

**Content GLEs Addressed by STEP Year 2:**

| GLE #                                                                                                                       | Science Performance Standards (Grade Level Expectations)                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Students demonstrate an understanding of the structure and properties of matter by being able to:</i>                    |                                                                                                                                                                                           |
| <b>[3] SB1.1</b>                                                                                                            | classify matter by physical properties (i.e., color, size, shape, weight, texture, flexibility)                                                                                           |
| <b>[4] SB1.1</b>                                                                                                            | identify and compares the characteristics of gases, liquids, and solids                                                                                                                   |
| <b>[5] SB1.1</b>                                                                                                            | compare models that represent matter as solids, liquids, or gases and the changes from one state to another                                                                               |
| <b>[6] SB1.1</b>                                                                                                            | <u>use models</u> to represent matter as it changes from one state to another                                                                                                             |
| <b>[7] SB1.1</b>                                                                                                            | use physical properties (i.e., density, boiling point, freezing point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures)           |
| <b>[8] SB1.1</b>                                                                                                            | use physical and chemical properties (i.e., density, boiling pint, freezing point, conductivity, flammability) to differentiate among materials (i.e., elements, compounds, and mixtures) |
| <i>Students demonstrate an understanding of how energy can by transformed, transferred, and conserved by being able to:</i> |                                                                                                                                                                                           |
| <b>[6] SB2.1</b>                                                                                                            | recognize that energy can exist in many forms (i.e., heat, light, chemical, electrical, mechanical)                                                                                       |
| <b>[7] SB2.1</b>                                                                                                            | explain that energy (i.e., heat, light, chemical, electrical, mechanical) <u>can change</u> form                                                                                          |
| <b>[8] SB2.1</b>                                                                                                            | identify the initial source and resulting change in forms of energy in common phenomena (e.g., sun to tree to wood to stove to cabin heat)                                                |
| <b>[10] SB2.1</b>                                                                                                           | examine energy (i.e., nuclear, electromagnetic, chemical, mechanical, thermal) transfers, transformations, and efficiencies by comparing useful energy to total energy                    |
| <b>[11] SB2.1</b>                                                                                                           | demonstrate energy (e.g., nuclear, electromagnetic, chemical, mechanical, thermal) transfers and transformations by comparing useful energy to total energy (entropy)                     |

|                                                                                                                                                                   |                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Students demonstrate an understanding of geochemical cycles by being able to:</i>                                                                              |                                                                                                                                                        |
| <b>[8] SD1.2</b>                                                                                                                                                  | apply knowledge of the water cycle to explain changes in the Earth's surface                                                                           |
| <i>Students demonstrate an understanding of the forces that shape Earth by being able to:</i>                                                                     |                                                                                                                                                        |
| <b>[3] SD2.1</b>                                                                                                                                                  | identify and compare a variety of Earth's land features (i.e., rivers, deltas, lakes, glaciers, mountains, valleys, and islands)                       |
| <b>[4] SD2.1</b>                                                                                                                                                  | observe models of how waves, wind, water, and ice shape and reshape the Earth's surface by eroding rock and soil                                       |
| <b>[5] SD2.1</b>                                                                                                                                                  | describe how wind and water tear down and build up the Earth's surface which then results in new land formations (i.e., deltas, moraines, and canyons) |
| <b>[8] SD2.1</b>                                                                                                                                                  | interpret topographical maps to identify features (i.e., rivers, lakes, mountains, valleys, islands, and tundra)                                       |
| <i>Students demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by being able to:</i> |                                                                                                                                                        |
| <b>[5] SD3.2</b>                                                                                                                                                  | compare heat absorption and loss by land and water                                                                                                     |

