

2018-2019

DISCOVERY

**Based on the books
written by Joanna Cole
Illustrated by Bruce Degen**

Resource Guide



VICTORIA THEATRE ASSOCIATION

**Friday, April 26, 2019
9:30 a. m. & 11:30 a.m.**



Welcome to the 2018-2019 Discovery Series in the Victoria Theatre at Victoria Theatre Association. We are very excited to be your education partner in providing professional arts experiences to you and your students!

Since 1986, students of all ages have had their imaginations sparked by adventures in the Magic School Bus. This series of books, and later a TV Series (with a new reboot on Netflix), has inspired video games, a traveling science exhibit, and even spin-off stories featuring Ms. Frizzle! Today, we are excited to feature a brand-new stage adaptation here in Dayton from acclaimed producers TheatreworksUSA. Get ready to get on the Magic School Bus!

The information and activities in this resource guide have been carefully crafted to help you and your students explore the many ways a live theatre experience can open up learning opportunities. Grade level icons will help you determine which activities are good for students, too. And don't forget to take advantage of the local resources listed inside to extend the play-going experience and make even more curricular connections for you and your students. Thank you again and welcome!

Gary Minyard
Vice President of
Education & Engagement



Curriculum Connection



You will find these icons listed in the resource guide next to the activities that indicate curricular connections. Teachers and parents are encouraged to adapt all of the activities included in an appropriate way for your students' age and abilities. . THE MAGIC SCHOOL BUS: LOST IN THE SOLAR SYSTEM fulfills the following Ohio and National Education Standards and Benchmarks for Kindergarten through fifth grade.

Ohio's Learning Standards for English Language Arts

- Kindergarten-** RL.k.2, RL.k.7, RL.k.9
- Grade 1-** RL.1.2, RL.1.6, RL.1.9
- Grade 2-** RL.2.2, RL.2.6, RL.2.9
- Grade 3-** L.3.3, RL.3.2, RL.3.6, RL.3.9
- Grade 4-** RL.4.2, RL.4.6, RL.4.9
- Grade 5-** RL.5.2, RL.5.6, RL.5.9

Ohio's Learning Standards for Math

- COUNTING AND CARDINALITY
- NUMBER AND OPERATIONS IN BASE TEN
- OPERATIONS AND ALGEBRAIC THINKING

Ohio's Learning Standards for Science

- Cycles and Patterns in the Solar System
- Earth's Surface
- The Atmosphere
- Sun, Energy and Weather

National Core Arts Theatre Standards

- Kindergarten-** TH:Cr1.1.K, TH:Cr2-K
- Grade 1-** TH:Cr1.1.1, TH:Pr4.1.1
- Grade 2-** TH:Cr1.1.2, TH:Cr2-2, TH:Pr4.1.2.
- Grade 3-** TH:Cr1.1.3, TH:Cr3.1.3., TH:Pr4.1.3
- Grade 4-** TH:Cr1.1.4., TH:Pr4.1.4.
- Grade 5-** 4. TH:Cr3.1.5, TH:Pr4.1.5

This resource guide was created by Natalie Katona. All activities are available for distribution and use in the classroom or at home.

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About the Play

ENGLISH/
LANGUAGE
ARTS

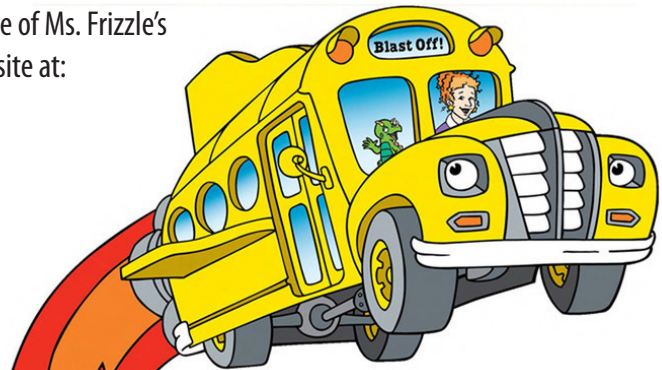


When the planetarium is closed and the field trip is ruined, Ms. Frizzle saves the day! The Magic School Bus blasts off into outer space to explore the solar system! Ms. Frizzle gets separated from the group and her class must travel through the planets and beyond to rescue her. Hop on the Magic School Bus for a ride in Theatreworks USA's new musical adaptation based on the original book series published by Scholastic.

