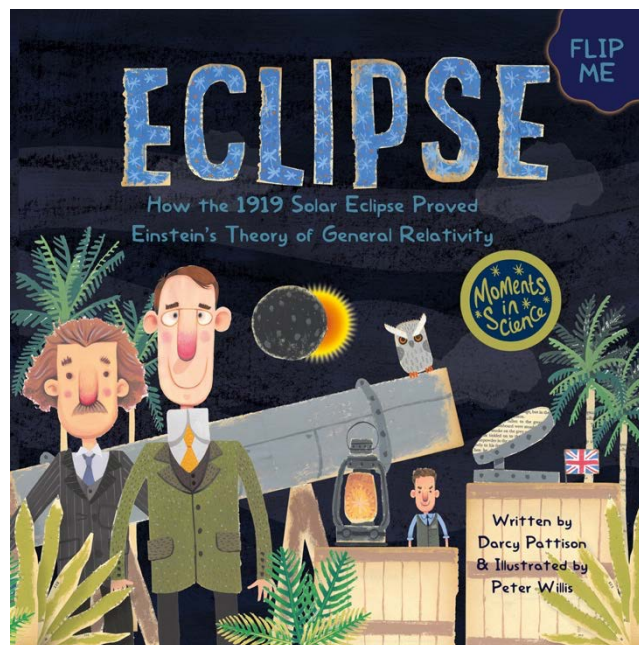


SOLAR ECLIPSE LESSON PLANS WORKSHEETS

BY DARCY PATTISON
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MimsHouseBooks.com

SOLAR ECLIPSE MODEL

Creating a model is one way that scientists understand information and data. Visualizing the information this way helps strengthen understanding.

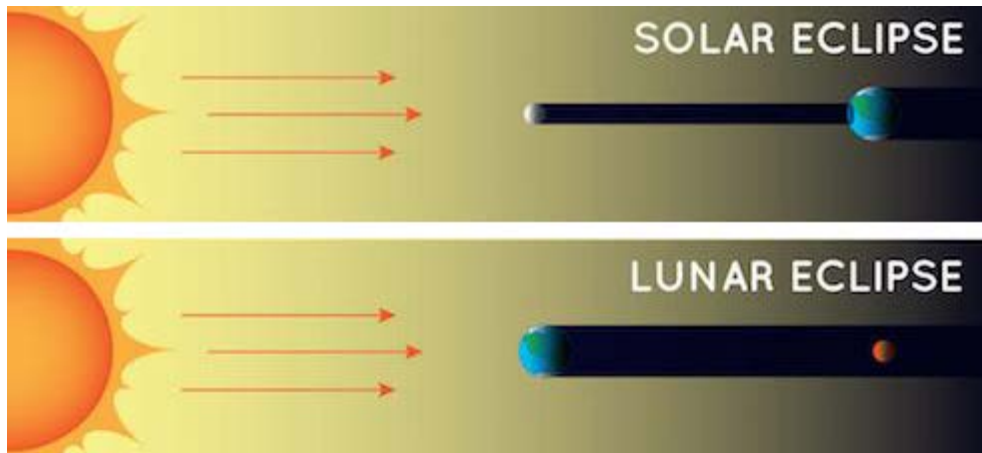
Supplies

Globe or model of the Earth, or medium size ball, e.g. a basketball

Large ball or cardboard cutout for the sun, e.g., an exercise ball

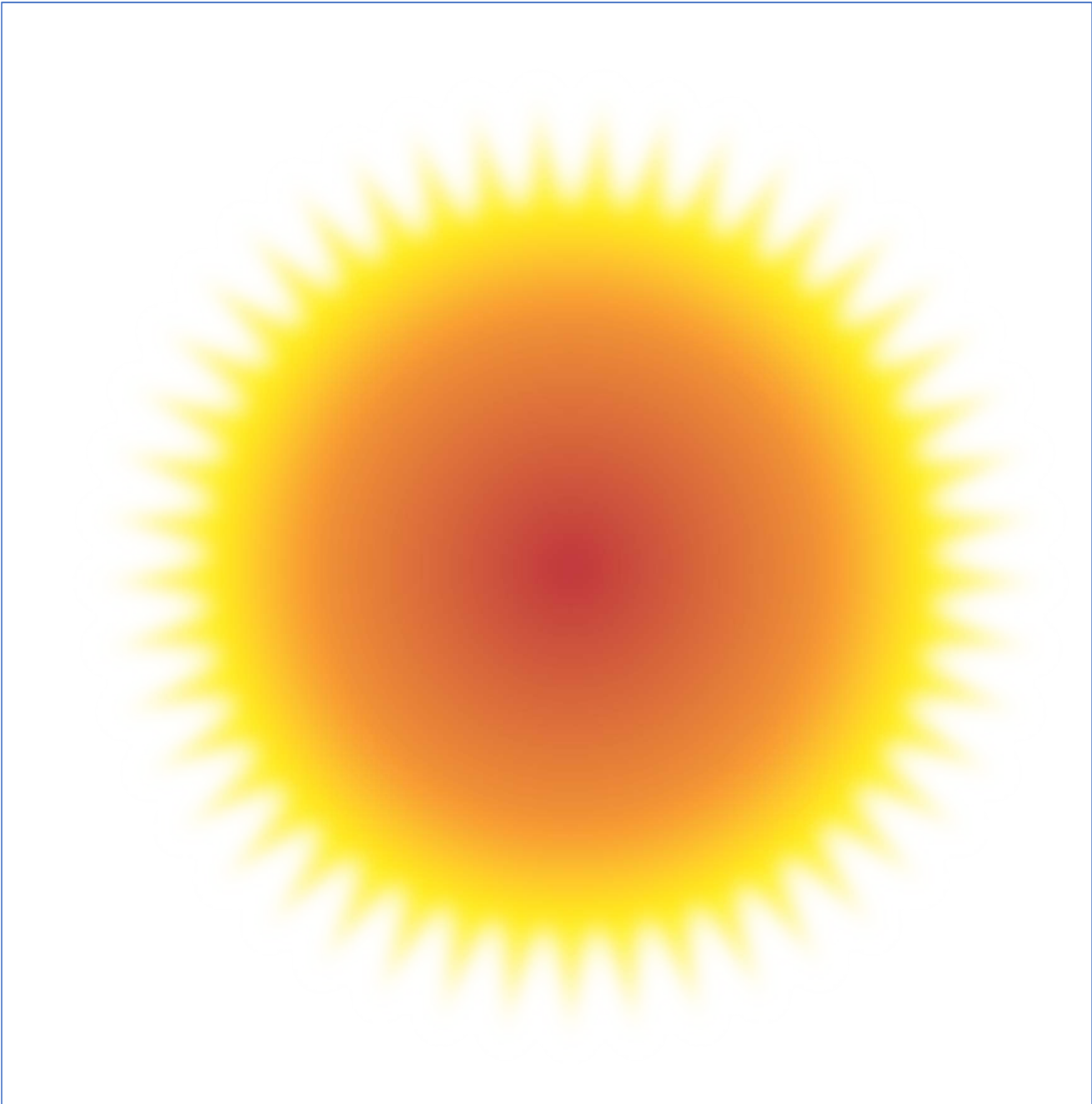
Small ball for the moon, e.g. tennis ball or Styrofoam ball.

