

EDUCATIONAL STANDARDS FRAMEWORK

Moon Landing Rocket — Competitive Coverage Heat Map

Controlled-descent rocket — propulsion meets precision landing.

LESSON 02 · MOON LANDING ROCKET

FRAMEWORKS TOUCHED

8 / 8

Full multi-disciplinary reach

STANDARDS ALIGNED

24

Discrete benchmarks scored

COMPOSITE COVERAGE

72%

Weighted intensity, all standards

DOMINANT STRAND

P21 4Cs · NGSS Science

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 moon-landing rocket engineering challenges.	5	100% · Core / dominant
	Physical Science 4-PS3-2 Evidence that energy can be transferred and transformed (e.g., rocket propulsion and lunar descent forces).	5	100% · Core / dominant
	Waves & Information 4-PS4-3 Integrate visual and sound-based data during space experiments and moon-landing rocket simulations.	3	60% · Moderately covered
ISTE EdTech Standards	Knowledge Constructor ISTE 3 Curate space-science info and prototype digital/physical models like rockets and lunar landers.	4	80% · Strongly covered
	Creative Communicator ISTE 6 Use multimedia tools to explain mission concepts and moon-landing rocket results.	3	60% · Moderately covered
	Global Collaborator ISTE 7 Collaborate digitally to simulate missions and share moon-landing rocket findings.	3	60% · Moderately covered
CSTA Computer Science	Programming 1B-AP-15 Test and debug Micro:bit programs to align moon-landing rocket behavior with mission goals.	4	80% · Strongly covered
	Variables in Programming 1B-AP-10 Use sensor data (light, motion) to control moon-landing rocket outputs.	4	80% · Strongly covered
	Program Development 2-AP-14 Develop programs iteratively: plan, code, test, revise, reflect.	4	80% · Strongly covered
CCSS.MATH Mathematics	Measurement 5.MD.A.1 Convert measurement units during moon-landing rocket planning and trajectory calculations.	5	100% · Core / dominant
	Geometry 5.G.B.3 Use shapes and spatial reasoning to plan moon-landing rocket layout or surface simulations.	3	60% · Moderately covered
	Geometry — Angles 4.G.A.1 Define angles, lines, segments while designing moon-landing rocket components.	4	80% · Strongly covered
CCSS.ELA Language Arts	Informational Text RI.4.3 Explain space-travel processes and purposes through research and observation.	3	60% · Moderately covered
	Writing W.5.2 Write mission reports, design explanations, or reflection journals.	2	40% · Lightly addressed
	Speaking & Listening SL.5.5 Present moon-landing rocket findings using graphics, recordings, or digital media.	3	60% · Moderately covered
	Responding		

FRAMEWORK	STANDARD	HEAT	INTENSITY
NCAS National Core Arts	— Anchor Interpret design aesthetics and context of moon-landing rocket, habitats, and terrain simulations.	2	40% · Lightly addressed
	Connecting — Anchor Apply personal insights to enrich mission simulations and moon-landing rocket design tasks.	2	40% · Lightly addressed
	Creating — Anchor Design and refine space-themed visuals or models from peer feedback.	3	60% · Moderately covered
P21 21st-Century Skills	Critical Thinking — 4Cs Solve moon-landing rocket design and mission challenges through evidence-based reasoning.	5	100% · Core / dominant
	Creativity & Innovation — 4Cs Brainstorm and prototype unique solutions to moon-landing rocket scenarios.	5	100% · Core / dominant
	Collaboration — 4Cs Work in groups to plan, build, and evaluate moon-landing rocket tasks.	4	80% · Strongly covered
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.	3	60% · Moderately covered
	Responsible Decision-Making — CASEL Make ethical, environmentally conscious decisions in space-tech design.	3	60% · Moderately covered

Strategic Read

Where the lesson dominates · where it leaves headroom

HOT ZONES

Lesson 02 stays propulsion-heavy: **NGSS Engineering Design, Physical Science**, and the entire **P21 4Cs** all max out, joined by **5.MD.A.1 Measurement** as students compute descent altitudes and trajectories. The CSTA debug triad sits at 4/5 — coding controls the descent burn.

COOL ZONES

ELA Writing (2/5) and the **NCAS Responding/Connecting** pair (2/5) trail the field. A short post-landing mission log or aesthetics critique would lift the composite past 80%.