Experience Guide

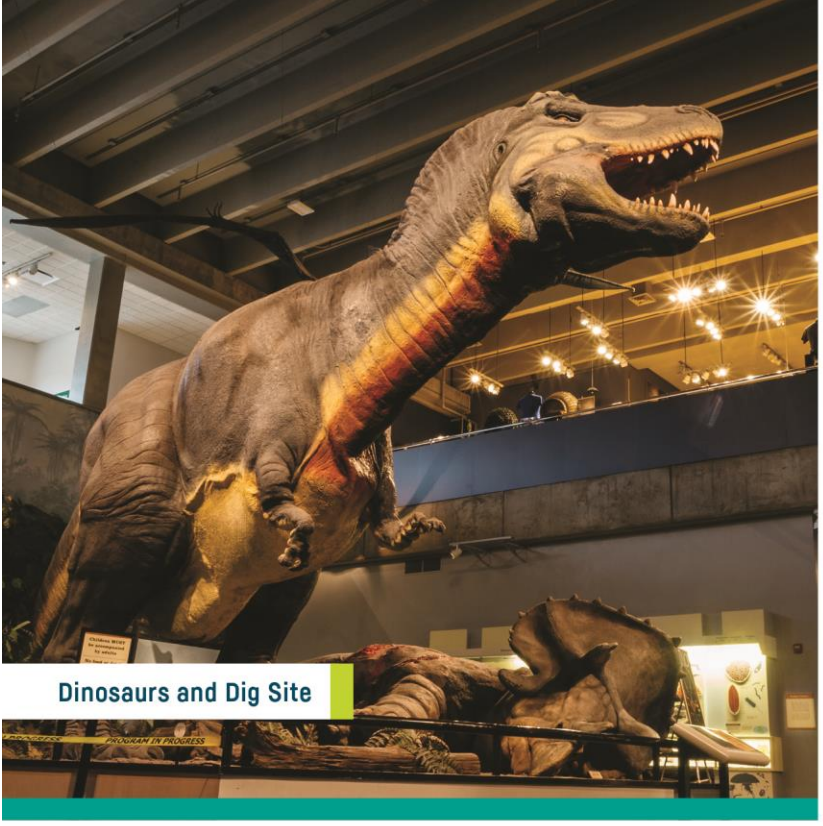
Grade: K

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

T-Rex Exhibit

Activity 1: Meet the Dinosaurs

Objective:
Use observation and listening skills to compare physical features of dinosaurs.

Instructions:
Look closely at the T-Rex and Triceratops. Read the text on the rails to learn more about them. Notice how the two dinosaurs are alike and how they are different. Move like a T-Rex. Then move like a Triceratops.

Discussion:
How do you think T-Rex and Triceratops were alike? How were they different? How do you think each dinosaur moved? What did they eat?

Standard:
LS1.A – Structure and Function.

Pennsylvanian Diorama

Activity 2: Diorama Seek and Find

Objective:
Identify different plants and animals and compare them to organisms of today.

Instructions:
Use your observation skills to find all the plants and animals in the diorama.

Discussion:
What did you notice? Did you find any plants or animals that are like those living today? Which ones? How are they alike? What do you think the animals in the diorama needed to survive? What did the plants need?

Standard:
LS1.C – Organization for Matter and Energy Flow in Organisms.

Past Mass Extinctions

Activity 3: The Big Five Extinctions

Objective:
Identify the causes of the “Big Five” mass extinction events.

Instructions:
Investigate the five major extinction events on the back wall.

Discussion:
What were the causes of the different extinctions? Which extinctions involved changes in the atmosphere? Did the size or causes of any of the Big Five extinctions surprises you?

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

Earthquake Simulator

Activity 5: Earthquake Exploration

Objective:

Understand the causes and effects of earthquakes.

Instructions:

Read the placards and learn about nearby earthquakes. Stand on the simulator and experience different sized earthquakes.

