

| Inquiry Skills  | Geology, Meteorology & Oceanography TEKS Links  |
|---|---|
| 1. Set up a new, appropriate problem/application  | 2(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology. |
| 2. Pose relevant questions and develop hypotheses   | 2(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology. |
| 3. Make and test predictions  |   |
| 4. Observations and measurements are accurate and appropriate   | 2(B) collect data and make measurements with precision.   |
| 5. Equipment is used properly with appropriate safety procedures  | 1(A) demonstrate safe practices during field and laboratory investigations.   |
| 6. Quality assurance procedures are employed (multiple, repeated readings; recalibration) and measurement errors are detected |   |
| 7. Specify measurements and variables   |   |
| 8. Identify similarities and differences  |   |
| 9. Explain reasons for differences  |   |
| 10. Use appropriate mathematical procedures   |   |
| 11. Infer patterns and trends   | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data.  |
| 12. Explain data and relationships using evidence   | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data.  |
| 13. Collect and organize data   | 2(B) collect data and make measurements with precision.   |
| 14. Use multiple forms to represent data  |   |
| 15. Use models and simulations  |   |
| 16. Communicate findings  | 2(D) communicate valid conclusions.   |

| GLOBE ATMOSPHERE Science Concepts   | Geology, Meteorology & Oceanography Direct TEKS Link*   |
|---|---|
| 1. The atmosphere has observable and/or measurable characteristics.                             | 2(B) collect data and make measurements with precision<br>12(A) identify the atmosphere as a mixture of gases, water vapor, and particulate matter  |
| 2. Clouds can be categorized by observable features.  | 2(B) collect data and make measurements with precision<br>12(A) identify the atmosphere as a mixture of gases, water vapor, and particulate matter  |
| 3. Cloud cover and wind can affect atmospheric measurements.                                    | 12(A) identify the atmosphere as a mixture of gases, water vapor, and particulate matter  |
| 4. Cloud types can be associated with certain weather patterns and used to predict the weather. | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data<br>12(A) identify the atmosphere as a mixture of gases, water vapor, and particulate matter                               |
| 5. pH is a characteristic property that can be measured.  | 2(B) collect data and make measurements with precision  |
| 6. Heat energy transfers through radiation, conduction, and convection.                         | 13(A) describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere |
| 7. Substances transfer heat energy at different rates.  | 13(A) describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere |
| 8. Some materials are good conductors of heat energy; some are good insulators of heat energy.  | 13(A) describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere |
| 9. The transfer of heat energy affects temperature.   | 13(A) describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere |
| 10. Substances expand and contract as the temperature changes.                                  | 13(A) describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere |
| 11. Classification helps to organize and understand the natural world.                          |   |
| Atmosphere Enrichment Concepts  | Geology, Meteorology & Oceanography Direct TEKS Link*   |
| 1. Water has the unique property of expansion when changing from a liquid to a solid state.     |   |

