

Teaching Guide for *Tales of Marvelous Missouri*

The Language Arts and Newspaper Connections sections of this guide are divided into chapters, as the words and questions are specific to a chapter. Activities in the other disciplines may be used at any time during the story's run.

Language Arts

Chapter One – Leaving the Lemonade Line

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Iconic

Breather

Queue

Reading Comprehension:

Describe in your own words the weather that Molly was experiencing in Silver Dollar City.

What sentence gave you the clue to answer this question?

Discussion Question:

What do you think the author meant when she wrote that Molly had a history of sometimes going a bit too far?

Writing Activity:

The first paragraph tells us that Molly was dizzy from the roller coaster. Rewrite that sentence with a different description of how she was feeling.

Newspaper Connections:

Use the weather map in the newspaper to locate Silver Dollar City, and then estimate the travel time from your home to the theme park.

Chapter Two – A Marvel(ous) Story

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Tourist

Deposits

Spelunkers

Reading Comprehension:

What were the three names the cave had been known by as listed in this chapter?

Discussion Question:

Do you think that you'd be able to climb down into a cave while dangling from ropes?

Writing Activity:

The author did not spend time describing a cave full of bat guano. Write a short paragraph describing all of the things an explorer would see and experience in such a setting.

Newspaper Connections:

Look through your local newspaper for images and stories about caves. Are there caves in your area? Are these open to the public or on private property?

Chapter Three – Tourists for All the Marbles

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Fertilizer

Dairyman

Sightseers

Reading Comprehension:

How much marble was found in the cave?

Discussion Question:

Why do you think people found a cave in Missouri interesting enough to decide to build a tourist attraction on the site?

Writing Activity:

Write an advertisement for a cave that would encourage tourists to visit.

Newspaper Connections:

Look at the comics in your local newspaper. Create a comic with copy and art about visiting a cave.

Chapter Four – From Cave to Coasters?

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Lease

Mimic

Pioneer

Reading Comprehension:

Why was building a railway in the cave a success?

Discussion Questions:

Do you think a theme park like Mary built in 1960 would be successful today? Why or why not?

Writing Activity:

Write a paragraph describing what you think a place called Homestead Ridge would look like.

Newspaper Connections:

Look through the newspaper for stories about historic homes or log cabins in your area. What is the oldest residence you find mentioned?

Chapter Five – In the Log Cabin

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Antique

Sprawled

Diary

Reading Comprehension:

What was the first thing Molly noticed in the cabin that was very different from life today?

Discussion Question:

Molly is curious about what the pioneers who lived in the cabin did for fun. Thinking about stories you've read and heard, what do you think people in the late 19th and early 20th century did for fun?

Writing Activity:

The cabin belonged to a family named Mannon, who moved to the Ozarks in 1916. Write a paragraph about how it would feel to move to such a remote place.

Newspaper Connections:

Look in your local newspaper for ads of items that seem essential for life in the 21st century as well as items that would have been needed in the early 1900's.

Chapter Six – A Day with Birdle

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Remarkable

Spring

Canning

Reading Comprehension:

Birdle lived in the cabin until she was how old?

Discussion Question:

Do you think Birdle's day sounds fun? She has many chores. What kind of chores do you have?

Writing Activity:

Birdle's father writes poetry after the chores are done. Write a poem about a normal day in Birdle's and your life. Was your poem about chores, friends, or family?

Newspaper Connections:

Many newspapers have articles about the history of the area. Look through your local newspaper to see what life was like in your area a hundred or so years ago.

Chapter Seven – Long Ago & Not So Far Away

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Fetching

Eked

Barter

Reading Comprehension:

How did the cities of St. Louis, Kansas City, Springfield, and Jefferson City begin?

Discussion Question:

This chapter explains how towns and cities develop. How did you picture that happening? Do your thoughts on the subject match the explanation?

Writing Activity:

Even today people need to work to survive. They must make enough money to pay for housing and food. Write a diary entry about how you and your family work to have the necessities of life.

Newspaper Connections:

Missouri's bicentennial will be in 2021. Many newspapers will soon begin having stories about how people in their area lived in the early years of the state. Start noting the differences and similarities among the stories that you find.

Chapter Eight – Missouri Then & Now

Vocabulary: Use context clues or a dictionary to find the meaning of these words:

Quizzically

Unimaginable

Catapulted

Reading Comprehension:

Molly decided to end their day at the park where the park had its start. Where was that?