Light source (e.g., lamp or flashlight)



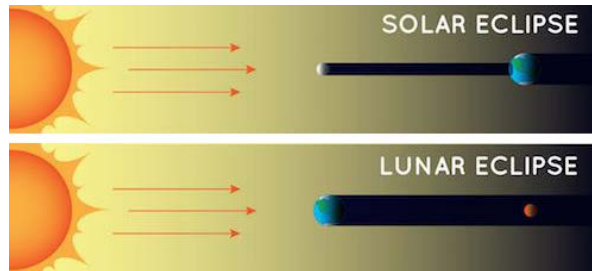
PROCEDURE

1. Begin by reviewing the positions of the Earth, moon, and sun.
2. Using three large (sun), medium (Earth) and small (Moon) balls, demonstrate how a solar eclipse occurs when the moon passes between the Earth and the sun, blocking the sunlight.
3. ALTERNATE: Use a flashlight or lamp to represent the sun. Try to position the Earth and moon balls so the moon's shadow falls on Earth.
4. Discuss the different phases of a solar eclipse (partial eclipse, total eclipse).
6. Ask students to describe what they observe during the demonstration.



SCALE: Sun – 8", Earth – 0.75", Moon – 0.25" ||| Place sun 9 inches from Earth. Place the moon 1/8" (0.125") from Earth.

Cut out the sun, earth and moon. Glue onto paper to create a diagram of a solar eclipse.
OPTIONAL: Create a diagram of a lunar eclipse.



My NASA Data - Mini Lesson/Activity

What is a Solar Eclipse?



Student Directions

Remember to never look directly at the Sun without proper safety equipment.

NASA views phenomena from many different perspectives in order to understand them. View and compare these two perspectives of a total solar eclipse in 2017. What do scientists learn from each perspective?

Materials:

Use one of the following options for answering questions.

- [1. What is a Solar Eclipse? Google Form](#)
- [2. What is a Solar Eclipse? Google Doc](#)
- [3. What is a Solar Eclipse? PDF](#)

Steps:

Solar Eclipse Animation | Video Length 0:30 | <https://www.youtube.com/watch?v=woqqRtDQJbo> |
Credit: NASA's Goddard Space Flight Center Conceptual Image Lab

1. View an animation of a total solar eclipse. Animations are used to help explain phenomena that are hard to view. A total solar eclipse is visible only on a small portion of Earth, so this type of animation can make this phenomenon accessible to people who are unable to view a total solar eclipse in their location. Answer the following questions about the animation.
 1. What objects are in the animation?
 2. Estimate the size and distance of those objects.
 3. Describe the motion of those objects.
 4. Where is the observation being made from?
2. View imagery of the 2017 total solar eclipse captured from space by NASA's Earth Polychromatic Imaging Camera (EPIC) onboard NOAA's Deep Space Climate Observatory (DSCOVR). Answer the following questions about the imagery.

NASA's Epic View of 2017 Eclipse Across America Video Length 0:28 (There is no sound.) | <https://www.youtube.com/watch?v=pm7tfLvHmXA>Credit: NASA EPIC Team Video credit: NASA's Goddard Space Flight Center/Katy Mersmann

1. What objects are in the video?
 2. Estimate the size and distance of those objects.
 3. Describe the motion of those objects.
 4. Where is the observation being made from?
3. Using what you learned from the two perspectives presented by the animation and the imagery?
 1. How would you describe a solar eclipse?
 2. What is your evidence for your explanation?



This product is supported by the NASA Heliophysics Education Activation Team (NASA HEAT), part of NASA's Science Activation portfolio.

Sources:

1. Feimer, W. (2016, March 3). CILab: Solar Eclipse Animation. Retrieved January 29, 2023, from <https://svs.gsfc.nasa.gov/20233>
2. *NASA's EPIC View of 2017 Eclipse Across America*. (2017, August 22). YouTube. Retrieved January 29, 2023, from <https://www.youtube.com/watch?v=pm7tfLvHmXA>

Teachers, these mini lessons/student activities are perfect "warm up" tasks that can be used as a hook, bell ringer, exit slip, etc. They take less than a class period to complete. Learn more on the "[My NASA Data What are Mini Lessons?](#)" page.

Teachers who are interested in receiving the answer key, please complete the [Teacher Key Request and Verification Form](#). We verify that requestors are teachers prior to sending access to the answer keys as we've had many students try to pass as teachers to gain access.

My NASA Data - Lesson Plans

Solar Eclipse Safety Activity



Overview

This hands-on activity is the construction of an extended coverage area of eclipse glasses to provide extra protection for safely viewing a solar eclipse. This makes it harder to look outside the lenses on the eclipse glasses.

