“I Can” Proficiency Scale - Year 9 Science – Ecology

Prioritised Standard	• *Describe the relationship between biotic and abiotic components in ecosystems.*
Score 4.0	***I can:*** • Explain and represent how energy and matter flow through ecosystems using food webs and biomass pyramids. • Describe three ways that energy is lost from a system. • Describe five of the following animal interactions and provide an example for each: Predator/prey, competition, commensalism, mutualism, parasitism • Identify three abiotic factors and describe, in detail, how they can affect population sizes. • Describe, in detail, the impact of human activity on population sizes and discuss three ways of protecting and managing ecosystems.
Score 3.5	***I can:*** • Explain and represent how energy and matter flow through ecosystems using food webs and biomass pyramids. • Describe three ways that energy is lost from a system. • Describe four of the following animal interactions and provide an example for each: Predator/prey, competition, commensalism, mutualism, parasitism • Identify three abiotic factors and describe how they can affect population sizes. • Describe the impact of human activity on population sizes and discuss three ways of protecting and managing ecosystems.
Score 3.0	***I can:*** • Explain and represent how energy and matter flow through ecosystems using a food web. • Describe two ways that energy is lost from a system. • Describe three of the following animal interactions and provide an example for each: Predator/prey, competition, commensalism, mutualism, parasitism • Identify two abiotic factors and describe how they can affect population sizes. • Describe the impact of human activity on population sizes and discuss two ways of protecting and managing ecosystems.
Score 2.0	***I can:*** • Represent how energy and matter flow through an ecosystem using a food chain or simple food web. • Describe a way that energy is lost from an ecosystem. • Describe two of the following animal interactions and provide an example for each: Predator/prey, competition, commensalism, mutualism, parasitism • Identify an abiotic factor and describe how it can affect population sizes. • Describe the impact of human activity on population sizes and describe one way of protecting and managing ecosystems.
Score 1.0	***I can:*** • Differentiate between a biotic and an abiotic factor. • Describe one of the following animal interactions and provide an example: Predator/prey, competition, commensalism, mutualism, parasitism • Identify the effects of human impact on a population.
Score 0.0	• Even with help, no success.

“I Can” Proficiency Scale - Year 9 Science – Plate Tectonics

Prioritised Standard	• *Explain global patterns of geological activity using the theory of plate tectonics.*
Score 4.0	***I can:*** • Describe and evaluate evidence that supports the theories of continental drift and plate tectonics. • Explain the role of heat energy and convection in plate movement. • Explain seafloor spreading, subduction and movement of plates and identify regions where these phenomena occur. • Describe how earthquakes, volcanic events, tsunamis, landslides and avalanches are related to movement at plate boundaries. • Describe advantages and disadvantages of living near a plate boundary and provide examples of how people adjust.
Score 3.5	***I can:*** • Describe evidence that supports the theories of continental drift and plate tectonics. • Explain the role of heat energy and convection in plate movement. • Explain seafloor spreading, subduction and movement of plates and identify regions where some of these phenomena occur. • Describe how earthquakes, volcanoes, tsunamis, landslides and avalanches are related to movement at plate boundaries. • Describe advantages and disadvantages of living near a plate boundary.
Score 3.0	***I can:*** • Identify evidence that supports the theories of continental drift and plate tectonics. • Explain the role of heat energy and convection in plate movement. • Describe seafloor spreading, subduction and movement of plates. • Describe how earthquakes and volcanoes are related to movement at plate boundaries. • List advantages and disadvantages of living near a plate boundary.
Score 2.0	***I can:*** • Identify some evidence that supports the theories of continental drift and plate tectonics. • Describe the role of convection in plate movement. • Describe either seafloor spreading, subduction or movement of plates. • Describe how earthquakes or volcanoes are related to movement at plate boundaries. • List an advantage and a disadvantage of living near a plate boundary.
Score 1.0	***I can:*** • Describe the theory of plate tectonics or continental drift. • Identify the role of convection in plate movement. • Describe either seafloor spreading, subduction or movement of plates with support. • Describe how earthquakes or volcanoes occur with assistance. • List either an advantage or a disadvantage of living near a plate boundary.
Score 0.0	• Even with help, no success.

