Great direction — shifting from static modeling to interactive, immersive coding projects aligns well with cognitive growth at that age (10–11). Here's a **6-week structured plan** that scaffolds skills while maintaining engagement through a persistent Mars Base project.

🚀 Year 5 Coding Unit:

Mission to Mars – Immersive Experience Design

Platform: CoSpaces Edu / Delightex

Target Age: Year 5 (Ages 10–11)

Learning Focus: Interactive coding (JavaScript/block-based), physics (gravity/velocity), lists, functions, paths, conditional logic

Tools: CoSpaces Edu + CoBlocks (or basic JavaScript)

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Unit Overview

Week	Focus Skill	Key Concepts	Project Milestone	Deliverable
1	**Intro to CoSpaces + Orbiting Animation**	Object paths, animation timing	Planets orbiting the sun	Solar System scene
2	**Gravity & Velocity**	Forces, vector movement, event-driven code	Astronaut floats via button click	Micro-sim: Floating astronaut
3	**Functions & Lists**	Defining actions, storing objects, reusability	Define gravity function, list of floating items	Gravity function test scene

4	**Mars Base – Part 1**	Apply skills: paths, velocity, functions	Tour scenes, object interactions	Base w/ gravity features
5	**Mars Base – Part 2**	Quizzes, if/else logic	Branching paths, checkpoints	Base + quiz interactions
6	**Evaluation + Presentation**	Reflection, debugging, screen recording	Share & peer assess projects	Screen tour + peer feedback

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📅 Week-by-Week Breakdown

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Week 1: Solar System Animation

Objective: Animate planets orbiting the sun on simple circular paths.

- Introduce CoSpaces: how to add and move 3D objects
- Use “Move on Path” block
- Add the Sun and at least 3 planets (scaling encouraged)
- Animate rotation using loops
- [Optional]: Add a simple fade-in intro or rotating sun

💡 **Stretch goal:** Customize background space scene

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Week 2: Floating Astronaut – Gravity & Velocity

Objective: Simulate zero-gravity movement.

- Add astronaut model
- Button click triggers movement using velocity
- Introduce vectors and basic velocity blocks
- Discuss physics: gravity vs. space float
- Students experiment with direction and speed

💡 **Discussion:** What would happen without gravity on Mars?

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Week 3: Functions & Lists – Floating Objects

Objective: Create a gravity function and list of floating objects.

- Teach functions: function applyGravity()
- Create a list of floating objects (e.g., crates, rocks)
- Loop through list and apply physics effect
- Link to previous astronaut concept

💡 **Concept anchor:** “What if gravity fails on Mars base?”

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Week 4: Mars Base – Build Phase 1

Objective: Begin interactive Mars Base with gravity, floating objects, and path tours.

- Students design layout and import key assets
- Add tunnels, solar panels, pods, vehicles
- Animate camera on a guided path (like a rollercoaster)
- Add interactivity to floating objects using prior functions

💡 **Concept:** Think like a systems engineer — every object has a purpose

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Week 5: Mars Base – Build Phase 2 + Quizzes

Objective: Add quizzes or decision points using if/else.

- Add 2–3 quiz interactions during the base tour
- Use if/else to show/hide feedback or change object behavior
- Optional: Create a terminal where students answer mission questions

💡 **Challenge:** Use a list of quiz questions and loop through it

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Week 6: Evaluation & Showcase

Objective: Reflect, present, and peer-assess.

- Screen recording via CoSpaces or Screencastify
- Prompt students to explain their choices:
    - Why that rover?
    - Why dome shape?
    - Why floatation here?
- Peer review via Seesaw or Google Forms
- Use rubric with:
    - Function use
    - Interactivity
    - Design logic

- Creativity

💡 **Optional:** Turn into a virtual museum showcase for parents

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🧩 Suggested Assessment Rubric

Criteria	Emerging	Developing	Mastered
Animation & Physics	Basic movement	Uses velocity or paths	Integrates both with logic
Code Structures	Minimal reuse	Uses functions or lists	Reuses clean, readable code
Creativity	Generic design	Thoughtful layout	Creative + scientifically sound
Interactivity	Static	Some triggers	Fully interactive base tour
Reflection	Minimal	Describes features	Evaluates purpose and process

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Would you like a **PDF version** of this or a **planning document (e.g. Google Doc)** to use with your team? I can also scaffold student handouts or build CoSpaces code blocks aligned to these milestones.