

Quinton Township School  
First Grade  
Science - Unit 1

**Grade 1 Science Unit 1: Patterns of Change in the Sky**

**Key:** Careers Technology Interdisciplinary Studies

**Unit Summary - Marking Period 3 20 Days**

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.

**Student Learning Objectives**

Use observations of the sun, moon, and stars to describe patterns that can be predicted. *[Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.]* *[Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.]* (1-ESS1-1)

Make observations at different times of year to relate the amount of daylight to the time of year. *[Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.]* *[Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]* (1-ESS1-2)

**Objectives Aligned with National Geographic Resources: Approximate Time Frame: 20 days**

Days 1-3

- Describe the sun
- Describe how day and night make a pattern
- Describe the pattern of the sun's apparent motion in the sky

Days 4-5

- Observe the pattern of the sun in the sky
- Predict the future pattern of the sun in the sky

Days 6-7

- Describe the sun when the moon is visible
- Describe the pattern of the moon in the sky

Days 8-10

- Describe when you can observe the stars
- Predict the future pattern of the moon in the sky
- Describe why you can see stars only at night
- Describe how people use stars to make a pattern
- Explain how people use star patterns

Days 11-13

- Describe the Little Dipper and the location of the North Star
- Explain how the Little Dipper appears to move in the night sky
- Describe Alkaid's pattern of motion
- Describe how Cepheus appears to move
- Describe how the North Star appears to move

Days 14-16

- Describe the pattern of the seasons
- Conclude that each season happens once each year
- Explain how daylight changes with the seasons
- Predict how sunrise and sunset will change from one day to the next

- Observe and record when sunrise and sunset occur at different times of the year
- Compare data to relate the amount of daylight to the time of year

Day 17

- Connect the concept of patterns of motion of the sun, moon, stars, and planets with the career of an astronomer

Day 18

- Unit Review

Day 19-20

- Earth Science Assessment

*Part A: What patterns of change can be predicted when observing the sun, moon, and stars?*

Concepts	Formative Assessments
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<ul style="list-style-type: none"> <li>· Science assumes that natural events happen today as they happened in the past.</li> <li>· Many events are repeated.</li> <li>· Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.</li> <li>· Patterns in the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.</li> </ul>	<p><i>Students who understand the concepts can:</i></p> <ul style="list-style-type: none"> <li>· Observe and use patterns in the natural world as evidence and to describe phenomena.</li> <li>· Use and record observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.</li> <li>· Use and record 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. <i>(Assessment of star patterns is limited to stars being seen at night and not during the day.)</i></li> </ul>
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<b>Unit Sequence</b>	
<i>Part B: What is the relationship between the amount of daylight and the time of year?</i>	
Concepts	Formative Assessments

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.
- Seasonal patterns of sunrise and sunset can be observed, described, and predicted.

*Students who understand the concepts can:*

- Use observations of the sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.] 1-ESS1-2.
- Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]
- Exit Tickets
- Journal Responses
- End of Unit Assessment

**Common Core State Standards/Learning Targets:** 1-ESS1-1 and 1-ESS1-2, W.1.7, W.1.8, MP.2, MP.4, MP.5, 1.OA.A.1, 1.MD.C.4, 8.1, 8.2, 9.2.4.A.1, 9.2.4.A.3, 9.2.4.A.4

### Modifications

*(Note: Teachers identify the modifications that they will use in the unit. See NGSS Appendix D: All Standards, All Students/Case Studies for vignettes and explanations of the modifications.)*

- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.
- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).
- Provide opportunities for students to connect with people of similar backgrounds (e.g. conversations via digital tool such as SKYPE, experts from the community helping with a project, journal articles, and biographies).
- Provide multiple grouping opportunities for students to share their ideas and to encourage work among various backgrounds and cultures (e.g. multiple representation and multimodal experiences).
- Engage students with a variety of Science and Engineering practices to provide students with multiple entry points and multiple ways to demonstrate their understandings.
- Use project-based science learning to connect science with observable phenomena.
- Structure the learning around explaining or solving a social or community-based issue.
- Provide ELL students with multiple literacy strategies.
- Collaborate with after-school programs or clubs to extend learning opportunities.
- Restructure lesson using UDL principles ([http://www.cast.org/our-work/about-udl.html#VXmoXcfD\\_UA](http://www.cast.org/our-work/about-udl.html#VXmoXcfD_UA)).

### Connections to Other Units

N/A



Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p data-bbox="226 321 501 383"><b>Planning and Carrying Out Investigations</b></p> <ul data-bbox="216 431 464 662" style="list-style-type: none"> <li>· Plan and conduct investigations collaboratively to produce evidence to answer a question. (1-PS4-1),(1-PS4-3)</li> </ul> <p data-bbox="216 686 384 797"><u>Planning and Carrying Out Investigations</u></p> <ul data-bbox="216 808 506 1039" style="list-style-type: none"> <li>· Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)</li> </ul> <p data-bbox="216 1063 426 1133"><u>Analyzing and Interpreting Data</u></p> <ul data-bbox="216 1144 485 1375" style="list-style-type: none"> <li>· Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific</li> </ul>	<p data-bbox="552 329 758 440"><u>ESS1.A: The Universe and its Stars</u></p> <ul data-bbox="552 451 806 724" style="list-style-type: none"> <li>· Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)</li> </ul> <p data-bbox="552 748 768 818"><u>ESS1.B: Earth and the Solar System</u></p> <ul data-bbox="552 829 806 1060" style="list-style-type: none"> <li>· Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)</li> </ul>	<p data-bbox="854 285 957 313"><u>Patterns</u></p> <ul data-bbox="854 324 1896 394" style="list-style-type: none"> <li>· Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1),(1-ESS1-2)</li> </ul> <p data-bbox="1098 415 1654 431">-----</p> <p data-bbox="951 464 1346 492"><i>Connections to Nature of Science</i></p> <p data-bbox="854 521 1885 626">Scientific Knowledge Assumes an Order and Consistency in Natural Systems · Science assumes natural events happen today as they happened in the past. (1-ESS1-1) · Many events are repeated. (1-ESS1-1)</p>



questions. (1-ESS1-1)		
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