



# Teacher's Guide

by

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# The Gateway Arch

*The Gateway Arch is the tallest national monument in the United States. It symbolizes our country's development of the West.*

*The Gateway Arch is a catenary curve. A free-hanging chain takes this shape when held at both ends. Use a gold chain necklace to demonstrate this to students.*

*Visit the Gateway Arch at [www.gatewayarch.com/main.html](http://www.gatewayarch.com/main.html) and enjoy the text link - Fun and Games to learn interesting facts about the Arch.*

## **Classroom Activity**

Try this activity to add variety in the classroom while reading factual information about the Gateway Arch.

Divide the students into two groups. Group one forms an arch shape. Give each student forming the arch an informational strip - see below. The second group forms a line and travels the arch reading each informational strip. After group two has traveled the arch, they trade places with group one. Group one now forms a line to travel the arch.

## **Informational Stripes**

**The Gateway Arch symbolizes our country's development of the West.**

**The total building cost of the Gateway Arch was 13 million dollars.**

**The Gateway Arch is 630 feet tall.**

**The distance from leg to leg at ground level of the Arch is also 630 feet.**

You can see the Mississippi River looking out the east windows of the Arch.

The Arch is 63 stories tall.

The viewing area at the top can hold up to 160 people.

There are 16 windows on each side of the viewing area.

The Missouri River flows into the Mississippi about 15 miles to the north of the Arch.

The construction of the Arch began February 12, 1963.

The Gateway Arch was completed on October 28, 1968.

Special trams take you to the top of the Gateway Arch.

The trams have 8 cars and each car holds 5 people.

Each year, over one million visitors tour the Gateway Arch.

# Show Me Water Conservation

Review pages B (Big Spring) and R (Rivers)  
of S is for Show Me.

## Classroom Activity

- Place students into groups. Instruct them to make a list of the ways we use water. (*Examples: Drinking, eating, laundry, dishes, toilet, bath, shower, lawn, garden, swimming pool, water parks, etc.*) Have one group report their answers while the remaining groups check off responses that are the same on their lists. Allow remaining groups to share additional ideas.
- Discuss ways to conserve water, then give your class the following true - false quiz on water conservation. Students respond by thumb up/thumb down.  
(Thumb up - True                  Thumb down - False)
- Complete the pledge card.

## Water Saving Tips - True/False Quiz

1. Adjust sprinklers to water the lawn and not the pavement. (True)
2. Only put in half a load of a laundry. (False)
3. Leave the water running while brushing your teeth. (False)
4. Don't fill the bathtub completely full. (True)
5. Leave the hose running when washing the car. (False)
6. Turn off a dripping faucet. (True)
7. Take long showers. (False)
8. Use an automatic dishwasher instead of washing dishes by hand. (False)

<i>I pledge to conserve water by</i>	
_____	
_____	
-----	-----
Signature	Date

# Questioning the Teacher !

## Classroom Activity

Place students into five groups. Assign each group a section of *S is for Show Me*. Instruct students to review their assigned section and write questions for the **teacher** to answer. Inform students to write an answer guide for their questions.

After an appropriate amount of work time, instruct each group to choose one question to ask the teacher. If time allows, continue to let students ask questions for the teacher.

<b>Selection Suggestion</b>	<b><u>Group</u></b>	<b><u>Letters</u></b>
	1	A, B, C, D, E
	2	F, G, H, I, J
	3	K, L, M, N, O
	4	P, Q, R, S, T
	5	U, V, W, X, Y
	ALL GROUPS	Z

## Extension Activities

- *Have each group trade their list of questions for the other group to answer. Trade answer guides to check answers.*
- *Reassign groups to a different section of the book and repeat the activity.*
- *Share with students the "hidden math" behind the activity. 26 letters divided by 5 groups of students, each group responsible for the remainder.  $26 \div 5 = 5$  remainder 1. Challenge students to determine ways to distribute the 26 letters if the class were to be divided into groups of 2, 3, 4, or 6. Were you able to divide the groups evenly within your class? Discuss other possible ways to distribute the letters among the groups. For example, each group could be responsible for all the vowels and 2 consonants of their choice.*

# Exploring the Unknown

Show me an **E** and we will go exploring! Try this activity to sharpen your students' writing skills.

