

# Year 8: Living World- Functioning Organisms.

	Check	Date
<p><b>Revise assumed knowledge:</b>  <b>ST3-10LW</b>  describes how structural features and other adaptations of living things help them to survive in their environment</p> <p><b>ST3-11LW</b>  describes some physical conditions of the environment and how these</p>	<input type="checkbox"/>	
<b>Literacy: A.L.A.R.M; Remember I.D.E.A and stop at the verb provided</b>		
<p><b>Identify:</b> Name and Define  <b>Describe:</b> Differentiate and distinguish by providing <b>characteristics, features and properties</b>  <b>Explain:</b> <b>Cause and effect</b> = <b>LINK</b> purpose or function of <b>EACH</b> feature or characteristic listed above (Use linking words such as: As a result., This leads to .., This provides .., As a consequence., Therefore., Thus ..)  <b>Analyse/Evaluate:</b> <b>Positive and negative arguments</b> and finish with clear personal <b>point of view</b></p>		
<b>LW3 Multicellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce. (ACSSU150)</b>		
<b>FLOWERING PLANTS AS FUNCTIONING ORGANISMS</b>		
<b><i>3LWd. describe the role of the flower, root, stem and leaf in maintaining flowering plants as functioning organisms</i></b>		
<p><b>Literacy activity (ESL focus): Key words.</b>  Photosynthesis, respiration, osmosis, root hair, xylem tissue, transpiration, stomata.</p>	<input type="checkbox"/>	
<p>Label a diagram of a flowering plant. Include the flower, root, stem and leaf</p>	<input type="checkbox"/>	
<p>Briefly describe the characteristics and features of the flower, root, stem and leaf in plants and relate these characteristics of to how they help maintain plants as functioning organisms</p> <ul style="list-style-type: none"> <li>• <b>FLOWER:</b> reproduction</li> <li>• <b>ROOT:</b> absorption of water and nutrients, anchoring plant</li> <li>• <b>STEM:</b> support, positioning leaves for photosynthesis</li> <li>• <b>LEAF:</b> transpiration, photosynthesis, gaseous exchange</li> </ul>	<input type="checkbox"/>	
<b><i>3LWb: explain that the systems in multicellular organisms work together to provide cell requirements, including gases, nutrients and water, and to remove cell wastes</i></b>		
<p>Briefly outline how the processes of osmosis and transpiration are responsible for the movement of water and minerals/nutrients into and up a plant. <b>Include:</b> Root hair cells, xylem tissue, and stomata</p>	<input type="checkbox"/>	
<p><b>CODE: 8LW20 First-hand Investigation:</b> Observing osmosis in sultanas (Oxford pg. 59)</p>	<input type="checkbox"/>	
<p><b>CODE: 8LW21 First-hand Investigation:</b> Prepared slides and stomata  Students to observe prepared transverse sections of leaves and prepare their own stomata slides</p>	<input type="checkbox"/>	
<p>Explain how each of the plant tissues identified work together to create a functioning organism</p>	<input type="checkbox"/>	

