

## Lesson Plan Template

**Learning Segment Focus: How shadow length and direction are affected by the movement of the Earth**

**Lesson 4 of 5 Topic: How Earth’s Movement effects our lives      4/28/2021      Grade: 4**

### Student Outcomes

Specific learning <b>objectives</b> for this lesson.	<ul style="list-style-type: none"> <li>• Students will understand that our rotation causes shadows to lengthen, shorten, and change direction during the course of a day</li> <li>• Students will practice using digital cameras</li> </ul>
Justify how learning tasks are appropriate using examples of <b>students’ prior academic learning</b> .	In the lessons prior, students have learned that the rotation of the earth on its axis constitutes one day and that the rotation of the earth affects our weather and seasons.
Justify how learning tasks are appropriate using examples of <b>students’ personal, cultural, linguistic, or community assets</b> .	Students are personally aware that the sun appears to rise and set each day and that the stars seem to move across the sky. Students have noticed that their shadows take different shapes on sunny days.

### State Academic Content Standards

List the <b>state academic content standards</b> with which this lesson is aligned. Include abbreviation, number & text of the standard(s).	<p>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.</p> <p>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>
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### Key Vocabulary

What <b>vocabulary terms/content specific terminology</b> must be addressed for students to master the content?	Rotation, Orbit, Length, Direction, Axis
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### Academic Language Support

<p>What are the <b>Academic Language Function(s)</b> (the content and language focus of the learning task represented by the active verbs within the learning objectives/outcomes) and explain how they are utilized in the lesson plan?</p> <p>What planned <b>Academic Language Supports</b> will you use to assist students in their understanding of key academic language to express and develop their content learning and to provide varying supports for students at different levels of Academic Language development? How do these supports address all three <b>Academic Language Demands (vocabulary, syntax, and discourse)</b>?</p>	<p>We have discussed the key vocabulary in the previous lessons. This lab shows the students an example of the effects we have been discussing that they can physically see.</p>
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**Materials**

Materials needed by the teacher for this lesson. (such as books, writing materials, computers, models, colored paper, etc.)	White board, markers, flashlight
Materials needed by <b>students</b> for this lesson. (computers, journals, textbook, etc.)	Digital Camera, measuring tape, lab sheet, pencil, laptop, powerpoint

**Lesson Timeline with Instructional Strategies & Learning Tasks**

Amount of Time	Teaching & Learning Activities (This should be a BULLETED LIST)	Describe what YOU (teacher) will be doing and/or what STUDENTS will be doing during this part of the lesson. (This should be VERY DETAILED)
5 minutes	<p><b><u>Introduction:</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Shadow Model</u></b></li> <li>• <b><u>Discussion</u></b></li> </ul>	<p>Teacher: Turn off the lights. Turn on the flashlight and make hand shadows. Allow a few students to take a turn making shadow puppets. Ask students about their shadows.</p> <p>Students: Make shadow puppets. Discuss shadows, if they scare you, if they make you look bigger or smaller, etc.</p>
Periodically Throughout the Day	<p><b><u>Instruction:</u></b></p> <ul style="list-style-type: none"> <li>• Take Pictures</li> <li>• Measure</li> <li>• Record Data</li> <li>• Create Powerpoint</li> </ul>	<p>Teacher: Break Students into Groups. Pass out materials (camera, tape measure, lab sheet). Take students outside periodically throughout the day (8:00, 9:30, 11:00, 12:30, 2:00). Assign spots outside for each group. When all pictures have been taken, use board to model what happens with the sun and the shadows throughout the day. Discuss the rotation, the path of the sun across the sky, etc.</p> <p>Students: Designate 1 person from each group to be in the pictures. At each time, take a picture of your person and their shadow. Use tape measure to measure the length of the shadow. Record the time and the length of the shadow in inches on the lab sheet. After all pictures have been taken, go inside and transfer the pictures to your laptops. Create a powerpoint presentation with one page for each of the pictures. Include the time, length of the shadow, and direction of the shadow on each slide.</p> <p>*the next day, we will use this information to create a bar graph that organizes the data*</p>

10 minutes	<p><b>Closure:</b></p> <ul style="list-style-type: none"> <li>• Discussion Questions</li> </ul>	Ask the students if they noticed any patterns in their data throughout the day. Ask them what time the shadow switched direction, what time they were the shortest, what time they were longest.