Spotlight on *The Magic School Bus*

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The Magic School Bus began as a book series when the first edition, *The Magic School Bus at the Waterworks*, was published in 1986. The books tell the stories of Ms. Frizzle and her class as they go on field trips on their school bus that takes them to space, through the water cycle, to prehistoric times, and many other impossible adventures. The book series later became a televised cartoon in 1994. Both the book series and cartoon show used scientific facts to base these fictional field trips. They also made sure to include a page at the end of the book or an explanation at the end of the show about which parts of the show were scientific fact and which parts were fiction for entertainment purposes. In 2017, Netflix revitalized the series with a brand-new sequel, *The Magic School Bus Rides Again*, featuring Kate McKinnon as the voice of Ms. Frizzle's younger sister, Fiona Frizzle. The series has its own Scholastic website at: <https://www.scholastic.com/kids/books/the-magic-school-bus/>.



Ohio Spotlight

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THE MAGIC SCHOOL BUS: LOST IN THE SOLAR SYSTEM follows Ms. Frizzle's class as they learn about space and the different planets in the solar system. The Center of Science and Industry (COSI) offers patrons a chance to get an up-close look at the stars and planets. Their planetarium is the largest in Ohio with a 60-foot dome featuring a Digistar 5 projection system. The planetarium at COSI offers shows featuring the night sky of Ohio as well as animals from the Columbus Zoo and offers Q and A's with Dr. Paul Sutter, the chief scientist of COSI. The museum also has exhibits where patrons can ride in a space capsule, explore gravity on different planets, and drive a space rover on Mars. To learn more about the astronomical opportunities at COSI, please visit: <https://cosi.org/>.

Pre-Show Conversation Starters

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THE MAGIC SCHOOL BUS: LOST IN THE SOLAR SYSTEM takes students on a galactic adventure through our galaxy. Prepare your students for the show by discussing these questions:

- What do you already know about space?
- How is Earth different from other planets? How is it the same?
- Can you name all the planets?
- Describe one of the planets.
- Describe the sun.

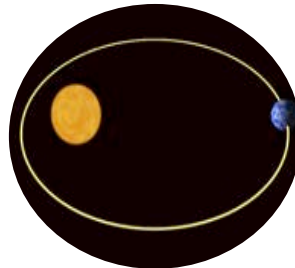
Space Exploration Vocabulary

Ms. Frizzle's class goes on a field trip to outer space! In order for you to be prepared for your adventure in the stars, familiarize yourself with these key vocabulary terms.



Gravity
The force that pulls an object towards the center of the Earth.

Orbit
The curved path a planet or asteroid travels around the sun



Planet
A celestial object moving in an elliptical orbit around a star



Solar System
The collection of the eight planets and their moons, as well as the asteroids and meteors, that revolve around the sun

Constellation
A group of stars that lay in a pattern that form a picture



Atmosphere
The different gasses that surround a planet

Asteroid
Large Chunks of rock that orbit the sun

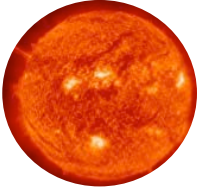
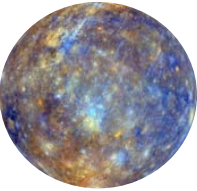
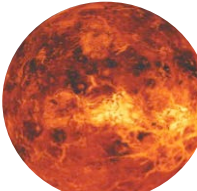






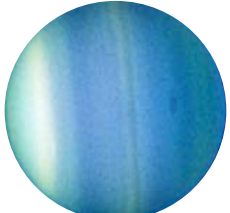

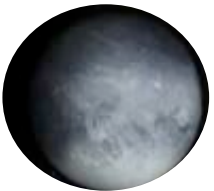
What is it Like on that Planet?

