

STEM-ID Module Materials

This document provides an overview of materials and supplies for STEM-ID modules (grades 5–7). Quantities accommodate four class periods of thirty-five students. Common classroom consumables (paper, pencils, markers, tape, glue, scissors, rulers, sticky notes) and technology (computers, 3D printers) are not included.

Grade 5 — Food Truck Tycoon

Data Challenge

Item	Purpose in this challenge
Card Stock (assorted colors)	Print & cut the Food Item Cards (Handout 3) for the Price Tier Sort

Systems Challenge

Item	Purpose in this challenge
Card Stock (assorted colors)	Print & cut the Flowchart Symbol Matching Cards (Handout 1)

Design Challenge

Item	Purpose in this challenge
Cardboard Sheets, Shoeboxes, or Recycled Cardboard	Base of food truck prototype
Card Stock (assorted colors)	Interior walls, counters, and equipment surfaces on the prototype
Jumbo Craft Sticks	Equipment props and structural pieces
Paper Straws	Small structural pieces and detailing
Paper Cups (8 oz)	Equipment props (fryer, containers, etc.)
Computers / TinkerCAD	Model the food-truck floorplan to scale (free class account)

Purchasing Summary — Grade 5

Item	Suggested Source	Qty	Est. Unit Cost	Est. Total
Cardboard Sheets – 110 pack	Amazon	1	\$25.99	\$25.99
Card Stock (assorted colors) (at least 200 sheets)	Amazon	1	\$20.00	\$20.00
Jumbo Craft Sticks (500 Count)	Amazon	1	\$17.99	\$17.99
Paper Straws (300 pack)	Amazon	1	\$14.99	\$14.99
Paper Cups - 8 oz (400 pack)	Amazon	1	\$19.99	\$19.99
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Total Cost				\$98.96

Grade 6 — Arcade Entrepreneur

Challenges: Data · Systems · Design

Not listed (common classroom consumables): paper, pencils, markers, colored pencils, tape, glue sticks, binder clips, rubber bands, scissors, cardboard, and butcher/graph/chart paper. TinkerCAD is free; a 3D printer is optional.

Data Challenge

Item	Purpose in this challenge
Card Stock	Print the Cost Detective Cards (Handout 3) on cardstock
Calculators	Cost-per-play, revenue, and profit math (optional)

Systems Challenge

Item	Purpose in this challenge
Torsion Catapult Kits	Student-built torsion catapult, one per group — core of the challenge
Safety Glasses	Required eye protection during catapult launches
Craft Pom-Poms	Catapult projectiles
Small Metal Rulers	Measure launch distances (meter sticks also work)
Calculators	Win-percentage and per-day profit calculations (Activity 7)

Design Challenge

Item	Purpose in this challenge
Card Stock (assorted colors)	Main prototyping material for the game build
Jumbo Craft Sticks	Game structures and levers
Pipe Cleaners (Chenille Stems)	Detailing and moving parts
Paper Straws	Ramps and chutes
Craft Pom-Poms	Game targets and tokens
Ping-Pong Balls	Game balls (marbles are an alternative)
Paper Cups (8 oz)	Targets and holders
Small Metal Rulers	Measuring for the build and the TinkerCAD model
Cloth Measuring Tape	Measuring larger dimensions
Computers / TinkerCAD	Model the custom game part to precise dimensions (free)
3D Printer + Filament (optional)	Optional printing of the custom part — not required

Purchasing Summary — Grade 6

Item	Source	Qty	Est. Unit	Est. Total
Card Stock (assorted colors) (400 sheets)	Amazon	2	19.99	\$39.98
Torsion Catapult Kits – 1 per group: https://www.pitsco.com/products/catapult-kit	Pitsco	10	\$16.75	\$167.50
Safety Glasses - Class set of 30	Amazon	1	\$37.99	\$37.99
Jumbo Craft Sticks (500 Count)	Amazon	1	\$17.99	\$17.99
Pipe Cleaners (Chenille Stems)	Amazon	1	\$7.99	\$7.99
Paper Straws (400 pack)	Amazon	1	\$14.99	\$14.99
1" Craft Pom-Poms (200 pack)	Amazon	1	\$6.99	\$6.99
Ping-Pong Balls (30 pack)	Amazon	1	\$7.99	\$7.99
Paper Cups - 8 oz (400 pack)	Amazon	1	\$19.99	\$19.99
Small Metal Rulers – 12 pack	Amazon	2	13.99	\$27.98
Cloth Measuring Tape – 4 pack	Amazon	2	\$5.99	\$11.98
Calculators – 4 function, set of 8	Amazon	2	\$16.99	\$33.98
Total Cost				\$395.35

Grade 7 — Flight of Fancy

Data Challenge

Item	Purpose in this challenge
Foam Gliders: Cut from foam trays using NASA Glider template.	Baseline glider flights — one per group
Cloth Measuring Tape	Measure flight distances
Painters Tape	Mark the launch point

Systems Challenge

No additional purchased materials — uses printed handouts (e.g., Fuselage Design Guide, Profit Calculation Sheet) and common classroom consumables.

Visualization Challenge

Item	Purpose in this challenge
Foam Gliders: Cut from foam trays using NASA Glider template.	Measure the glider to build an accurate 3D model
Digital Calipers	Precise measurement of glider parts (recommended)
Small Metal Rulers	Measuring (caliper alternative)
Computers / TinkerCAD	Build the 3D glider model (free; replaces IronCAD)

Design Challenge

Item	Purpose in this challenge
Foam Gliders: Cut from foam trays using NASA Glider template.	Fuselages for attaching the redesigned wing
Card Stock 110 lb	Fabricate the new wing
Digital Calipers	Precise measurement during modeling
Small Metal Rulers	Measuring and layout
Cloth Measuring Tape	Measure flight-test distances
Painters Tape	Attach wings / mark the launch line
Computers / TinkerCAD	Model the new wing to precise dimensions (free)

Purchasing Summary — Grade 7

Item	Suggested Source	Qty	Est. Unit	Est. Total
Foam Trays for Gliders: White foam meat trays. 9.25"x7.25"x.5". Case of 500.	Webstaurantstore.com	1	35.49	\$35.49
Card Stock 110 lb (100 sheets)	Amazon	1	\$19.99	\$19.99
Digital Calipers	Amazon	10	\$9.99	\$99.90
Small Metal Rulers – 12 pack	Amazon	2	\$13.99	\$27.98
Cloth Measuring Tape – 4 pack	Amazon	1	\$5.99	\$5.99
Painters Tape	Amazon	1	\$7.99	\$7.99
Total cost				\$197.34

Program Cost Summary (Grades 5–7)

Grade	Unit	Start-up Cost	Annual Consumable
Grade 5	Food Truck Tycoon	\$98.96	\$98.96
Grade 6	Arcade Entrepreneur	\$395.35	\$115.92
Grade 7	Flight of Fancy	\$197.34	\$63.47
Total		\$691.65	\$278.35