

# B3 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
<b>1.31</b> Explain the importance of photoperiodicity in plants, including: <b>a</b> plant germination			
<b>b</b> growth			
<b>c</b> reproduction			
<b>1.32</b> Demonstrate an understanding of circadian rhythms in living organisms			
<b>HSW 5</b> Plan to test a scientific idea, answer a scientific question, or solve a scientific problem			
<b>1.27</b> Demonstrate an understanding of Louis Pasteur's contribution to the development of aseptic techniques			
<b>1.29</b> Demonstrate an understanding that plants defend themselves against attack from pests and pathogens by producing chemicals, some of which can be used to treat human diseases, disorders or relieve symptoms			
<b>1.30</b> Demonstrate an understanding of the impact that attack by pathogens on plants has on human food supply			
<b>HSW 1</b> Explain how scientific data is collected and analysed			
<b>1.26</b> Describe how the exponential growth of a population of bacteria can lead to rapid development of an infection			
<b>1.28</b> Investigate the conditions affecting growth of micro-organisms (using resazurin dye)			
<b>1.20</b> Describe Edward Jenner's contribution to the development of vaccines			
<b>1.21</b> Explain the process of immunisation, including: <b>a</b> harmless pathogen or antigenic material introduced			
<b>b</b> the antigens trigger an immune response which causes the production of antibodies			
<b>c</b> the antigens also trigger production of memory lymphocytes			
<b>1.22</b> Demonstrate an understanding of the advantages and risks associated with immunisation			
<b>HSW 14</b> Describe how scientists share data and discuss new ideas, and how over time this process helps to reduce uncertainties and revise scientific theories			
<b>H 1.23</b> Describe the role of memory lymphocytes in secondary responses to antigen; interpret data showing variation in blood antibody levels in response to first and subsequent infections			
<b>H 1.24</b> Describe the production of monoclonal antibodies, including: <b>a</b> use of B lymphocytes which produce desired antibodies but do not divide			
<b>b</b> production of hybridoma cells			
<b>c</b> hybridoma cells produce antibodies and they divide			
<b>H 1.25</b> Demonstrate an understanding of the use of monoclonal antibodies, including: <b>a</b> pregnancy testing			
<b>b</b> use in diagnosis including locating the position of blood clots and cancer cells and in treatment of diseases including cancer			
<b>c</b> the advantages of using monoclonal antibodies to target specific cells compared to drug and radiotherapy treatments			
<b>1.1</b> Demonstrate an understanding that cell metabolism leads to the build-up of waste products in the blood, including carbon dioxide and urea			
<b>1.2</b> Recall that urea is produced from the breakdown of excess amino acids in the liver and is removed by the kidneys			
<b>1.3</b> Describe the structure of the urinary system, including: <b>a</b> renal artery and vein			
<b>b</b> kidneys			

# B3 Topic 1 Revision tracker

c ureters			
d bladder			
e urethra			
<b>1.4</b> Discuss possible treatments for kidney failure, including kidney dialysis and organ donation			
<b>HSW 13</b> Explain how scientific evidence is used to guide decisions about the use and application of science and technology, for example whether kidneys for transplant could be bought			
<b>1.5</b> Describe the structure of a nephron including:			
a glomerulus and Bowman's capsule			
b convoluted tubule			
c loop of Henlé			
d collecting duct			
<b>1.6</b> Explain how the structure of the nephron is related to its function in filtering the blood and forming urine (osmoregulation), including:			
a filtration in the glomerulus and Bowman's capsule			
b selective reabsorption of glucose			
c reabsorption of water (osmoregulation)			
d removal of excess water in urine			
<b>H 1.7</b> Demonstrate an understanding of the role of ADH (produced by the pituitary gland) in regulating the water content of the blood			
<b>H 1.8</b> Demonstrate an understanding of how ADH production is controlled by a negative feedback mechanism			
<b>HSW 3</b> Describe how phenomena are explained using scientific models			
<b>1.9</b> Recall that the menstrual cycle is controlled by the hormones oestrogen and progesterone			
<b>1.10</b> Describe the stages of the menstrual cycle including menstruation, uterus lining thickening and ovulation			
<b>1.11</b> Explain why the uterus lining is maintained if fertilisation occurs			
<b>H 1.12</b> Demonstrate an understanding of how oestrogen, progesterone, FSH and LH control the menstrual cycle			
<b>H 1.13</b> Demonstrate an understanding of how the menstrual cycle is controlled by a negative feedback mechanism			
<b>1.14</b> Explain how the structure of an egg is adapted to its function:			
a cytoplasm to provide nutrients			
b haploid nucleus containing one set of the genetic material			
c immediately after fertilisation the cell membrane around the egg changes to block entry of other sperm			
<b>1.15</b> Explain how the structure of a sperm cell is adapted to its function, including:			
a acrosome containing enzymes			
b haploid nucleus containing one set of the genetic material			
c middle section containing mitochondria			
d tail for motility			
<b>1.16</b> Demonstrate an understanding of the advantages and disadvantages of infertility treatments, including:			
a donation of eggs			
b <i>in vitro</i> fertilisation			
c use of surrogate mothers			
d use of hormones			
<b>HSW 12</b> Describe the benefits, drawbacks and risks of using new scientific and technological developments			
<b>1.17</b> Recall that the sex of a person is controlled by one pair of chromosomes, XX in a female and XY in a male			
<b>1.18</b> Explain how the sex of offspring is determined at fertilisation, using a genetic diagram			
<b>1.19</b> Explain (using probabilities, ratios and percentages) how sex-linked genetic disorders are inherited, including:			
a haemophilia			
b colour blindness			
<b>HSW 3</b> Describe how phenomena are explained using scientific theories and ideas			