SCIENCE

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Familiarize yourself with the different parts of our Solar System so you can plan your trip!

Planet	Description
<p>Sun</p> 	<ul style="list-style-type: none"> •Center of the solar system •Large star of hot gasses •Provides heat and energy needed by the life on Earth
<p>Mercury</p> 	<ul style="list-style-type: none"> •Surface is covered by craters caused by asteroids •Closest planet to the sun •Smallest planet in solar system •Does not have an atmosphere
<p>Venus</p> 	<ul style="list-style-type: none"> •Atmosphere is hot carbon dioxide and sulfuric acid •Heaviest planet •No water on surface •Slow rotation makes one day on Venus an Earth year •Second brightest object in the sky to the Earth's moon
<p>Earth</p> 	<ul style="list-style-type: none"> •Atmosphere is made of oxygen •Only known planet with life •Only planet that has large collections of water (i.e. oceans)
<p>Mars</p> 	<ul style="list-style-type: none"> •Known as the Red Planet •Thin atmosphere of carbon dioxide •Has a surface of craters, volcanos, and dusty rock •Very cold and harsh planet
<p>Jupiter</p> 	<ul style="list-style-type: none"> •Is a Gas Giant Planet •Atmosphere is made of hydrogen and helium •Planet is made up of ammonia, water, and methane as well as the gasses in its atmosphere •Largest amount of gravity

Planet	Description
<p>Saturn</p> 	<ul style="list-style-type: none"> •Gas Giant Planet •The least dense planet in the Solar System •Made up of mostly hydrogen and helium •Rings made of ice and some rock orbit the planet
<p>Uranus</p> 	<ul style="list-style-type: none"> •Known as the ice giant planet •Tilted so it rotates around the sun on its side •Has 27 moons that orbit it •Atmosphere of hydrogen and helium with a core of ice
<p>Neptune</p> 	<ul style="list-style-type: none"> •Second largest amount of gravity •Greenish-blue in color •Atmosphere of hydrogen, helium, and water •Has white icy clouds •Slushy and icy surface
<p>Pluto</p> 	<ul style="list-style-type: none"> •Considered a dwarf planet due to its size, no longer the ninth planet •Ice ball in the Kuiper belt near Neptune •Rockier than the other gas planets



Space Adventure

SCIENCE

ENGLISH/
LANGUAGE
ARTS

GRADES
3-5

NAME: _____ Date: _____

Directions: Read through the adventure through space and using the definitions in this resource guide fill in the blanks with the appropriate space vocabulary!

It was a normal Thursday in my fourth-grade classroom. The teacher explained to us that we would be taking a trip to the local planetarium to conclude our unit on the group of planets and moons known as the _____. We got on the bus and as we drove, I felt myself nodding off. When I felt the bus jostle harshly, I jolted awake. We were lifting off the road! The bus was beginning to leave Earth, our home _____. Before I knew it, we were surrounded by stars. I noticed the Little Dipper, a _____ where the stars form a large spoon. As I was gazing out the window, a large, rocky _____ hit the bus and we flew sideways. We had to make a crash landing on Mars. Mars does not have oxygen in it's _____, so we were very lucky to have space suits stored in the bus. We put on our space gear and left the bus to explore. As we walked along the dusty, red surface we felt lighter. Mars is further from the sun than Earth. We walked almost as if we were floating because there wasn't as much _____ on this planet. As my teacher worked on trying to fix the bus, we watched as comets streaked the starry sky. When it was time to go back, we made a circular _____ around Jupiter and Saturn so we could say we visited more planets on our accidental field trip.

Suddenly, a friend hit my shoulder and I jumped awake. We had arrived at the planetarium as planned. During my nap, I must have dreamt up our space adventure. I laughed to myself and followed my classmates off the bus, ready to learn some space facts.



