



**WACO ISD EDUCATION FOUNDATION
COVER SHEET – PART II
Application for Grant:
2026-2027 Funding Cycle**

Assigned Grant Proposal #: 69

Project Title: Drafting Dreams: Integrating Engineering Foundations into Fine Art

Grade Level(s): Pre-K-5th Grade # of Students DIRECTLY involved: 350

Subject Area(s): Art, Engineering, Math, Science

Amount Requested: \$ 1,250

Grant Focus Area(s): In order to be considered, Waco Education Foundation Innovation Grant proposals must fall under one or more of the E4 focus areas: early childhood development, enhanced programming for advanced students, extended education for staff, and emphasis on student performance. NOTE: In addition to meeting one of the E4 focus areas above, grant readers are especially interested in creative and innovative grant requests that target fine arts, STEM, literacy, or enrichment.

(check all that apply)

- | | |
|---|--|
| <input checked="" type="checkbox"/> Early Childhood Development | <input type="checkbox"/> Extended Education for Staff |
| <input type="checkbox"/> Enhanced Programming for Advanced Students | <input type="checkbox"/> Emphasis on Student Performance |
| <input checked="" type="checkbox"/> Fine Arts | <input checked="" type="checkbox"/> STEM |
| <input type="checkbox"/> Literacy | <input checked="" type="checkbox"/> Enrichment |

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Drafting Dreams: Integrating Engineering Foundations into Fine Arts

Project Description:

Drafting Dreams transforms the art room into a STEM design lab using modular tools like Legos and Magnatiles to bridge engineering and fine arts. Through an innovation hub for upper elementary, weekly warm-ups for grades 1–3, and a STEM Exploration Station for Pre-k and Kinder, students tackle structural challenges that build persistence and adaptability. This initiative fosters critical thinking as learners analyze balance and integrity through hands-on design challenges. By iterating on their work, students move beyond rote memorization to develop a growth mindset, ensuring "mechanical-minded" learners can see their innovative ideas come to life through 21st-century problem-solving.

#1

This project directly supports the one-year growth goal by using the art room as a laboratory for applied math and literacy-rich vocabulary. By physically testing structural integrity and measuring proportions, students move from abstract concepts to a concrete understanding of geometry and measurement, accelerating math mastery. For a Title 1 campus, this initiative is vital to closing the background knowledge gap; as students navigate the "failure" and iteration process, they build the persistence and academic grit necessary to tackle rigorous reading and math challenges. Ultimately, this project turns artistic inquiry into a engine for analytical reasoning, ensuring our students have the

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Drafting Dreams: Integrating Engineering Foundations into Fine Arts

confidence and stamina to meet their academic growth targets across all grade levels.

#2

The goal of this project is to foster critical thinking and creative endurance by reframing the artistic process as a series of design iterations. In both art and engineering, "first drafts" rarely yield the desired result; this lab provides a safe, hands-on space where students practice adjusting and pivoting rather than giving up when a structure or image falters. By bridging this gap, students develop the stamina and persistence needed to tackle complex academic challenges and find success through trial and error.

#3

Below I have listed 3 core values which will be the foundation of our Engineering Foundations Lab.

1. **Build Creative Endurance:** Students will move from "giving up" to "pivoting" by documenting at least one modification made to a failing structure before starting over.
2. **Apply Mathematical Foundations:** Students will use spatial reasoning, symmetry, and measurement to ensure structural integrity and balance.
3. **Enhance Literacy via Vocabulary:** Students will master Tier-3 terms (e.g., *Integrity, Pivot, Iteration, Equilibrium*) through tactile application.

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Drafting Dreams: Integrating Engineering Foundations into Fine Arts Instructional Strategies

- **The 3-Minute Pivot:** When a student's work fails, they must pause for 3 minutes to identify *one* thing that worked before touching the materials again.
- **Architectural Walk-Through:** Students use academic vocabulary to explain their "design choices" to peers, mimicking a professional design review.
- **Growth Documenting:** Taking "Before and After" photos of failed vs. adjusted designs to visualize the power of persistence.

Parental & Community Involvement

- **"Drafting with Dad/Grandparents" Morning:** Invite family members to help students tackle a specific 20-minute design challenge, focusing on shared problem-solving.
- **The "Innovation Wall":** A physical or digital gallery featuring "The Best Mistakes of the Week," celebrating the most creative way a student recovered from a structural collapse.

