EDUCATIONAL STANDARDS FRAMEWORK

The Returner — Competitive Coverage Heat Map

Return-trip engineering — re-entry physics, trajectories, and recovery.

LESSON 06 · THE RETURNER

FRAMEWORKS TOUCHED
8 / 8
Full multi-disciplinary reach

STANDARDS ALIGNED
24
Discrete benchmarks scored

COMPOSITE COVERAGE
72%
Weighted intensity, all standards

DOMINANT STRAND
NGSS Science · 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)

NGSS	ISTE	CSTA	CCSS.MATH	CCSS.ELA	NCAS	P21	SEL
4.3	3.3	4.0	4.0	3.0	2.3	4.3	3.3
Science	EdTech	CompSci	CCSS	Lang Arts	Arts	21st-C	Social-Emo

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 return capsule engineering challenges.	5	100% · Core / dominant
	Physical Science 4-PS3-2 — Evidence that energy can be transferred and transformed (e.g., re-entry energy dissipation and braking).	5	100% · Core / dominant
	Waves & Information 4-PS4-3 — Integrate visual and sound-based data during space experiments and return capsule simulations.	3	60% · Moderately covered
ISTE EdTech Standards	**Knowledge Constructor** ISTE 3 — Curate space-science info and prototype digital/physical models like return capsules.	4	80% · Strongly covered
	Creative Communicator ISTE 6 — Use multimedia tools to explain mission concepts and return capsule results.	3	60% · Moderately covered
	Global Collaborator ISTE 7 — Collaborate digitally to simulate missions and share return capsule findings.	3	60% · Moderately covered
CSTA Computer Science	**Programming** 1B-AP-15 — Test and debug Micro:bit programs to align return capsule behavior with mission goals.	4	80% · Strongly covered
	Variables in Programming 1B-AP-10 — Use sensor data (light, motion) to control return capsule 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 return capsule planning and trajectory calculations.	5	100% · Core / dominant
	Geometry 5.G.B.3 — Use shapes and spatial reasoning to plan return capsule layout or surface simulations.	3	60% · Moderately covered
	Geometry — Angles 4.G.A.1 — Define angles, lines, segments while designing return capsule 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.	3	60% · Moderately covered
	Speaking & Listening SL.5.5 — Present return capsule findings using graphics, recordings, or digital media.	3	60% · Moderately covered
	Responding — Anchor		40% · Lightly addressed

FRAMEWORK	STANDARD	HEAT	INTENSITY
NCAS National Core Arts	Interpret design aesthetics and context of return capsule, habitats, and terrain simulations.	2	
	Connecting — Anchor Apply personal insights to enrich mission simulations and return capsule 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 return capsule design and mission challenges through evidence-based reasoning.	5	100% · Core / dominant
	Creativity & Innovation — 4Cs Brainstorm and prototype unique solutions to return capsule scenarios.	4	80% · Strongly covered
	Collaboration — 4Cs Work in groups to plan, build, and evaluate return capsule 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

Mirror-image of Lesson 02 with re-entry physics: **NGSS Engineering & Physical Science** max at 5/5, **P21 Critical Thinking** peaks at 5, and **5.MD.A.1 Measurement** climbs to 5 as students plan recovery trajectories.

COOL ZONES

NCAS Responding/Connecting (2/5) and **ELA Writing** (3/5) leave room for a recovery-day debrief or capsule-aesthetics critique.

SOURCE Lesson 06 — The Returner · Space Science Kit Standards Alignment

Heat scoring: 0 (none) → 5 (core/dominant) · Composite = mean × 20