Discussion Question:

Many structures are torn down when their usefulness is gone. The Mannon cabin remained, although it was moved. Do you think there is value to communities in preserving old structures or should they be removed to allow for progress?

Writing Activity:

Molly was interested in learning about the cave, enjoyed the roller coasters and loved the log cabin. Write descriptive diary entries for each of these.

Newspaper Connections:

Use the facts in all of the chapters to write a newspaper-style story, with a strong lead sentence and include the 5 Ws and 1 H; who, what, where, when, why and how.

STEAM – Science Technology Engineering Arts Mathematics

Learning Objectives: Students will

1. perform math functions
2. create a budget
3. use spreadsheet application

4. perform research
5. engage in critical and creative thinking and problem solving
6. explore essential physics terms such as potential and kinetic energy, friction, inertia, mass, gravity, and momentum
7. explore Newton's Three Laws of Motion
8. describe the characteristics of limestone rock
9. explain how limestone rock forms
10. experiment with the effects of acids on a carbonate rock such as limestone
11. understand how caves and caverns are formed

Activity One – Travel Math

Materials Needed: Internet access, writing utensils and paper, and spreadsheet application

Directions:

Silver Dollar City is located near Branson, Mo., a town packed with lodging, restaurants, shopping, shows, and lake activities. Travelers can choose between hotels, motels, cabins or camping, fine dining, or family friendly restaurants. The choices are vast for tourists. Divide your class into groups, and have your students research and design a four-day vacation to the area for a family of four with two adults and two children. They should find lodging, three meals, and at least two activities per day, as well as budget for souvenir shopping. Let them assume that they will be driving to the area from their hometown, and so should also include an estimate of gas expenditures. To ensure that a variety of all options are covered, each budget should include at least one low budget day, such as camping or cabins for lodging and making meals rather than going to restaurants; one high-end budget day, and one day in the middle. The fourth day can be at whatever budget level the group chooses.

This is an example spreadsheet.

	Day One	Day Two	Day Three	Day Four	Trip Cost
Travel					
Gas					
Lodging					

Name of lodging					
Meals for family of 4					
Name of restaurant - Breakfast					
Name of restaurant - Lunch					
Name of restaurant - Dinner					
Activities					
Name of activity					
Name of activity					
Souvenir Shopping					
Location of purchases					
Total					

Activity Two – Roller Coaster Challenge

Materials Needed: paper or journal, writing utensils, graph paper, 2-meter long foam tube cut in half lengthwise, 1/2" pipe insulation works well for this project, one cut tube provides the track material for two groups, marbles, masking tape, glue, long, and thin pieces of wood to support the structure

Vocabulary/Definitions

Acceleration: the rate of change of velocity of an object with respect to time

Critical velocity: the speed a falling object reaches when both gravity and air resistance are equalized on the object

Force: any push or pull that causes an object to move, stop, or change speed or direction

Friction: the force caused by rubbing between two objects

Gravitational force or g-force: the force of attraction between all masses in the universe; especially the attraction of the earth's mass for bodies near its surface

Gravity: the force that draws any two objects toward one another

Kinetic energy: the energy of an object in motion, which is directly related to its velocity and its mass

Potential energy: the energy stored by an object ready to be used

Speed: how fast an object moves and is equal to the distance that object travels divided by the time it takes

Velocity: a combination of speed and the direction in which an object travels

Directions:

Molly loves the roller coasters at Silver Dollar City. Gravity is the force that drives roller coasters, with constant play between potential and kinetic energy, as well as friction and acceleration. In this activity your students will design their own roller coaster and build a model to demonstrate their knowledge of these physics concepts. Working individually or in teams, have the students draw their roller coaster on graph paper. Using that as their design template, they should construct their roller coaster with the provided materials. Throughout the process, have them journal the challenges and accomplishments they make. Design, construction, and testing should take several hours. Once the roller coasters are complete, each should be demonstrated, and the runs of the marbles timed. Students should evaluate each roller coaster for originality of design, safety, and especially performance, either in their journals or in class. Finish the activity with them journaling what they learned and what they might do differently in future designs.

Extension Activity

Have them choose their favorite class roller coaster (it might be their own), name it, and create a logo and promotional materials.

