

Disciplinary Core Idea

5.PS2.B: Types of Interactions

The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)

Disciplinary Core Idea

5.ESS1.A: The Universe and Its Stars

The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1)

Disciplinary Core Idea

5.ESS1.B: Earth and the Solar System

The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)

Performance Expectation

5-ESS1-1: Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth.

Clarification Statement: none

Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).

Performance Expectation

5-ESS1-2: Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.

Assessment Boundary: Assessment does not include causes of seasons.

Performance Expectation

5-PS2-1: Support an argument that the gravitational force exerted by Earth on objects is directed down.

Clarification Statement: “Down” is a local description of the direction that points toward the center of the spherical Earth.

Assessment Boundary: Assessment does not include mathematical representation of gravitational force.

Science and Engineering Practice

Analyzing and Interpreting Data

Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.

Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5-ESS1-2)

Science and Engineering Practice

Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

Support an argument with evidence, data, or a model. (5-ESS1-1), (5-PS2-1)

Crosscutting Concept

Patterns

Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena. (5-ESS1-2)

Crosscutting Concept

Cause and Effect

Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)

Crosscutting Concept

Scale, Proportion, and Quantity

Natural objects exist from the very small to the immensely large. (5-ESS1-1)

Common Core State Standards for ELA/Literacy

Reading Informational Text

RI.5.1 - Key Ideas and Details

Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-ESS1-1), (5-PS2-1)

Common Core State Standards for ELA/Literacy

Reading Informational Text

RI.5.7 - Integration of Knowledge and Ideas

Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS1-1)

Common Core State Standards for ELA/Literacy

Reading Informational Text

RI.5.8 - Integration of Knowledge and Ideas

Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). (5-ESS1-1)

Common Core State Standards for ELA/Literacy

Reading Informational Text

RI.5.9 - Integration of Knowledge and Ideas

Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-ESS1-1), (5-PS2-1)

Common Core State Standards for ELA/Literacy

Speaking & Listening

SL.5.5 - Presentation of Knowledge and Ideas

Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-ESS1-2)

Common Core State Standards for ELA/Literacy

Card Type name

W.5.1 - Text Types and Purposes

Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-ESS1-1), (5-PS2-1)

Common Core State Standards for Mathematics

Geometry

5.G.A.2 - undefined

Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS1-2)

Common Core State Standards for Mathematics

Number & Operations in Base Ten

5.NBT.A.2 - Understand the place value system.

Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5-ESS1-1)

Common Core State Standards for Mathematics

Mathematical Practices

MP.2 - Reason abstractly and quantitatively

Reason abstractly and quantitatively. (5-ESS1-1), (5-ESS1-2)

Common Core State Standards for Mathematics

Mathematical Practices

MP.4 - Model with mathematics

Model with mathematics. (5-ESS1-1), (5-ESS1-2)