Learning Objectives

- Identify and practice safe methods for viewing the Sun
- Make a plan for safely viewing the upcoming 2023 and 2024 solar eclipses

Why Does NASA Study This Phenomenon?

"Studying the innermost part of the corona – visible only during total solar eclipses – is key to answering fundamental questions about how heat and energy are transferred from the Sun out into the solar wind, the constant stream of particles that the Sun spews into the solar system. The solar wind can impact humans and technology at Earth, so understanding how it becomes accelerated at the Sun can help predict its impacts at home."

Learn more at [NASA Eclipse Science](#).

Source:

NASA Research | Science. (n.d.). NASA Solar System Exploration. Retrieved February 26, 2023, from <https://solarsystem.nasa.gov/eclipses/science/nasa-research/>

Essential Questions

How do we safely observe a solar eclipse?

Materials Required

Materials:

- ISO Approved Solar Eclipse viewing glasses (ISO requirements: 12312-2)
- Paper Plates (medium, or large)
- Scissors
- Clear Tape
- Pencil, Pen, or Marker

Procedure

Remember to never look directly at the Sun without proper safety equipment.

Teacher Preparation:

Teachers can prepare the plates for students or have students make them. ***It is essential that they are checked to make sure there are not gaps that sunlight can get through.*** The cardboard from the eclipse glasses should completely cover the cut outs in the plates.

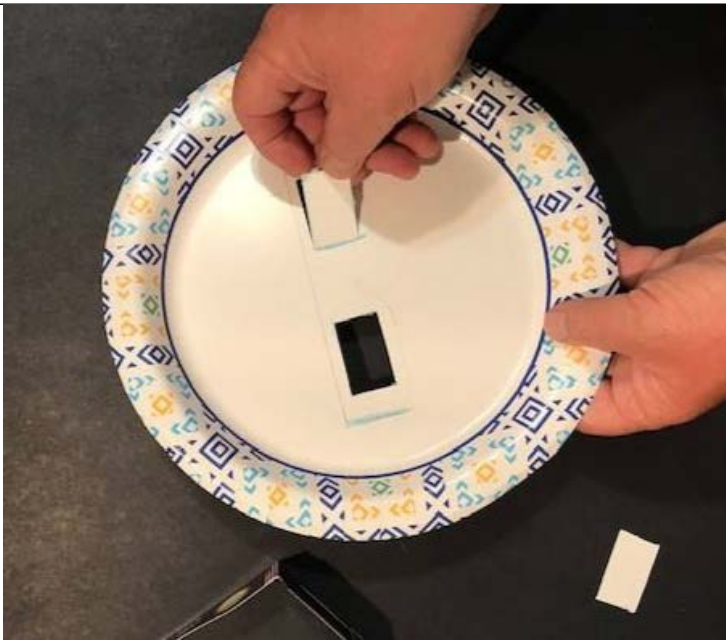
1. Inspect the ISO approved solar eclipse viewing glasses to ensure that the lenses are not scratched or damaged.
2. Select a paper plate size that will best fit the students.
3. With the plate resting face up, place the eclipse glasses in the middle of the plate.
4. Using a marking tool, trace the outline of the eclipse glasses.



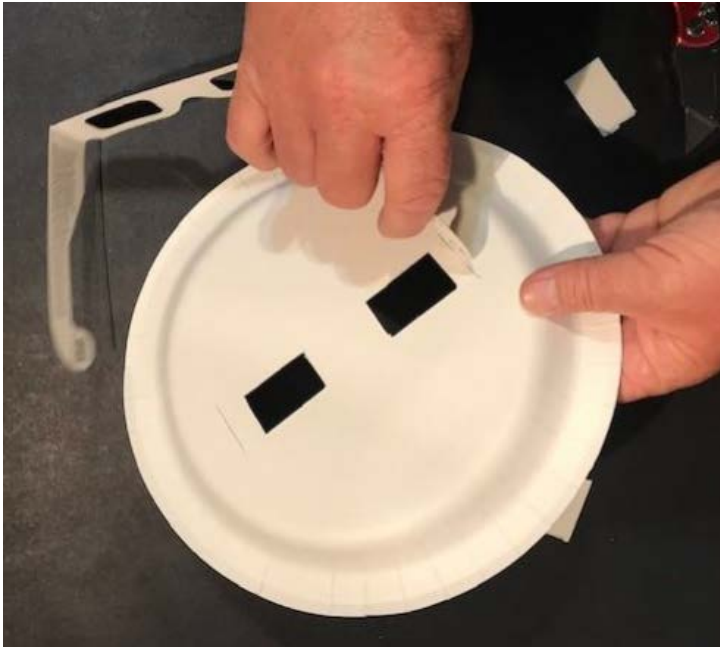
5. Mark the location of the lenses on the plate without touching the lenses on the eclipse glasses.
6. Mark the edges where the eclipse glass arms connect.



7. Cut sections out of the paper plate for the lenses, and then cut slots in the plate for the arms of the eclipse glasses.



8. Remove the lens cut outs.



9. Insert the arms of the eclipse glasses through the slots to make sure that the lenses are lined up with the holes.



10. Make sure that the outside edge of the glasses completely covers all cutout sections.
11. Do not tape glasses to the plates if you are planning to decorate them.

Procedure:

1. Prepare plates as described in the teacher preparation section.
2. Distribute the plates to the students.



3. **Optional:** Have students decorate the plates.

-
- Cut out a triangular section for the nose and mouth. A narrow triangle might work better for smaller children.



- Tape the glasses to the plate to secure them in place. Make sure that you tape the cardboard and not the lenses. ***If students do this, the teacher should check each pair of glasses to make sure they were taped properly and will provide the extra protection from paper plate.***
- Check for proper fit.

