1. Earth's Place in the Universe

PreKindergarten (3-4 year old; MA EEC)

ELA: RLPK.7, W.PK.2

PreK-ESS1-2(MA). Observe and use evidence to describe that the sun is in different places in the sky during the day.

PreK-ESS1-1(MA). Demonstrate awareness that the moon can be seen in the daytime and at night, and of the different apparent shapes of the moon over a month. Clarification Statement: The names of moon phases or sequencing moon phases is not expected.

Math: PK.CC.C.MA.5, PK.G.A.MA.1

PreK-ESS2-4(MA). Use simple instruments to collect and record data on elements of daily weather, including sun or clouds, wind, snow or rain, and higher or lower temperature.

PreK-ESS2-5(MA). Describe how local weather changes from day to day and over the seasons and recognize patterns in those changes. Clarification Statement: Descriptions of the weather can include sunny, cloudy, rainy, warm, windy, and snowy.

Kindergarten (5 year old)

Math: K.CC.B.5, K.CC.C.6
K.MD.A.2, K.MD.B.3, K.CC.B.4a,b,c

K-ESS2-1. Use and share quantitative observations of local weather conditions to describe patterns over time. Clarification Statements: Examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month, and relative temperature. Quantitative observations should be limited to whole numbers.
1-ESS1-1. Use observations of the sun, moon, and stars to describe that each appears to rise in one part of the sky, appears to move across the sky, and appears to set.

Math: 1-MD.4

1-ESS1-2. Analyze provided data to identify relationships among seasonal patterns of change, including relative sunrise and sunset time changes, seasonal temperature and rainfall or snowfall patterns, and seasonal changes to the environment. Clarification Statement: Examples of seasonal changes to the environment can include foliage changes, bird migration, and differences in amount of insect activity.

Math: 1.MD.B.3, 1.MD.C.4

2-ESS2-3. Use examples obtained from informational sources to explain that water is found in the ocean, rivers and streams, lakes and ponds, and may be solid or liquid.

K.PS1.1. ELA: W.2.9

2-ESS2-4(MA). Observe how blowing wind and flowing water can move Earth materials from one place to another and change the shape of the Earth and its surface. Clarification Statement:

3-ESS2-1. Use graphs and weather data to describe weather during a particular period of time. Clarification Statements: Data could include average amount and type of precipitation (e.g., rain, snow), wind direction and speed. Graphical displays: pictographs and bar graphs.

Math: 3.MD.B.3, 2
4-ESS1-1. Use evidence from a given landscape that includes simple landforms and rock layers to support a claim about the role of erosion or deposition in the formation of the landscape. Clarification Statements: Example of evidence and claims could include rock layers with shell fossils above rock layers with plant fossils and no shells, indicating a change from deposition on land to deposition in water over time; and a canyon with rock layers in the walls and a river in the bottom, indicating that a river eroded the rock over time. Examples of simple landforms can include valleys, hills, mountains, plains, and canyons. Focus should be on relative time. State Assessment Boundary: Specific details of the mechanisms of rock formation or specific rock formations and layers are not expected in state assessment.

5-ESS1-2. Use a model to communicate Earth's relationship to the Sun, Moon, and other stars that explain (a) why people on Earth experience day and night, (b) patterns in daily changes in length and direction of shadows over a day, and (c) changes in the apparent position of the Sun, Moon, and stars at different times during a day, over a month, and over a year. Clarification Statement: Models should illustrate that the Earth, Sun, and Moon are spheres; include orbits of the Earth around the Sun and of the Moon around Earth; and demonstrate Earth’s rotation about its axis. State Assessment Boundary: Causes of lunar phases or seasons, or use of Earth's tilt are not expected in state assessment.

5-ESS1-1a. Use observations, first-hand and from various media, to argue that the sun is a star that appears larger and brighter than other stars because it is closer to the Earth. State Assessment Boundary: Other factors that affect apparent brightness (such as stellar masses, age, or stage) are not expected in state assessment.

6-ESS1-4

6-ESS2-3

6.MS-ESS1-5

5-ESS2-2. Describe and graph the relative amounts of saltwater in the ocean; fresh water in lakes, rivers, and ground water; and fresh water frozen in glaciers and polar ice caps to provide evidence about the availability of fresh water in Earth's biosphere. State Assessment Boundary: Inclusion of the atmosphere is not expected in state assessment.

