

# B1 Topic 3 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>3.1</b> Define a drug as a substance, such as a narcotic or hallucinogen, that affects the central nervous system causing changes in psychological behaviour and possible addiction			
<b>3.2</b> Describe the general effects of:			
<b>a</b> painkillers that block nerve impulses, including morphine			
<b>b</b> hallucinogens that distort sense perception, including LSD			
<b>c</b> stimulants that increase the speed of reactions and neurotransmission at the synapse, including caffeine			
<b>d</b> depressants that slow down the activity of the brain, including alcohol			
<b>HSW 13</b> Explain how and why decisions that raise ethical issues about uses of science and technology are made			
<b>3.3</b> Investigate reaction times			
<b>3.4</b> Explain the effects of some chemicals in cigarette smoke, including:			
<b>a</b> nicotine as an addictive drug			
<b>b</b> tar as a carcinogen			
<b>c</b> carbon monoxide reducing the oxygen-carrying ability of the blood			
<b>3.5</b> Evaluate data relating to the correlation between smoking and its negative effects on health			
<b>HSW 13</b> Explain how and why decisions that raise ethical issues about uses of science and technology are made			
<b>3.6</b> Evaluate evidence of some harmful effects of alcohol abuse:			
<b>a</b> in the short term – blurred vision, lowering of inhibitions, slowing reactions of			
<b>b</b> in the long term – liver cirrhosis, brain damage			
<b>HSW 11</b> Present information, develop an argument and draw a conclusion using scientific, technical and mathematical language			
<b>3.7</b> Demonstrate an understanding of the ethics of organ transplants, including:			

# B1 Topic 3 Revision tracker

a liver transplants for alcoholics			
b heart transplants for the clinically obese			
c the supply of organs			
<b>HSW 13</b> Explain how and why decisions that raise ethical issues about uses of science and technology are made			
<b>3.8</b> Recall that infectious diseases are caused by pathogens			
<b>3.9</b> Describe how pathogens are spread, including:			
a in water, including cholera bacterium			
b by food, including <i>Salmonella</i> bacterium			
c airborne (eg sneezing), including influenza virus symbols			
d by contact, including athlete's foot fungus			
e by body fluids, including HIV			
f by animal vectors, including:			
i housefly: dysentery bacterium			
ii <i>Anopheles</i> mosquito: malarial protozoan			
<b>HSW 12</b> Describe the benefits, drawbacks and risks of using new scientific and technological developments			
<b>3.10</b> Explain how the human body can be effective against attack from pathogens, including:			
a physical barriers – skin, cilia, mucus			
b chemical defence – hydrochloric acid in the stomach, lysozymes in tears			
<b>3.11</b> Demonstrate an understanding that plants produce chemicals that have antibacterial effects in order to defend themselves, some of which are used by humans			
<b>3.12</b> Describe how antiseptics can be used to prevent the spread of infection			
<b>3.13</b> Explain the use of antibiotics to control infection, including:			
a antibacterials to treat bacterial infections			
b antifungals to treat fungal infections			
<b>H 3.14</b> Evaluate evidence that resistant strains of bacteria, including MRSA, can arise from the misuse of antibiotics			
<b>HSW 2</b> Describe how data is used by scientists to provide evidence that increases our scientific understanding			

# B1 Topic 3 Revision tracker

<p><b>3.15</b> Investigate the effects of antiseptics or antibiotics on microbial cultures</p>			
<p><b>3.16</b> Recall that interdependence is the dynamic relationship between all living things</p>			
<p><b>3.17</b> Demonstrate an understanding of how some energy is transferred to less useful forms at each trophic level and this limits the length of a food chain</p>			
<p><b>3.18</b> Demonstrate an understanding that the shape of a pyramid of biomass is determined by energy transferred at each trophic level</p>			
<p><b>HSW 3</b> Describe how phenomena are explained using scientific models</p>			
<p><b>3.19</b> Explain how the survival of some organisms may depend on the presence of another species:</p> <ul style="list-style-type: none"> <li><b>a</b> parasitism, including: <ul style="list-style-type: none"> <li><b>i</b> fleas</li> <li><b>ii</b> headlice</li> <li><b>iii</b> tapeworms</li> <li><b>iv</b> mistletoe</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li><b>b</b> mutualism, including: <ul style="list-style-type: none"> <li><b>i</b> oxpeckers that clean other species</li> <li><b>ii</b> cleaner fish</li> <li><b>H iii</b> nitrogen-fixing bacteria in legumes</li> <li><b>H iv</b> chemosynthetic bacteria in tube worms in deep-sea vents</li> </ul> </li> </ul>			
<p><b>HSW 11</b> Present information, develop an argument and draw a conclusion, using scientific, technical and mathematical language and ICT tools</p>			
<p><b>3.20</b> Analyse, interpret and evaluate data on global population change</p>			
<p><b>3.21</b> Explain how the increase in human population contributes to an increase in the production of pollutants, including phosphates, nitrates and sulfur dioxide</p>			
<p><b>3.22</b> Explain eutrophication and the problems associated with eutrophication in an aquatic environment</p>			
<p><b>HSW 12</b> Describe the benefits, drawbacks and risks of using new scientific and technological developments</p>			
<p><b>3.23</b> Investigate the effect of pollutants on plant germination and growth</p>			
<p><b>3.24</b> Demonstrate an understanding of how scientists can use the presence or absence of indicator species to assess the level of pollution:</p>			

# B1 Topic 3 Revision tracker

<b>a</b> polluted water indicator – bloodworm, sludgeworm			
<b>b</b> clean water indicator – stonefly, freshwater shrimps			
<b>c</b> air quality indicator – lichen species, blackspot fungus on roses			
<b>3.25</b> Demonstrate an understanding of how recycling can reduce the demand for resources and the problem of waste disposal, including paper, plastics and metals			
<b>HSW 10</b> Use qualitative and quantitative approaches when presenting scientific ideas and arguments, and recording observations			
<b>3.26</b> Demonstrate an understanding of how carbon is recycled			
<b>a</b> during photosynthesis plants remove carbon dioxide from the atmosphere			
<b>b</b> carbon compounds pass along a food chain			
<b>c</b> during respiration organisms release carbon dioxide into the atmosphere			
<b>d</b> decomposers release carbon dioxide into the atmosphere			
<b>e</b> combustion of fossil fuels releases carbon dioxide into the atmosphere			
<b>HSW 3</b> Describe how phenomena are explained using scientific models			
<b>3.27</b> Demonstrate an understanding of how nitrogen is recycled			
<b>a</b> nitrogen gas in the air cannot be used directly by plants and animals			
<b>b</b> nitrogen-fixing bacteria living in root nodules or the soil can fix nitrogen gas			
<b>c</b> the action of lightning can convert nitrogen gas into nitrates			
<b>d</b> decomposers break down dead animals and plants			
<b>e</b> soil bacteria convert proteins and urea into ammonia			
<b>f</b> nitrifying bacteria convert this ammonia to nitrates			
<b>g</b> plants absorb nitrates from the soil			
<b>h</b> nitrates are needed by plants to make proteins for growth			
<b>i</b> nitrogen compounds pass along a food chain or web			
<b>j</b> denitrifying bacteria convert nitrates to nitrogen gas			
<b>HSW 11</b> Present information, develop an argument and draw a conclusion, using scientific, technical and mathematical language and ICT tools			