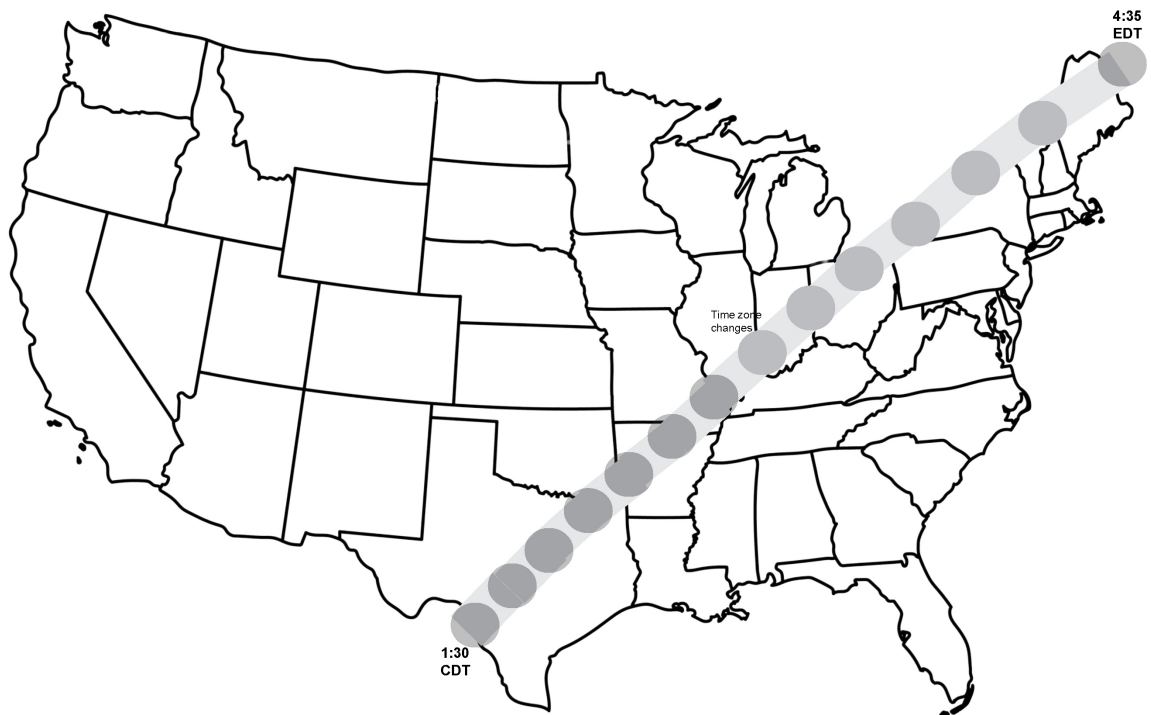
VARIATIONS

For younger children the earpieces might not fit securely. In that case, a string, ribbon, or rubber band can be attached to the sides of the plate so that the child can wear it like a mask. The string will help hold the protective shield in place.

Additional information from NASA for safely viewing a solar eclipse can be found at: <https://solarsystem.nasa.gov/eclipses/safety>

APRIL 8, 2024 SOLAR ECLIPSE

PATH OF TOTALITY



● 5 minute intervals



MimsHouseBooks.com

Path of Totality Map

1. Find your state and color it in.
2. The path of totality crosses 13 states. Write the names of each state.
 - 1)
 - 2)
 - 3)
 - 4)
 - 5)
 - 6)
 - 7)
 - 8)
 - 9)
 - 10)
 - 11)
 - 12)
 - 13)
3. Discuss the grey band and explain that is the path of the eclipse. It starts in the Pacific Ocean, travels over Mexico and the United States, and part of Canada. Another way to say this is it travels toward the northeast. Discuss northeast, northwest, southeast, southwest.
1. The circles show where the eclipse will be crossing in 5-minute intervals. Discuss the meaning of CDT (Central Daylight Time), EDT (Eastern Daylight Time), and ADT (Atlantic Daylight Time) Fill in each circle with the time. i.e. 1:35, 1:40, 1:45, etc. Notice that at the Illinois-Indiana border, the time zone changes from CDT to EDT. The middle of Maine changes from EDT to ADT.

What time will the eclipse cross your state? _____ Your city? _____

If the eclipse doesn't cross your state, use GoogleMaps or a similar program to find out how far away it is from you.