Discussion:

What did you feel during the simulation? In what ways do you think earthquakes can change the landscape? In what ways do you think earthquakes can affect people in cities? In rural areas?

Standard:

ESS2.B – Plate Tectonics and Large-Scale System Interactions.

EXPERIENCE ENERGY

Solar Energy Exhibit

Activity 1: Solar Power in Action

Objective:
Understand how solar energy is captured and used.

Instructions:
Look at the solar panels and read about how they work.

Discussion:
Have you even seen a solar panel on a house, building or field? How do solar panels help us use the sun's energy? What are some other ways we use solar energy?

Standard:
PS3.B – Conservation of Energy and Energy Transfer.

Wind Energy Exhibit

Activity 2: Make Your Own Windmill

Objective:
Learn how wind energy is harnessed.

Instructions:
Look at the wind turbine model and discuss how it generates electricity. Then, have students create a simple foam windmill.

Discussion:
Where have you seen a windmill before? How does the wind make the windmill turn? What happens when there is no wind?

Standard:
PS3.B – Conservation of Energy and Energy Transfer.

Energy Conservation Exhibit

Activity 3: Energy Savers

Objective:
Learn ways to conserve energy.

Instructions:
Explore the exhibit on energy conservation and find different ways we can save energy at home and school. Have students list three ways they can conserve energy in their daily lives.

Discussion:
Why is it important to conserve energy? How can saving energy help the environment?

Standard:
PS3.B – Conservation of Energy and Energy Transfer.

GROW

Life Science Lab

GameXPloration

FIRST FLOOR

+ Lobby / Tickets
+ Life Science Lab
+ GameXPloration
+ GROW
+ Boeing Hall

GAMEXPLORATION

Eight-Player Foosball

Activity 1: Foosball Forces

Objective:

Identify how force and motion are related by observing how different types of pushes and pulls affect the movement of the ball.

Instructions:

Push, pull and turn the rods to move the ball. Try to score a goal for your team and keep the other team from scoring. As you play, try pushing and pulling in different ways: slowly, gently, harder, softer, etc. Notice how the ball moves.

Discussion:

What caused the ball to move? What caused the ball to change direction? What happened when you pushed the rod with more force? How did the ball move when you pushed the rod quickly compared to when you pushed it slowly? In what other games or activities do you use pushes or pulls to make things move?

Standard:

PS2.A – Forces and Motion.

Interactive Gaming Stations

Activity 2: Play and Learn

Objective:

Notice how force and motion are involved in digital game play.

Instructions:

Spend time at the interactive console stations. Choose a game to play and think about how forces help you control the game.

Discussion:

How did you work the controller? What type of force did you use?

Standard:

PS2.A – Forces and Motion.

LIFE SCIENCE LAB

Observing Aquatic Animals

Activity 1: Animal Behaviors and Adaptations

Objective:

Observe and understand the behaviors and adaptations of aquatic animals.

Instructions:

Spend a few minutes observing the axolotls, Western Lesser Siren, and African Clawed Frogs in the display window. Note any interesting behaviors and read about their adaptations.

Discussion:

What behaviors do you notice in these animals? What adaptations do these animals have for their natural environments? How do these adaptations help them survive?

Standard:

LS1.A – Structure and Function.

Historical Medicine

Activity 2: How Medicine Was Made in the Past

Objective:

Observe and understand how some medicines were made in the past.

Instructions:

Use the tools to learn how medicines used to be made.

Discussion:

How were medicines prepared in the past? Do you think medicine is still prepared this way today? How did you use force (pushes or pulls) when “preparing” the medicine?

Standard:

LS1.A – Structure and Function; PS2.A – Forces and Motion.

Bio-Inspired Toolbox

Activity 3: Amazing Animal

Objective:

Understand how animals inspire medical tools.

Instructions:

Observe the animal specimens using the Micro-Eye. Look closely at the parts.

Discussion:

What tools do the body parts remind you of? Can you think of a helpful tool you could invent that looks and/or works like one of the animal body parts?