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| GLOBE HYDROLOGY Science Concepts  | Geology, Meteorology & Oceanography Direct TEKS Link*   | Geology, Meteorology & Oceanography InDirect TEKS Link*  |
|---|---|--|
| 1. Surface water exists in many forms and has observable and/or measurable characteristics.                     | 2(B) collect data and make measurements with precision<br>10(A) identify the characteristics of a local watershed such as average annual rainfall, run- off patterns, aquifers, locations of river basins, and surface water reservoirs |  |
| 2. Surface water characteristics are related to the characteristics of the surrounding environment.             | 10(A) identify the characteristics of a local watershed such as average annual rainfall, run- off patterns, aquifers, locations of river basins, and surface water reservoirs   |  |
| 3. A watershed guides water to a common watercourse.  | 10(A) identify the characteristics of a local watershed such as average annual rainfall, run-off patterns, aquifers, locations of river basins, and surface water reservoirs  | 8(A) distinguish chemical from mechanical weathering and identify the role of weathering agents such as wind, water, and gravity |
| 4. Watershed characteristics are related to the physical features of the land.                                  | 10(A) identify the characteristics of a local watershed such as average annual rainfall, run- off patterns, aquifers, locations of river basins, and surface water reservoirs   | 8(A) distinguish chemical from mechanical weathering and identify the role of weathering agents such as wind, water, and gravity |
| 5. The physical environment affects an organism's response patterns; organisms adapt and survive, move, or die. | 4(B) analyze conditions on Earth that enable organisms to survive.  |  |
| 6. pH is a characteristic property that can be measured.  | 2(B) collect data and make measurements with precision  |  |
| 7. Classification helps to organize and understand the natural world.   |   |  |
| Hydrology Enrichment Concepts   | Geology, Meteorology & Oceanography Direct TEKS Link*   | Geology, Meteorology & Oceanography InDirect TEKS Link*  |
| 1. Macro-invertebrates are sensitive indicators of water quality.   | 2(B) collect data and make measurements with precision<br>2(C) organize, analyze, evaluate, make inferences, and predict trends from data<br>4(B) analyze conditions on Earth that enable organisms to survive.                         |  |
| 2. Topographical maps provide 3-dimensional information about the land.   |   |  |

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| Science Concepts GLOBE SOILS  | Geology, Meteorology & Oceanography Direct TEKS Link*  | Geology, Meteorology & Oceanography InDirect TEKS Link*                |
|---|--|--|
| 1. Soil has observable and/or measurable properties that change with time and location.                 | 2(B) collect data and make measurements with precision<br>8(C) illustrate the role of weathering in soil formation   |  |
| 2. The interaction of organisms, climate, parent material, topography, and time affect soil properties. | 8(A) distinguish chemical from mechanical weathering and identify the role of weathering agents such as wind, water, and gravity<br>2(C) organize, analyze, evaluate, make inferences, and predict trends from data  |  |
| 3. Soil acts as an insulating layer, creating a measurable temperature gradient.                        | 2(B) collect data and make measurements with precision<br>2(C) organize, analyze, evaluate, make inferences, and predict trends from data<br>13(A) describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere |  |
| 4. Environmental conditions affect the rate of decomposition in soil.                                   |  |  |
| 5. The chemical and physical properties of soils make different soils useful in different ways.         | 2(B) collect data and make measurements with precision   |  |
| 6. pH is a characteristic property that can be measured.  |  | 7(B) identify common minerals and describe their economic significance |
| 7. Classification helps to organize and understand the natural world.                                   |  |  |

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| Soils Enrichment Concepts:  | Geology, Meteorology & Oceanography Direct TEKS Link*   | Geology, Meteorology & Oceanography InDirect TEKS Link* |
|---|---|---|
| 1. There are 12 soil textures representing different amounts of sand-, silt-, and clay-sized particles.   | 2(B) collect data and make measurements with precision<br>8(C) illustrate the role of weathering in soil formation  |   |
| 2. A soil profile can be classified according to its properties, such as horizon, color, structure, consistency, texture, root and rock distribution, density, pH, carbonates, and fertility. | 2(B) collect data and make measurements with precision<br>8(C) illustrate the role of weathering in soil formation  |   |
| 3. Infiltration is the rate at which water flows into the ground; the rate changes depending on the level of soil saturation, soil texture and structure, and land cover.                     | 2(B) collect data and make measurements with precision<br>2(C) organize, analyze, evaluate, make inferences, and predict trends from data<br>8(C) illustrate the role of weathering in soil formation<br>10(A) identify the characteristics of a local watershed such as average annual rainfall, run-off patterns, aquifers, locations of river basins, and surface water reservoirs |   |

