

Make a Sundial - Lesson Plan

Title: Build a Sundial	Date:
Learning objective/s: <ul style="list-style-type: none"> • To understand how a sundial works with the Sun • To understand how a sundial can be used to tell the time. 	Curriculum links:
Learning outcomes I want evidence students can: <ul style="list-style-type: none"> • Explain how a shadow is cast • Explain how the Sun can be used to tell the time • Explain why the Sun appears to move across the sky 	
Notes on students who have exceeded the performance expected:	Action to be taken:
Notes on students who did not achieve the performance expected:	Action to be taken:

<p>Essential vocabulary: Shadow, light, sundial, rotate, angle, latitude, gnomon</p>	<p>Possible misconceptions: The Sun doesn't actually move. It is the Earth rotating that gives the appearance that the Sun is moving across the sky.</p>
<p>Cross curricular links: Science, DT, Maths</p>	
<p>Teacher resources including ICT: - Introductory Presentation PowerPoint.</p>	<p>Students resources including ICT: - Sundial Worksheet (Choose the one closest to your school location) - Scissors - Glue stick</p>

Organisation and class management:	Teaching points:	Notes:
<p>Introduction: Whole class discussion</p>	<ul style="list-style-type: none"> - Introduce the task and the learning objectives. - Use the PowerPoint presentation to introduce the idea of shadows and how they are cast. - What happens to the shadow as the light source is moved? - Introduce the idea of sundials and how they use the Sun appearing to move across the sky to create a moving shadow that can be used to tell the time. - NB: Point out that the Sun doesn't really move, it is the Earth rotating that means the Sun appears to move across the sky throughout the day. 	<p>The NSO has a full lesson on how day and night works that could be used as a prelude to this lesson: https://www.schoolsobservatory.org/discover/activities/daynight</p> <p>The NSO also has a section talking about day and night, shadows and the Earth's rotation that may be useful: https://www.schoolsobservatory.org/learn/astro/esm/daynight</p>

<p>Main phase: Independent work</p>	<ul style="list-style-type: none"> - Explain that in small groups, we're going to make our own sundials. - Provide each pupil with a sundial cut-out (choose the one closest to your location), a pair of scissors and a glue stick. - After they've made the sundials, take the pupils outside and point them north. Use a compass to determine which way north is in your playground. - Are they accurate? 	<p>To create printable sundials of your exact location, you can use the online tool at: https://www.blocklayer.com/sundial-popeng.aspx</p>
<p>Plenary/Conclusion: Whole class discussion</p>	<ul style="list-style-type: none"> - Why does the sundial create a shadow? - Why does that shadow move throughout the day? 	