Experience Guide

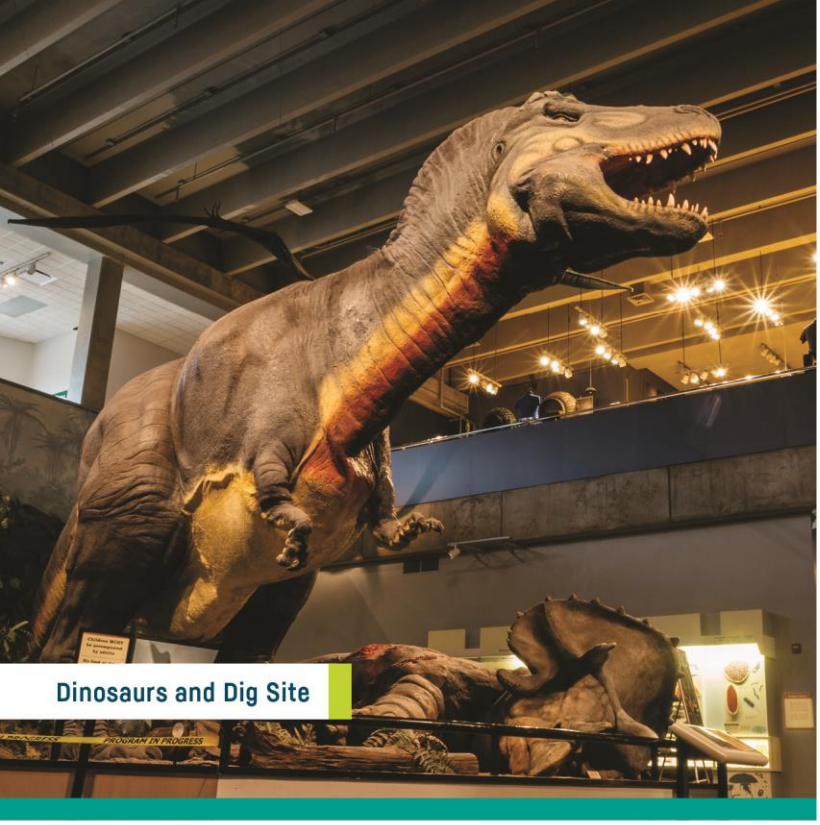
Grade: 1

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: Think and Act Like a Dinosaur

Objective:
Use observation and creative thinking to imagine how dinosaurs sounded and acted.

Instructions:
Take a group picture with the T-Rex! This model shows one possible way T-Rex and Triceratops looked and sounded. Ask your students what they think T-Rex and Triceratops looked and sounded like based on this information. Have them take a minute to act like a T-Rex, then take a minute to act like a Triceratops.

Discussion:
Do you think T-Rex had feathers all over? Some feathers? What colors do you think their skin/feathers could have been? What kind of noises did Triceratops make? Compare how you stood/moved/sounded/how fast you went when you were pretending to be these dinosaurs.

Standard:
LS1.A – Structure and Function; LS1.D – Information Processing.

Pennsylvanian Diorama

Activity 2: Deep Time Seek and Find

Objective:
Identify different plants and animals in the diorama and discuss their characteristics.

Instructions:
In groups, try to find all the plants and animals listed on the placards.

Discussion:
How do these plants and animals compare to those we have today? What are some similarities and differences?

Standard:
ESS1.C – The History of Planet Earth.

Earthquake Simulator

Activity 3: Earthquake Exploration

Objective:
Understand the causes and effects of earthquakes.

Instructions:
Read the placards and learn about earthquakes that occurred nearby. Stand on the simulator and experience different sized earthquakes.

Discussion:
What did you feel during the simulation? How do you think earthquakes may affect people and change the landscape?

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

EXPERIENCE ENERGY

See-Through Generator

Activity 1: See the Energy

Objective:
Understand the relationship between speed and energy.

Instructions:
Look at the parts of the see-through generator. Turn the crank to generate electricity.

Discussion:
What happens when you turn the crank slowly? Quickly? What happens when you stop turning the crank?

Standard:
PS2.A – Forces and Motion.

