

Spanned classroom session exemplar



**Discipline context:** Health Science

**Unit context:**

In this unit, students construct a foundational knowledge base in order to prepare them for first year Health Science units in physiology and anatomy. The unit aims to develop students' understanding of the principal chemical components of all living things – that is, water, oxygen, proteins, carbohydrates and lipids as they are taken in, processed, used and disposed of by the human body. In the unit's learning and assessment experiences, students will relate the chemical and physical properties of these principal components to biological processes necessary for the normal functioning of the human body.

**Learning context:** Week 9 of unit's delivery (13-week calendar; spanned session is double lecture)

**Week's learning outcomes**

Students will be able to:

1. Describe the structure and function of the nervous system and endocrine system
2. Explain how messages are communicated by the nervous system and endocrine system
3. Compare and contrast the processes of the endocrine and nervous systems in maintaining homeostasis

Learning phase	Time	Learning outcomes	Learning and teaching experiences		Learning resources and technologies
			What is the <i>teacher</i> doing?	What are the <i>students</i> doing?	
<b>Tuning in</b> <ul style="list-style-type: none"> <li>• Connect to prior learning and experiences</li> <li>• Engage students' interest</li> </ul>	9:00-9:05	Review of previous content	Teacher: <ul style="list-style-type: none"> <li>• Facilitates <b>true/false quiz</b> by reading out 10 statements</li> <li>• Alternates between sites to elicit student response</li> <li>• Briefly clarifies points of confusion</li> </ul>	Students: <ul style="list-style-type: none"> <li>• Stand and place hands on head for 'true' and hands on tails for 'false'</li> <li>• [Individual students selected to] respond and provide justification for their choice</li> </ul>	PPT slides with statements e.g. <i>Cells eliminate carbon dioxide as a waste product (True)</i> <i>Most homeostatic mechanisms operate on the principle of positive feedback (False)</i>
	9:05-9:15	Outcome 2	<ul style="list-style-type: none"> <li>• Outlines simple <b>activity</b>, which prepares students to compare 2 systems of cellular communication</li> <li>• Instructs students to form groups of 3</li> <li>• Facilitates brief discussion with a group from Site 1 selected to report on email and a group from Site 2, on snail mail/Australia Post</li> </ul>	<ul style="list-style-type: none"> <li>• Form groups</li> <li>• List positive and negative aspects of email and snail mail/Australia Post (i.e. human communication systems to which an <b>analogy</b> will be drawn later in the session)</li> </ul>	Table depicted on PPT slide 

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			What is the <i>teacher</i> doing?	What are the <i>students</i> doing?	
<b>Teaching explicitly</b> <ul style="list-style-type: none"> <li>Present learning outcomes</li> <li>Develop <u>knowledge</u> and skills</li> </ul>	9:15-9:45	Outcomes 1 and 2	Teacher: <ul style="list-style-type: none"> <li>Presents learning outcomes</li> <li>(referring to slides) <b>Explains</b> structure and function of, and how messages are communicated by, the <b>nervous system</b></li> <li>Walks students through steps for 2 <b>simple physical tests</b> relating to the nervous system</li> <li>Instructs student to reformulate (same) groups</li> <li>Facilitates discussion with a group from Site 1 selected to respond to Test 1 questions and a group from Site 2 selected to respond to Test 2 questions</li> </ul>	Students: <ul style="list-style-type: none"> <li>Take notes</li> <li>Perform physical tests (with a view to relating abstract concepts to concrete experiences in the body)</li> <li>Respond to questions:                             <ul style="list-style-type: none"> <li><b>Test 1: 2-point discrimination test (e.g.)</b> <ul style="list-style-type: none"> <li>How did the ability to discriminate between 1 stimulus and 2 stimuli vary according to body area?</li> <li>What does this tell you about the receptors in the 3 body areas?</li> </ul> </li> <li><b>Test 2: Reaction time to touch test</b></li> </ul> </li> </ul>	PPT slideshow incorporating text, diagrams, flow charts, electron microscope images, embedded animations  ( <u>accessible</u> to students in Blackboard prior to lecture so students can print hard copy for note-taking purposes)
	9:45-10:00 <i>break</i>				
	10:00-10:20		(referring to slides) <b>Explains</b> structure and function of, and how messages are communicated by, the <b>endocrine system</b>	Take notes	

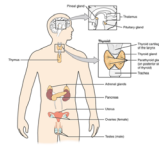
**Nervous System**

Easier to "see" the 3 components of the nervous system in the somatic system

- Sensation** – sense organs and receptors in the skin
- Integration** – either in the brain or the spinal cord
- Response** – muscles causing something to happen

**Organisation of the Endocrine System**

- Endocrine glands located throughout the body
- Release hormones into the blood
- Target cells have specific receptors



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<p><b>Active learning</b></p> <ul style="list-style-type: none"> <li>Facilitate application of knowledge and skills</li> <li>Provide feedback</li> </ul>	<p>10:20-10:35</p>	<p>Outcome 3</p>	<p>Teacher:</p> <ul style="list-style-type: none"> <li>Instructs students to undertake <b>compare and contrast activity</b></li> <li>Facilitates discussion with one group from Site 1 selected to provide relevant information regarding the nervous system and one group from Site 2 selected to provide relevant information regarding the endocrine system</li> <li><b>Returns to tuning in activity</b> – drawing analogy between nervous system and email, and endocrine system and snail mail/Australia Post – to synthesise similarities and differences between cellular communication systems</li> </ul>	<p>Students:</p> <ul style="list-style-type: none"> <li>In same groups of 3, populate table outlining characteristics of nervous and endocrine systems</li> <li>Selected groups project their completed tables onto shared screen and report information to spanned class</li> </ul>	<p>Template</p> <ul style="list-style-type: none"> <li>uploaded to Blackboard prior to session</li> </ul> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; color: green;">Compare and contrast</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%;">Nervous System</th> <th style="width: 35%;">Endocrine System</th> </tr> </thead> <tbody> <tr> <td>Chemical messenger</td> <td></td> <td></td> </tr> <tr> <td>Distance messenger travels</td> <td></td> <td></td> </tr> <tr> <td>Pathway</td> <td></td> <td></td> </tr> <tr> <td>Speed of effect</td> <td></td> <td></td> </tr> <tr> <td>Length of effect</td> <td></td> <td></td> </tr> <tr> <td>Target Cells</td> <td></td> <td></td> </tr> </tbody> </table> </div> <p>Screen sharing facilities (i.e. Solstice)</p> <div style="border: 1px solid black; padding: 5px;"> </div>		Nervous System	Endocrine System	Chemical messenger			Distance messenger travels			Pathway			Speed of effect			Length of effect			Target Cells		
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<p><b>Checks for understanding</b></p> <ul style="list-style-type: none"> <li>Prompt student reflection and feedback</li> <li>Assess student achievement of learning outcomes</li> </ul>	<p>10:35-10:45</p>	<p>Outcomes 1-3</p>	<ul style="list-style-type: none"> <li>Facilitates <b>individual reflective activity</b></li> <li>Provides instructions regarding <b>online summary paragraph</b></li> </ul>	<ul style="list-style-type: none"> <li>In journals, reflect on: <ul style="list-style-type: none"> <li>What did I understand well?</li> <li>What am I still not clear about? (<b>muddiest point</b>)</li> </ul> </li> <li>(After session) Synthesise learnings in one paragraph: <i>Compare and contrast the processes of the endocrine and nervous systems in maintaining homeostasis</i></li> </ul>	<p>Posts in Blackboard groups online</p>																					