PROFICIENCY SCALE

PRIORITISED STANDARD(S)

Explains energy transfer through different mediums.

AREA: Physics

4	I can • **Describe, using examples and annotated diagrams, how heat is transferred in terms of conduction, convection and radiation.** • **Describe the difference between transverse and longitudinal (compression) waves.** • **Draw and label a scale diagram of a transverse wave and a longitudinal wave.** • **Identify a variety of examples of transverse waves and an example of a longitudinal wave.** • **Describe and compare the transmission of sound and light through different mediums with reference to the particle theory.** • **Identify how changes in the frequency and amplitude of a sound wave affect the pitch and volume heard by a listener.** • **Describe the function of specific structures in the human ear and explain how sound energy is converted into electrical signals that your brain interprets as sound.** • **Identify that light rays obey the law of reflection and apply the law of reflection to different types of mirrors.** • **Describe real life applications of concave and convex mirrors and lenses.** • **Explain how refraction occurs and some of the effects that this produces eg: bending, dispersion, convergence and divergence.** • **Describe real life applications of concave and convex mirrors and lenses.** • **Describe the function of specific structures in the human eye and explain how your eyes convert light to electrical signals that your brain interprets as an image.** • **Describe the electromagnetic spectrum as consisting of a range of waves of differing energies, wavelengths and frequencies.** • **Provide at least 8 examples of electromagnetic waves.** • **Describe how the frequency of a light wave indicates its colour in the visible spectrum.** • **Describe factors that affect the transfer of electrical energy through different mediums- eg: solid conductors, electrolytes.**
3.5	Success at 3.0. Partial success at 4.0.
3	**I can** • **Describe how heat is transferred in terms of conduction, convection and radiation, and describe examples of each.** • **Describe the difference between transverse and longitudinal (compression) waves.** • **Draw and label a transverse wave and a longitudinal wave.** • **Identify an example of a transverse wave and an example of a longitudinal wave.** • **Describe the transmission of heat, sound and light through different mediums with reference to the particle theory.** • **Identify how changes in the frequency and amplitude of a sound wave affect the pitch and volume heard by a listener.** • **Describe the function of at least 4 structures in the human ear and explain how sound energy is converted into electrical signals that your brain interprets as sound.**

	• Identify that light rays obey the law of reflection and apply the law of reflection to different types of mirrors. • Explain how refraction occurs and some of the effects that this produces eg: bending, dispersion, convergence and divergence. • Describe the function of at least 4 structures in the human eye and explain how your eyes convert light to electrical signals that your brain interprets as an image. • Describe the electromagnetic spectrum as consisting of a range of waves of differing energies, wavelengths and frequencies. • Provide at least 4 examples of electromagnetic waves. • Describe that the frequency of a light wave indicates its colour in the visible spectrum. • Describe factors that affect the transfer of electrical energy through different mediums- eg: solid conductors, electrolytes.
2	**I can** • Identify how heat is transferred in terms of conduction, convection and radiation, and identify examples of each. • Identify the difference between transverse and longitudinal (compression) waves. • Draw a transverse wave and a longitudinal wave. • Identify an example a transverse wave or an example of a longitudinal wave • Briefly describe the transmission of sound or light through different mediums • Identify how changes in the frequency and amplitude of a sound wave affect the pitch and volume heard by a listener. • Identify at least 4 structures in the human ear. • Describe the law of reflection. • Provide a basic definition for refraction. • Identify at least 4 structures in the human eye. • Provide at least 3 examples of electromagnetic waves. • Identify the colours in the visible spectrum. • Identify some factors that affect the transfer of electrical energy through different mediums- eg: solid conductors, electrolytes.
1	**THE SIMPLER STUFF** **Score 1.0** **Partial success at 2.0**
0	**NO UNDERSTANDING** **Score 0.0** **No success at 2.0.**