Path of Totality Map - answers

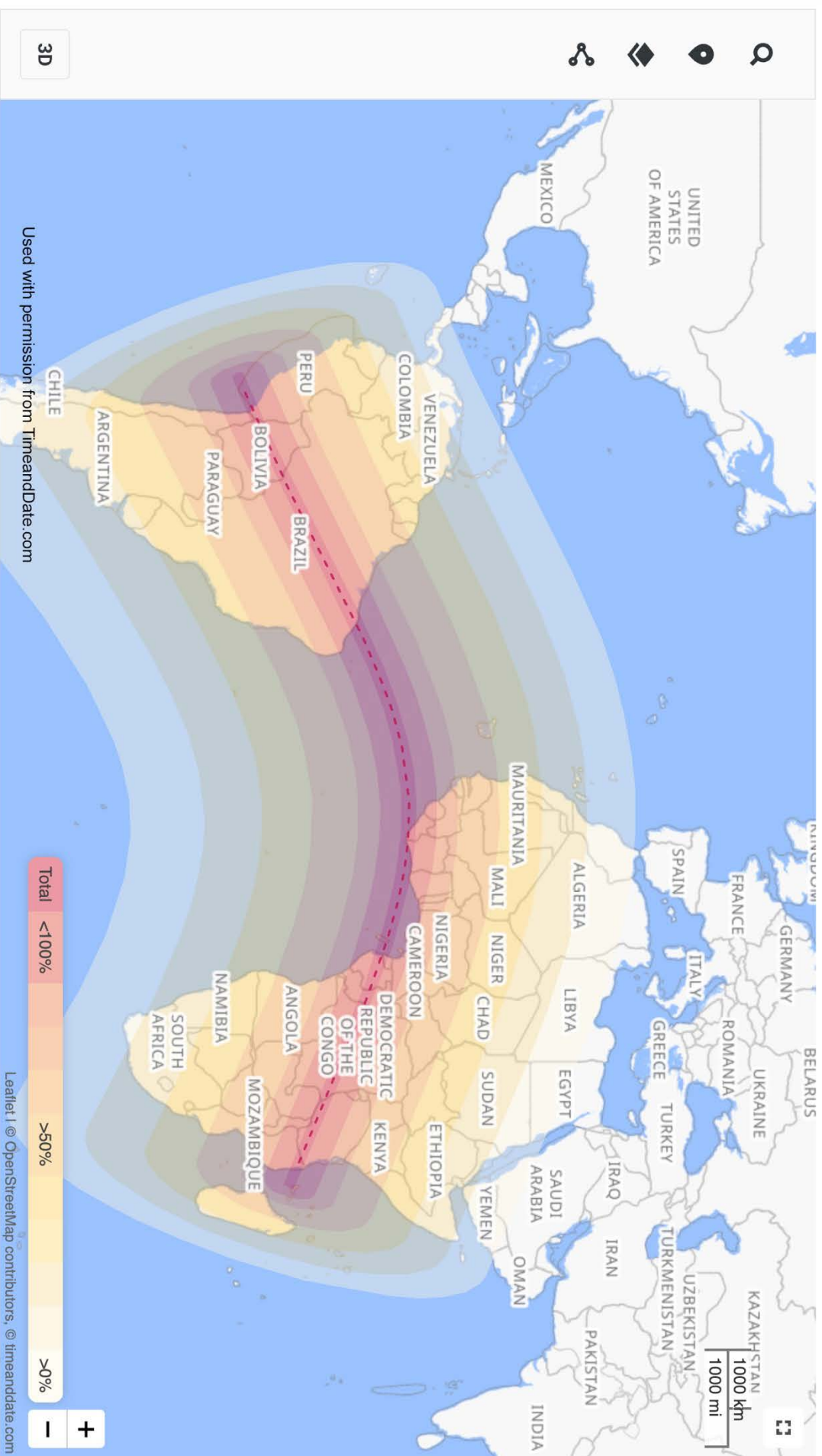
2. Find your state and color it in.
3. The path of totality crosses 13 states. Write the names of each state.
 - 1) Texas
 - 2) Oklahoma
 - 3) Arkansas
 - 4) Missouri
 - 5) Illinois
 - 6) Indiana
 - 7) Kentucky
 - 8) Ohio
 - 9) Pennsylvania
 - 10) New York
 - 11) Vermont
 - 12) New Hampshire
 - 13) Maine
4. Discuss the grey band and explain that is the path of the eclipse. It starts in the Pacific Ocean, travels over Mexico and the United States, and part of Canada. Another way to say this is it travels toward the northeast. Discuss northeast, northwest, southeast, southwest.
5. The circles show where the eclipse will be crossing in 5-minute intervals. Discuss the meaning of CDT (Central Daylight Time), EDT (Eastern Daylight Time), and ADT (Atlantic Daylight Time) Fill in each circle with the time. i.e. 1:35, 1:40, 1:45, etc. Notice that at the Illinois-Indiana border, the time zone changes from CDT to EDT. The middle of Maine changes from EDT to ADT

1:30 CDT, 1:35 CDT, 1:40 CDT, 1:45 CDT, 1:50 CDT, 1:55 CDT, 2:00 CDT, 2:05 CDT/3:05 EDT, 3:10 EDT, 3:15 EDT, 3:20 EDT, 3:25 EDT, 3:30 EDT, 4:35 ADT

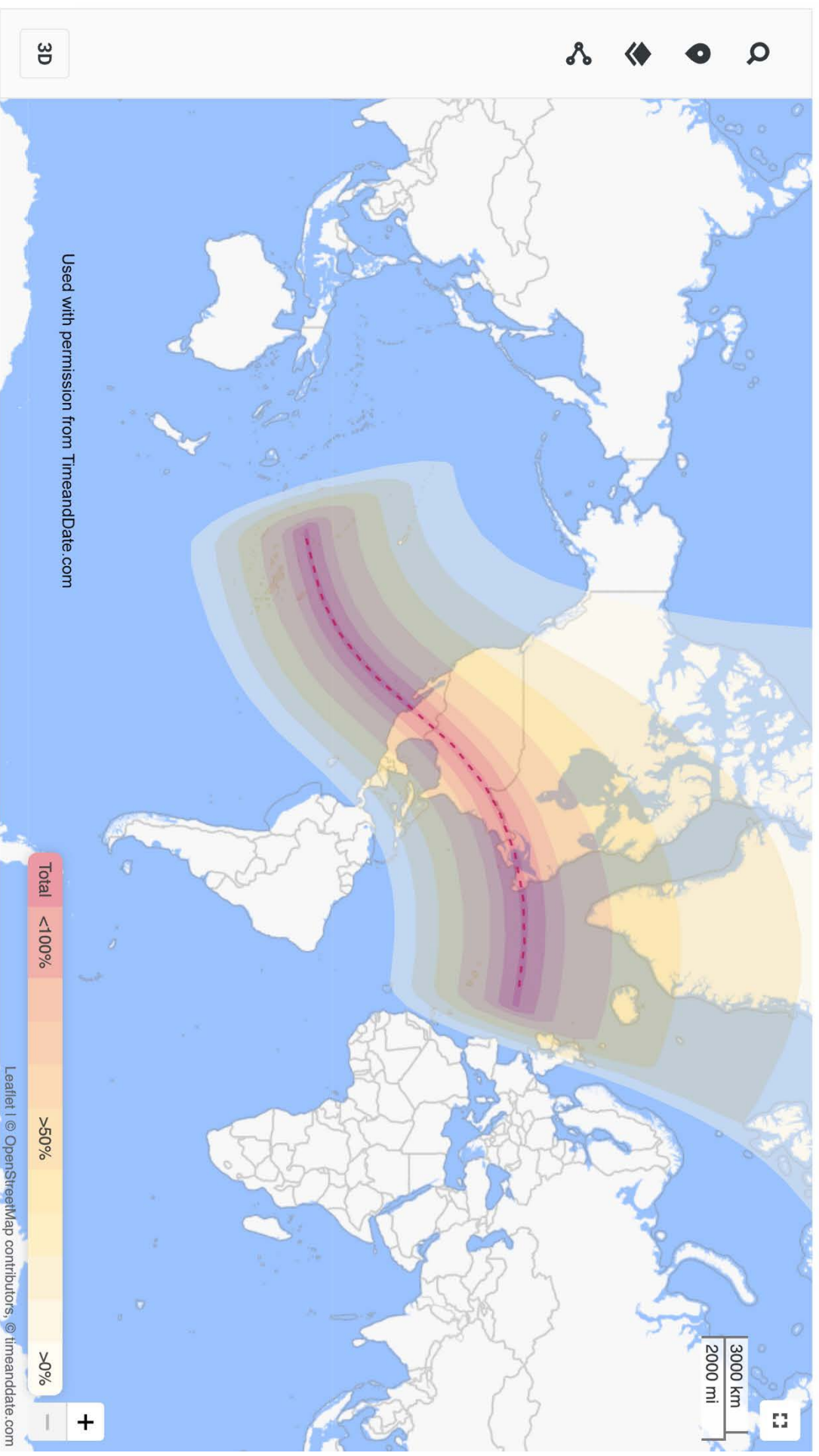
What time will the eclipse cross your state? _____ Your city? _____

