



STEM with DCM

DuPage Children's Museum has developed a variety of Virtual STEM Labs to spark curiosity and promote critical thinking through hands-on discovery – providing academic enrichment for e-learning that is both fun and easy.

Each 45–60 minute lab, suitable for students in grades 1–4, is led by an experienced DCM educator. Students are empowered to be the primary drivers of their own learning – by building, making, engineering, and experimenting their way through engaging STEM challenges.

All labs will feature the following essential elements:

- **NGSS aligned**
 - All lessons will be aligned with a NGSS Disciplinary Core Idea (DCI), Cross Cutting Concept (CCC) and Science and Engineering Practices (SEP). This holistic approach to science education includes traditional science content areas (DCI) paired with how scientists and engineers work (SEP) and big connecting ideas that span across all areas of science and engineering (CCC).
- **Flexibility**
 - Labs will be developed so they can be adjusted to be delivered to different ages groups.
 - Labs will also be able to be delivered via different video call platforms to reduce that barrier to participation. Formats available will be determined though planning conversations with school districts.
 - Some labs will be available as single or multi session experiences to offer extended learning experiences for classes interested in longer engagements.
- **Student-Centered Learning**
 - Students will be the primary drivers of the learning. Students will be actively engaged in discussion and hands on activities throughout the experience.
- **Hands-on Activity**
 - Each lesson will involve building, making, experimenting or engineering a solution to a problem using on-hand household items.
 - Materials will be supplied to the students with the aid of the school district or partner organization.
- **Independent Learning**

- Students will be able to participate in the lesson without having an adult teacher or caregiver directly assist them. These lessons are intended to supplement the learning experiences being provided by the school district.
- **“Wow” factor**
Museum education provides a memorable experience to excite and inspire learners. STEM with DCM experiences provide a “WOW” factor that allows participants to discover something new at a scale that is exciting.

Build a Bridge (2 sessions)

Design, build, and test the strength of your own structure! This two-session long lab encourages young engineers to tackle practical problems with imaginative solutions, creating fantastically functional bridges.

NGSS Connections:

Science and Engineering Practices (SEP): Planning and Carrying Out Investigations; Designing Solutions
Disciplinary Core Idea (DCI): PS2.C: Stability and Instability in Physical Systems
Cross Cutting Concept: Structure and Function

Sounds All Around

If we could see sound, what would it look like? What are sound waves and where do they come from? Conduct hands-on experiments that resonate with these questions, make a sound sandwich, and play a song together to learn the art of collaboration

NGSS Connection:

DCI:PS4.A: Wave Properties
SEP: Planning and Carrying out Investigations
CCC: Energy and Matter

Wings & Things: Paper Airplanes and Bird Wings

Will it fall, float or fly? Explore the four forces of flight (thrust, lift, drag, and weight) and compare birds and planes to discover what makes a successful flying contraption.

NGSS Connection:

DCI: Forces and Motion
SEP: Constructing Explanation and Designing Solutions
CCC: Structure and Function

Weather Station

Can we predict the weather? What’s the difference between weather and climate? Join the investigation and make your own rain gauge, wind vane, and weather observation chart to learn more about the atmosphere around you!

NGSS Connections:

DCI ESS2.D: Weather and Climate
SEP Planning and Carrying Out Investigations
CCC: Stability and Change

Citizen Science

Nature is all around you! Explore your urban and suburban surroundings to discover the adaptable organisms building their habitats alongside man-made environments.

NGSS Connection:

DCI: LS4.D: Biodiversity and Humans

SEP - Carrying Out Investigations

CCC - Patterns

Shadow Science/Art of the Sun and Earth

Shine a light on your creative talents (literally) and trace the Earth's movement via shadows.

Engage in small and large-scale art+science activities that highlight the constant motion of our solar system and make/ the connection between light, movement, and shadows.

NGSS Connections:

DCI: ESS1.B: Earth and the Solar System

SEP: Developing and using Models

CCC: Cause and Effect