3-LS4-1

ELA: W.4.9

Grade 4

ELA: RI-5.3

Grade 5

Math: 3.MD.B.3

Math: 4.MD.A.1

ELA: W.5.2, W.5.9

6.MS-ESS1-1a

8.MS-ESS2-5

5.MD.10

MD.D.10
PreK-ESS2-6(MA). Provide examples of the impact of weather on living things. Clarification Statement: Make connections between the weather and what they wear and can do and the weather and the needs of plants and animals for water and shelter.


PreK-ESS2-1(MA). Raise questions and engage in discussions about how different types of local environments (including water) provide homes for different kinds of living things.

PreK-ESS2-3(MA). Explore and describe different places water is found in the local environment.

PreK-ESS3-2(MA). Observe and discuss the impact of people's activities on the local environment.

PreK-ESS3-1(MA). Engage in discussion and raise questions using examples about local resources (including soil and water) humans use to meet their needs.

K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment. Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digging holes in the ground and tree roots that break concrete.

K-ESS3-2. Obtain and use information about the purpose of weather forecasting to prepare for, and respond to, different types of local weather.

K-ESS3-3. Communicate solutions to reduce the amount of natural resources an individual uses. *Clarification Statement: Examples of solutions could include reusing paper to reduce the number of trees cut down and recycling cans and bottles to reduce the amount of plastic or metal used.
shape of a landform. Clarification Statement: Examples of types of landforms can include hills, valleys, river banks, and dunes.

2-K-2-ETS1-3  

2-ESS2-1. Compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.* Clarification Statements: Solutions to be compared could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land. Solutions can be generated or provided.

3-LS4-4  

3-ESS2-2. Obtain and summarize information about the climate of different parts of the world to illustrate that conditions vary from place to place. Clarification Statement: Examples can include climate factors (temperature, average pressure, wind speed) or compare assessment of seasonal weather for different locations. Assessment Question: How does the climate change as you move from one area to another?

2-ESS2-2. Map the shapes and types of landforms and bodies of water in an area. Clarification Statements: Examples of types of landforms can include hills, valleys, river banks, and dunes. Examples of water bodies can include streams, ponds, bays, and rivers. Quantitative scaling in models or contour mapping is not expected.

3-LS4-4  

3-ESS3-1. Evaluate the solution that reduces the level of weather-related hazard. Clarification Statement: Examples of a weather-related hazard barrier to prevent flooding include a levee or a breakwater. Analysis is not expected.

3-ESS3-1
4-ESS2-1. Make observations and collect data to provide evidence that rocks, soils, and sediments are broken into smaller pieces through mechanical weathering and moved around through erosion. Clarification Statements: Mechanical weathering can include frost wedging, abrasion, and tree root wedging. Erosion can include movement by blowing wind, flowing water, and moving ice. State Assessment Boundary: Chemical processes are not expected in state assessment.

7.MS-ESS2-2

4-ESS2-2. Analyze and interpret maps of Earth’s mountain ranges, deep ocean trenches, volcanoes, and earthquake epicenters to describe patterns of these features and their locations relative to boundaries between continents and oceans.

6.MS-ESS2-3  8.MS-ESS2-1

7.MS-ESS2-4

3.3-5-ETS1-2

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4-ESS3-1. Obtain information to describe that energy and fuels humans use are derived from natural resources and that some energy and fuel sources are renewable and some are not. Clarification Statements: Examples of renewable energy resources could include wind energy, water behind dams, tides, and sunlight. Non-renewable energy resources are fossil fuels and nuclear materials.

4-ESS3-2. Evaluate the different solutions to reduce the impacts of a natural event such as an earthquake, blizzard, or flood, on humans.* Clarification Statement: Examples of solutions could include a proposal for an earthquake resistant building or a constructed wetland to mitigate flooding.

7.MS-ESS3-2

5-ESS3-1. Obtain and combine information about ways communities reduce human impact on the Earth’s resources and environment by changing an agricultural, industrial, or community practice or process. Clarification Statement: Examples of changed practices or processes include treating sewage, reducing the amounts of materials used, capturing polluting emissions from factories or power plants, and preventing runoff from agricultural activities. State Assessment Boundary: Climate change or social science aspects of practices such as regulation or policy are not expected in state assessment.

ELA: RI.5.1,7,9, W.5.9

4.3-5-ETS1-3

5-ESS3-2(MA). Test a simple system designed to filter an particulates out of water and propose one change to the design to improve it.*