Standard:

LS1.A – Structure and Function.

Reef Aquarium

Activity 4: Life in the Reef

Objective:

Observe and understand the behaviors and adaptations of living things in an ocean ecosystem.

Instructions:

Head into the Life Sciences Classroom and observe the reef aquarium. Read about the fish and invertebrates that live in the aquarium.

Discussion:

What behaviors do you notice in these animals? What adaptations do these animals have for their natural environments? How do these adaptations help them survive?

Standard:

LS1.A – Structure and Function; LS1.C – Organization for Matter and Energy Flow in Organisms.

Chicken Coop

Activity 1: Chicken Chat

Objective:
Make observations about animals and their behaviors

Instructions:
Say hello to the chickens. Observe their behaviors. Show us your best chicken imitation.

Discussion:
What do chickens need to live and grow? What behaviors did you notice? How do you think those behaviors help them to survive?

Standard:
LS1.C – Organization for Matter and Energy Flow in Organisms.

Greenhouse Area

Activity 2: Exploring Plant Life Cycles

Objective:
Identify stages of a plant's life cycle from seed to maturity.

Instructions:
Observe various plants grown in the greenhouse area.

Discussion:
What do plants need to grow? How do plants change as they grow?

Standard:
LS2.A – Interdependent Relationships in Ecosystems.

Pavilion – "From Harvest to Home" Wall

Activity 3: Being Corny

Objective:
Learn how agricultural products go from farm to table.

Instructions:
In small groups use the machines to "make" a corn product.

Discussion:
How many steps were involved in making the product you chose? Did any of the steps surprise you? Do any of these products seem harder to make than others?

Standard:
ETS1.A – Defining and Delimiting an Engineering Problem.

Outside – Composting Area

Activity 4: Human Impact on the Environment

Objective:
Understand the benefits of composting for soil and the environment.

Instructions:
Visit the composting area and learn about the process.

Discussion:
How does composting help reduce waste? What can we compost at home?

Standard:
ESS3.C – Human Impacts on Earth Systems.

Outside – Combine

Activity 5: Explore the Combine

Objective:
Learn about farming technology.

Instructions:
Walk around the combine. Go up into the control center. Read the sign to learn how a combine is an example of helpful agricultural technology.

Discussion:
What does a combine do? What other tools or machines can help farmers? Name one plant that is harvested by a combine and is used to make bread?

Standard:
ETS1.A – Defining and Delimiting Engineering Problems.

Outside – GROW Garden Grounds (Seasonal)

Activity 6: Learn With Your Senses

Objective:
"Look" at plants in multiple ways. Make connections between the features of the plants and their purpose.

Instructions:
Walk around areas that surround the pavilion. The greenhouse also has plants year-round. As you walk, make observations about three plants, such as: What shapes and colors do you see? How do the leaves or flowers smell? What do the leaves, stems, and flower petals feel like?

Discussion:
Why do you think the plants look/feel/smell the way they do? Which plants did you like the best?

Standard:
LS1.A – Structure and Function; LS1.C – Organization for Matter and Energy Flow in Organisms.


James S. McDonnell Planetarium

Structures


Makerspace

SECOND FLOOR

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

MAKERSPACE

Wind Tunnels

Activity 1: Parachute Practice

Objective:

Experiment with the parachute materials to engineer a parachute that will successfully fly or hover.

Instructions:

Use the three pieces of the parachutes (bases, connectors, and fabric) to create and test a parachute design. Make observations about their designs and how well each design works.

Discussion:

How many attempts did it take to successfully design a parachute that would float? Why do you think successful designs worked?

Standard:

ETS1.A – Defining Engineering Problems; PS2.A – Forces and Motion.

Riga-Ma-Jig Exhibit™

Activity 2: Build a Structure

Objective:

Develop engineering and creativity by building a unique structure.