## Classroom Activity

Label brown paper lunch bags with the following labels: Character Names, Setting, and Problem. Copy the following word cards for each bag. Make enough copies so that each student is able to draw a card from each bag. (Each bag will have duplications of the same cards).

Read page E of *S is for Show Me*. Discuss with students the excitement and danger faced by early explorers. Allow each student to draw a card from each bag and use the suggestions on the cards as they write a story about an explorer (maybe themselves) exploring the unknown. Allow students to trade cards or make cards of their own!

## Word Cards for Character Names

Joliet	Marquette	La Salle
Lewis	Clark	Pierre Laclede
Auguste Chouteau	Sacajawea	President Thomas Jefferson

Word Cards for Setting

Hot summer afternoon on the banks of the Mississippi	Windy day in a canoe 10 miles from the Pacific Ocean	Early morning at sunrise at camp.
Mid-morning, before lunch in St. Louis	Rainy day in a canoe on the Mississippi	Night time on the banks of the Mississippi
In a cabin along the Mississippi River	Stormy night at camp near St. Louis	Sunset - in a canoe on the Mississippi River

Word Cards for Story Problem

The main character in the story has twisted his/her ankle.	There is the possibility that a bear is following the main character.	The main character is not feeling well - has a slight fever.
The food supply is running low.	A stranger wants to join the main character.	The main character is tired and homesick.
The main character's canoe has been damaged.	The main character has several painful and itchy bug bites.	The main character has lost his/her compass.

# Fiddling Around

*The fiddle is Missouri's state musical instrument. It is played by sliding a bow across four strings. You can also play a fiddle by plucking its strings. Try this activity to discover the sounds made by vibration.*

## **Classroom Activity**

### **Materials**

Shoebox  
Scissors  
Rubber bands of various thickness/sizes  
Tape

### **Directions**

1. Cut several rubber bands into two strands.
2. Tape 5 or 6 strands of rubber bands of various thickness/sizes across the top of the shoebox.
3. Pluck the rubber band "strings" and listen to the sound made the vibration.

Notice that the thicker rubber bands "strings" make a deeper pitch because they vibrate slower. The thinner rubber bands "strings" vibrate faster and make a higher pitch.

# MISSOUR-EE or MISSOUR-UH

*There are two ways to pronounce Missouri - Missouri-EE or Missouri-UH. Try this activity to increase students' dictionary skills.*

## **Classroom Activity**

Provide students with dictionaries and locate the pronunciation key. Use the pronunciation key to figure out the list of Missouri words below. Write the word next to the "sound picture" pronunciation spelling.

1. **mūl** \_\_\_\_\_

2. **shō mē** \_\_\_\_\_

3. **blak wôl / nut** \_\_\_\_\_

4. **ō / zārks** \_\_\_\_\_

*Look up the following words and write the "sound picture" pronunciation.*

1. **dogwood** \_\_\_\_\_

2. **civil war** \_\_\_\_\_

3. **bluebird** \_\_\_\_\_

4. **arch** \_\_\_\_\_

# Be Bee Be Bee Be Bee

Missouri's state insect is the honeybee. Read the information about bees on page H of *S is for Show Me*. Look closely and you will find these passages are filled with homophones - words having the same pronunciation as another word but a different meaning and spelling, such as be and bee.

## Classroom Activity

Search for the homophones on page H of *S is for Show Me*. [bee (be), by (buy), cell (sell), one (won), will (wheel), do (dew), see (sea), where (wear), flower, (flour)]

Instruct students to complete the following sentences by circling the correct homonym for each sentence.

List additional homonyms and challenge students to write a sentence using a homonym pair in the sentence.

*Examples: Will you fix the broken wheel?*

*I can see the sea through my binoculars.*

*That bee will be back!*

*They parked their car over there.*

*She was feeling week last week.*

1. Each (be) (bee) in the hive has a specific job.
2. Not only (do) (dew) bees make honey, but they also pollinate plants.
3. There is (won) (one) queen bee that lays all the eggs.
4. The bee landed on the (flower) (flour).
5. Worker bees tell other bees (where) (wear) to find flowers (buy) (by) doing a special dance.

# **You Scream - I Scream**

## **We all Scream for Ice Cream**

*Ice cream - what a tasty treat. The first ice cream cone was invented at the St. Louis World's Fair in 1904. Let your students make a delicious cone and ice cream treat!*

### **Rice Cereal Cone**

Gather the following: Box of rice cereal, marshmallows, butter, muffin pan, cooking spray, favorite flavor of ice cream.

#### Directions

1. Prepare a batch of rice cereal bars as shown on the cereal box.
2. Coat a muffin pan with cooking spray and press mixture into muffin-pan cups.
3. Allow mixture to cool and remove from pan.
4. Fill your rice cereal cone with your favorite ice cream!

### **Shake It to Make It Ice Cream**

Gather the following: Sugar, half-and-half cream, vanilla, rock salt, ice, 1 pint-sized zipped sealed bag, 1 gallon-sized plastic zipped sealed bag

#### Directions

1. Pour 2 Tbs sugar, 1 cup half-and-half cream, and  $\frac{1}{2}$  tsp vanilla into pint-sized bag and seal.
2. Fill the gallon-sized bag half full with ice. Add 6 tbs of rock salt.
3. Place the pint-sized bag with the mixture into the gallon-sized bag with ice and rock salt.
4. Shake the bag for 8 minutes. Take the pint-sized bag out of the gallon-sized bag and enjoy your ice cream!

# Missouri's State Symbols and Facts

Copy the following pages for students to use to make a booklet on Missouri's state symbols and facts. Use *S is for Show Me* as a reference as students draw pictures for each page of their booklet.

Discuss the cover of *S is for Show Me*. Point out to students the state symbols - the mule, the honeybee, the Eastern bluebird, and the hawthorn blossoms. Encourage students to design their covers with their favorite Missouri's state symbols and facts.

Follow the table of contents and instruct students to label each page. (Each student will need 6 copies each of the blank page sheet) After students have completed each page, cut out the pages and staple along the section marked *staple area* - the gray area section.

*(Tip: If you wish to conceal the staples, glue a thin strip of colored construction paper over the staple area on the cover page.)*

## **Suggested Websites for students to visit**

- Learn more about Missouri's state capital Jefferson City, by viewing [www.jcchamber.org](http://www.jcchamber.org)
- Additional sites to gain information regarding Missouri include:  
[www.mostatefair.com](http://www.mostatefair.com)  
[www.mostateparks.com](http://www.mostateparks.com)  
[www.conservation.state.mo.us](http://www.conservation.state.mo.us)
- The site Color Landform Atlas of the US provides a color shaded relief map and satellite image of Missouri.  
<http://fermi.jhuapl.edu/states/states.html>

# Missouri's State Symbols and Facts

## Table of Contents

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State Tree - Dogwood	2
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## ***Classroom Excavation Site***

Excavate "fossil" puzzle pieces in your own classroom excavation site. Review page K of *S is for Show Me* and discuss the skeletal remains of the mastodons that were found at or near the Kimmswick Bone Beds.

### **Classroom Activity**

#### Materials

- Puzzle (consider using a dinosaur or other prehistoric animal puzzle)
- Cardboard box
- Spoons (for shovels)
- Paint brushes
- Soil
- Rocks

#### Directions

1. Divide students into groups and prepare "dig sites" by filling boxes with soil. Add five puzzle pieces and a few rocks within the layers of soil.
2. Trade "dig sites" boxes so each group is working on a different box than the one they prepared.
3. Dig and brush carefully to find and remove the "fossil" puzzle pieces.
4. After pieces have been excavated, put the puzzle together.

### **Tasty Dig!**

*Consider using crushed Oreo cookies in chocolate pudding with gummy or candy dinosaurs layered in the yummy mixture for a tasty dig for younger students.*

# Mining in Missouri

Mining is an important part of Missouri's economy. Try this anticipation guide - pre-reading activity - to increase students' knowledge of Missouri's minerals.

## Classroom Activity

Instruct students to match the following common use of Missouri's minerals with the listed mineral. Inform students that you are not grading them, so encourage them to make an "educated guess". Stress that you realize they may not have the answers - and that's o.k., because shortly they will read information that will help them complete the matching activity correctly.