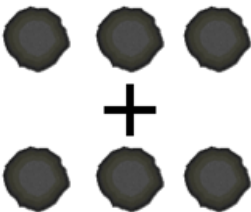
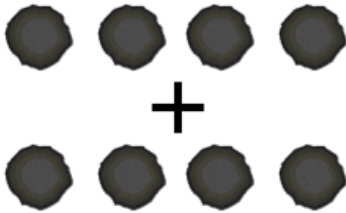
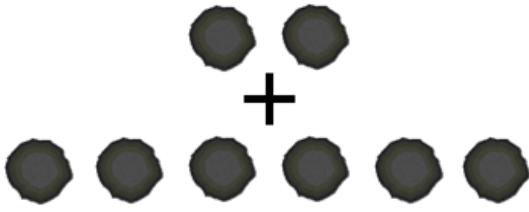
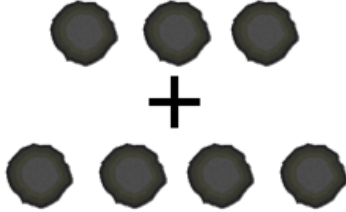
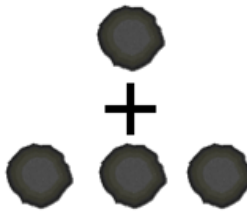
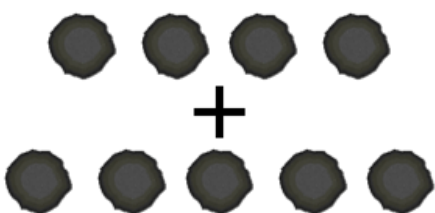
LOST IN THE SOLAR SYSTEM

Asteroid Belt Addition



NAME: _____ Date: _____

Directions: Study the pictures in the first column. In the second column, write the math problem the picture represents.

Problem Picture	Equation
	
	
	
	
	
	

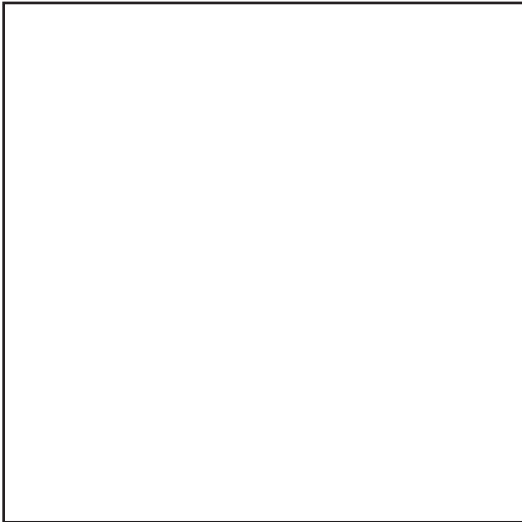
News Article: Class Lost In Space



NAME: _____ **Date:** _____

Directions: You are a reporter for the local news program and today your breaking news is that an elementary classroom has taken a trip to outer space! On the title line, come up with an attention-grabbing title for your newspaper article. Then, write a description of the class's adventure through space as if you interviewed the teachers or students once they were back. In the blank square, draw an illustration of what the class went through.

(Title Line)



