Unit 1: Objects and Patterns in the Sky

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

Unit Overview

In this unit of study, students observe, describe, and predict some patterns in the movement of objects in the sky. The crosscutting concept of patterns is called out as an organizing concept for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations and analyzing and interpreting data. Students are also expected to use these practices to demonstrate understanding of the core ideas. Students relate shadows changing throughout the day to the sun's position moving across the sky.

Enduring Understandings

The moon looks different because it revolves around the earth.
It rises on one side of the sky and sets in another.
Stars can only be seen at night

Essential Questions

What patterns do you see in the moon?
What changes does the sun make in a day?
Can you see the stars during the day?

Learning Objectives

Observe and use patterns in the natural world as evidence and to describe phenomena.
Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.
Use observations of the sun, moon, and stars to describe patterns that can be predicted. Examples of patterns could include: The sun and moon appear to rise in one part of the sky, move across the sky, and set. Stars other than our sun are visible at night but not during the day.
Career Exploration - Explore careers in science (Astronomy, etc.)
Who Is Katherine Johnson? (Reading Passages) (Amistad Law)

Standards: Content

K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
K-2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
1-ESS1-1	Use observations of the sun, moon, and stars to describe patterns that can be predicted.
1-ESS1-2	Make observations at different times of year to relate the amount of daylight to the time of year.

Standards: Interdisciplinary

9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
2.1.2.EH.4	Demonstrate strategies for managing one's own emotions, thoughts and behaviors.
9.4.2.IML.3	Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2).
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
RI.CR.1.1	Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how).
RI.CI.1.2	Determine main topic and retell a series of key details in informational texts (e.g., who, what, where, when, why, how).
RI.IT.1.3	Describe relationships among pieces of information (e.g., sequence of events, steps in a process, cause-effect and compare-contrast relationships) within a text.
RI.TS.1.4	With prompting and support, explain major differences between books that tell stories and books that give information, identifying various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text while drawing on a wide reading of a range of text types.
RI.PP.1.5	Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
RI.MF.1.6	With prompting and support, use text features (e.g., diagrams, tables, animations) to describe key ideas.
RI.AA.1.7	Identify the reasons an author gives to support points in a text and explain how that information is applied, with prompting as needed.
RI.CT.1.8	Identify similarities in and differences between two informational texts on the same topic (e.g., characters, experiences, illustrations, descriptions, or procedures).
W.IW.1.2	With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information.
W.IW.1.2.A	Introduce a topic.
W.IW.1.2.B	Develop the topic with facts or other information and examples related to the topic.
W.IW.1.2.C	Provide a conclusion.
SL.AS.1.6	Produce complete sentences when appropriate to task and situation.

Assessment Evidence

Formative	Teacher observations, Class discussions, Lab Activities, Key concepts and vocabulary quizzes, Science Starter's/Do Nows, Open Ended Responses, Modeling, Simulations, Innovators Monthly Research, Lab Activities, Vocabulary Responses, Exit Questions, Interactive Digital Assessments embedded in Exploring Science Digital Book
Summative	In correlation with the NGSS, students must demonstrate the following as summative assessments: 1-ESS1-1., Use observations of the sun, moon, and stars to describe patterns that can be predicted. 1-ESS1-2., Make observations at different times of year to relate the amount of daylight to the time of year. Other summative assessments will include but are not limited to: projects, summative tests, lab skills demonstrations, and vocabulary quizzes.
Alternative & Benchmark	Alternative - Read to the student and chart oral responses. Word banks, sentence frames, oral responses, graphic organizers, observations, portfolios of student work, orally administered assessments, and anecdotal notes. Benchmark – LinkIt Benchmark Assessment, Teacher Generated Assessments
Assessment Evidence Resource	

Instructional Resources

Smartboard, Computers, Websites and digital interactives/models, Multi-media presentations, Video Streaming, Brain Pop, Middle School Science, Generation Genius Digital Curriculum, Mystery Science Digital Curriculum, Amplify Digital Curriculum, Microsoft 365, Primary and Secondary Source Documents, Assorted lab materials, Crayons, Markers, scissors, glue sticks, construction paper.
How Do Wind Turbines Work? | Department of Energy (Climate Change)
Wind Power Station (Climate Change)
Kids Britannica (Climate Change)
A Guide to Climate Change for Kids (Climate Change)
What Is the Greenhouse Effect? | NASA Climate Kids (Climate Change)
Who Is Katherine Johnson? | Free Reading Passages and Literacy Resources (Amistad Law)

Instructional Resource List

Curricular Mandates

Below are the curricular requirements as defined in NJ Administrative Code and Statute

X	Amistad		Diversity, Equity, and Inclusion
	Holocaust		LGBT and Disabilities (Grades 6-12)

X	Climate Change		Asian American & Pacific Islander

Social Emotional Learning (SEL) Competencies

NJ Social and Emotional Learning Competencies & Sub-Competencies

	Self-Awareness		Relationship Skills
X	Responsible Decision-Making		Social Awareness
	Self-Management		

21st Century Skills & Themes

	Global and Cultural Awareness		Technology Literacy		Planning and Budgeting
X	Creativity and Innovation		Financial Institutions		Risk Management and Insurance
X	Information and Media Literacy		Digital Citizenship		Economic and Government Influences
X	Critical Thinking and Problem Solving		Credit Profile	X	Career Awareness and Planning
	Civic Financial Responsibility		Financial Psychology		