named and classified in the Linnaean system |   | <https://classroom.thenational.academy/lessons/classification-ccup2c> |
| Describe and interpret evolutionary trees |   |
| Explain how scientific advances have led to the proposal of new models of classification, inc three-domain system |   |

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| **4.7.1 Adaptations, interdependence and competition** | Recall what an ecosystem is |   | <https://classroom.thenational.academy/lessons/communities-64vkcc><https://classroom.thenational.academy/lessons/biotic-and-abiotic-factors-6cw3jc> |
| Describe which resources animals and plants compete for, and why they do this |   |
| Explain the terms 'interdependence' and 'stable community' |   |
| Name some abiotic and biotic factors that affect communities |   |
| Explain how a change in an abiotic or biotic factor might affect a community  |   |
| Describe structural, behavioural and functional adaptations of organisms |   | <https://classroom.thenational.academy/lessons/adaptations-6gt64r> |
| Describe what an extremophile is |   |
| **4.7.2 Organisation of an ecosystem** | Represent the feeding relationships within a community using a food chain and describe these relationships |   | <https://www.youtube.com/watch?v=NFTSm3D2xrM> |
| Describe and interpret predator-prey cycles |   |
| *Required practical 9: measure the population size of a common species in a habitat. Use sampling to investigate the effect of one factor on distribution* |   | <https://classroom.thenational.academy/lessons/sampling-required-practical-1-6rwkjc><https://classroom.thenational.academy/lessons/plant-diseases-and-deficiencies-part-2-71h32t> |
| Describe the processes involved in the carbon cycle |   | <https://classroom.thenational.academy/lessons/cycles-c8rkat> |
| Describe the processes involved in the water cycle |   |
| **4.7.3 Biodiversity and the effect of human interaction on ecosystems** | Describe what biodiversity is, why it is important, and how human activities affect it |   | <https://classroom.thenational.academy/lessons/biodiversity-cmrk8r> |
| Describe the impact of human population growth and increased living standards on resource use and waste production  |   | <https://www.youtube.com/watch?v=1Z405uGDZGo> |
| Explain how pollution can occur, and the impacts of pollution |   |
| Describe how humans reduce the amount of land available for other animals and plants |   | <https://www.youtube.com/watch?v=WfJsDfm5BXE> |
| Explain the consequences of peat bog destruction |   |
| Describe what deforestation is and why it has occurred in tropical areas |   |
| Explain the consequences of deforestation |   |
| Describe how the composition of the atmosphere is changing, and the impact of this on global warming |   | <https://classroom.thenational.academy/lessons/global-warming-6ww64c> |
| Describe some biological consequences of global warming |   |
| Describe both positive and negative human interactions in an ecosystem and explain their impact on biodiversity |   | <https://classroom.thenational.academy/units/ecology-ht-bdf3/quiz> |
| Describe programmes that aim to reduce the negative effects of humans on ecosystems and biodiversity |   | <https://www.youtube.com/watch?v=bs9e6ovISbs> |