### Science as Inquiry and Process GLEs for STEP Year 2:

| GLE #                                                                                                          | Content                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>The student develops an understanding of the processes of science by:</i>                                   |                                                                                                                                                                                                                                                                                                                                                   |
| <b>[3-9] SA1.1</b>                                                                                             | asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating                                                                                                                                                                                                                  |
| <b>[10-11] SA1.1</b>                                                                                           | asking questions, predicting, observing, describing, measuring, classifying, making generalizations, <u>analyzing data</u> , <u>developing models</u> , inferring and communicating                                                                                                                                                               |
| <b>[3] SA1.2</b>                                                                                               | observing and describing their world to answer simple questions.                                                                                                                                                                                                                                                                                  |
| <b>[4] SA1.2</b>                                                                                               | observing, measuring and collecting data from explorations and using this information to classify, predict, and communicate                                                                                                                                                                                                                       |
| <b>[5] SA1.2</b>                                                                                               | using quantitative and qualitative observations to create their own inferences and predictions                                                                                                                                                                                                                                                    |
| <b>[6] SA1.2</b>                                                                                               | collaborating to design and conduct simple repeatable investigations.                                                                                                                                                                                                                                                                             |
| <b>[7] SA1.2</b>                                                                                               | collaborating to design and conduct simple repeatable investigations in order to record, analyze (i.e. range, mean, median, mode), interpret data, and represent findings                                                                                                                                                                         |
| <b>[8] SA1.2</b>                                                                                               | collaborating to design and conduct simple repeatable investigations in order to record, analyze (i.e. range, mean, median, mode), interpret data, and represent findings                                                                                                                                                                         |
| <b>[9] SA1.2</b>                                                                                               | hypothesizing, designing a controlled experiment, making qualitative and quantitative observations, interpreting data, and using this information to communicate conclusions                                                                                                                                                                      |
| <b>[10] SA1.2</b>                                                                                              | reviewing pertinent literature, hypothesizing, making qualitative and quantitative observations, controlling experimental variables, analyzing statistically (i.e. mean, median, mode), and using this information to draw conclusions, compare results to others, suggest further experimentation, and apply their conclusions to other problems |
| <b>[11] SA1.2</b>                                                                                              | recognizing and analyzing multiple explanations and models, using this information to revise their own explanation or model if necessary                                                                                                                                                                                                          |
| <i>The student will demonstrate an understanding of the attitudes and approaches to scientific inquiry by:</i> |                                                                                                                                                                                                                                                                                                                                                   |
| <b>[3] SA2.1</b>                                                                                               | answering, "how do you know?" questions with reasonable answers                                                                                                                                                                                                                                                                                   |
| <b>[4] SA2.1</b>                                                                                               | supporting their ideas with observations and peer review                                                                                                                                                                                                                                                                                          |
| <b>[5] SA2.1</b>                                                                                               | supporting their statements with facts from a variety of resources and by identifying their sources                                                                                                                                                                                                                                               |

## STEP Grade Level Equivalents: Year 2

|                                                                                                                                                              |                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [6] SA2.1                                                                                                                                                    | identifying and differentiating fact from opinion                                                                                                                                               |
| [7] SA2.1                                                                                                                                                    | identifying and evaluating the sources used to support scientific statements                                                                                                                    |
| [8] SA2.1                                                                                                                                                    | recognizing and analyzing differing scientific explanations and models                                                                                                                          |
| [9] SA2.1                                                                                                                                                    | formulating conclusions that are logical and supported by evidence                                                                                                                              |
| [10] SA2.1                                                                                                                                                   | examining methodology and conclusions to identify bias and determining if evidence logically supports the conclusions                                                                           |
| [11] SA2.1                                                                                                                                                   | evaluating the credibility of cited sources when conducting the student's own scientific investigation                                                                                          |
| <i>The student will demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by:</i> |                                                                                                                                                                                                 |
| [3] SA3.1                                                                                                                                                    | observing local conditions that determine which plants and/or animals survive                                                                                                                   |
| [4] SA3.1                                                                                                                                                    | identifying the <b>local</b> limiting factors (e.g., weather, human influence, species interactions) that determine which plants and/or animals survive                                         |
| [5] SA3.1                                                                                                                                                    | identifying the limiting factors (e.g., weather, human influence, species interactions) that determine which plants and/or animals survive                                                      |
| [6] SA3.1                                                                                                                                                    | gathering data to building a knowledge base that contributes to the development of questions about the local environment (e.g., moose browsing, trail usage, river erosion)                     |
| [7] SA3.1                                                                                                                                                    | Designing and conducting a simple investigation about the local environment                                                                                                                     |
| [8] SA3.1                                                                                                                                                    | Conducting research to learn how the local environment is used by a variety of competing interests (e.g., competition for habitat/resources, tourism, oil and mining companies, hunting groups) |
| [11] SA3.1                                                                                                                                                   | Conducting research and communicating results to solve a problem (e.g., fish and game management, building permits, mineral rights, land use policies)                                          |