

**ELL Science II**

2021-2022

**Course Numbers**

SCI 941/942

**This course is designed to give students an introductory experience in Earth and Physical Science. It will offer integrated experiences that explore the natural world and provides foundational skills and understandings for upper level science courses. This course is designed for Beginning Level English Language Learners.**

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| **Evidence shows the student ...** | **Topic Score** |
| Demonstrates proficiency (AT) in all learning targets and success at Level 4 | 4.0 |
| Demonstrates proficiency (AT) in all learning targets with partial success at Level 4 | 3.5 |
| Demonstrates proficiency (AT) in **all** learning targets | 3.0 |
| Demonstrates proficiency (AT) in **at least half** of the learning targets | 2.5 |
| Demonstrates some success criteria (PT) toward **all** learning targets | 2.0 |
| Demonstrates some success criteria (PT) towards **some** of the learning targets | 1.5 |
| Does not yet meet minimum criteria for the targets. | 1.0 |
| Produces no evidence appropriate to the learning targets at any level | 0 |

**Standards-Referenced Grading Basics**

**Our purpose in collecting a body of evidence is to:**

* Allow teachers to determine a defensible and credible topic score based on a representation of student learning over time.

**Start at Level 3 when determining a topic → score.**

* Clearly communicate where a student’s learning is based on a topic scale to inform instructional decisions and push student growth.
* Show student learning of targets through multiple and varying points of data
* Provide opportunities for feedback between student and teacher.

**Scoring**

A collaborative scoring process is encouraged to align expectations of the scale to artifacts collected. Routine use of a collaborative planning and scoring protocol results in calibration and a collective understanding of evidence of mastery. Enough evidence should be collected to accurately represent a progression of student learning as measured by the topic scale. Teachers look at all available evidence to determine a topic score. All topic scores should be defensible and credible through a body of evidence.

**Guiding Practices of Standards-Referenced Grading**

1. A consistent 4-point grading scale will be used.
2. Student achievement and behavior will be reported separately.
3. Scores will be based on a body of evidence.
4. Achievement will be organized by learning topic and converted to a grade at semester’s end.
5. Students will have multiple opportunities to demonstrate proficiency.
6. Accommodations and modifications will be provided for exceptional learners.

**\*\*\*Only scores of 4, 3.5, 3, 2.5, 2, 1.5, 1, and 0 can be entered as Topic Scores**.

**Multiple Opportunities**

Philosophically, there are two forms of multiple opportunities, both of which require backwards design and intentional planning. One form is opportunities planned by the teacher throughout the unit of study and/or throughout the semester. The other form is reassessment of learning which happens after completing assessment of learning at the end of a unit or chunk of learning.

Students will be allowed multiple opportunities to demonstrate proficiency. Teachers need reliable pieces of evidence to be confident students have a good grasp of the learning topics before deciding a final topic score. To make standards-referenced grading work, the idea of “multiple opportunities” is emphasized. If after these opportunities students still have not mastered Level 3, they may then be afforded the chance to reassess.

**Course Map**

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|  | **Grading Topics** | **Driving Question** | **Performance Expectations** |
| Semester 1 | Structures and Properties of Matter | What is matter? | MS-PS 1. A |
| Kinetic Energy | How does energy impact matter? | MS-PS 1-4 |
| Chemical Reactions | How does matter change? | MS-PS1-2 |
| Semester 2 | Plate Tectonics | How does the earth change over time? | HS-ESS 1-5, HS-ESS 2-3 |
| Earth’s Surface Processes | How does the earth change over time? | HS-ESS2-1, HS-ESS1-5, HS-ESS1-6 |
| Earth and Human Activity | How does climate impact humans and how do humans impact climate? | HS-ESS3-1, HS-ESS3-5 |
| Human Impact on the Environment | How does climate impact humans and how do humans impact climate? | HS-ESS3-4 |

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| Topic: Structures and Properties of Matter | | | |
| Driving Questions: What is Matter? | | | |
| Crosscutting Concept: Patterns | | | |
| Science and Engineering Practices: Developing and Using Models | | | |
| Disciplinary Core Idea: MS-PS 1.A | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | **Students who demonstrate understanding can:**     1. Construct an explanation for how substances are made of different types of atoms which combine in various ways to form different types of molecules that vary in size. 2. Categorize the properties of a pure substance as chemical or physical properties.   When teaching this topic, think about giving students an opportunity to plan and investigate. Students will be required and assessed on planning and conducting investigations in semester two. | ***Students will:***  A1. Identify the atomic composition of pure substances.  A2. Describe how the combination of different atoms form new and different compounds.   1. Identify chemical and physical properties.   **Recognize or recall specific vocabulary such as:**  Atoms, Molecules, Chemical Properties, Physical Properties, Matter, explain, observe | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |
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| Topic: Kinetic Energy | | | |
| Driving Questions: How does energy impact matter? | | | |
| Crosscutting Concept: Cause and Effect | | | |
| Science and Engineering Practices: Creating Models | | | |
| Performance Expectation: MS-PS 1-4 | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | 1. Create an illustration that represents molecular movement (rate and relative position) in solids, liquids and gases. 2. Predict the change of a state of matter when temperature or pressure is changed.   When teaching this topic, think about giving students an opportunity to plan and investigate. Students will be required and assessed on planning and conducting investigations in semester two. | 1. Describe what it means for a substance to be a solid liquid or gas.   B1. Describe how temperature and pressure impact the state of matter  B2. Describe how molecular arrangement changes in different states of matter.  Recognize or recall specific vocabulary such as:  Atoms, Molecules, Gas, Solid, Liquid, Temperature, Pressure, State, Arrangement, Matte, Energy (movement), Boiling, Freezing, Condensation, Evaporation |  |