Activity Three – Limestone Acid Test

Materials Needed: Internet access, writing utensils and paper, access to room-temperature water, safety goggles for each student, white vinegar, three rock samples for each group or student with one being limestone, enough jars or beakers for each set of rocks, enough droppers for each student or group, and paper towels for clean up

Directions:

Marvel Cave is technically a cavern. A cave is a large enough cavity in the ground that a portion of it will never receive direct sunlight. A cavern is naturally formed in soluble rock with the ability to grow speleothems. Most caverns in Missouri are formed from the dissolution of limestone, which is a carbonate sedimentary rock that is often composed of the skeletal fragments of marine organisms such

as seashells and coral. Seashells are composed of calcium carbonate, which is a chemical compound with the formula CaCO_3 . As sea organisms die, a sedimentary layer is built up on the ocean floor. Over the course of hundreds of thousands of years, the layer is compacted and becomes rock.

Caves and caverns occur in limestone because it is soluble by acidic solutions. Place the three rock samples in jars or beakers and provide a set to each group or student so they may test the solubility of the rocks to determine which is limestone. They should use the dropper to place several drops of white vinegar on each rock, one at a time so that they may record their observations. See whether each group or student noted that the limestone was the only rock to begin dissolving or bubbling. Explain that white vinegar is a mild acid and that the experiment shows how caves or caverns can be formed in limestone. It is a long process and must occur with an acid that is naturally formed in nature.

Activity Four - Sugar Cave Solubility

Materials Needed: Internet access, writing utensils and paper, access to room-temperature water, 30 or more sugar cubes per group or student, toothpicks, clear jars or tanks, spray bottles with water, and modeling clay

Directions:

This activity will give your students an example of how dissolving material can create a cave or cavern. Have the students form a cave of sugar cubes, with one side of it being along the jar or tank. Encourage them to be creative in the construction, maybe adding a few columns. The structure should be at least several inches high and wide. Tell them that the sugar cubes represent limestone and the spaces between the cubes represent the natural cracks and fissures in the limestone through which water travels. Students should cover their structures with a thin layer of modeling clay, which represents the surface dirt. They should then poke several holes through the clay into the sugar to allow water to seep through. Have each group spray a different amount of water on their caverns. Each group should record what happens, how long the process takes, and any ideas or questions they have about the process.

Follow up on their questions or ideas to assess learning.

Social Studies

Learning Objectives: Students will

1. use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective
2. analyze the spatial organization of people, places, and environments on Earth's surface
3. examine how people create regions to interpret Earth's complexity
4. identify the characteristics, distribution, and migration of human populations on Earth's surface; the processes, patterns, and functions of human settlement

5. study how human actions modify the physical environment
6. apply geography to interpret the past
7. cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text
8. integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue
9. conduct short research projects to answer a question, drawing on several sources, and refocusing the inquiry when appropriate

Activity One - Missouri Landforms

Missouri can be divided into regions, based on landforms. This story, *Tales of Marvelous Missouri*, is set in Silver Dollar City, an amusement park, near Branson in the Ozark Plateaus.

Materials Needed: Internet access, Missouri maps, such as topographical, road and landforms, research resources, different colored markers, and large posters of each region

Directions:

Have students research and identify the four main regions in Missouri. They should take note of details about each region (examples: largest town, lakes, rivers, plains, parks and elevation), learning as much as possible about each region.

Divide the class into groups, each with a different colored marker. Explain that they will record information about each region on the posters, making the entries as brief as possible. Each group will visit each poster. But the key is that only new information can be recorded in each visit. This task will become more difficult as more information is added. Groups may add a correction, if they feel previously entered information is incorrect.

Assessment may be done by reviewing the posters, noting the number of entries by each group.

Extension Activity:

Using the information they have collected during research, have the students write a newspaper style story about a region, with the 5Ws and 1H.

Activity Two: Map Study Focused on Development Potential of Sites

Materials Needed: Road, topological, flood, recent and old maps, aerial photographs of your area, maps of the various trails taken by settlers, and road and topographical maps of Nebraska, Kansas and Missouri

Directions:

Birdle Mannon's family settled in Brownbanch Mo., after traveling from their home in North Platte, Neb. Their cabin was moved to Silver Dollar City after Birdle's death.

Have your students find both towns and the amusement park on the maps.

Have your students review all map sources and answer the following questions:

What made these areas attractive for settlement? Possible answers include available water or good soil.

