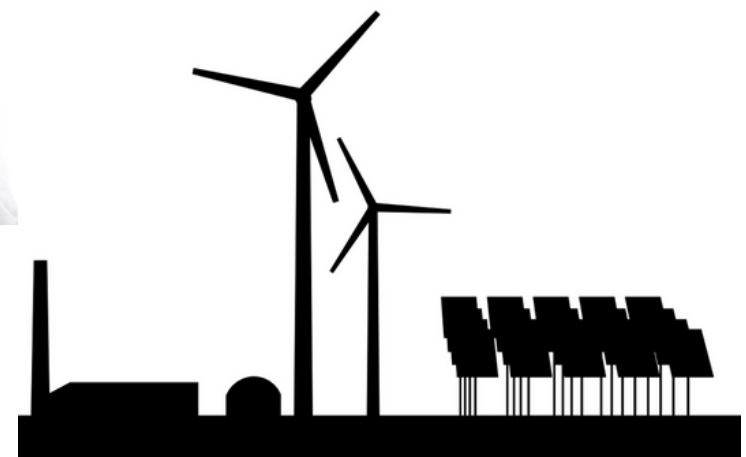


Space, Ecology, Electricity, Chemistry Culminating Task

TWF



Space



Space (Phase 1):

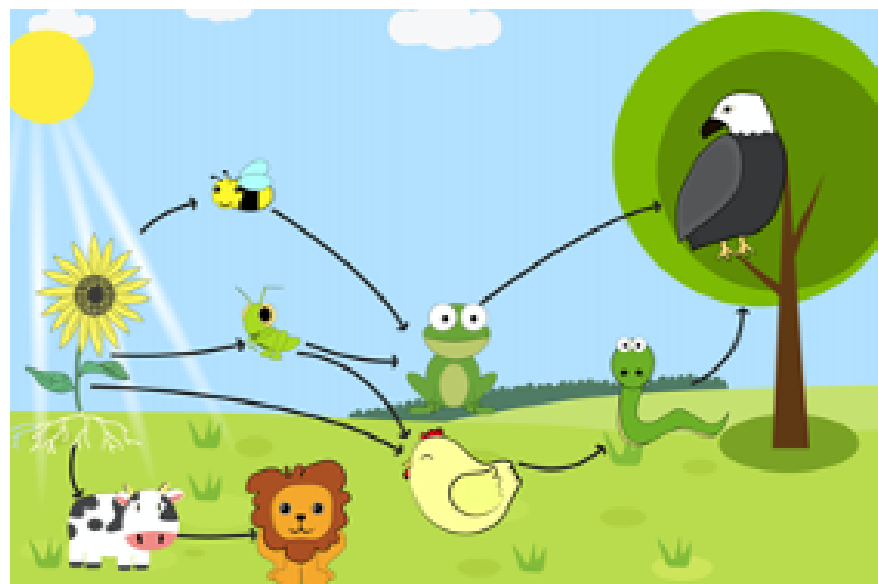
Understand
planetary habitability
and apply space
exploration concepts
by selecting the most
suitable exoplanet.



Ecology



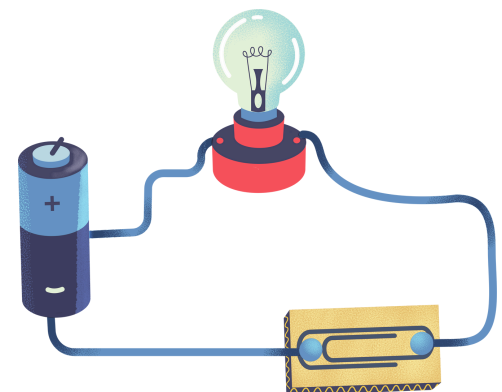
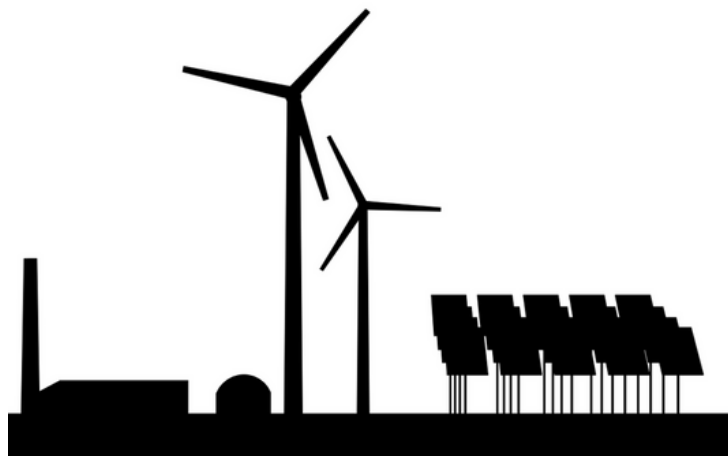
Ecology (Phase 2): Develop an interconnected food web and biodiversity plan to sustain life while protecting ecosystems.



Electricity



Electricity (Phase 3): Analyze environmental resources to design and justify an energy production system and design a circuit for colonist use.

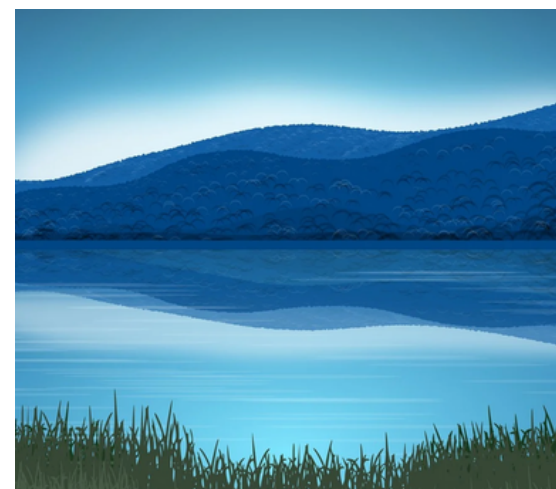


Chemistry



Chemistry (Phase 4):

Solve real-world challenges related to air, water, or material safety using chemistry concepts and creativity.



Culminating Task

- Students will embark on an interdisciplinary journey to design a sustainable human colony on a newly discovered exoplanet.
- This multi-phase project combines critical elements from four units of science—Space, Ecology, Electricity, and Chemistry—to challenge students' scientific knowledge, creativity, and problem-solving skills.
- The project will guide students through evaluating exoplanet habitability, designing a functioning ecosystem, implementing renewable energy systems, and solving chemistry-based survival challenges.

Overview

Real-World Context:

Students are tasked with designing a sustainable human colony on a newly discovered exoplanet, combining creativity with real scientific principles.

Interdisciplinary Focus:

The project integrates four science units—Space, Ecology, Electricity, and Chemistry—ensuring comprehensive curriculum coverage.

Phase-Based Learning:

- Phase 1 (Space): Evaluate exoplanet habitability using research-based criteria.
- Phase 2 (Ecology): Design a functioning food web with biodiversity strategies.
- Phase 3 (Electricity): Build and justify a renewable energy system with a prototype and circuit diagram.
- Phase 4 (Chemistry): Solve survival challenges (air purification, water filtration, or material engineering).

Emphasis on Problem-Solving:

Students analyze planetary challenges and propose solutions for sustainability and survival.

Hands-On Prototyping and Creativity:

Students design food webs, sketch diagrams, and create working ideas of energy systems, fostering creativity and practical skills.

Research and Critical Thinking:

Students use credible resources (e.g., NASA exoplanet data) to make informed decisions and justify their solutions.

Final Presentation:

Students summarize their work in a handwritten report and a classroom presentation, showcasing research, designs, and prototypes.

