Belridge Senior High School
2015
Year 9 Biological Sciences

Explore ways in which the human body as a system responds to its external environment and the interdependencies between biotic and abiotic components of ecosystems.

This term’s work will be broken up into two areas of study

**Internal Systems**
Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment (ACSSU175)

**Ecosystems**
Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (ACSSU176)

**Vocabulary**
Below is a list of science words and phrases that students should know: the meaning of; and be able to spell; by the end of term:

- oxygen
- nutrients
- water
- waste
- respiratory
- excretory
- circulatory
- digestive
- nervous
- system
- endocrine
- electromagnetic
- exposure
- micro-organisms
- predator
- prey
- disease
- parasite
- competitor
- population
- seasonal
- habitat
- species
- energy
- ecosystem
- food web
- food pyramid
- biomagnification
- sustainability
- bushfires
- flooding
- drought

**Grammar**
There is an expectation that students will make every effort to correctly use capitals, full stops, commas, semi colons, apostrophes, question marks and exclamation marks.

**Assessment**
A number of assessments will be used throughout the term to identify the students understanding in the course and be used to determine a grade. Student achievement will be reported using the following descriptors. Examples of the standards that earn an A-E grade in Years 1-10 are available at: www.curriculumsupport.det.wa.edu.au.

<table>
<thead>
<tr>
<th>Term 1 Assessment</th>
<th>Grade</th>
<th>Description</th>
<th>The student demonstrates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflex Investigation</td>
<td>A</td>
<td>Excellent</td>
<td>excellent achievement of what is expected for this year level.</td>
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<tr>
<td></td>
<td>B</td>
<td>High</td>
<td>high achievement of what is expected for this year level.</td>
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<tr>
<td>Body Systems Test</td>
<td>C</td>
<td>Satisfactory</td>
<td>satisfactory achievement of what is expected for this year level.</td>
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<tr>
<td>Energy/Ecosystem Test</td>
<td>D</td>
<td>Limited</td>
<td>limited achievement of what is expected for this year level.</td>
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<tr>
<td>Introduced Species Assign</td>
<td>E</td>
<td>Very Low</td>
<td>very low achievement of what is expected for this year level.</td>
</tr>
<tr>
<td>Week</td>
<td>Content</td>
<td>Assessment</td>
<td></td>
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<tr>
<td>1</td>
<td>Describing how the requirements for life are provided through the coordinated function of body systems.</td>
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<tr>
<td></td>
<td>• skeletal &amp; muscular systems</td>
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<tr>
<td>2</td>
<td>• muscular &amp; circulatory system</td>
<td></td>
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<tr>
<td>3</td>
<td>• circulatory &amp; respiratory system</td>
<td></td>
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<tr>
<td>4</td>
<td>• respiratory &amp; nervous &amp; endocrine system</td>
<td></td>
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<tr>
<td>5</td>
<td>• nervous &amp; endocrine &amp; immune system</td>
<td>Investigation: Reflex actions 20%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>• immune system &amp; overview of body systems</td>
<td>Test: Body Systems 30%</td>
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<tr>
<td>7</td>
<td>Ecosystems</td>
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<tr>
<td></td>
<td>• Describing ecosystems</td>
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<td></td>
<td>• Exploring interactions between organisms within an ecosystem</td>
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<tr>
<td>8</td>
<td>Energy flows in ecosystems</td>
<td>Test: Energy in ecosystems 30%</td>
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<td></td>
<td>• Food webs</td>
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<td></td>
<td>• Carbon, nitrogen and water cycles</td>
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<td>9</td>
<td>Upsetting the balance in ecosystems</td>
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<tr>
<td></td>
<td>• examining factors that affect population sizes such as seasonal changes, destruction of habitats, introduced species, bushfires, drought and flooding</td>
<td>Introduced species assignment 20%</td>
<td></td>
</tr>
</tbody>
</table>

The order of the content and the time in which they are covered are only a guide. Circumstances may result in changes during the year. The Science Department reserves the right to alter the order the objectives are taught and time over which they are taught.
Year 9 Biological Sciences

Internal Systems

Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment (ACSSU175)

- describing how the requirements for life (for example oxygen, nutrients, water and removal of waste) are provided through the coordinated function of body systems such as the respiratory, circulatory, digestive, nervous and excretory systems
- explaining how body systems work together to maintain a functioning body using models, flow diagrams or simulations
- identifying responses using nervous and endocrine systems
- investigating the response of the body to changes as a result of the presence of micro-organisms
- investigating the effects on humans of exposure to electromagnetic radiations such as X-rays and microwaves

Ecosystems

Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (ACSSU176)

- exploring interactions between organisms such as predator/prey, parasites, competitors, pollinators and disease
- examining factors that affect population sizes such as seasonal changes, destruction of habitats, introduced species
- considering how energy flows into and out of an ecosystem via the pathways of food webs, and how it must be replaced to maintain the sustainability of the system
- investigating how ecosystems change as a result of events such as bushfires, drought and flooding

Nature and development of science

Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community (ACSHE157)

- considering how ideas about disease transmission have changed from medieval time to the present as knowledge has developed
- investigating how models can be used to predict the changes in populations due to environmental changes, such as the impact of flooding or fire on rabbit or kangaroo populations

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE158)

- considering how the development of imaging technologies have improved our understanding of the functions and interactions of body systems

Use and influence of science

People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions (ACSHE160)

- using knowledge of science to test claims made in advertising or expressed in the media
- describing how science is used in the media to explain a natural event or justify actions
- considering the impacts of human activity on an ecosystem from a range of different perspectives

The values and needs of contemporary society can influence the focus of scientific research (ACSHE228)

- investigating how scientific and technological advances have been applied to minimising pollution from industry
- investigating the work of Australian scientists such as Fiona Wood and Marie Stoner on artificial skin

Science you should already know from last year, Year 8 Biological Sciences

Cells are the basic units of living things and have specialised structures and functions (ACSSU149)

Multi-cellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce (ACSSU150)

2015.