Create A Planet

SCIENCE

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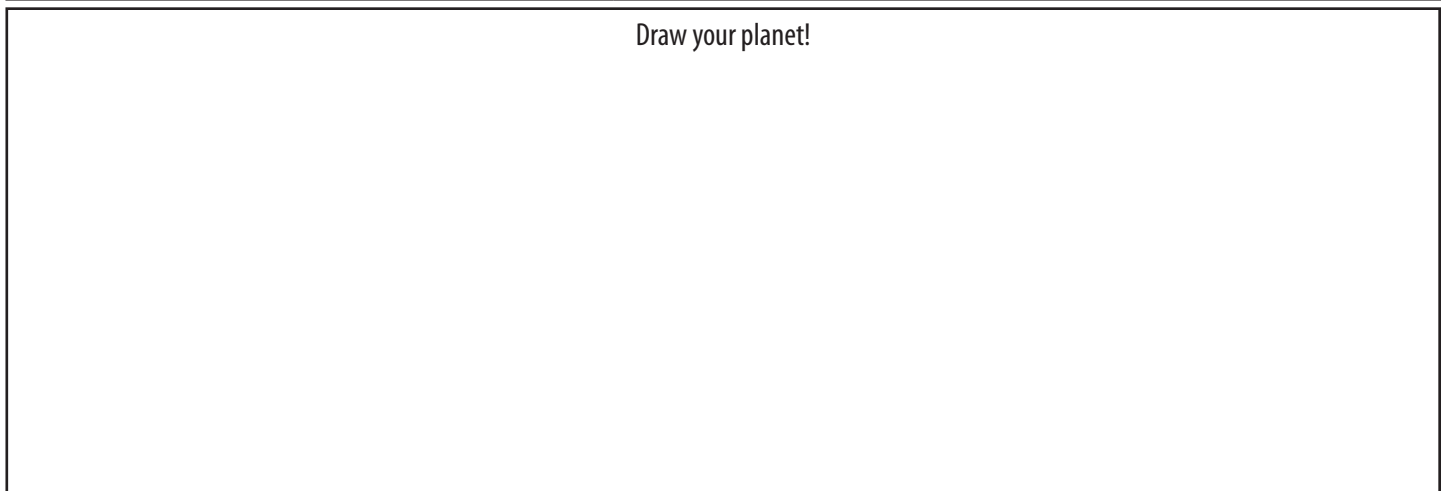
ALL
GRADES

NAME: _____ **Date:** _____

Directions: Using the vocabulary and planet features you learned from THE MAGIC SCHOOL BUS: LOST IN THE SOLAR SYSTEM, create your own planet. First, fill in the chart with the descriptions prompted in the first column.

Question	Your written description
What is the surface of your planet like?	
What is the atmosphere of your planet made of?	
What are the temperatures like on your planet?	
Is there life on your planet? What kind?	
What is gravity like on your planet?	

Draw your planet!



Your Own Solar System



NAME: _____ **Date:** _____

Students can create their own orbiting Solar System!

Materials:

- 1 print out of planets for each student
- One piece of yellow and black construction paper for each student
- 1 paper fastener for each student
- Glue
- Scissors
- Crayons, colored pencils, markers

Steps:

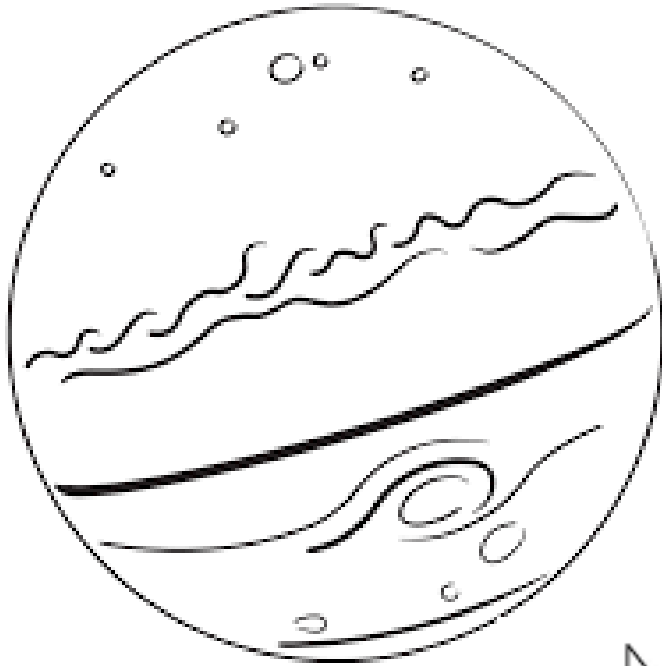
- 1) Cut a large circle out of the black construction paper, it must be large enough to fit the sun and all of the planets.
- 2) Cut a smaller circle out of the yellow paper for the sun, help students insert their paper fastener into the center of their yellow sun and fasten the sun to the middle of the black paper.
- 3) Have students color and cut out their planets from the print out.
 - a. Extension for older students: Have students free draw their planets
- 4) Glue the planets in the order they orbit around the sun.
- 5) To make the planets orbit, hold onto the sun and move the black paper around the sun.