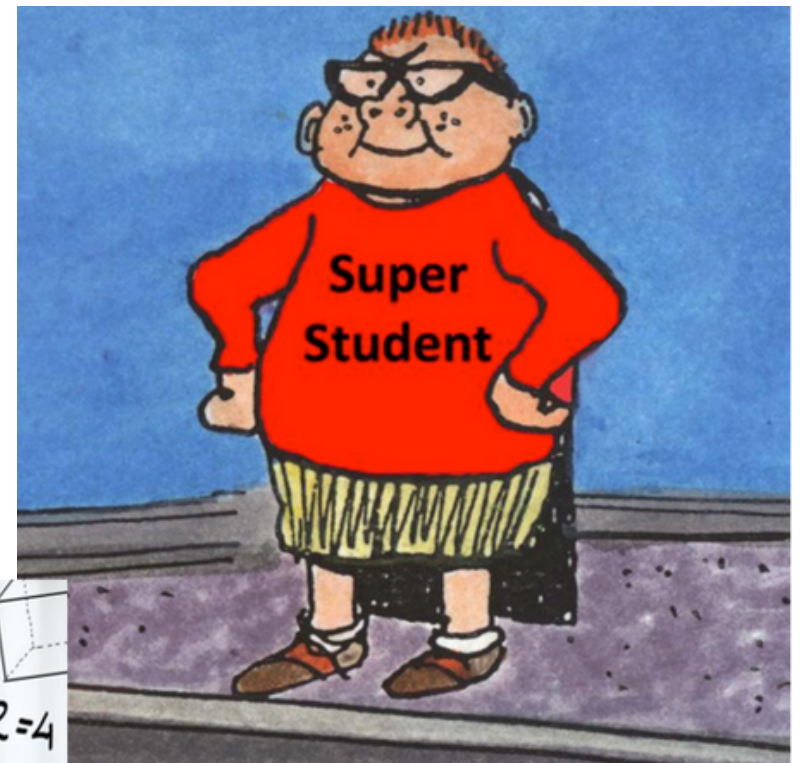
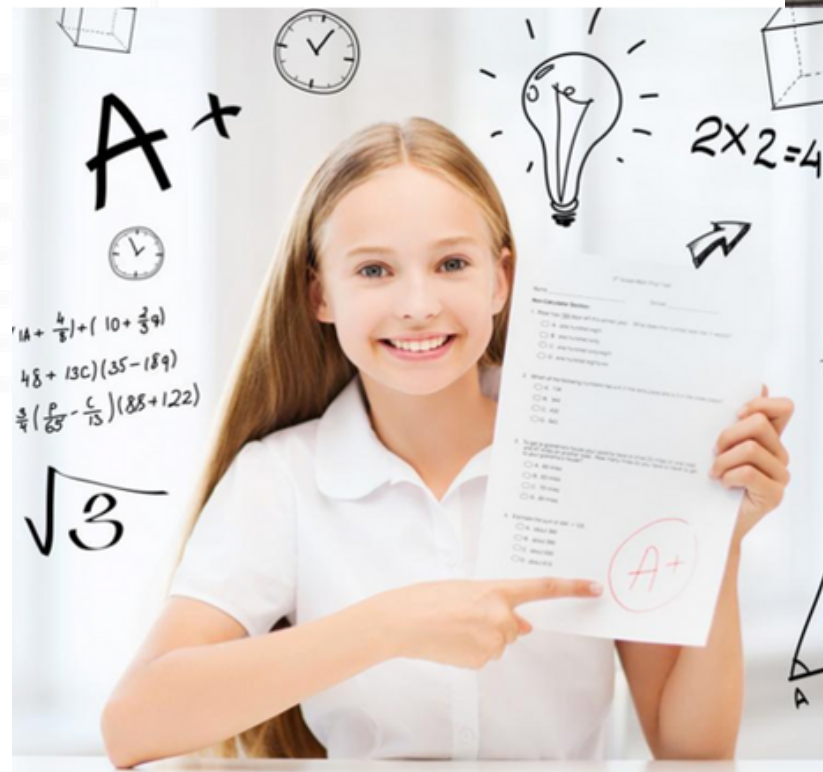
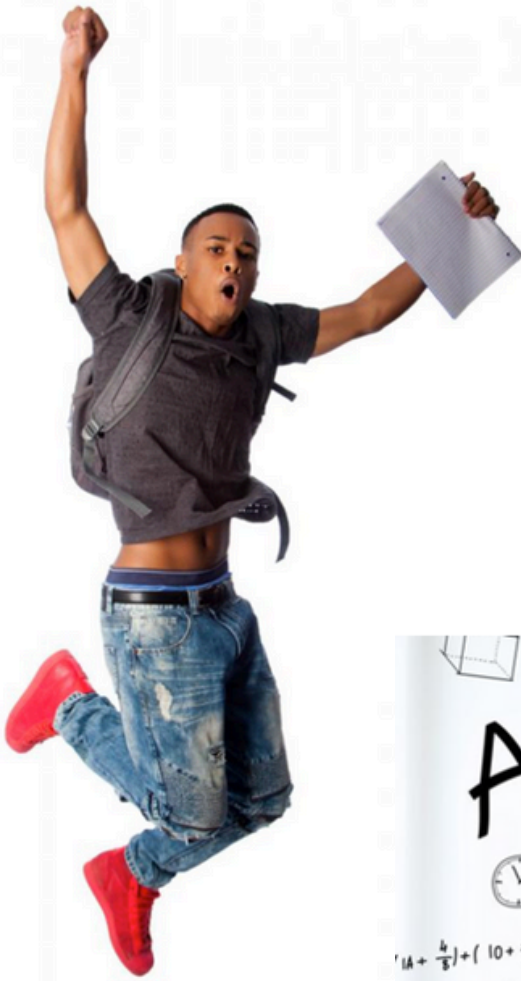
Performance Assessment:

Includes a clear, detailed rubric for each phase, covering scientific reasoning, creativity, and communication skills.

Engagement and Flexibility:

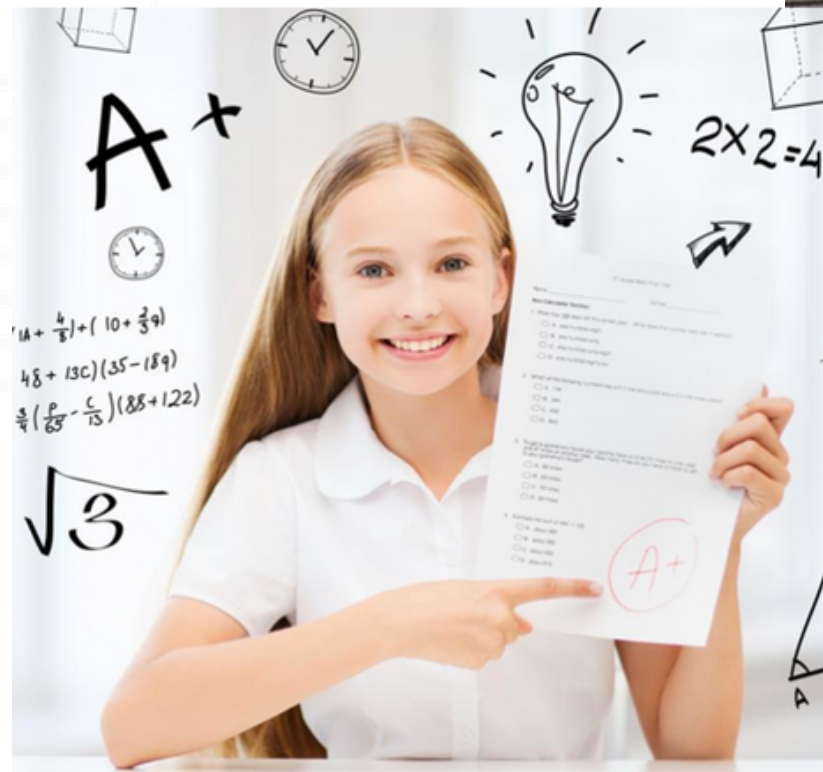
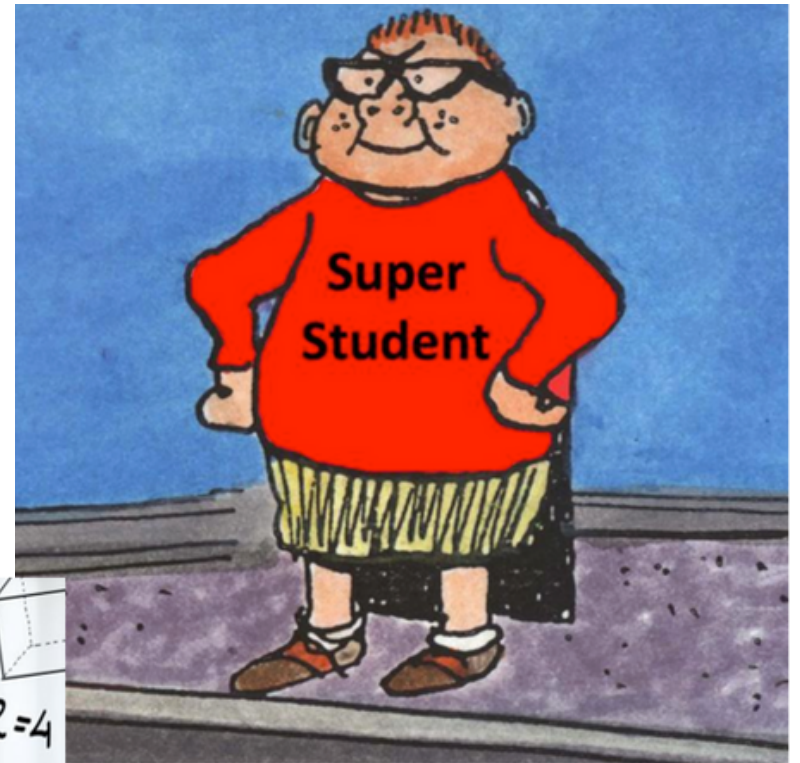
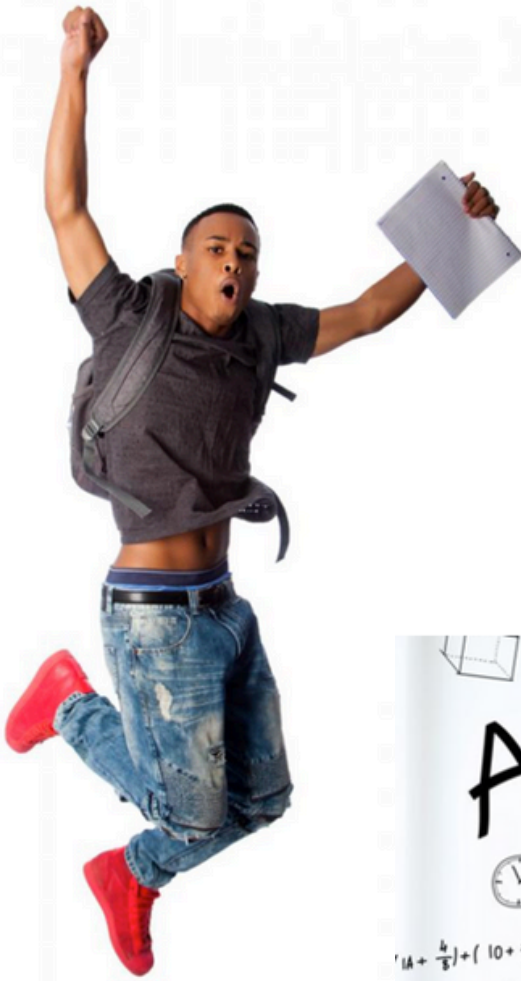
The project is adaptable for diverse learning styles, balancing research, visuals, experimentation, and presentation to engage all students.