If the eclipse doesn't cross your state, use GoogleMaps or a similar program to find out how far away it is from you.

Eclipse Map – May 29, 1919 Total Solar Eclipse



Eclipse Map – April 8, 2024 Total Solar Eclipse



Maps Comparing 1919 and 2024 Solar Eclipses

	1919 Solar Eclipse	2024 Solar Eclipse
Continents Crossed		
Countries Crossed		

Maps Comparing 1919 and 2024 Solar Eclipses - Answers

	1919 Solar Eclipse	2024 Solar Eclipse
Continents Crossed	South America, Africa	North America
Countries Crossed	Peru, Chile, Bolivia, Brazil, Liberia, Côte d'Ivoire, Ghana, Equatorial Guinea, Gabon, Republic of Congo, Democratic Republic of Congo, Tanzania, Mozambique	Mexico, United States

ECLIPSE: _____'s Sensory Details

SEE

HEAR

FEEL
(temperature and textures)

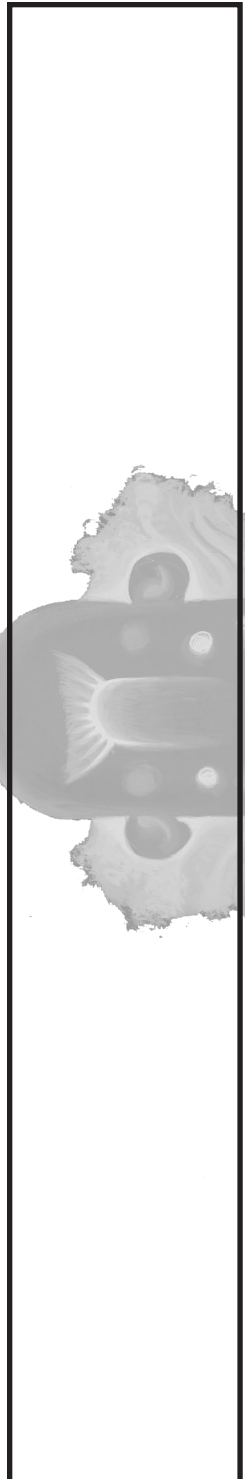
SMELL

TASTE

ECLIPSE: _____'s Time Line

FIRST

NEXT



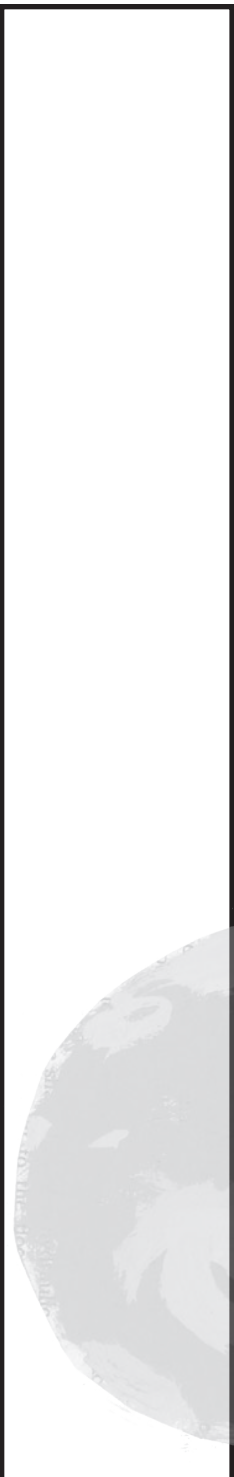
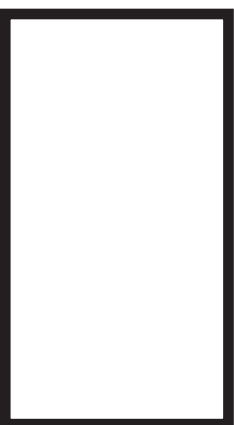
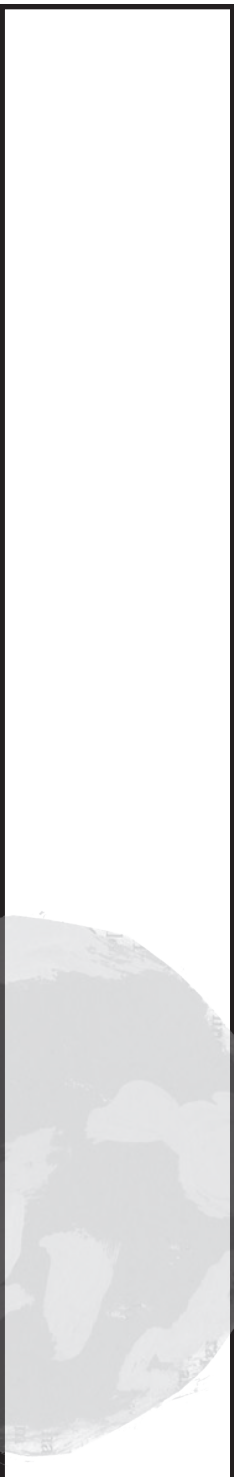
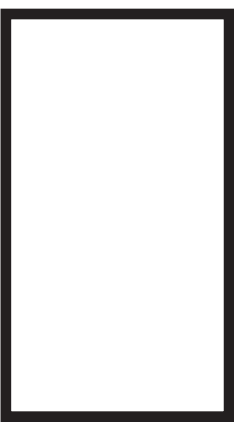
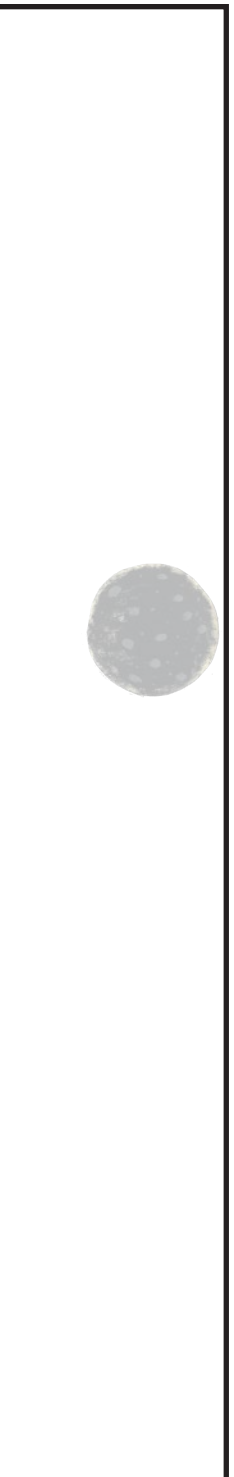
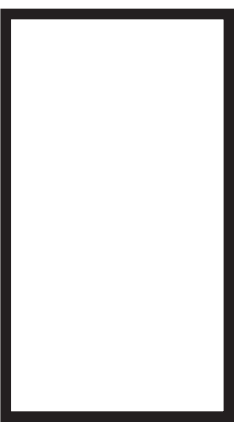
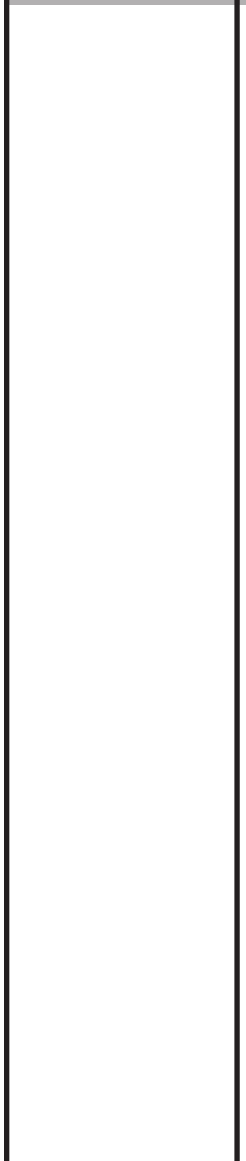
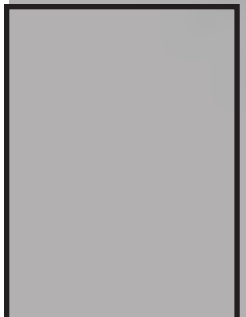
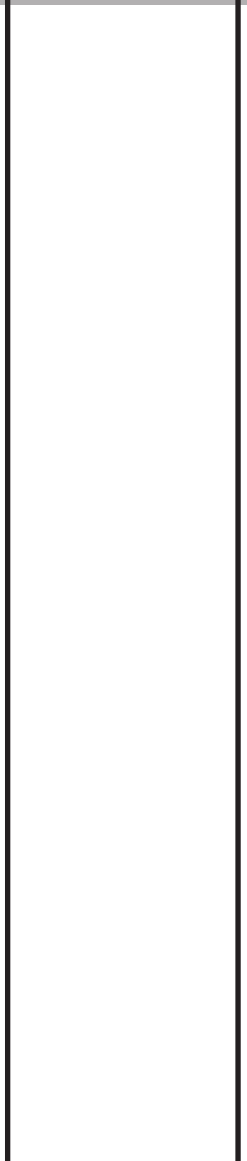
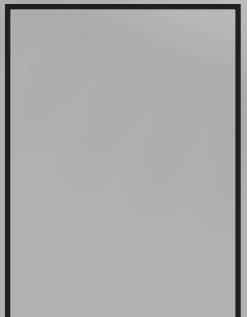
AFTER
THAT