Finished Project

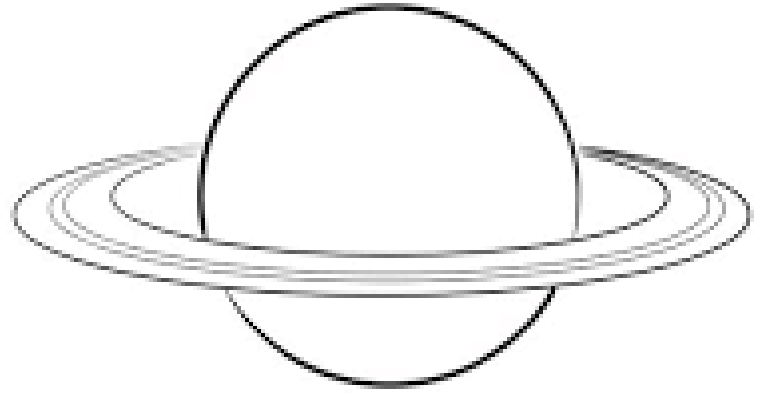


(planet images on next page)

Jupiter



Saturn



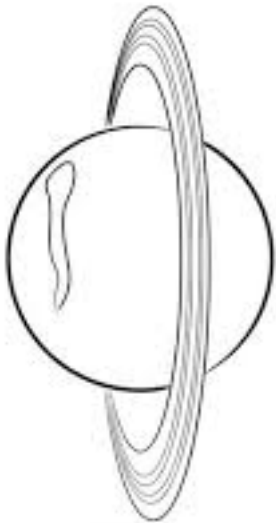
Neptune



Earth



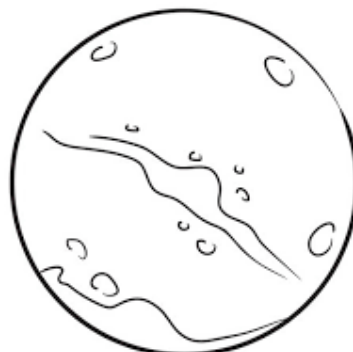
Uranus



Venus



Mars



Mercury



Your Own Solar System

SCIENCE

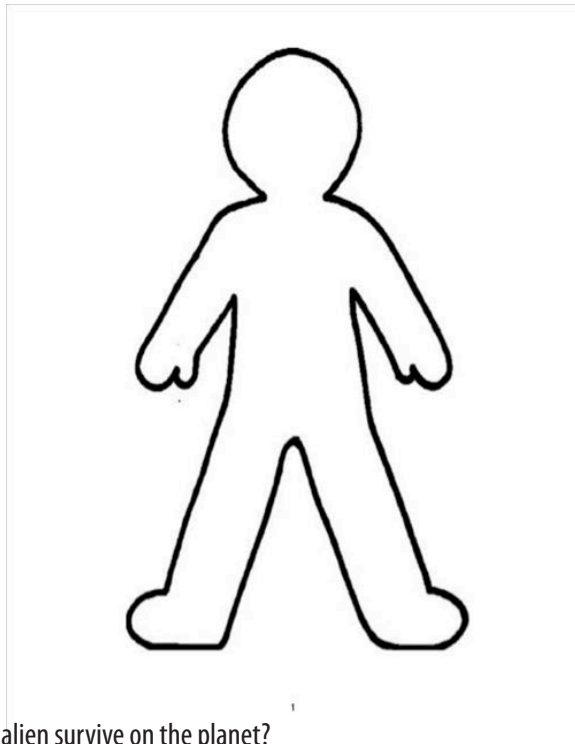
ENGLISH/
LANGUAGE
ARTS

GRADES

NAME: _____ **Date:** _____

Directions: Choose one of the seven planets that there is no found life on and design a life form that could survive its conditions. After designing your own extraterrestrial, write a description of the features your alien must have to be able to survive the planet you chose. You may change and add anything to the template to create your alien.

