

NASCA[®]

NATIONAL ACADEMY OF
STEM, CYBERNETICS & AI

SAMPLE DOCUMENT · v1.0

Scope & Sequence

Middle Band

Grades 6 – 8 · Ages 11 – 14

Term-by-term progression of outcomes, anchor projects and assessment moments across NASCA's eleven STEAM streams.

PHILOSOPHY

How the Middle Band works

The Middle band is the apprenticeship years. Streams converge into project studios; learners adopt one focus discipline each year while maintaining a general-skills baseline. Tooling shifts from visual to text — Scratch to Python, Tinkercad to Fusion 360, paper to micro:bit and Arduino. Every project has a measurable outcome, a real audience and a written reflection. Cybernetics — the study of feedback, systems and control — becomes the common language across science, design and computing.

ELEVEN STEAM STREAMS

The disciplines that thread through every term

01 AI & Robotics	02 Computational Thinking	03 Maker / Engineering
04 Data Literacy	05 Design Thinking	06 Science Inquiry
07 Math Reasoning	08 Digital Citizenship	09 Sustainability
10 Arts & Storytelling	11 Entrepreneurship	

ANCHOR PROJECTS

One signature build per grade

Grade	Project	What learners produce
Grade 6	Smart Greenhouse	A working desktop greenhouse with soil-moisture and light sensing on micro:bit. Data is logged, graphed and presented as a one-week study.
Grade 7	Air We Breathe	A community air-quality study using low-cost PM2.5 sensors. Students publish a public dashboard and write to local authorities with findings.
Grade 8	Assistive Robotics Lab	Teams interview a real user (older neighbour, sibling with motor needs) and prototype an assistive device using Arduino, servo motors and 3D-printed parts.

TERM-BY-TERM PROGRESSION

What learners do, term by term

Each row is a term. Each column is one of the eleven STEAM streams. Cells describe the learner-facing focus — outcomes, tools and a representative anchor activity. This is a sample; the full curriculum dossier expands each cell into a 4-week unit plan with materials, vocabulary, formative checks and family letters.

Term	AI&R	Comp.Th.	Maker	Data	Design	Sci.Inq.	Math	DigCit	Sust.	Arts	Entrep.
Term 1 - Foundations	micro:bit + servos	Python intro	CAD basics	Spreadsheets+	Brief & constraints	Lab method	Algebra I	Source literacy	Carbon footprint	Documentary craft	Lean canvas
Term 2 - Build	Arduino I/O	Functions & lists	3D print + laser	CSV cleaning	Iteration sprints	Forces & energy	Geometry	Digital wellbeing	Circular design	Short film	Customer interview
Term 3 - Investigate	Sensors & data	OOP gentle intro	Mech. linkages	Visualisation	User journeys	Chemistry of life	Statistics	Verifying news	Local ecology	Photo essay	Pricing & cost
Term 4 - Ship	Robotics challenge	APIs & JSON	Final fabrication	Dashboards	Critique panel	Earth & climate	Probability	Privacy & rights	Field action	Performance night	Pitch & ship

ASSESSMENT MOMENTS

How we know learning is happening

Instrument	What it looks like
Discipline Notebook	Weekly entries. Marked twice termly. Carries a verifiable reading list.
Working Prototype	Every project ends with a thing that works in front of a real user.
Public Defence	Two 12-minute orals per year before staff + an external mentor.
Cybernetics Rubric	System · Sensor · Signal · Response · Reflection — across all studios.

FRAMEWORK ALIGNMENT

How NASCA maps to the world's K-12 frameworks

Schools adopting NASCA do not abandon their existing curriculum — they upgrade it. Every NASCA outcome is mapped to the framework codes used by your Ministry, board or accreditor. The grid below summarises coverage; the full mapping appendix (available on request) lists every standard code against the term that addresses it.

Framework	Coverage	Notes
CBSE (NEP 2020)	● Full	Project briefs reference framework codes; checked at term review.
ICSE	● Full	Project briefs reference framework codes; checked at term review.
IB PYP / MYP / DP	● Full	Project briefs reference framework codes; checked at term review.
Cambridge Primary–IGCSE	● Full	Project briefs reference framework codes; checked at term review.
UAE MOE / KHDA / ADEK	● Full	Project briefs reference framework codes; checked at term review.
KSA Vision 2030	● Full	Project briefs reference framework codes; checked at term review.
Common Core (US)	● Full	Project briefs reference framework codes; checked at term review.
NGSS (US)	● Full	Project briefs reference framework codes; checked at term review.

ABOUT THIS DOCUMENT

This is a sample preview of the full Scope & Sequence dossier for the Middle Band. The complete dossier is provided to partner schools on signature of a curriculum-licence agreement and includes: (a) week-by-week unit plans, (b) materials and procurement lists, (c) framework code mapping, (d) assessment rubrics, (e) family communication templates, and (f) staff professional-development pathways. Request the full pack at partnerships@nasca.edu.in.

Prepared by the NASCA Curriculum Council. Sample preview — not for redistribution.