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Drafting Dreams: Integrating Engineering Foundations into Fine Arts

This 30-week calendar for Drafting Dreams is designed to scaffold student skills from basic assembly to complex, multi-material engineering. Each week introduces a new challenge that targets persistence and analytical reasoning

Drafting Dreams: 30-Week STEM Innovation Calendar

	Material	Challenge Title & Objective
1	Lego Bricks	The Sky-High Solder: Build the tallest tower that survives a 10-second "earthquake" shake.
2	Magna-Tiles	Magnetic Symmetry: Create a 3D rocket ship that is perfectly symmetrical on all four sides.
3	Gear Builders	The Gear Train: Connect gears to move a flag at the opposite end of the table.
4	Tangram Puzzles	Tangram Architecture: Replicate a famous landmark using only the seven polygons.
5	Straw Connectors	Structural Integrity Bridge: Engineer a 12-inch bridge that supports 50 pennies.
6	Stacking Rocks	The Balancing Act: Stack all rocks in one column; analyze why it tilts to pivot.
7	Pattern Blocks	Pattern Block Mosaics: Fill a complex tessellation shape with no gaps or overlaps.
8	Hashtag Blocks	Hashtag Habitat: Design a 3D animal enclosure with a working gate.
9	Rainbow Bricks	Rainbow Prism Tower: Build a tower that overlaps colors when hit by a flashlight.

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10	Plip Kit	The Plip-Kit Perimeter: Create a flexible fence that wraps exactly around a baseplate.
11	Suction Cup People	Suction Cup Crowd: Form a human pyramid on a vertical surface that doesn't unstick.
12	Playstix	Playstix Pavilion: Build a cabin that supports the weight of a heavy gear set.
13	Hexagon Blocks	Hexagon Hive: Build a 3D honeycomb where every block has two connections for strength.
14	Connect Toys	Connect-Toy Crane: Build a functional crane that can lift one Lego brick.
15	Lego & Baseplate	The Marble Maze: Design a path from corner to corner using bricks as barriers.
16	Mini Magna-Tiles	Mini-Magna Greenhouse: Test how many Suction Cup People fit before the roof collapses.
17	Straw Connectors	Straw-Man Stretcher: Build a carrier to move a Lego person across a 2-foot gap.
18	Gear Builders	The Gear Carousel: Use a large gear to turn four smaller gears simultaneously.
19	Hashtag Blocks	Hashtag Bridge: Create a flat roadway across two desks; test weight integrity.
20	Mixed Materials	The Ultimate Mash-Up: Build a "Future City" using five different lab materials.
21	Straws & Playstix	The Double-Decker Bridge: Build a two-story bridge using different materials for each level.

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22	Rainbow Bricks	Geometric Shadow Art: Build a 3D tower that casts a 2D hexagon shadow.
23	Gears & Lego	The Gear-Powered Lift: Build a Lego elevator raised by a manual gear handle.
24	Hashtag & Magna	Multi-Level Habitat: Mix transparent windows with sturdy hashtag climbing structures.
25	Plip & Rainbow	The Floating Garden: Create a "legged" platform that holds three acrylic bricks.
26	Rocks & Lego	Balancing Bridge: Build a bridge with Lego supports and a rock "roadway."
27	Hex & Pattern	The Color-Match Maze: Build a floor maze where the path follows a specific color code.
28	Suction & Straws	Suction Cup Suspension: Hang people from a straw-connector "high-wire."
29	Connect & Playstix	Interlocking Intersection: Design a 4-way road system with functional signage.
30	All Materials	The Hybrid Super-Structure: Build one massive structure with a moving part and symmetry.

#4

I plan to invite the Foundation to come in to observe and engage with the students openly and share photos as we celebrate our "Best Mistakes of the Week" or "Drafting with Grandparents/Dad" event. I will also share monthly updates on STEM in the art room via Parent Square to keep parents involved and updated on our growth and success.

#5

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Effectiveness will be evaluated based on Academic growth in math on iReady math and by documentation of self-assessments by upper grade students. This self assessment will be called a "Pivot Check" and consist of the questions to be answered after a STEM challenge at the beginning, middle, and end of the year to be kept in a class folder. Example Rubric is below:

Persistence (Endurance)

Problem Solving (Adaptability)

Emerging

Gives up or asks for the answer immediately.