<b><i>3LWa. Identify the materials required by multicellular organisms for the processes of respiration and photosynthesis</i></b>		
Recall and draw a diagram of a plant cell	<input type="checkbox"/>	
Explain that the earlier processes of osmosis and transpiration are delivering water and the stomata carbon dioxide to be used in photosynthesis	<input type="checkbox"/>	
Recall the word equation for photosynthesis and identify the reactants and products	<input type="checkbox"/>	
Explain that the waste products of photosynthesis must be removed from the plant ( <b>3LWb</b> )	<input type="checkbox"/>	
Identify that plants carry out both photosynthesis and respiration	<input type="checkbox"/>	
Recall the word equation for respiration and identify the reactants and products	<input type="checkbox"/>	
<b>Extension:</b> Explain the purpose of cellular respiration and link it to an organism's ability to function	<input type="checkbox"/>	
<b><i>3LWc: outline the role of cell division in growth, repair and reproduction in multicellular organisms</i></b>		
<b>Literacy activity (ESL focus): Key words.</b> Mitosis, meiosis, fertilisation, gametes, zygote	<input type="checkbox"/>	
Identify that mitosis is the type of cell division that is used for: <ul style="list-style-type: none"> <li>• growth and repair in all cells of multicellular organisms</li> <li>• asexual reproduction</li> </ul>	<input type="checkbox"/>	
Indicate the main features of mitosis and relate this to the above	<input type="checkbox"/>	
<b>Research task:</b> Asexual reproduction in plants Describe different forms of asexual reproduction in plants and include examples of plants that use each: <ul style="list-style-type: none"> <li>• Plantlets</li> <li>• Suckers</li> <li>• Rhizomes</li> <li>• Stolons</li> <li>• Bulbs</li> <li>• Tubers</li> </ul>	<input type="checkbox"/>	
<b>Extension/Research task or teacher delivered:</b> Explain how humans have used cloning of plants to further society. Choose one of the following and present findings to the class. Include advantages and disadvantages of the technique <ul style="list-style-type: none"> <li>• Budding</li> <li>• Grafting</li> <li>• Cuttings</li> <li>• Layering</li> </ul>	<input type="checkbox"/>	
Identify that mitosis for growth occurs at root tips and buds in plants.	<input type="checkbox"/>	
<b>CODE: 8LW22 First-hand Investigation:</b> Root tip cell division Students observe root tips slide with a microscope (Oxford pg66)	<input type="checkbox"/>	
<b>Literacy activity (ESL focus): Key words.</b> Stamen; anther, filament, Carpel; stigma, style, ovary, pollination	<input type="checkbox"/>	
Identify that meiosis is the type of cell division that is used for the production of gametes (sex cells) used during sexual reproduction in multicellular organisms.	<input type="checkbox"/>	

Identify the location of production of gametes in plants.	<input type="checkbox"/>	
Draw a labelled diagram of a flower, noting both the male and female structures	<input type="checkbox"/>	
<b>CODE: 8LW23 First-hand Investigation: Flower dissection</b> Students to dissect a flower and identify the male and female reproductive organs visible (e.g stigma, ovary etc). (Oxford pg70)	<input type="checkbox"/>	
Define pollination as the transfer of pollen (male gametes) to the stigma (female reproductive organ).	<input type="checkbox"/>	
Compare and contrast self-pollination and cross-pollination	<input type="checkbox"/>	
Identify agents of pollination including wind, water and animals	<input type="checkbox"/>	
<b>Research task:</b> Identify a range of Australian plants and describe the different mechanisms of pollination. Include insect and mammal pollinated plants.	<input type="checkbox"/>	
<b>Extension:</b> Students to relate the features of the flower, root, stem or leaves of native plants to traditional Aboriginal Australian use of them e.g. as food, medicine, weapons, structural uses etc. 🖐️	<input type="checkbox"/>	
<b>Literacy:</b> COSMOS. Research and find an article related to the topic. Students then write a series of questions that <b>MUST</b> include 5 multiple choice, 2 identify, 2 describe, 1 explain and either 1 assess or evaluate.	<input type="checkbox"/>	
<b>Assessment:</b> Flowering plants as functioning organisms checkpoint test		
<b>Assessment: Oxford online test-</b> Flowering plants as functioning organisms Students to achieve 100% in Support and Consolidate <b>OR</b> Consolidate and Extend	<input type="checkbox"/>	
<b>HUMANS AS FUNCTIONING ORGANISMS</b>		
<b><i>3LWb: explain that the systems in multicellular organisms work together to provide cell requirements, including gases, nutrients and water, and to remove cell wastes</i></b>		
<b>Literacy activity (ESL focus): Key words.</b> Digestion, circulation, respiration, excretion, skeletal	<input type="checkbox"/>	
Recall the requirements for cells (MRS GREN)	<input type="checkbox"/>	
Recall/identify the hierarchy of multicellular organisms • cell → tissue → organ → organ system → multicellular organism	<input type="checkbox"/>	
Recall that humans, as multicellular organisms, require transport systems and specialised structures to move nutrients, water and wastes to and from cells	<input type="checkbox"/>	
Relate the role of body system to the needs of cells in multicellular organisms.	<input type="checkbox"/>	
<b><i>3LWe: describe the role of the digestive, circulatory, excretory, skeletal/muscular and respiratory systems in maintaining a human as a functioning multicellular organism</i></b>		
Draw a labelled diagram of the human <b>digestive</b> system	<input type="checkbox"/>	
Outline the role of the <b>digestive</b> system	<input type="checkbox"/>	
Describe the role of organs in the <b>digestive</b> system in maintaining humans as functioning organisms	<input type="checkbox"/>	
<b>Extension:</b> Explain the need for the length of the digestive system and the highly folded villi (Surface area)	<input type="checkbox"/>	
<b>CODE: 8LW24 First-hand Investigation:</b> digesting protein (Oxford pg75)	<input type="checkbox"/>	

Draw a labelled diagram of the human <b>circulatory</b> system	<input type="checkbox"/>	
Outline the role of the <b>circulatory</b> system	<input type="checkbox"/>	
Describe the role of organs in the <b>circulatory</b> system in maintaining humans as functioning organisms. Include <ul style="list-style-type: none"> <li>heart, arteries, veins, capillaries and blood</li> </ul>	<input type="checkbox"/>	
<b>CODE: 8LW25 First-hand Investigation:</b> heart dissection (Oxford pg81)	<input type="checkbox"/>	
Draw a labelled diagram of the human <b>respiratory</b> system	<input type="checkbox"/>	
Outline the role of the <b>respiratory</b> system	<input type="checkbox"/>	
Describe the role of organs in the <b>respiratory</b> system in maintaining humans as functioning organisms	<input type="checkbox"/>	
<b>Extension:</b> Explain the need for the alveoli (Surface area)	<input type="checkbox"/>	
<b>Research task or teacher delivered:</b> Effect of smoking on lung function and health (Oxford pg85)	<input type="checkbox"/>	
Outline the role of the <b>excretory</b> system	<input type="checkbox"/>	
Describe the role of organs in the <b>excretory</b> system in maintaining humans as functioning organisms. Include <ul style="list-style-type: none"> <li>kidney, skin, liver</li> </ul>	<input type="checkbox"/>	
Outline what waste is and why it needs to be removed from the body	<input type="checkbox"/>	
Outline the role of the <b>skeletal/muscular</b> system	<input type="checkbox"/>	
Describe the role of organs in the <b>skeletal/muscular</b> system in maintaining humans as functioning organisms. Include <ul style="list-style-type: none"> <li>bones, muscles, ligaments, cartilage</li> </ul>	<input type="checkbox"/>	
Construct a table summarising the body system, organs in each and their function.	<input type="checkbox"/>	
Using examples, explain that systems are linked and interdependent in multicellular organisms. (eg. respiratory and circulatory, digestive and circulatory)	<input type="checkbox"/>	
<b>Research task and class presentation:</b> Relate malfunctions in the organs of a body system to a named disease e.g. the pancreas and diabetes	<input type="checkbox"/>	
<b><i>3LWc: outline the role of cell division in growth, repair and reproduction in multicellular organisms</i></b>		
Recall the definition of mitosis	<input type="checkbox"/>	
Outline the role of mitosis in growth and repair	<input type="checkbox"/>	
<b>Extension:</b> Explain the importance of genetically identical daughter cells being produced during mitosis	<input type="checkbox"/>	
<b>Extension:</b> Describe the impact of cancer i.e. the abnormal or uncontrolled cell division on multicellular organisms.	<input type="checkbox"/>	
<b><i>3LWf: outline the role of the reproductive system in humans</i></b>		
<b>Literacy activity (ESL focus): Key words.</b> Meiosis, puberty, copulation, fertilisation, gametes, pregnancy, gestation	<input type="checkbox"/>	
Define and describe puberty as the phase of physical development when sexual maturity occurs and link it to the menstrual cycle in females	<input type="checkbox"/>	