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| Topic: Chemical Reactions | | | |
| Driving Questions: How does matter change? | | | |
| Crosscutting Concept: Patterns | | | |
| Science and Engineering Practices: Analyzing and Interpreting Data | | | |
| Performance Expectation: MS-PS1-2 | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | **Students who demonstrate understanding can:**   1. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred 2. Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.   When teaching this topic, think about giving students an opportunity to plan and conduct an investigation. Students will be required and assessed on planning and conducting investigations in semester two. | ***Students will:***  A1. Describe the signs of chemical reaction.  A2. Compare and contrast physical and chemical change   1. Explain the concept of the conservation of mass.   **Recognize or recall specific vocabulary such as:**  chemical and physical changes, chemical reactions, conservation of mass, reactants (inputs), products (outputs) | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Plate Tectonics | | | |
| Driving Questions: How does the Earth change over time? | | | |
| Crosscutting Concept: Energy and Matter, Stability and Change | | | |
| Science and Engineering Practices: Developing and Using Models | | | |
| Performance Expectation: HS-ESS1-5, HS-ESS2-3 | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | **Students who demonstrate understanding can:**   1. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. 2. Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection. 3. Construct an explanation for how the movement of tectonic plates creates different surface features. | ***Students will:***   1. List supporting evidence for the theory of plate tectonics 2. Describe the structural and compositional layers of the Earth.   **Recognize or recall specific vocabulary such as:**  Plates, continental drift, earthquakes, meteorites, core, lithosphere, crust, convection, conduction, radiation, water cycle, weathering, erosion, rock cycle | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Earth’s Surface Processes | | | |
| Driving Questions: How does the Earth change over time? | | | |
| Crosscutting Concept: Patterns, Stability and Change | | | |
| Science and Engineering Practices: Engaging in Argument from Evidence, Constructing Explanations and Designing Solutions, Developing and Using Models | | | |
| Performance Expectation: HS-ESS2-1, HS-ESS1-5, HS-ESS1-6. HS-ESS1-5 What performance expectations? | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | **Students who demonstrate understanding can:**   1. Develop a model to show how Earth’s internal and surface processes operate (erosion, weathering, water cycle). 2. Plan and conduct an investigation of a force of erosion and its effects on Earth materials and surface processes. | ***Students will:***  A.1 Differentiate between erosion and weathering  A2 Label the water cycle  A.3 Describe how water, wind or ice changes the surface of the Earth  B.1 Identify the variable they will change and the variable they will measure (dependent and independent variables)  B.2 Identify the properties of water and its effects on Earth materials and surface processes.  B.3 Organize data and summarize findings  **Recognize or recall specific vocabulary such as:**  Erosion, Weathering, Water Cycle, Variables | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Earth and Human Activity | | | |
| Driving Questions: How does climate impact humans and how do humans impact climate? | | | |
| Crosscutting Concept: Cause and Effect, Stability and Change | | | |
| Science and Engineering Practices: Constructing Explanations and Designing Solutions, Analyzing and Interpreting Data | | | |
| Performance Expectation: HS-ESS3-1, HS-ESS3-5. | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | **Students who demonstrate understanding can:**   1. Analyze the relationship between humans and climate. 2. Analyze how natural resources, natural hazards and climate have influenced human activity. | ***Students will:***  Students will   1. List and describe evidence of climate change 2. Identify areas that are difficult for humans to live   **Recognize or recall specific vocabulary such as:**  Green house effect, Climate, Fossil Fuels, Deforestation | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Human Impacts on the Environment | | | |
| Driving Questions: How does climate impact humans and how do humans impact climate? | | | |
| Crosscutting Concept: Stability and Change | | | |
| Science and Engineering Practices: Constructing Explanations and Designing Solutions | | | |
| Performance Expectation: HS-ESS3-4. | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | **Students who demonstrate understanding can:**   1. Given a problem, propose a solution that reduces impacts of human activities on natural systems. | ***Students will:***  A1. Identify impacts of human activities on natural systems  A2. List ways to reduce impacts of human activities on natural systems.  A3. Describe an intervention to reduce impact of human activity on natural systems  Recognize or recall specific vocabulary such as:  Deforestation, Erosion, Climate Change | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |