

# IMAGINING LIFE BEYOND EARTH



Lesson Title: **Five-Lesson Unit Overview**

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| OVERVIEW           | This five-lesson unit explores astrobiology, extremophiles, and space exploration, encouraging students to think critically and creatively about life beyond Earth. Through hands-on activities, discussions, and mission planning, students will engage with scientific concepts while developing problem-solving and collaboration skills.    |
| LESSON 1           | <b>Preconceptions of Extraterrestrial Life</b><br>Students analyze fictional depictions of extraterrestrials and compare them to real-world biological adaptations. Discussions explore how culture, environment, and human experiences shape our perception of alien life. Duration: 45-90 minutes.  |
| LESSON 2           | <b>Astrobiology &amp; Extreme Life (Part 1)</b><br>Students are introduced to astrobiology and extremophiles—organisms that survive in extreme Earth environments. They investigate how these life forms inform the search for extraterrestrial life. Duration: 60-90 minutes.  |
| LESSON 3           | <b>Astrobiology &amp; Extreme Life (Part 2)</b><br>Building on Lesson 2, students design their own extreme environments and the life forms that could exist there. They apply scientific reasoning to hypothesize adaptations for survival in harsh conditions. Duration: 60-90 minutes.  |
| LESSON 4           | <b>Careers in Astrobiology</b><br>Students explore interdisciplinary careers in astrobiology and space science. They reflect on their own skills and interests, connecting them to real-world scientific roles. Duration: 45-60 minutes   |
| LESSON 5           | <b>Design Your Mission</b><br>Students synthesize their knowledge by planning a fictional space mission to explore an extreme world. They take on specific career roles, justify their mission choices, and present their plans to the class. Duration: 45-60 minutes   |
| KEY LEARNING GOALS | <ul style="list-style-type: none"> <li>• Develop scientific reasoning and creativity in exploring extraterrestrial life.</li> <li>• Understand the role of extremophiles in astrobiology.</li> <li>• Recognize interdisciplinary careers in space science.</li> <li>• Engage in teamwork and problem-solving through mission design.</li> </ul> |
| MATERIALS          | <ul style="list-style-type: none"> <li>• “Imagining Life Beyond Earth” student booklets</li> <li>• Videos and slideshows indicated in each lesson</li> <li>• Career cards (for Lessons 4 and 5)</li> <li>• Art supplies (optional for creative components)</li> </ul>   |