My alien is a citizen of:



Written Description: How does your alien survive on the planet?

Resources for Students and Adults

Books for Students about Space

The Magic School Bus Lost in the Solar System, Written by Joanna Cole and Bruce Degen. Scholastic Press, 1992.

Child's Introduction to the Night Sky: The Story of the Stars, Planets, and Constellations— And How You Can Find Them in the Sky (Children's Introduction Series), Written by Michael Driscoll and Meredith Hamilton. Black Dog & Leventhal, 2004.

Space! (*Knowledge Encyclopedias*), Written by DK. DK Children, 2015.

There's No Place Like Space: All About Our Solar System (Cat in the Hat Learning Library), Written by Tish Rabe and Illustrated by Aristides Ruiz. Random House Books for Young Readers, 1999.

Publications for Teachers and Parents:

National Geographic Readers: Planets, Written by Elizabeth Carney. National Geographic Children's Books, 2012.

You are the First Kid on Mars, Written by Patrick O'Brien. G.P. Putnam's Sons Books for Young Readers, 2009.

Welcome to Mars: Making a Home on the Red Planet (Science & Nature), Written by Buzz Aldrin and Marianne Dyson. National Geographic Children's Books, 2015.

Websites:

<http://successfulstemeducation.org/>- A website focused on successful practices for STEM schools and highlights events and resources for STEM education.

<https://www.weareteachers.com/best-space-books-for-kids/>- A list of children's books about astronomy and space along with descriptions of each book.

<https://www.nasa.gov/offices/education/about/index.html>- NASA's education site with resources for students and educators.

<https://www.spacefoundation.org/>- Website for the Space Foundation and their programming and professional development.

Victoria Fuse's Local Resource

Boonshoft Museum of Discovery is home to one of Ohio's observatories. The observatory is ran by Miami Valley Astronomical Society and is home to a 50cm telescope. The museum also built a Digistar Planetarium. The museum uses the observatory to provide educational classes on the night sky as well as give viewings of educational videos with topics such as space, the Seven Wonders of the World, and dinosaurs. Near the observatory is the Junior Observatory and Training Station. At this location, the museum offers the public to use telescopes to observe the night sky. To learn more about the observatory and planetarium, please visit:



<https://www.boonshoftmuseum.org/experience-more/departments/astronomy/.exhibits/discovery-zoo/>.

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THEATREWORKS USA (Producer) Theatreworks USA is America's largest and most prolific professional not-for-profit theatre for young and family audiences. Since 1961, Theatreworks USA has enlightened, entertained, and instructed over 90 million people in 49 states and Canada, now performing for about three million people annually. Every year, the company tours approximately 16 shows from its ever-growing repertoire of 133 plays and musicals. In addition, Theatreworks USA also has an extensive multi-cultural guest artist roster, including storytellers, puppeteers, poets, and magicians. Under the direction of Barbara Pasternack (Artistic Director) and Ken Arthur (Managing Director), Theatreworks USA is also one of the most honored theatres of its kind. It is the only children's theatre to receive both a Drama Desk and a Lucille Lortel Award. In addition, Theatreworks USA was the recipient of a 2001 Jonathan Larson Performing Arts Foundation Award, and in May 2000, The Actors Fund of America bestowed its Medal of Honor upon its founders, Jay Harnick and Charles Hull.

For more information, visit <http://www.theatreworks.org/>.

DON'T FORGET

All schools that receive scholarships for a show and/or transportation are asked and encouraged to create thank-you letters or cards for our sponsors. Please address your students' thank-you notes to:

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