

**How could we travel 1,000 miles in the same direction, without a compass, map or phone?**

**Learning Set 5: How can we use stars to find directions?**

**Lesson 5.1: How are some stars like lampposts?**

<p><b>Lesson Overview (70 minutes)</b></p>	<p><b>L5.1: How are some stars like lampposts?</b></p> <p><b>Lesson Snapshot</b></p> <ol style="list-style-type: none"> <li><b>Introduction:</b> Unit DQ, and reflecting on what was learned so far about the sun, and the predictable location of the sun in the sky at different times of the day and what that tells us about how to solve the challenge. Ask <i>“Do stars move, or stay in one place? Do they (seem to) travel in a predictable way?”</i> Review the slides of the photos of stars. Ask, <i>“Can stars help us find our way?” “How could a star be like a lamp post or beacon?”</i></li> <li><b>Interactive Reading:</b> Students participate in an interactive read aloud of <i>Island below the Star: How the first people came to Hawaii</i> by James Rumford.</li> <li><b>Asking Questions:</b> Students think about how the stars could have come to be understood as beacons, and take special significance in history. In small groups, students add one or more questions related to the reading and to these questions about history and the challenge of the unit DQ.</li> <li><b>Wrap Up:</b> Review main points, add new questions that have to do with the challenge at hand. Ask, <i>“Can we figure out how to go north?”</i></li> </ol> <p><b>Learning Performances</b> Students will obtain information from a text to ask questions about the relative position and brightness of the celestial bodies including the sun, and other stars, and the planet earth (through the lens of scale and proportion; patterns).</p> <p><b>Building toward PEs</b></p> <p><b>5-ESS1-1</b> 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.</p> <p><b>5-ESS1-2</b> 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.</p>		
<p><b>Materials and Prep</b></p>	<table border="0"> <tr> <td data-bbox="266 1050 941 1344"> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li><a href="#">Slides of the location data</a></li> <li>Chart paper and markers; Student science notebooks</li> <li><i>Island below the Star: How the first people came to Hawaii</i> by James Rumford and <a href="#">interactive reading guide</a></li> </ul> </td> <td data-bbox="941 1050 1536 1344"> <p><b>Preparation</b></p> <ul style="list-style-type: none"> <li>Preview interactive reading guide prior to reading and discussing <i>Island Below The Star</i> with students</li> </ul> </td> </tr> </table>	<p><b>Materials</b></p> <ul style="list-style-type: none"> <li><a href="#">Slides of the location data</a></li> <li>Chart paper and markers; Student science notebooks</li> <li><i>Island below the Star: How the first people came to Hawaii</i> by James Rumford and <a href="#">interactive reading guide</a></li> </ul>	<p><b>Preparation</b></p> <ul style="list-style-type: none"> <li>Preview interactive reading guide prior to reading and discussing <i>Island Below The Star</i> with students</li> </ul>
<p><b>Materials</b></p> <ul style="list-style-type: none"> <li><a href="#">Slides of the location data</a></li> <li>Chart paper and markers; Student science notebooks</li> <li><i>Island below the Star: How the first people came to Hawaii</i> by James Rumford and <a href="#">interactive reading guide</a></li> </ul>	<p><b>Preparation</b></p> <ul style="list-style-type: none"> <li>Preview interactive reading guide prior to reading and discussing <i>Island Below The Star</i> with students</li> </ul>		
<p><b>Lesson Component</b></p>			
<p><b>What are kids figuring out?</b></p>	<p><b>Students are figuring out that</b> the position of the stars and constellations one can view on a given night can be fixed (in relation to the position of Polaris, the North Star), and if not, their movement is predictable, rotating around Polaris in the northern hemisphere.</p> <p><b>Look Fors</b></p> <p>Look for students considering the family interviews as possible information that can be built on during this discussion. Look for students considering and building on the ideas put forth by others and ideas from the texts.</p>		
<p><b>1 Introduction (10 min)</b></p>	<p><b>Introduction: Engage with Phenomenon and DQ, “How are some stars like lampposts?”</b></p> <ol style="list-style-type: none"> <li>Read the learning set DQ, <i>“How can we use stars to find directions?”</i> and ask for a <i>turn-and-talk</i> and share out: <i>“What do we know about this topic?”</i></li> <li>Revisit the unit driving question. Reflect on what was learned in the previous lesson (L3.3) and other big things they have figured out, and how what was learned helps meet the challenge (e.g., <i>How do we know the mystery place is in the northern hemisphere and also away from the equator?</i>)</li> <li>Ask, <i>“Can we use the stars to solve the challenge?”</i> Remind students of the other part of the challenge to move in one direction and know where you’re going. Ask, <i>“Do stars move, or stay in one place? Do they</i></li> </ol>		

	<p><i>(seem to) travel in a predictable way?"</i></p> <ol style="list-style-type: none"> <li>Review the <a href="#">slides of the location data</a> looking at the photos of stars and the <a href="#">person in the photo pointing to the North Star, Polaris</a>. Ask, "Can stars help us find our way?"</li> <li>Look at the <a href="#">slides of lampposts and beacons</a> being location markers. "How could a star be like a lamppost or beacon and help us find our way?"</li> </ol>
<p><b>2</b> <b>Interactive Reading</b> (30 min)</p>	<p><b>Interactive Reading: Participate in interactive read aloud of <i>Island below the Star</i></b></p> <ol style="list-style-type: none"> <li>Engage students in an interactive read aloud of the text (see <a href="#">reading guide</a>). Tell students that you will read aloud and pause periodically to ask about their thinking and to discuss ideas in the texts, as students follow along using digital or printed copies of the text.</li> </ol>
<p><b>3</b> <b>Asking Questions</b> (20 minutes)</p>	<p><b>Asking Questions: Use stars as navigational aids</b></p> <ol style="list-style-type: none"> <li>Students think about how the stars could have come to be understood as beacons and used to figure out direction, and take on special significance in history. In small groups, students add one or more questions related to the reading and to these questions about history and the challenge of the unit DQ.</li> <li>Students think back to the interviews they did with their family and what their families said about stars. Have a few students share any ideas they feel might be helpful in understanding how they could use stars to help them navigate and solve the challenge.</li> </ol>
<p>1. Help a student clarify his/her thinking</p>	<p><b>Discourse Move - Help a student clarify his/her thinking</b></p> <p>Help students clarify their thinking about the importance of stars as navigational tools across history using the crosscutting concepts of <i>scale</i> and <i>patterns</i>.  <i>Scale</i> is important because the stars have remained in the sky longer than humans have been around. And because of the <i>patterns</i> we see in the sky, we are able to recognize the stars.</p>
<p><b>4</b> <b>Wrap Up</b> (10 min)</p>	<p><b>Wrap Up: Free write and draw</b></p> <ol style="list-style-type: none"> <li>Review main points. Ensure that ideas students have come up with today about what they have figured out about how to use stars are recorded for future reference.</li> <li>Add new questions that have to do with the challenge at hand. Ask, "Can we figure out how to go north?"</li> </ol>
<p><b>Formative Assessment</b></p>	<p><b>Look Fors</b></p> <p>Look for students considering the family interviews as possible information that can be built on during this discussion. Look for students considering and building on the ideas put forth by others and ideas from the text.</p> <p><b>Evidence Statement</b></p> <p>The questions that are asked correspond to the text and to ideas that stars can be fixed and if not, their movement is predictable; that some stars are brighter than others; and ideas of the importance of the patterns of star movement over time as shown through the significance placed on stars throughout history.</p>