

Grades 3–5: Designing Connections

Learning Goals:

By the end of the year, students will:

- Strengthen literacy, math, and science skills through hands-on, design-based learning.
 - Apply architectural thinking to solve real-world challenges.
 - Explore systems and structures in nature, cities, and communities.
 - Collaborate and problem-solve using creativity and critical thinking.
 - Communicate ideas through visual, written, and verbal design presentations.
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Semester 1: “Designing Our World”

Unit 1: Structures That Tell Stories (Weeks 1–6)

Theme: “How do buildings tell stories about people and places?”

- **Read-alouds:** *The World Is Not a Rectangle, If You Lived Here, Architecture: The Whole Story*
- **Vocabulary:** structure, function, culture, pattern, symmetry
- **Activities:**
 - Create a visual “Architect’s Journal” with sketches and reflections.
 - Explore local architecture through photos or walking tours.
 - Build a model that represents an important cultural or historical story.

Mini Writing/Art Project:

“My Story, My Structure” — Design a small structure (paper, clay, or recycled materials) that represents your own culture or identity.

Unit 2: Bridges and Connections (Weeks 7–12)

Theme: “What connects people, places, and ideas?”

- **Focus Concepts:** Force, balance, tension, teamwork
- **Activities:**
 - Experiment with bridge types (beam, arch, suspension) using craft sticks or cardboard.
 - Test load-bearing capacity and redesign based on results.
 - Math tie-in: Measure and graph bridge strength and span length.

STEM Project:

“Build a Bridge Challenge” — Teams design, test, and improve bridges based on strength and efficiency.

Semester 2: “Nature as Designer”

Unit 3: Eco Builders (Weeks 13–18)

Theme: “How can we design with nature in mind?”

- **Read-alouds/Media:** *The Boy Who Harnessed the Wind*, *The Tree Lady*, *Biomimicry: Innovation Inspired by Nature*
- **Vocabulary:** ecosystem, sustainable, renewable, biomimicry, design cycle
- **Activities:**
 - Analyze animal homes and natural designs.
 - Design eco-habitats for humans using natural inspiration.
 - Conduct a mini research project on renewable materials.

STEM/Art Integration:

Build a model of a “Green City Block” using recyclable materials.

Unit 4: Our Future Cities (Weeks 19–24)

Theme: “What makes a city sustainable?”

- **Focus:** Urban planning, transportation, community design, energy
- **Activities:**
 - Plan a mini city layout including housing, green spaces, and transportation routes.
 - Debate trade-offs between convenience and sustainability.
 - Present city models to peers or parents in a “City Expo.”

Culminating Project:

“City of the Future” — Students design, draw, and build a city model demonstrating balance between technology and the environment.