

Level description: Year 8

In Year 8 students are introduced to cells as microscopic structures that explain macroscopic features of living systems . They connect form and function at an organ level and explore the organisation of a body system in terms of flows of matter between interdependent organs. They continue to develop a view of Earth as a dynamic system , in which change occurs across a range of timescales. They classify different types of energy and describe the role of energy in causing change in systems , including the role of energy and forces in the geosphere. They learn to classify matter at the atomic level and distinguish between chemical and physical change. They understand that chemical reactions also involve energy. Students use experimentation to isolate relationships between components in systems and explain these relationships through increasingly complex representations . They consider the magnitude of properties and events and use appropriate units to describe proportional relationships .

Inquiry questions can help excite students' curiosity and challenge their thinking.

Following are examples of inquiry questions that could be used to prompt discussion and exploration:

- **Can we predict changes to the shape and position of continents?**
- **Are facts enough? How much does science communication matter ?**
- **How can we tell if a substance has changed?**
- **How can we best measure what we cannot directly see?**
- **How is a leaf like a lung?**

Achievement standard: Year 8

By the end of Year 8 students explain the role of specialised cell structures and organelles in cellular function and analyse the relationship between structure and function at organ and body system levels. They apply an understanding of the theory of plate tectonics to explain patterns of change in the geosphere. They explain how the properties of rocks relate to their formation and influence their use. They compare different forms of energy and represent transfer and transformation of energy in simple systems. They classify and represent different types of matter and distinguish between physical and chemical change. Students analyse how different factors influence development of and lead to changes in scientific knowledge. They analyse the key considerations that inform scientific responses and how these responses impact society. They analyse the importance of science communication in shaping viewpoints, policies and regulations. Students plan and conduct safe, reproducible investigations to test relationships and explore models. They describe potential ethical issues and intercultural considerations needed for specific field locations or use of secondary data. They select and use equipment to generate and record data with precision. They select and construct appropriate representations to organise and process data and information. They analyse data and information to describe patterns, trends and relationships and identify anomalies. They identify assumptions and sources of error in methods and analyse conclusions and claims with reference to conflicting evidence and unanswered questions. They construct evidence-based arguments to support conclusions and evaluate claims. They select and use language and text features appropriately for their purpose when communicating their ideas, findings and arguments to specific audiences.