Instructions:

In small groups pick five **wooden** pieces, spend five minutes making something with these pieces. At the end of the five minutes compare your structure with that of another group.

Discussion:

How did your team work together to build a structure? What is unique about your creation?

Standard:

ETS1.B – Developing Possible Solutions.

Two-Person Pinball Exhibit

Activity 3: Teamwork and Forces

Objective:

Understand the concepts of force and motion through a collaborative game.

Instructions:

Pair up and play the pinball game together. Discuss and plan a strategy to score points.

Discussion:

How did you use force to control the ball's direction? What strategies worked best for scoring?

Standard:

PS2.A – Forces and Motion.

Keva Planks

Activity 1:Tallest tower

Objective:

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

Instructions:

Divide into small groups around the tables in the gallery. Have each group count out 30 Keva planks. Challenge the groups to make the tallest, free-standing tower they can within three 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.

Keva Planks

Activity 2: Building Challenges

Objective:

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

Instructions:

Divide into small groups around the tables in the gallery. Pose any of the following challenges to the groups.

- **Build a Tower:** Can you stack the planks to make the tallest tower without it falling over?
- **Create a Bridge:** Build a bridge that goes across the table.
- **Build a House:** Use your planks to build a house with walls and a roof. How many rooms can you make inside?
- **Design a Playground:** Build a playground with slides, swings, or anything you see at a real playground.
- **Build a Boat:** Make a boat shape with your planks. Can it float in your imagination?
- **Make a Fence:** Use the planks to build a fence around an area on the floor. What could be inside your fence?
- **Create a Castle:** Build a castle with towers and walls. Can you add a drawbridge?
- **Build a Shape:** Can you use your planks to create a square, rectangle, or triangle? How about a star?

Discussion:

What was challenging about this activity? How did you plan your work? How did you cooperate with others?

Standard:

ETS1.A – Defining and Delimiting Engineering Problems.

STRUCTURES

Arch Building Exhibit

Activity 1: Build Your Own Arch

Objective:
Understand the stability and strength of arches through hands-on construction.

Instructions:
Use the blue blocks to build the small arch. With help, try to build the bigger arch.

Discussion:
What challenges did you face while constructing the arches? What solutions did you come up with for this challenge. Which arch was easier to put together? What would happen if one of the pieces were removed?

Standard:
ETS1.A – Defining and Delimiting Engineering Problems.

Bridges Exhibit

Activity 2: Bridge Challenge

Objective:
Explore different types of bridges and their design principles.

Instructions:
In groups, examine the different models of bridges (suspension, beam, truss) and attempt to build a bridge using the materials provided in the exhibit.

Discussion:
Which bridge was the easiest and most challenging to design? Which type of bridge holds the most weight?

Standard:
PS1.A – Structure and Properties of Matter; ETS1.A – Defining and Delimiting Engineering Problems; ETS1.B – Developing Possible Solutions; ETS1.C – Optimizing the Design Solution.

JAMES S. MCDONNELL PLANETARIUM

Mission Mars

Activity 1: Red (Planet) Rover

Objective:

Compare the form and functions of the different Mars Rover models on display.

Instructions:

Look at the rover models on display, read the placards about the rovers and make observations about the rovers, such as size, shape, how they move, types of tools, etc.

Discussion:

If you were to design a rover, what would it do on Mars? What would it look like? What aspects of these rovers would you include on your rover?

Standard:

ETS1.B – Developing Possible Solutions.

Gemini and Mercury Capsules

Activity 2: Blasting Off

Objective:

Discover how the Mercury and Gemini capsules were engineered and how the astronauts trained.

Instructions:

Examine the two different space capsules as well as the training suit. Think about the size and shape of the capsules, as well as how the astronauts would have moved and functioned while inside.

Discussion:

What kind of challenges did the engineers face when designing Gemini and Mercury? What challenges do you think the astronauts faced while they were in the capsules? If you were going to space in Gemini or Mercury, what would you want to bring with you? What would you do while you were in space?

Standard:

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