Draw labelled diagrams of the male and female <b>reproductive</b> systems and describe the structure and function of each part	<input type="checkbox"/>	
Recall meiosis as cell division for production of gametes (sex cells) to be used in sexual reproduction	<input type="checkbox"/>	
Define and describe fertilisation as the process of gamete union during sexual reproduction (copulation)	<input type="checkbox"/>	
Define and describe pregnancy, gestation period and birth	<input type="checkbox"/>	
<b>Extension:</b> Compare and contrast the features of asexual and sexual reproduction	<input type="checkbox"/>	
<b>Extension:</b> Identify the need for internal reproduction in land dwelling organisms.	<input type="checkbox"/>	
<b>Extension:</b> For sexual reproduction, compare and contrast internal and external fertilisation.	<input type="checkbox"/>	
<b>Assessment:</b> Humans as functioning organisms checkpoint test		
<b>Assessment: Oxford online test-</b> Humans as functioning organisms Students to achieve 100% in Support and Consolidate <b>OR</b> Consolidate and Extend	<input type="checkbox"/>	
<b>LW4 Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world. (ACSHE119, ACSHE134)</b>		
<b>SCIENCE FOR BETTER HEALTH</b>		
<b>4LW4a. research an example of how changes in scientific knowledge have contributed to finding a solution to a human health issue</b> ✨ ⚖️		
<b>Research task or teacher delivered:</b> (Oxford pg98) Research how scientists have contributed to solving human health problems associated with: <ul style="list-style-type: none"> <li>• rabies</li> <li>• potato blight</li> <li>• hygiene practices</li> <li>• food preservation</li> <li>• sewage treatment</li> <li>• other (eg DNA)</li> </ul>	<input type="checkbox"/>	
<b>4LW4b. recount how evidence from a scientific discovery has changed understanding and contributed to solving a real world problem, eg animal or plant disease, hygiene, food preservation, sewage treatment or <u>biotechnology</u></b> 🗣️ 👥		
Define technology and biotechnology	<input type="checkbox"/>	
<b>Research task or teacher delivered:</b> (Oxford pg100) Research how scientists in the field of biotechnology have improved the lives of humans. Include: <ul style="list-style-type: none"> <li>• Artificial limbs and joints</li> <li>• IVF</li> <li>• Bionic ear</li> <li>• other</li> </ul>	<input type="checkbox"/>	

**4LW4c. describe, using examples, how developments in technology have contributed to finding solutions to a contemporary issue, eg organ transplantation, artificial joints/limbs, treatment for diabetes, asthma, kidney or heart disease** 📖 🗨️

<p><b>Research task or teacher delivered:</b> (Oxford pg101)</p> <p>Research an example of how changes in scientific knowledge have contributed to finding a solution to a human health issue.</p> <ul style="list-style-type: none"> <li>• stomach ulcers</li> <li>• penicillin</li> <li>• GMO's- insulin production for diabetes</li> <li>• Organ transplantation</li> <li>• Artificial limbs/joints</li> <li>• Other</li> </ul>	<input type="checkbox"/>	
<p><b>Research task or teacher delivered:</b> (Oxford pg102)</p> <p>Explain how scientific progress has contributed to different approaches in the treatment of diseases including:</p> <ul style="list-style-type: none"> <li>• Kidney disease</li> <li>• Heart disease</li> <li>• Diabetes (see above)</li> </ul>	<input type="checkbox"/>	
<p><b>4LW4d. give examples to show that groups of people in society may use or weight criteria differently in making decisions about the application of a solution to a contemporary issue, eg organ transplantation, control and prevention of diseases and dietary deficiencies</b> ⚙️ ♿ 👤 🏠</p>		
<p><b>Research task or teacher delivered:</b></p> <ul style="list-style-type: none"> <li>• Define vaccination.</li> <li>• Describe a named example of a vaccination, providing details of its success or failure</li> <li>• Evaluate the effectiveness of a named vaccination program</li> </ul>	<input type="checkbox"/>	
<p><b>Literacy:</b> Ethical animal research (Oxford pg105)</p> <ol style="list-style-type: none"> <li>1. Identify why animals are used in medical research.</li> <li>2. Recall the name of the code of ethics that refers to the use of animals in research.</li> <li>3. In your own words, describe what the ethical treatment of animals in research would be.</li> <li>4. Explain why some people object to the use of animals in research.</li> <li>5. Locate a copy of the Code on the Internet and read the governing principles. Evaluate whether the Code does enough to protect the rights of animals.</li> <li>6. Research some diseases that can be controlled or cured with today's medicines due to research or testing on animals. In a table, list the disease, the control, cure or medicine, as well as the animal that was used in developing it.</li> <li>7. Do you believe that the use of animals in medical research is ethical? Justify your decision.</li> </ol>	<input type="checkbox"/>	

<b>Assessment:</b> Science for better health checkpoint test		
<b>Assessment: Oxford online test-</b> Science for better health Students to achieve 100% in Support and Consolidate <b>OR</b> Consolidate and Extend	<input type="checkbox"/>	
<b>Assessment:</b> FUNCTIONING ORGANISMS CHAPTER TEST	<input type="checkbox"/>	
<b>Comments and Suggested improvements</b>		
<p><b>Name:</b> _____ <b>Signature:</b> _____ <b>Date:</b> _____</p>		