



GOT SCIENCE? GUIDE

Grades 6-8

Science is everywhere—but not always obvious. Enjoy these scientific discoveries in your Science City adventure.

Please note: Exhibits are sometimes removed temporarily for repair or refurbishment, or may be in use by other groups, so be prepared to be flexible.

Teachers: *Standards for KS and Strands for MO listed on these pages next to the exhibits are intended for guides to understanding or reinforcing concepts addressed by these suggested standards. Follow-up in your classroom about the students' experiences will further enhance the hands-on learning experienced at Science City.*

****The following exhibits are listed in alphabetical order. This is not a recommended flow for exploring the science center. Reference a science center map for assistance.***



GIANT LEVER

NGSS: MS-ETS1, MS-PS2

MO Strands: 2.2 (5th & 7th), 7.1

CCS ELA Connections: CCSS.ELA-LITERACY.W.6.4, 7.4, 8.4

GUIDE

Before performing a tug-of-war, observe the difference in point of attachment for each rope on the Giant Lever. *NOTE: One rope is attached two feet above the fulcrum, the other is attached six feet above the fulcrum—or the point at which the lever pivots.*

Activity: Divide your group into two teams of two or more people.

- Try a tug-of-war. Which team won? (The team with rope positioned high on the lever, or low on the lever?)
- Switch sides, keeping the same teams. Did the same team win or not?
- How would you explain these results?



MISTER E. HOTEL

MO Science Strand: 7

CCS ELA Connections: CCSS.ELA-LITERACY.W.6.4, 7.4, 8.4

GUIDE

FACT

There is an optical illusion (a trick on your brain) in every room.

Explore carefully so you don't miss the mysteries.

Disappearing Diner: Go into the diner with a partner. One of you should stand behind the diner table.

- What has happened to the lower half of his/her body?
- How does this illusion work?
- Would this illusion work if the panels below the counter were made of shiny steel or a dull material? Why or why not?

Safe Storage: Locate the hidden safe. Try to touch the jewel in the safe.

- Can you explain what you are seeing?

Haunted Washroom: Enter the washroom located behind the black drape.

- Who seems to disappear more in the mirror, a person wearing light clothing or a person wearing dark clothing?
- Why do you think that is?

Warper Room: Find the room with the black and white rotating disk (warper). Stare at the warper for a full 20 seconds, and then look at your hand or an object.

- Describe what is happening to the image at which you are looking?
- How do you think the warper works?
- Does your theory match the explanation on the sign found next to the Vision Warper?



NATURE CENTER

NGSS: MS-ETS1, MS-LS2

MO Science Strands: 3.1, 4.1

CCS ELA Connections: CCSS.ELA-LITERACY.W.6.4, 7.4, 8.4

THINK! Tapping on the glass or cages frightens the animals. Please be kind to our animals and use quiet voices. Ask a Science City staff member for more information about the animals.

GUIDE

Ask one of our educators to show you our Crested Gecko, Leonard and tell you how he is helping the medical field create instruments for surgery.

- How does the gecko hang onto smooth surfaces?
- Why is it important for us to look to nature to help solve some of our human problems?

Our reptiles need a heat lamp over his habitat. The rabbits do not require this device.

- Can you explain why?
- What other differences do you see between the reptiles and the rabbits?

NATURE CENTER *(continued)*

Nature Center-Classification: Observe these animals; then place them in the correct category below.

- Spiny-tailed lizard
- Bearded dragon lizard
- Leopard frog
- Tree frog
- Salamander
- Box turtle

Amphibian

Amphibians have moist, glandular skins.
Their toes lack claws.

Reptile

Reptiles are covered with scales, shields or plates.
Their toes have claws.



SCIENCE ON A SPHERE *(Teacher guidance recommended)*

Various standards depending on content

GUIDE

Visit the kiosk inside the Science on a Sphere exhibit area. There are a variety of choices that address various Kansas and Missouri education standards. Select a dataset that best fits the grade level curriculum for your group. Take a seat and observe the many facets demonstrated with this technology.

- What dataset did you watch?
- Record one interesting thing that you learned.
- What other topic would you like to learn about at Science on a Sphere at another visit?

SKY BIKE

NGSS: MS-ETS1, MS-PS2, MS-PS3

MO Science Strands: 2.2, 7.1, 8.1

CCS ELA Connections: CCSS.ELA-LITERACY.W.6.4, 7.4, 8.4

GUIDE

Read the posted information near the entrance to the Sky Bike.

Observe others riding the Sky Bike. Then try it yourself (if you wish).

- Which is heavier, the counterweight (the bricks) or the rider?
- How do the bricks keep the rider from tipping over?
- Does the rider need to balance himself like on a regular bike? Why or why not?



- Describe what would happen if the rider were heavier than the counterweight of the bike. Why would this happen?
- Name three simple machines that allow a bicycle to work:
- Name three ideas of physics that allow a bicycle to work.
- Which law of physics do you NOT have to worry about while riding the Sky Bike?