After students have matched the common use with the mineral, instruct students to read *What Mining Means to Missouri*. This passage is found on [www.momic.com](http://www.momic.com)

After students read the passage, allow them to change their matching answers. Discuss answers and the passage.



[www.momic.com](http://www.momic.com) is the site for the Mining Industry Council of Missouri created by Net Engineers. They will provide a **Mineral Education Kit!** The kit contains mineral samples, a "What's A Mine?" coloring book as well as supplemental classroom activities on mining. For additional information visit [www.momic.com](http://www.momic.com) or contact the Mining Industry Council by e-mail at [info@momic.com](mailto:info@momic.com)

### Mineral

1. graphite
2. fire clay
3. iron oxide
4. copper
5. silver solution
6. cement
7. coal

### Common Use

- a. space rocket launch pads
- b. concrete
- c. pencil
- d. developing film
- e. water pipes
- f. electricity
- g. making steel used in cars, planes, & bridges

Answers 1.c 2.a 3.g 4.e 5.d 6.b 7.f

# Show Me Three In A Row

Learning can be fun! Play *Show Me Three In A Row* and students will enjoy working on their reading skills!

## **Classroom Activity - Show Me Three In A Row**

### Directions

1. Read *S is for Show Me*.
2. Make a copy of the following game board on the chalkboard or chart paper and place students into teams.
3. Call on each team, using the *Show Me Some ABC Questions About Missouri* or questions from the *Questioning the Teacher* activity. Ask each question in order. (The numbers on the game board do not correlate with the number of the question.)
4. Before the question is read, each team decides which number to select from the game board. If the team correctly answers the question they are awarded the square. (Each team uses a different color chalk or marker to cross out their square.)
5. If the team answers incorrectly, there is no penalty and the square remains open.
6. The first team to get three squares in a row is the winner. The squares can be adjacent, horizontal, vertical or diagonal.

*Show Me Three In A Row*

9	16	4	30	13
3	27	8	17	21
2	10	19	5	29
14	28	9	7	15
1	31	24	6	11

# Unscramble the Facts

Instruct your students to skim and search through *S is for Show Me* to unscramble the facts in each sentence.

1. The [erhqakatues] \_\_\_\_\_ that occurred in 1811 caused the Mississippi River to change its course.
2. The Santa Fe Trail route was first traveled starting at [nklnFrail] \_\_\_\_\_.
3. Missouri became the twenty-fourth state on [ustAgu] \_\_\_\_\_ 10, 1821.
4. Missouri's state capital is [eferonJfs yCti] \_\_\_\_\_.
5. Mules pulled wagons of [feghrit] \_\_\_\_\_.
6. The [zrkOas] \_\_\_\_\_ cover most of southern Missouri.
7. Harry S. Truman was born in Lamar but lived most of his life in [Idpedeenennnc] \_\_\_\_\_.
8. Mark [waTin] \_\_\_\_\_ was a famous author from Missouri.
9. George Washington Carver was a brilliant [sintsceit] \_\_\_\_\_.
10. Kansas City, Missouri has over 200 [funaisotn] \_\_\_\_\_.

## Answers

1. Earthquake
2. Franklin
3. August
4. Jefferson City
5. Freight
6. Ozarks
7. Independence
8. Twain
9. Scientist
10. Fountains

# WANTED PONY EXPRESS RIDER

The Pony Express lasted only 19 months, but is an important and interesting fact of our history. Read page X of *S is for Show Me* to learn more information about the Pony Express.

## Classroom Activity

### Wanted - Pony Express Riders

- Review the information on page X of *S is for Show Me*.
- Let students decide if they would like to write a want ad for a Pony Express Rider or a letter seeking the job of the Pony Express Rider. Use the following questions to help students decide what information is needed in the want ads or letters.

What skills did the Pony Express Rider need to have?

How long were the breaks at the relay station?

Would you put that information in the ad?

What type of saddlebag was used?

Did the riders have to ride in bad weather?

Did the Pony Express Riders have to watch out for robbers?

How many miles did the riders ride each day?

Did they have to cross deserts, rivers and mountains?