**Technology Integration**

<p>Provide your <b>rationale</b> for your technology choices that accurately reflects those choices within your teaching context. <b>Identify</b> what technology(s) you are using as part of your lesson plan. <b>Describe</b> how the use of technology aligns to your learning objectives, content standards, and central focus. <b>Explain</b> how technology-based instructional strategies are essential to students accomplishing the learning objectives (beyond what could be accomplished without using the technology). <b>Specify</b> how the technology selections meet or exceed the needs/strengths of all students. <b>Justify the “fit”</b> of chosen technologies, showing how the content, instructional strategies, and technology “fit” together.</p>	<p><b>The lesson will use digital cameras and laptops with powerpoint.</b>  <b>Students are using cameras to capture the image of shadows. The shadows are always changing, so we need photographs to show how the shadows are changing throughout the day.</b>  <b>The powerpoint presentation helps students to organize the data that they have collected in a concise and chronological way. The powerpoint will make it easy for students to create the graph of their data the next day. It is also a visual aid to show the results of our experiment.</b></p>
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**Accommodations/Modifications**

<p>How might I <b>modify</b> instruction for:  <i>Remediation?</i>  <i>Intervention?</i>  <i>IEP/504?</i>  <i>LEP/ESL?</i>          (All students who have plans mandated by federal and state law.)</p>	<p>Students are working in groups, so there will be peer support throughout the lesson. Since the majority of the lesson is an activity, I will be available to assist if needed.</p>
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**Differentiation**

<p>How might you provide a variety of techniques (enhanced scaffolding, explicit instruction, contextualized materials, highlighters/color coding, etc.) <b>to ensure all student needs are met?</b>          (All students who are not on specific plans mandated by federal and state law.)</p>	<p>The implicit activity encourages creative thinking in the students, and then the white board model and discussion provide explicit instruction of the same concept. Using white board markers allows for the use of color coding.</p>
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**Assessments: Formative and/or Summative**

<p>Describe the <b>tools/procedures</b> that will be used in this lesson to monitor students’ learning of the lesson objective(s) (include type of assessment &amp; what is assessed).</p>	<input checked="" type="checkbox"/> Formative / <input type="checkbox"/> Summative	<p>The class discussion at the end of the lesson will determine understanding.</p>
	<input type="checkbox"/> Formative / <input checked="" type="checkbox"/> Summative	<p>The students will submit their results in the form of the powerpoint as well as the graph</p>

		they will create the next day for grading based on a rubric.
	<input type="checkbox"/> Formative / <input checked="" type="checkbox"/> Summative	The information in this lesson will be on an upcoming quiz along with the other information that was presented in the previous lessons of this unit.

**Research/Theory**

Explain <b>connections to theories and/or research</b> (as well as experts in the field or national organization positions) that support the approach you chose and justify your choices using <b>principles of the connected theories and/or research</b> .	<p>“the design of activities facilitating planning, implementation, analysis, and assessment of experiments autonomously by students has acquired great importance as a teaching objective (Roesch, Nerb, &amp; Riess, 2015).”</p> <p><a href="https://files.eric.ed.gov/fulltext/EJ1114392.pdf">https://files.eric.ed.gov/fulltext/EJ1114392.pdf</a></p>
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**Lesson Reflection/Evaluation**

What went <b>well</b> ? What <b>changes</b> should be made? How will I <b>use assessment data</b> for next steps?	<i>TO BE FILLED IN AFTER TEACHING</i>
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Include supporting material such as slides, pictures, copy of textbook, and handouts for any activities students will be using as part of your lesson.

\*adapted from: <http://webcache.googleusercontent.com/search?q=cache:EsQcNWuG1ZoJ:web.mnstate.edu/harms/StudentTeachers/edTPA-LessonPlan.doc+&cd=2&hl=en&ct=clnk&qI=us>; <http://www.moreheadstate.edu/getmedia/cd3fd026-939f-4a47-a938-29c06d74ca01/Lesson-Plan-and-Reflections.aspx>;  
<http://www.mcneese.edu/f/c/9cb690d2/Lesson%20Plan%20Rubric%20Aligned%20with%20InTASC.docx>; <https://www.uwsp.edu/education/Documents/edTPA/Resource12.pdf>; <https://www.uwsp.edu/education/Documents/edTPA/Resource11.pdf>;  
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