Does not change the design after failure.

Developing

Tries one change but gets frustrated if it fails again.

Identifies one "working part" but struggles to rebuild.

Proficient

Stays with a challenge for 10+ minutes.

Clearly explains a "Pivot Plan" and tests a new idea.

#6

As long as materials are cared for and organized, this project is very sustainable and more STEM challenges can be easily added or adjusted as time goes on. The long-term impact of growth in the area of critical thinking and persistence in problem solving is invaluable to our students as they learn to become successful and productive citizens in our communities.

#7

I will take full responsibility for maintaining and organizing all materials as well as executing lessons and introducing the STEM challenges weekly. My qualifications are that I am the full time art teacher I am committed to completing these STEM challenges bi-weekly with my students.

#8

I have not requested any consumable supplies.

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Long-Term Supplies are detailed in Line items 16-34 . All of these line items are a variety of STEM materials that can either be used on their own or in combination with others for students to successfully complete their STEM challenge designs. A variety of materials is integral for my goal of students to be able to think outside of the box and problem solve with the materials and amounts that they are provided with. Line item 35-36 is detailed as storage containers and an organization cart to keep all supplies neat and organized for long term use.

Waco Education Foundation Grant Budget Form

Assigned Proposal #	69
Project Title:	Teams: Integrating Engineering Foundations int
Number of Students Served by Grant:	375

Qty	Budget Item	Verify Vendor (Y or N)	\$ Requested from the WISD Foundation	Other Secured Source	\$ from Other Source (if applicable)	Total Amount
Consumable Supplies						
						\$ -
	total Consumable Supplies		\$ -		\$ -	\$ -
Technology						
						\$ -
						\$ -
	total Technology		\$ -		\$ -	\$ -
Long-Term Supplies / Equipment (items that will last beyond the grant year)						
4	Travel Size Magnetic Picasso Tiles (100 Piece)	Y	\$ 139.96			\$ 139.96
1	Playstix	Y	\$ 59.98			\$ 59.98
2	LEGOS Creative Brick Box	Y	\$ 100.00			\$ 100.00
2	LEGO Baseplates	Y	\$ 50.14			\$ 50.14
1	Hashtag Blocks 1300 Piece	Y	\$ 57.99			\$ 57.99
4	Tangram Puzzles 24 sets	Y	\$ 24.99			\$ 24.99
2	Suction Cup Fidgets	Y	\$ 69.90			\$ 69.90
2	StarFlex STEM Gear	Y	\$ 39.98			\$ 39.98
2	Brain Flakes	Y	\$ 39.98			\$ 39.98
2	Tigrhu Slim Building Blocks	Y	\$ 39.98			\$ 39.98
1	Interlocking Snowflake Connectors	Y	\$ 31.99			\$ 31.99
1	Straw Constructors 1200 pc	Y	\$ 31.99			\$ 31.99

2	Interlocking Gear Builders	Y	\$ 51.18			\$ 51.18
2	Wooden Stacking Blocks	Y	\$ 48.98			\$ 48.98
1	Acrylic Building Blocks 100	Y	\$ 79.99			\$ 79.99
1	Acrylic Building Blocks 30 Pc Rectangles	Y	\$ 48.99			\$ 48.99
1	STEM Challenge cards	Y	\$ 16.99			\$ 16.99
1	Toy Cars 20 Pack	Y	\$ 32.99			\$ 32.99
1	Plastic Trays	Y	\$ 39.99			\$ 39.99
5	Storage Bins	Y	\$ 150.00			\$ 150.00
1	Rolling Cart Storage	Y	\$ 100.00			\$ 100.00
total Long-Term Supplies			\$ 1,255.99		\$ -	\$ 1,255.99
Contracted Services						
						\$ -
						\$ -
total Contracted Services			\$ -		\$ -	\$ -
Personnel						
						\$ -
						\$ -
total Personnel			\$ -		\$ -	\$ -
Travel / Other						
						\$ -
						\$ -
						\$ -
						\$ -
total Other			\$ -		\$ -	\$ -
Totals		Total Requested from the WISD Foundation	Foundation Cost Per Student	Total from Other Sources	Total Cost of Project	
		\$ 1,255.99	3.349306667	\$ -	\$ 1,255.99	