Backwards Design Plan: Science 9 – Space Exploration   **Planning Team: CASH**

Focus Questions: How have **humans** attained a <u>presence</u> in **space**? What technologies have been developed and on what scientific ideas are they based? How has the development of these **technologies** contributed to the **exploration, use and understanding** of space and to **benefits** on **Earth**?	Student Friendly Language: How do humans go to and interact with space? How has technology been used to understand and explore space? How does understand space help to understand the Earth?

Vocabulary to know and use:		
Unit Goals: Curricular Language		**Student Friendly Language**
STS	Investigate and describe ways that human understanding of Earth and space has depended on technological development by:	STS	I can explore and describe how humans use and need technology to understand the Earth the space
	Identify problems in developing technologies for space exploration, describe technologies developed for life in space, and explain the scientific principles involved		I can understand and describe technologies that have been developed for exploring space and for life in space I can find problems in the technologies that have been and are being developed
	Describe and interpret the science of optical and radio telescopes, space probes and remote sensing technologies		I can explain the science of some specific technologies
	Identify issues and opportunities arising from the application of space technology, identify alternatives involved, and analyze implications		I can find problems and see potential in studying space and space technology
Skills Outcomes	Initiating and Planning: Ask questions about the relationships between and among observable variables, and plan investigations to address those questions	Skills Outcomes	I can **initiate** and **plan** by ○ asking questions ○ investigating and researching to find answers to those questions
	Communication and Teamwork: Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures, and results		I can communicate and work as a team by: ○ solving problems and communicating ideas
Attitude Outcomes	Scientific Inquiry: Seek and apply evidence when evaluating alternative approaches to investigations, problems, and issues *(e.g., seek accurate data that is based on appropriate methods of investigation; consider observations and ideas from a number of sources before drawing conclusions)*	Attitude Outcomes	I can be a scientific researcher by: ○ finding evidence to answer questions and solving problems
	Stewardship*:* Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment *(e.g., consider immediate and long-term consequences of personal and group actions; objectively identify potential conflicts between responding to human wants and needs and protecting the environment)*		I can show stewardship by: ○ Finding out about and understanding ideas from different perspectives, including stakeholders, that is connected to a problem or event
	Collaboration: Work collaboratively in carrying out investigations and in generating and evaluating ideas *(e.g., work with others to identify problems and explore possible solutions; share observations and ideas with other members of the group, and consider alternative ideas suggested by other group members; share the responsibility for carrying out decisions)*		I can collaborate by: ○ working together to build ideas and solve problems
Competencies	**Critical Thinking** - questioning and analyzing evidence, assertions, or assumptions - demonstrating intellectual integrity, fairness, and open-mindedness	Competencies	I can be a critical thinker by: ○ questioning what I know by understanding evidence from multiple perspectives ○ being open minded to learn new things and to change my thinking and my ideas based on what I am learning (growth mindset)

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