**Discipline context:** Health Science

**Unit context:**

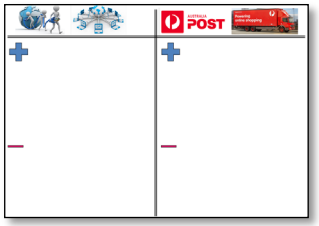
In this unit, students construct a foundational knowledge base in order to prepare them for first year Health Science units in physiology and anatomy. The unit aims to develop students' understanding of the principal chemical components of all living things – that is, water, oxygen, proteins, carbohydrates 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<br>*What is the **teacher** doing?* | <br>*What are the **students** doing?* | Learning resources and technologies |
|---|---|---|---|---|---|
| **Tuning in**<br>• **Connect to prior learning and experiences** | 9:00-9:05 | Review of previous content | Teacher:<br>• Facilitates **true/false quiz** by reading out 10 statements<br>• Alternates between sites to elicit student response<br>• Briefly clarifies points of confusion | Students:<br>• Stand and place hands on head for 'true' and hands on tails for 'false'<br>• [Individual students selected to] respond and provide justification for their choice | PPT slides with statements e.g.<br>*Cells eliminate carbon dioxide as a waste product (True)*<br>*Most homeostatic mechanisms operate on the principle of positive feedback (False)* |
| • **Engage students' interest** | 9:05-9:15 | Outcome 2 | • Outlines simple **activity,** which prepares students to compare 2 systems of cellular communication<br>• Instructs students to form groups of 3<br>• 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 | • Form groups<br>• List positive and negative aspects of email and snail mail/Australia Post (i.e. human communication systems to which an **analogy** will be drawn later in the session) | Table depicted on PPT slide<br>  |

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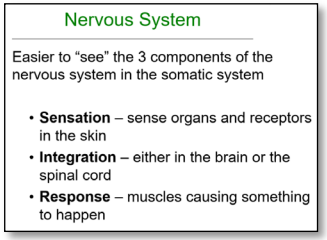
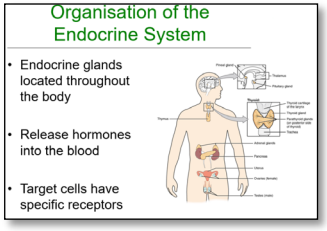
| **Teaching explicitly**<br>• **Present learning outcomes**<br>• **Develop <u>knowledge</u> and skills** | 9:15-9:45 | Outcomes 1 and 2 | Teacher:<br>• Presents learning outcomes<br>• (referring to slides) **Explains** structure and function of, and how messages are communicated by, the **nervous system**<br>• Walks students through steps for 2 **simple physical tests** relating to the nervous system<br>• Instructs student to reformulate (same) groups<br>• 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 | Students:<br>• Take notes<br>• Perform physical tests (with a view to relating abstract concepts to concrete experiences in the body)<br>• Respond to questions:<br>***<u>Test 1</u>: 2-point discrimination test*** *(e.g.)*<br>○ How did the ability to discriminate between 1 stimulus and 2 stimuli vary according to body area?<br>○ What does this tell you about the receptors in the 3 body areas?<br>***<u>Test 2</u>: Reaction time to touch test*** | PPT slideshow incorporating text, diagrams, flow charts, electron microscope images, embedded animations<br><u>(accessible</u> to students in Canvas prior to lecture so students can print hard copy for note-taking purposes)<br>  |
| | *9:45-10:00 break* | | | | |
| | 10:00-10:20 | | • (referring to slides) **Explains** structure and function of, and how messages are communicated by, the **endocrine system** | • Take notes |  |

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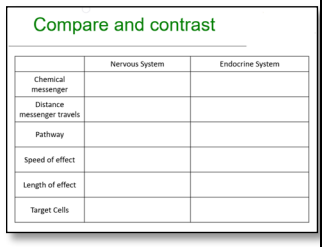
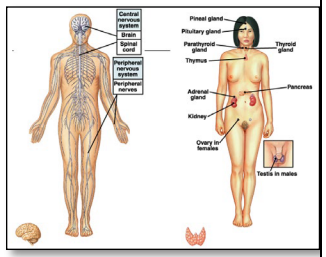
|---|---|---|---|---|---|
| **Active learning**<br>• **Facilitate application of knowledge and skills**<br>• **Provide feedback** | 10:20-10:35 | Outcome 3 | Teacher:<br>• Instructs students to undertake **compare and contrast activity**<br>• Facilitates discussion with one group from Site 1 selected to provide relevant information regarding the nervous system and one group from Site 2 selected to provide relevant information regarding the endocrine system<br>• **Returns to tuning in activity** – drawing analogy between nervous system and email, and endocrine system and snail mail/Australia Post – to synthesise similarities and differences between cellular communication systems | Students:<br>• In same groups of 3, populate table outlining characteristics of nervous and endocrine systems<br>• Selected groups project their completed tables onto shared screen and report information to spanned class | Template<br>• uploaded to Canvas prior to session<br>  <br>Compare and contrast<br>Screen sharing facilities (i.e. Solstice)<br>  |
| **Checks for understanding**<br>• **Prompt student reflection and feedback**<br>• **Assess student achievement of learning outcomes** | 10:35-10:45 | Outcomes 1-3 | • Facilitates **individual reflective activity**<br>• Provides instructions regarding **online summary paragraph** | • In journals, reflect on:<br>○ What did I understand well?<br>○ What am I still not clear about? (**muddiest point**)<br>• (After session) Synthesise learnings in one paragraph: *Compare and contrast the processes of the endocrine and nervous systems in maintaining homeostasis* | Posts in Canvas groups online |