What features were important to the areas' development? Possible answers include access to trade routes, good farmland, or abundant game.

How has nature altered the landscape? Have your students study the maps for changes in the topography over the years. Were rivers dammed, roads cut into the hills, or other changes?

How did geographical features drive the routes taken by pioneers? Possible answers include rivers, low mountain passes, and availability of grass and water.

Extension Activity:

Have your students do a similar study of their own area and town.

Activity Three – Missouri Map Study Focused on Distances

Materials needed: Google Earth or Maps, Internet access, road maps, and historical maps

Directions:

Birdle's family took a very different route to the Ozarks than Molly's did.

Using Google Earth or Maps or maps of the states of Missouri, Nebraska and Kansas have students determine a route that Birdle's family likely took and estimate how long the journey took. Remind your students that Interstates and state highways were not built at that time. Next, they should determine the likely route of Molly's family from St. Louis to Silver Dollar City, which probably does use Interstates and state highways. They should estimate the travel time.

Now have them reverse the study by finding routes that include Interstates and state highways for the Mannon's, while not using those for Molly's family. Again, they should estimate the travel times.

Using the directions feature of Google Earth or Maps, find the distances traveled for all four trips. Students should be able to quickly determine that travel has certainly changed. Which distance is shorter? Before Interstates and highways or not? Why do students think this is so?

Activity Four: Birdle's Biography

Materials Needed: Internet access, writing utensils, and paper

Directions:

Tales of Marvelous Missouri sketches a broad view of Birdle’s character and life. She lived 90 years, though, so she has much more history to share.

Have your students research Birdle and answer the questions below. A good starting point is Missouri State’s collection of images and documents by Birdle and her father, Samuel, at <https://digitalcollections.missouristate.edu/digital/collection/Mannon>, although they should not limit themselves to this source.

Biography Questions:

In what ways was her life remarkable?

In what ways was her life admirable?

In what ways was her life not admirable?

What personality qualities or traits were most influential in shaping the way Birdle lived?

Which personality qualities or traits proved the most beneficial or most troubling?

Did Birdle make any major mistakes or bad decisions? If so, what were they, and how would you have chosen and acted differently?

What are the two or three most important lessons you or others might learn from the way she lived?

An older person or mentor is often very important in shaping the lives of people by providing guidance and encouragement. Who do you think Birdle's mentor was, and why do you think this?

What do you think it means to be a hero or a celebrity? Was Birdle either of those? Why or why not?

Extension Activity:

Using the information they have collected during research, have the students write a newspaper style story about Birdle, with the 5Ws and 1H. Or have them research a person from their area, answering the same questions, and then write a newspaper style story, with the 5Ws and 1H.

Activity Five – Spanish Explorers and Native Americans

Materials Needed: Internet access, variety of textbooks, articles, journals, and artwork about encounters between explorers and natives

Directions:

Hernando De Soto was probably the first European to see and cross the Mississippi River, near Memphis Tenn. In the past, Europeans were given credit for “discovering” a river, landmass, or other landmark. Of course, the Native Americans living in those areas were well aware of their landscapes.

Textbooks and other writings have been changing how the explorers and natives are portrayed over the past few decades. This makes for an interesting study.

Have your students search for information about Hernando De Soto and his explorations. Textbooks, websites, journals, paintings, and artwork would be good sources. Have them record information about the relationship between his troops and natives they encountered. They also need to note the date of the sources they are using so they can track any changes in how encounters are portrayed over the years. Alternately, you can collect sources for them to use.

The following questions may be used to guide their study and analysis.

When do you think this article or art was created? Did the date agree with your thought or not?

What adjectives are used to describe the Spanish Explorers and the natives? Do you see a change over the years?

How much information is given about what happens when cultures meet?

Are there descriptions of the types of peoples the expedition encountered? Were there any descriptions of their way of life, buildings, ceremonies, or what defined their communities?

What are the descriptions about their encounters? Is there any bias towards one side or another? Is it in the adjectives or the topics chosen?

After their study of the materials, have students develop a multimedia report on their discoveries, observations and thoughts to share with the class.

Extension Activity:

Your advanced students may come to realize that history is not written in stone, but interpretations can change over the years. They make this to another level by researching other types of encounters.

Thank you for using the Teaching Guide for the 2020 serial story, Tales of Marvelous Missouri. Please let your local newspaper know that you use and appreciate these stories and the guides.

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