Sun, Wind, Water, and Fossil Fuel Exhibits

Activity 2: Sun, Wind, Water, and Coal. Oh my!

Objective:
Learn how energy is generated by the sun, the wind, and by fossil fuels.

Instructions:
In groups explore the energy exhibits and generate energy with wind, solar power, and coal (fossil fuels). When you get to "Powered by Coal" try to keep the lights on for one minute. Be sure to count how many pieces of coal were used!

Discussion:
What was a benefit of each of these types of energy? Can you think of a challenge of using each one of these types of energy?

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

Car Engine Exhibit

Activity 3: Engine Engineers

Objective:
Understand how energy is used to power motor vehicles.

Instructions:
In groups, the car with the components of the combustion engine, and with the components of the electric engine.

Discussion:
Compare and contrast the engine parts for each type of car. If your family has a car, does it have a combustion or electric engine.

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

GROW

Life Science Lab

GameXPloration

FIRST FLOOR

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

GAMEXPLORATION

Eight-Player Foosball

Activity 1: Foosball vs. Football

Objective:

Compare and contrast a table-top game with the game that inspired it.

Instructions:

Look at and play with the eight-player foosball table. Make observations about how the game is played and how it compares to real-life football (soccer).

Discussion:

What did you do to make the ball go a short distance? A long distance? How did you make the ball change direction? How does foosball compare to real soccer?

Standard:

PS2.A – Forces and Motion.

Interactive Gaming Stations

Activity 2: Play and Learn

Objective:

Experience hands-on learning through interactive digital games.

Instructions:

Spend time at the interactive console stations. Choose a game to play and note how it uses technology to create an interactive experience.

Discussion:

What makes this game fun for you? How does this game use light, sounds, and movement to make it fun to play? What changes, if any, would you make if you were designing a game?

Standard:

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

Historical Medicine and Nature

Activity 1: Discovering Old and New

Objective:
Learn about historical medical practices and compare them to modern techniques inspired by nature.

Instructions:
Explore the display with historical medicines, discuss how these medicines or medical practices are still relevant today.

Discussion:
How were plants used to treat illnesses in the past? Are these plants still used today? Are they used in the same way?

Standard:
LS1.A – Structure and Function.

Nature-Inspired Medical Innovations

Activity 2: Amazing Animal Abilities

Objective:
Understand how natural phenomena inspire medical innovations.

Instructions:
Explore how the axolotl salamander's ability to regenerate tissue is used in medical research. Learn about gecko feet and the development of surgical tape.

Discussion:
What special ability does the axolotl have that scientists find interesting? How have gecko feet helped doctors create new tools? Can you think of other animals that might inspire new inventions?

Standard:
LS1.B – Growth and Development of Organisms.

Live Animals

Activity 3: Aquatic Adaptations

Objective:
Observe and understand the adaptations and behaviors 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:
LS2.A – Interdependent Relationships in Ecosystems.

Chicken Coop

Activity 1: Be a Chicken

Objective:

Make observations and infer animal behaviors.

Instructions:

Walk outside to view the chickens in their enclosure. You can also go up to the window facing the chicken coop if the weather does not permit outside viewing. Observe the behaviors of the chickens, be sure to also listen to the sounds they make. After making some observations, spend a minute making your best chicken impression!

Discussion:

Why do you think the chickens are doing the behaviors you observed? What do you think the chickens are "saying" to each other and to you?

Standard:

LS1.A – Structure and Function; LS1.D – Information Processing.

Pavilion – "From Harvest to Home" Wall

Activity 2: 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.

Pavilion – Grow Tent

Activity 3: What's Growing on?

Objective:

Make observations and compare how plants are grown at home with how plants are grown in the grow tent.

Instructions:

Observe the different plants that are currently being cultivated in the grow tent, as well as the tools (lights, hoses, etc.) that are being used to grow the plants.

Discussion:

What do the plants need to grow and survive? Do you recognize any fruits and vegetables? How might these plants be grown differently if you were to grow them at home (for example, would you grow them inside or outside? Would you grow them in the ground or in a pot?).

Standard:

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

Pavilion – Bee Exhibit

Activity 4: Buzzing Bees

Objective:
Listen to how bees sound when they are in a hive, make connections between bees and the food we eat.

Instructions:
In small groups take turns listening to the bees in the hive.

Discussion:
What do the bees sound like to you? What information do you think they are communicating to each other? Try to think of five different fruit or vegetable plants that are pollinated by bees.

Standard:
LS1.D – Information Processing; LS2.A – Interdependent Relationships in Ecosystems.

Pavilion – Soil Wall

Activity 5: Soils of America

Objective:
Make observations and connections between soils and climate.

Instructions:
In groups, look at the wall of soils in the back of the Pavilion, there are soil samples from every state. Make observations (such as color and texture) about soils from two states you have been to, or two states you want to go to.

Discussion:
Think about the type of climate in the states you picked. Is it hot or cold? Dry or rainy? How do the soils from states with very different climates compare?

Standard:
ESS3.A – Natural Resources.

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 is open 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; LS3.B – Variation of Traits.

Outside – Combine

Activity 7: "Com-bining" Together

Objective:

Learn about farming technology and take a group picture.

Instructions:

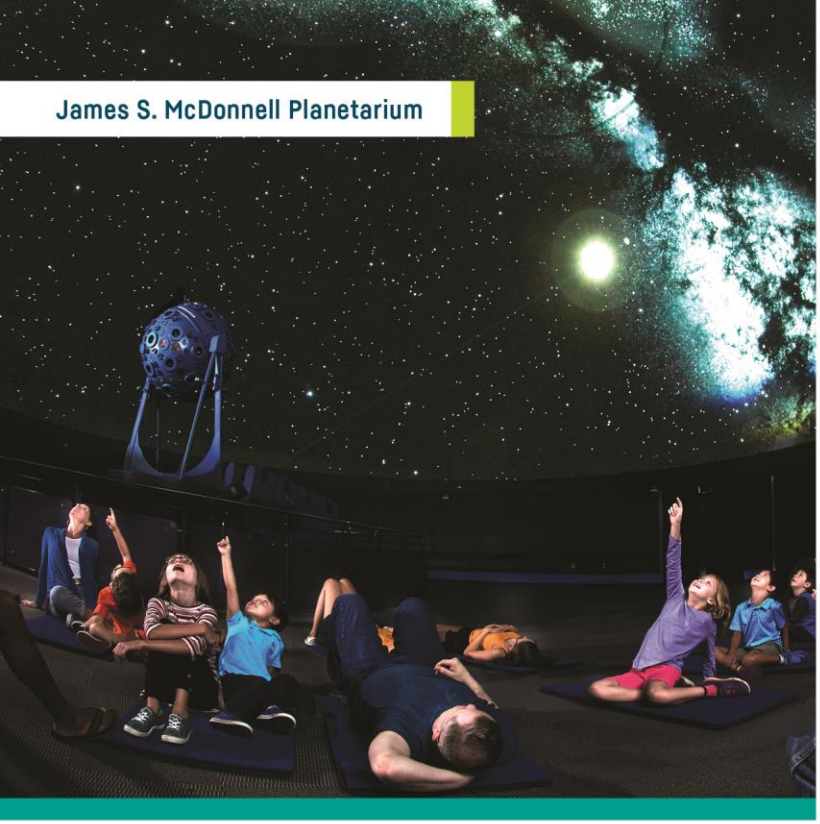
Take a walk in the outdoor area (weather permitting). Read the information about the Combine and take a group picture.

Discussion:

What are the three functions of a Combine? Can you think of other types of tools or machines that have multiple uses?

Standard:

ETS1.C – Optimizing the Design Solution.



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:

Show students the three pieces of the parachutes (bases, connectors, and fabric), as they create and test their parachute designs ask them to 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? That would hover? Why do you think the 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:

Compare the pieces you made with the pieces the other group used. Did you have similar ideas or different ideas in how the pieces could be used?

Standard:

ETS1.B – Developing Possible Solutions.

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; ETS1.B – Developing Possible Solutions; ETS1.C – Optimizing the Design Solution.

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 construct the small arch. With help, make the larger 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 or 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.