

## Lesson Plan: Building a Sun Viewer

**Duration: 30-35 mins**

Learning objectives:

1. Be able to demonstrate building a safe sun viewer
2. Understand why it's harmful to view the Sun directly

Links to Curriculum:

- Primary School - SESE - Science - Energy and forces
- Primary School - SESE - Science - Environment

Activity	Procedure	Materials	Time
The Sun	<ul style="list-style-type: none"> <li>• Introductory conversation about the sun and why it is dangerous to look directly at it</li> <li>• Start conversation of suggestions as to how to view the sun safely / limit light we see / why sunglasses aren't good enough / other suggestions like solar eclipse glasses</li> </ul>	Link to blog with video of grape being burnt by sun in one minute <a href="http://www.strudel.org.uk/blog/astro/dontlookatthesun.shtml">http://www.strudel.org.uk/blog/astro/dontlookatthesun.shtml</a>	5
Build a safe sun viewer	<ul style="list-style-type: none"> <li>• Cut two holes in the top of a cereal box on either side, one 4-5 cm wide and the other 2-3 cm wide</li> <li>• Measure and cut a piece of white paper to fit the bottom of the box. Slot it into the base of the box as a screen</li> <li>• Tape up the box and cover any holes other than the two cut previously</li> <li>• Cover the bigger hole at the top with a piece of smooth tinfoil and tape it into place</li> <li>• Make a pinhole in the tinfoil</li> </ul>	Cereal box, scissors, white paper, sellotape, tinfoil, pin or similar  Images of each step available here <a href="https://astroedu.iau.org/en/activities/1409/">https://astroedu.iau.org/en/activities/1409/</a>	15
Demonstrating how it works	<ul style="list-style-type: none"> <li>• Use your own sun viewer to demonstrate how to use it</li> <li>• Put your back to the sun and look through the window at the image of the sun projected on the white screen</li> </ul>	Finished sun viewer	2
Discussion of science behind the sun viewer	<ul style="list-style-type: none"> <li>• Show sample use of sun viewer for sun and for eclipse</li> </ul>	PowerPoint presentation, metal	5-10

	<ul style="list-style-type: none"><li>● Use the PPT to show how the light travels from the sun, through the pinhole to project an image of the sun onto the screen</li><li>● Point out that the image is inverted</li><li>● Explain how old telescopes like the Leviathan use the same principles of optics, follow ray diagrams</li><li>● Let students look at their reflection in a metal spoon (concave mirror) and notice it is upside down</li><li>● Link optics to pinhole cameras</li></ul>	spoon	
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Link to source for activity:

Includes step by step pictures of building process

<https://astroedu.iau.org/en/activities/1409/>