

Experience Guide

Grades: 6-8

To support meaningful engagement with museum content, we have developed grade-specific experience guides aligned with NGSS standards. These guides are designed to help students and chaperones explore exhibitions more deeply and purposefully.

Each guide is organized by gallery content and can be tailored to your needs. Before your visit, you may print the guides at your school, selecting specific sections based on your learning objectives. This flexibility allows you to focus on topics or exhibits that best align with your curriculum goals.

Use these guides to lead your students through exhibitions with engaging conversation starters and hands-on activities, creating a focused and enriching museum experience.



SAINT LOUIS
SCIENCE CENTER



Dinosaurs and Dig Site



Earth Sciences



Experience Energy



LOWER LEVEL

- + Dinosaurs and Dig Site
- + Earth Sciences
- + Paleo Lab
- + Experience Energy
- + Energy Stage
- + T.rex Room
- + Dino Den (Esports)
- + May Hall



Earth Sciences

Missouri Fossils

Activity 1: Find MO Fossils

Objective:

To review fossils and geological formations for scientific explanations of Earth's 4.6-billion-year-old history.

Instructions:

Explore the diagrams and fossils throughout this area. Match the fossils to the geological time period.

Discussion:

What does a fossil tell you about that time? Have you ever found a fossil?

Standard:

ESS1.C – The History of Planet Earth; LS4.A – Evidence of Common Ancestry and Diversity.

Past Mass Extinctions

Activity 2: The Big Five

Objective:

Identify the causes of the five different mass extinction events.

Instructions:

Investigate the five major extinction events on the back wall.

Discussion:

What atmospheric changes occurred? Which one surprises you the most?

Standards:

ESS1.C – The History of Planet Earth; ESS.D – Global Climate Change.

Current Mass Extinction

Activity 3: Extinction Simulator

Objective:

Understand how human-caused and natural events and processes work together to increase or decrease CO₂ levels.

Instructions:

Play the Extinction Simulator from left to right with at least one other person or in a small group.

Discussion:

What human actions caused the most change in extinction events? What animals or plants do you care about the most? How is climate change already impacting this species?

Standards:

ESS1.C – The History of Planet Earth; ESS.D – Global Climate Change.

More than Just Dinosaurs

Activity 4: Studying Past Life on Earth

Objective:

To see the variety of sciences needed to study prehistoric life.

Instructions:

Read the panel describing types of scientists who study prehistoric life.

Discussion:

What is a question that a Palynologist might help us answer? Which of these was new to you?

Standard:

ESS1.C – The History of Planet Earth.

Earthquake Simulator

Activity 5: Earthquake Exploration

Objective:

Experience a seismic simulator.

Instructions:

Stand on the simulator and feel different sized earthquakes. Read the placards to learn about earthquakes that have occurred nearby.

Discussion:

What did they feel during the simulation? How do they think earthquakes can change the landscape?

Standard:

ESS2.A – Earth Materials and Systems; ESS2.B – Plate Tectonics and Large-Scale System Interactions.

Plate Tectonics

Activity 6: Plate Boundary Exploration

Objective:

Learn the theory of Plate Tectonics.

Instruction:

Read and review the images of the three types of movement that occur where plates meet.

Discussion:

How are volcanoes, earthquakes and mountains products of plate movement? How do you think scientists can use GPS to outline patterns of plate movement?

Standard:

ESS2.A – Earth Materials and Systems; ESS2.B – Plate Tectonics and Large-Scale System Interactions



EXPERIENCE ENERGY

Energy Conservation

Activity 1: Energy on the Move

Objective:

Discover how waves can be used to transfer information and motion.

Instructions:

Play with the interactive roller coaster.

Discussion:

These big “toys” help us understand kinetic and gravitational potential energy. Can you think of another “toy” that relies on gravitational potential energy?

Standard:

PS3.A – Definitions of Energy; PS3.B – Conservation of Energy; PS4.A – Wave Properties.

Car Engine Exhibit

Activity 2: Build a Car

Objective:

Observe the difference in electric and combustible engines.

Instructions:

Have students assemble the cars on the wall.

Discussion:

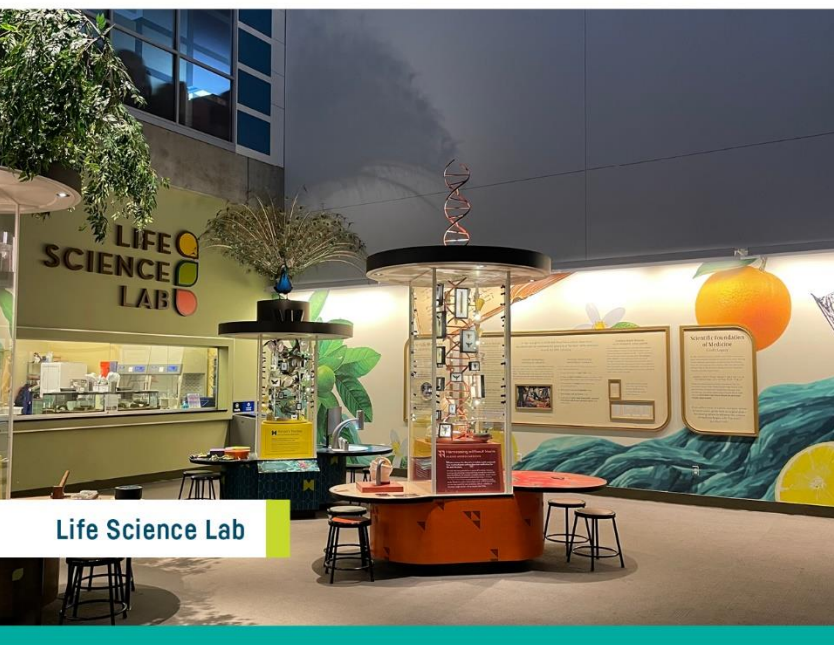
Talk about the similarities and differences. Discuss any of the experiences that the students have had with electric vehicles (busses, scooters, cars).

Standard:

ETS1.A – Defining and Delimiting an Engineering Problem.



GROW



Life Science Lab



GameXPoration



FIRST FLOOR

- + Lobby / Tickets
- + Life Science Lab
- + GameXPoration
- + GROW
- + Boeing Hall





The Future of Gaming

Activity 1: Future Game Design

Objective:

Predict future developments in gaming technology.

Instructions:

Think about what games might look like in the future.

Discussion:

What features would you add to a game to make it more fun or educational? How do you think games will change in the next 10 years? What new technology do you think will be used in future games?

Standard:

ETS1.C – Optimizing the Design Solution; PS4.C – Information Technologies and Instrumentation.

Mindball Mania

Activity 2: Exploring Brain Waves with Mindball

Objective:

Consider how sensory inputs (such as focus and relaxation) affect brain wave patterns.

Instructions:

Play a game of Mindball with a partner.

Discussion:

What changes did you notice in your ability to move the ball when you were more focused or relaxed? What might happen in your brain to cause this? How might EEG technology be useful in medical or scientific research? The brain interprets information from the senses to decide how to respond. What is an example of this in real life?

Standard:

LS1.D – Information Processing; PS4.C – Information Technologies and Instrumentation.

Nature's Toolbox

Activity 1: Nature-Inspired Medical Innovation

Objective:

Learn how humans have created medically relevant tools inspired by animal traits and characteristics.

Instructions:

Find one example of a tool that was inspired by an animal.

Discussion:

How can learning about animals help humans create new tools? Can you think of a way your favorite animals could inspire new innovations?

Standard:

LS4.C – Adaptation.

Live Animals

Activity 2: Amazing animal adaptations

Objective:

Use observations to see adaptations of live animals.

Instructions:

Take a few minutes to observe the aquatic animals in the window. Students will find Axolotls, Western Lesser Siren and African Clawed frogs.

Discussion:

What behaviors do you notice? What adaptation do these animals have to their natural environments? (hint: read signage in the windows)

Standard:

LS1.B – Growth and Development of Organisms; LS3.B – Variation of Traits



Outside – Water Works (Seasonal) *Students May Get Wet

Activity 1: Engineering water

Objective:

To discover how humans use engineering to move and clean water.

Instructions:

Have students play with the Water Works exhibit. Ask them to find ways to “clean” water using natural systems like trees.

Discussion:

What types of natural systems can humans use to remove extra nutrients and keep land from eroding?

Standard:

MS-LS2.C – Ecosystem Dynamics, Functioning, and Resilience.

Outside – Bioswales and Rain Gardens

Activity 2: Water Cycling

Objective:

Find water runoff and conservation solutions for their neighborhoods and schools.

Instructions:

Locate the bioswales and rain gardens that are around the north side of the Pavilion.

Discussion:

How do you think a rain garden helps both plants and our sewer systems? What is one thing you could do at your home or school to increase biodiversity?

Standard:

LS2.C – Ecosystem Dynamics, Functioning, and Resilience; ETS1.B – Developing Possible Solutions.

Outside – Giant Sunflower

Activity 3: Photosynthesis

Objective:

Reinforce photosynthesis learning.

Instructions:

