

EDUCATIONAL STANDARDS FRAMEWORK

Lunar Exploration Vehicle — Competitive Coverage Heat Map

Long-duration exploration — the kit's most balanced multi-strand lesson.

LESSON 05 · LUNAR EXPLORATION VEHICLE

FRAMEWORKS TOUCHED

8 / 8

Full multi-disciplinary reach

STANDARDS ALIGNED

24

Discrete benchmarks scored

COMPOSITE COVERAGE

85%

Weighted intensity, all standards

DOMINANT STRAND

CSTA CompSci · P21 4Cs

Top two framework averages

COVERAGE INTENSITY 0 · None > 1 · Light > 2 · Moderate > 3 · Strong > 4 · Very Strong > 5 · Core / Dominant

Coverage by Framework

Average heat score per category (0–5)



Standard-by-Standard Heat Map

Each row = one benchmark · color & bar = relevance to this lesson

FRAMEWORK	STANDARD	HEAT	INTENSITY
NGSS Next Gen Science	Engineering Design 3-5-ETS1-2 Generate and compare multiple solutions to space-travel and exploration vehicle engineering challenges.	5	100% · Core / dominant
	Physical Science 4-PS3-2 Evidence that energy can be transferred and transformed (e.g., vehicle locomotion and surface energy use).	4	80% · Strongly covered
	Waves & Information 4-PS4-3 Integrate visual and sound-based data during space experiments and exploration vehicle simulations.	5	100% · Core / dominant
ISTE EdTech Standards	Knowledge Constructor ISTE 3 Curate space-science info and prototype digital/physical models like exploration rovers and vehicles.	5	100% · Core / dominant
	Creative Communicator ISTE 6 Use multimedia tools to explain mission concepts and exploration vehicle results.	4	80% · Strongly covered
	Global Collaborator ISTE 7 Collaborate digitally to simulate missions and share exploration vehicle findings.	4	80% · Strongly covered
CSTA Computer Science	Programming 1B-AP-15 Test and debug Micro:bit programs to align exploration vehicle behavior with mission goals.	5	100% · Core / dominant
	Variables in Programming 1B-AP-10 Use sensor data (light, motion) to control exploration vehicle outputs.	5	100% · Core / dominant
	Program Development 2-AP-14 Develop programs iteratively: plan, code, test, revise, reflect.	5	100% · Core / dominant
CCSS.MATH Mathematics	Measurement 5.MD.A.1 Convert measurement units during exploration vehicle planning and trajectory calculations.	4	80% · Strongly covered
	Geometry 5.G.B.3 Use shapes and spatial reasoning to plan exploration vehicle layout or surface simulations.	5	100% · Core / dominant
	Geometry — Angles 4.G.A.1 Define angles, lines, segments while designing exploration vehicle components.	3	60% · Moderately covered
CCSS.ELA Language Arts	Informational Text RI.4.3 Explain space-travel processes and purposes through research and observation.	4	80% · Strongly covered
	Writing W.5.2 Write mission reports, design explanations, or reflection journals.	3	60% · Moderately covered
	Speaking & Listening SL.5.5 Present exploration vehicle findings using graphics, recordings, or digital media.	4	80% · Strongly covered
	Responding		

FRAMEWORK	STANDARD	HEAT	INTENSITY
NCAS National Core Arts	— Anchor Interpret design aesthetics and context of exploration vehicle, habitats, and terrain simulations.	3	60% · Moderately covered
	Connecting — Anchor Apply personal insights to enrich mission simulations and exploration vehicle design tasks.	3	60% · Moderately covered
	Creating — Anchor Design and refine space-themed visuals or models from peer feedback.	4	80% · Strongly covered
P21 21st-Century Skills	Critical Thinking — 4Cs Solve exploration vehicle design and mission challenges through evidence-based reasoning.	5	100% · Core / dominant
	Creativity & Innovation — 4Cs Brainstorm and prototype unique solutions to exploration vehicle scenarios.	5	100% · Core / dominant
	Collaboration — 4Cs Work in groups to plan, build, and evaluate exploration vehicle tasks.	5	100% · Core / dominant
SEL Social-Emotional	Self-Management — CASEL Manage frustration during coding/debugging and stay focused.	4	80% · Strongly covered
	Social Awareness — CASEL Show empathy and appreciation for teammates' ideas during projects.	4	80% · Strongly covered
	Responsible Decision-Making — CASEL Make ethical, environmentally conscious decisions in space-tech design.	4	80% · Strongly covered

Strategic Read

Where the lesson dominates · where it leaves headroom

HOT ZONES

Highest composite in the series. The full **P21 4Cs**, the full **CSTA triad**, **NGSS Engineering & Waves**, and **ISTE Knowledge Constructor** all max at 5. **5.G.B.3 Geometry** peaks (terrain mapping) and even ELA & NCAS rise above their usual baseline.

COOL ZONES

Few cool spots. **NCAS Connecting** and **4.G.A.1** sit at 3 — already strong. This lesson sets the high-water mark for cross-disciplinary coverage.