



# Atmospheric Chemistry: Planets and Life beyond Earth

## Scheme of Work

	Lesson 1	Lesson 2	Lesson 3
<b>Length</b>	Approx. 1 hour	Approx. 1 hour	Approx. 1 hour
<b>Objectives</b>	<ul style="list-style-type: none"><li>• To identify the factors required for life.</li><li>• To investigate the atmosphere of a chosen planet in the solar system.</li></ul>	<ul style="list-style-type: none"><li>• To describe how we gather information about the atmospheres of other planets.</li><li>• To investigate the functions and findings of a chosen telescope or space probe.</li></ul>	<ul style="list-style-type: none"><li>• To present a slideshow about the functions and findings of a chosen telescope/probe.</li><li>• To evaluate the effectiveness of information presented by other students.</li><li>• To discuss the likelihood of life on other planets.</li></ul>

Lesson plans for each session can be found on the following pages.

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## Lesson 1 plan

<p><b>Starter activity</b></p> <p>Students brainstorm the factors needed for life to exist on another planet (listed on the board by the teacher or added by students on sticky-notes). The teacher highlights the importance of planetary atmospheres on those factors listed.</p>	<p><b>Learning objectives</b></p> <ul style="list-style-type: none"> <li>To identify the factors required for life.</li> <li>To investigate the atmosphere of a chosen planet in the solar system.</li> </ul>
<p><b>Main activities</b></p> <p>Students watch the video on Step 1.2 of the course.</p> <p>The class is split into eight groups, each assigned to one of the eight planets in the Solar System. Each group should research the composition of the atmosphere of their planet and create a poster about it. The poster should include:</p> <ul style="list-style-type: none"> <li>the components of the atmosphere (which may be presented as a list or pie chart)</li> <li>the structure of the atmosphere (which may be presented as a diagram)</li> </ul>	<p><b>Resources required</b></p> <ol style="list-style-type: none"> <li>Access to FutureLearn course.</li> <li>Devices to watch videos on and conduct research with.</li> <li>Poster making materials (or can be done digitally).</li> </ol> <p><b>Assessment for Learning</b></p> <p>Discussion contributions.</p> <p>Planets poster.</p> <p><b>Differentiation</b></p> <p><b>SEND:</b> Video has subtitles, Teacher-led support.</p> <p><b>Low ability:</b> Peer-learning.</p> <p><b>Gifted and Talented:</b> Peer-teaching.</p> <p><b>Plenary</b></p> <p>Students watch the video on Step 1.5 of the course to see if their findings match.</p>

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## Lesson 2 plan

<p><b>Starter activity</b></p> <p>Students discuss how we know so much about other planets, including brainstorming what data they might need to collect.</p>	<p><b>Learning objectives</b></p> <ul style="list-style-type: none"> <li>To describe how we gather information about the atmospheres of other planets.</li> <li>To investigate the functions and findings of a chosen telescope or space probe.</li> </ul>
<p><b>Main activities</b></p> <p>The class watches the video on Step 2.6 of the course and makes notes on how we collect information about other planets.</p> <p>Students watch the video on Step 2.7 of the course, making notes on how we find out about the composition of planetary atmospheres.</p> <p>In pairs, students choose one telescope (Earth-based or satellite) or space probe to research. They should find out how their chosen technology works and what information it has found out about other planets. Each pair should create a brief slideshow or video from their findings which will be presented in the next lesson.</p>	<p><b>Resources required</b></p> <ul style="list-style-type: none"> <li>Access to FutureLearn course.</li> <li>Devices to watch videos on and conduct research with.</li> </ul> <p><b>Assessment for Learning</b></p> <p>Summary notes.</p> <p>Telescope/probe presentation.</p> <p><b>Differentiation</b></p> <p><b>SEND:</b> Video has subtitles, Teacher-led support.</p> <p><b>Low ability:</b> Peer-learning.</p> <p><b>Gifted and Talented:</b> Peer-teaching.</p> <p><b>Plenary</b></p> <p>Each pair should create a plan for how they will finish their presentation before the next lesson.</p>

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## Lesson 3 plan

Starter activity	Learning objectives
<p>Students make final preparations so they are ready to present their slideshow/video.</p>	<ul style="list-style-type: none"> <li>• To present a slideshow about the functions and findings of a chosen telescope/probe.</li> <li>• To evaluate the effectiveness of information presented by other students.</li> <li>• To discuss the likelihood of life on other planets.</li> </ul>
Main activities	Resources required
<p>Each pair presents their findings to the class.</p> <p>After each presentation, the class can ask the students questions and provide feedback on how they presented the information they found.</p> <p>The class then votes on the best presentation.</p> <p>In small groups, students discuss the likelihood of life existing on other planets based on what they've learnt. They can use the information on Step 2.5 of the course as part of their discussion.</p>	<p>1. Projector or screen as appropriate.</p>
	Assessment for Learning
	<p>Slideshow/video</p>
	<p>Discussion contribution</p>
	Differentiation
<p><b>SEND:</b> Teacher-led support</p>	
<p><b>Low ability:</b> Peer-learning</p>	
<p><b>Gifted and Talented:</b> Peer-teaching</p>	
Plenary	
<p>Students write down the three most important things they've learnt over the last three lessons.</p>	