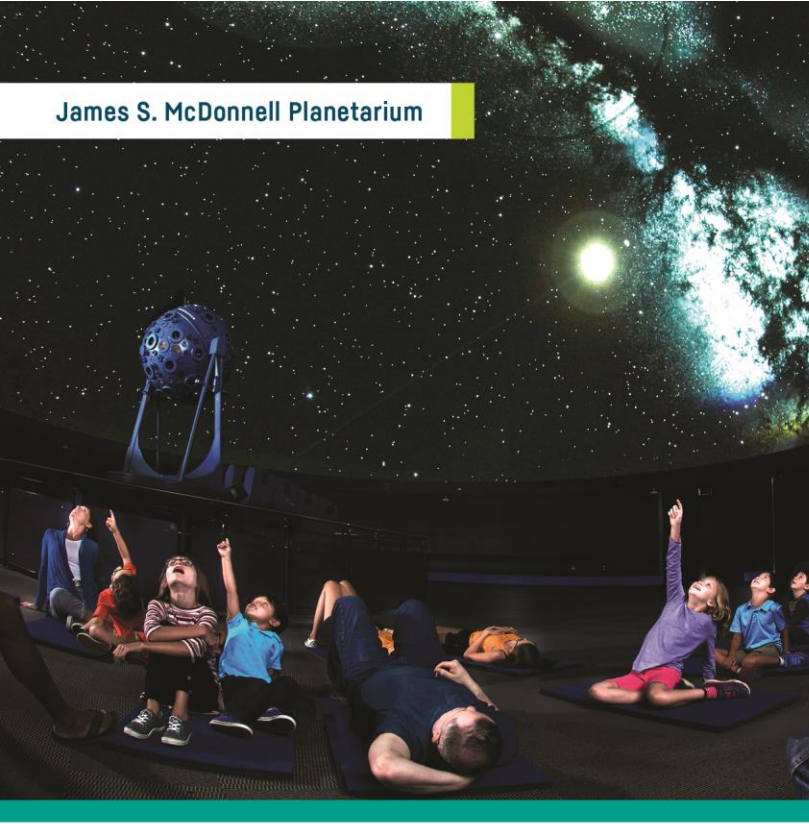
Move the leaves using the levers and see how this directional change impacts the plant’s ability to produce oxygen.

Discussion:

Explain how photosynthesis is a cycle.

Standard:

LS1.C – Organization for Matter and Energy Flow.



SECOND FLOOR



Structures

- + OMNIMAX® Theater
- + McDonnell Planetarium
- + Structures
- + Experience Flight
- + Current Curiosities
- + Makerspace
- + Discovery Room



Makerspace





MAKERSPACE

Riga-Ma-Jig Exhibit™

Activity 1: Bolted together

Objective:

Develop problem-solving and engineering skills by constructing a stable structure.

Instructions:

Divide up into groups of four. Give each group a challenge to build the most stable structure with the Rig-A-Ma-Jig pieces provided in the exhibit.

Discussion:

Ask the students to talk about what they made, and what strategies they used to make decisions about their creations. Did they accomplish what they wanted? What could they do to improve the design?

Standard:

ETS1.A – Defining and Delimiting Engineering Problems; ETS1.B – Developing Possible Solutions; ETS1.C – Optimizing the Design Solution.

CURRENT CURIOSITIES

Keva Gallery

Activity 1: Dream It, Build It

Objective:

Develop problem-solving and engineering skills by constructing a stable structure.

Instructions:

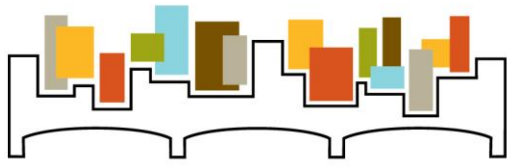
Divide into small groups around the tables in the gallery. See which group can build the biggest pyramid in two minutes.

Discussion:

What was challenging about this activity? How did you make your structure stable? Do you think you could make a taller tower if you had more time?

Standard:

ETS1.A – Defining and Delimiting Engineering Problems; ETS1.B – Developing Possible Solutions; ETS1.C – Optimizing the Design Solution.



STRUCTURES

“Shake It” and Top Heavy”

Activity 1: Tall Towers

Objective:

Learn how engineers and architects create buildings that can withstand natural disasters.

Instructions:

Follow the instructions on the activities.

Discussion:

What did you learn about architectural design from these interactions? What have engineers and architects put into place to make buildings able to survive natural disasters?

Standard:

ETS1.A – Defining and Delimiting Engineering Problems; ETS1.B – Developing Possible Solutions; ETS1.C – Optimizing the Design Solution.

“Go with the Flow” and “Drops of Knowledge”

Activity 2: Water Systems

Objective:

Discover the complex system used to capture, clean and move water for human use.

Instructions:

Follow the water through a whole cycle.

Discussion:

Water is an important resource that is scarce in some areas of our country. How can we play a role in keeping our water clean and sewers functional? Should you flush these: cotton swabs, tissues, paper towels, dental floss? (No) Only flush: toilet paper, your waste and water. What is one way you can commit to reducing your water use at home or at school?

Standard:

ESS2.A – Earth’s Materials and Systems; ESS2.C – The Role of Water in Earth’s Surface Processes; ESS3.A – Natural Resources.



Rotating Globe

Activity 1: As the World Turns

Objective:

Postulate how scientists use data collected from satellites.

Instructions:

Have students explore the “Earth’s Vital Signs” and “Latest Events” on the Eyes on the Earth interactive monitor.

Discussion:

Did the students see any events they recognized? How do they think we can use the information gathered to make decisions about the health of our planet? How about predicting weather?

Standard:

ESS3.B – Natural Hazards, ESS3.D – Global Climate Change.