Create Engagement and Let Them Reach their Potential



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Incorporate Technology and Increase Collaboration



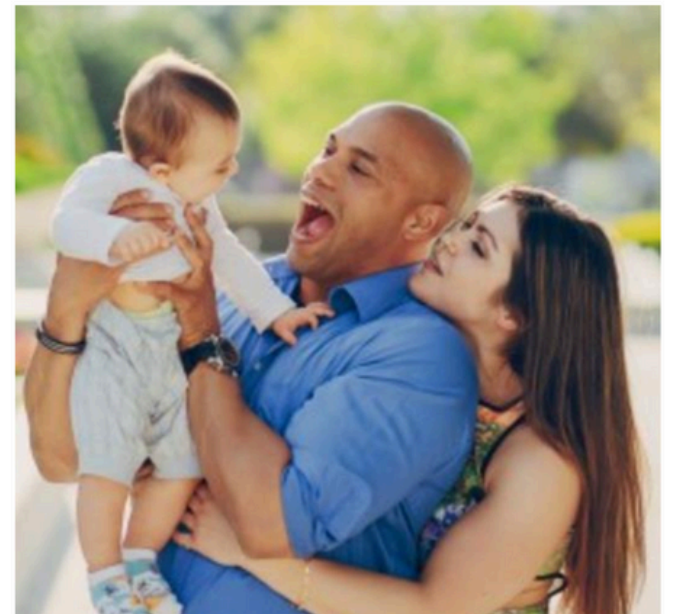
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**Save yourself the
STRESS AND TIME**



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Spend your time WISELY



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