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| GLOBE LAND COVER Science Concepts   | Geology, Meteorology & Oceanography Direct TEKS Link*   | Geology, Meteorology & Oceanography InDirect TEKS Link*            |
|---|---|--|
| 1. A GLOBE Study Site has observable and/or measurable characteristics.   | 2(B) collect data and make measurements with precision  |  |
| 2. A GLOBE Study Site represents a system with boundaries, and is a subset of the earth system.   | 13(A) describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere |  |
| 3. Earth's land surface is covered by a variety of naturally occurring vegetated ecosystems.  |   | 4(B) analyze conditions on Earth that enable organisms to survive. |
| 4. The physical environment affects an organism's response patterns; organisms adapt and survive, move, or die.   | 4(B) analyze conditions on Earth that enable organisms to survive.  |  |
| 5. The magnetic needle of a compass is attracted to Earth's Magnetic North and to some metal objects that are nearby.                                   |   |  |
| 6. Classification helps to organize and understand the natural world.   |   |  |
| Land Cover Enrichment Concepts  | Geology, Meteorology & Oceanography Direct TEKS Link*   | Geology, Meteorology & Oceanography InDirect TEKS Link*            |
| 1. Remote sensing is a technique used to create visual representations of data.   | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data   |  |
| 2. Image display is accomplished by conversion of stored data to a user-defined coded scheme and creating an image based on differences in measurement. | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data   |  |
| 3. Student remote sensing involves observations made without the use of touch (i.e., using eyes, ears, nose and skin surface).                          | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data   |  |

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| GLOBE Seasons Science Concepts   | Geology, Meteorology & Oceanography Direct TEKS Link*   | Geology, Meteorology & Oceanography InDirect TEKS Link*            |
|--|---|--|
| 1. Seasonal changes can be observed.   | 2(B) collect data and make measurements with precision  | 4(B) analyze conditions on Earth that enable organisms to survive. |
| 2. Seasonal changes follow an annual cycle. The magnitude of these changes varies from year to year. | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data   | 4(B) analyze conditions on Earth that enable organisms to survive. |
| 3. Seasonal patterns differ based on geographic location.  | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data   | 4(B) analyze conditions on Earth that enable organisms to survive. |
| 4. Earth has many climate zones.   | 4(B) analyze conditions on Earth that enable organisms to survive.<br>13(B) identify, describe, and compare climatic zones  |  |
| 5. Classification helps to organize and understand the natural world.                                |   |  |
| Seasons Enrichment Concepts  | Geology, Meteorology & Oceanography Direct TEKS Link*   | Geology, Meteorology & Oceanography InDirect TEKS Link*            |
| 1. Bud-break is the period when leaf buds appear and grow.   | 2(B) collect data and make measurements with precision<br>2(C) organize, analyze, evaluate, make inferences, and predict trends from data<br>4(B) analyze conditions on Earth that enable organisms to survive. |  |
| 2. Senescence is the period when actively growing plant material dies.                               | 2(B) collect data and make measurements with precision<br>2(C) organize, analyze, evaluate, make inferences, and predict trends from data<br>4(B) analyze conditions on Earth that enable organisms to survive. |  |

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| GLOBE GPS Science Concepts  | Geology, Meteorology & Oceanography Direct TEKS Link*  |
|---|--|
| 1. The amount of sunlight that falls directly at a particular site on Earth varies throughout the year.               | 2(C) organize, analyze, evaluate, make inferences, and predict trends from data<br>4(B) analyze conditions on Earth that enable organisms to survive |
| 2. The magnetic needle of a compass is attracted to Earth's Magnetic North and to some metal objects that are nearby. |  |
| 3. A map is a symbolic representation of a certain land area.   |  |
| GPS Enrichment Concepts   | Geology, Meteorology & Oceanography Direct TEKS Link*  |
| 1. Universal time is a technique used to standardize time measurements.   |  |
| 2. The spatial relationship between Earth and celestial objects can be used to determine location on Earth.           |  |
| 3. The GPS is used to make accurate measurements of latitude and longitude.   |  |

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