ALSO



FINALLY

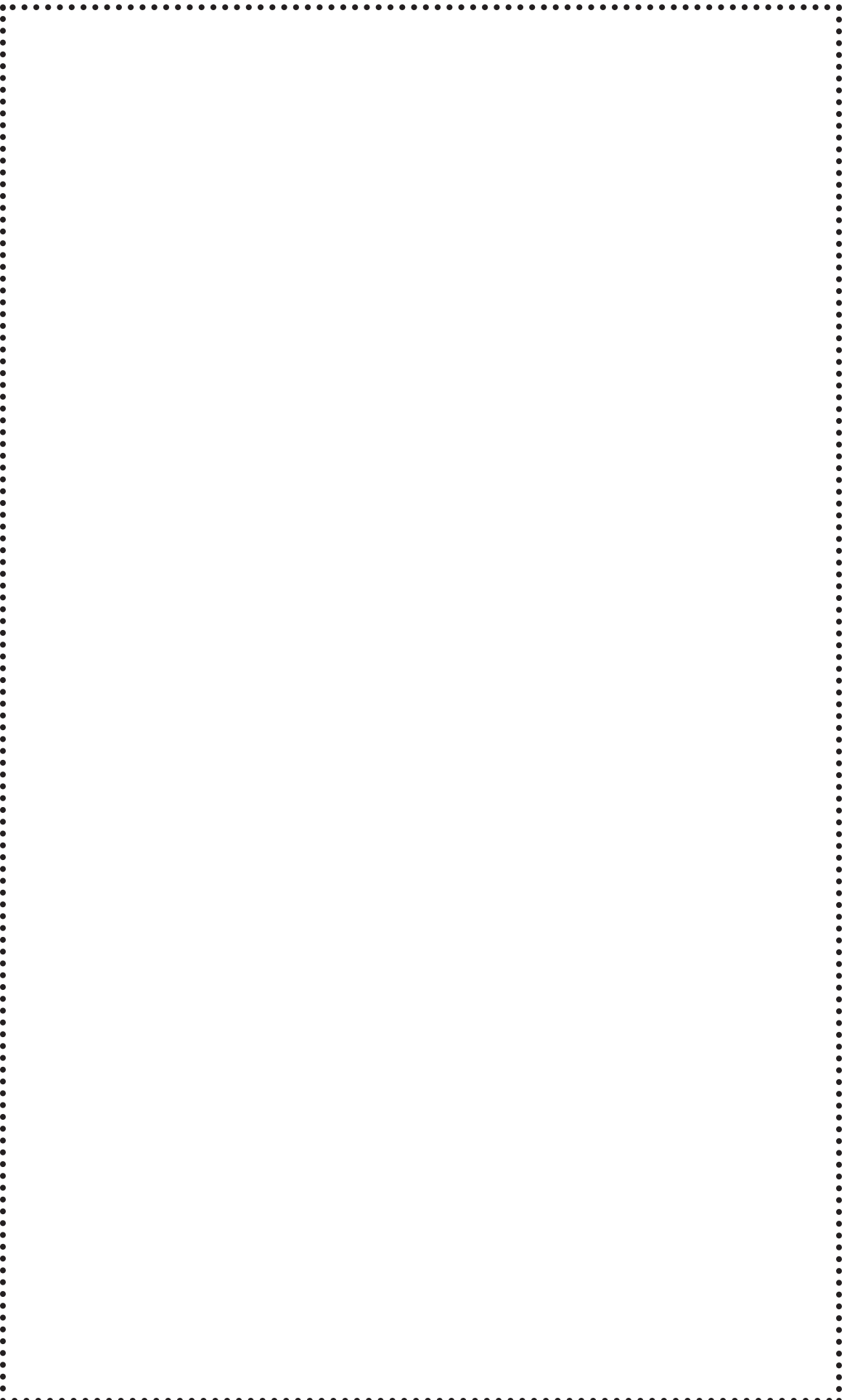
ECLIPSE: _____'s Other Notes



Draw a map of what happens.

Name _____

Instructions: Draw a map of the sky, or a map of the place where you will watch (or watched) the eclipse. Put an X where something happens and make sure your narrative includes that part of the story.



Teachers or parents: A map may or may not work for your child's narrative. This is an optional exercise.

An effective prewriting strategy is to ask child to "put a finger" on where the story starts. Then tell the story by moving around the map.

ECLIPSE

Name _____

Words to use: Because, and, also, therefore, since, for example, for instance, in order to, in addition

Introduction: Start with a sensory detail.

What happens next? Look at your time line to decide. Include some sensory details.

After that, what happened? Use interesting sensory details to tell this.

Also, this happened. Include more sensory details.

Finally, what happened at the end? Sensory details make this more exciting. Use some!

About the Illustrator

MEET PETER WILLIS



To honor the work of British illustrator, MimsHouseBooks.com published a series of blog articles about his work. Ask students to read the blog articles, then write an informative report about the illustrator.

Digital Collage - <https://mimshousebooks.com/blogs/books/willis1>

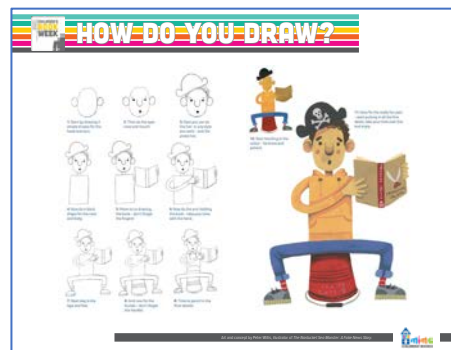
Peter Willis's Studio - <https://mimshousebooks.com/blogs/books/willis2>

Peter Willis's Design Work - <https://mimshousebooks.com/blogs/books/willis3>

Football, Cities, and Flags - <https://mimshousebooks.com/blogs/books/willis4>

International Books - <https://mimshousebooks.com/blogs/books/willis5>

Peter Willis created these coloring pages for Children's Book Week.



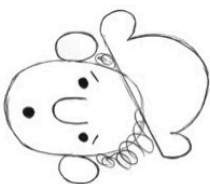
HOW DO YOU DRAW?



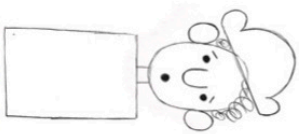
1: Start by drawing 3 simple shapes for the head and ears.



2: Then do the eyes nose and mouth.



3: Next you can do the hair - in any style you want - and the pirate hat.



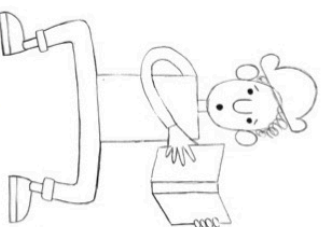
4: Now do a block shape for the neck and body.



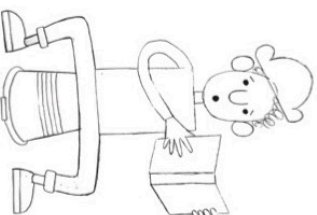
5: Move on to drawing the book - don't forget the fingers!



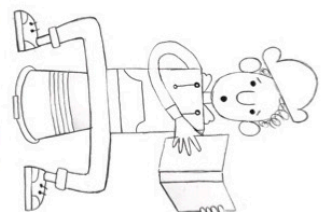
6: Now do the arm holding the book - take your time with the hand.



7: Next step is the legs and feet.



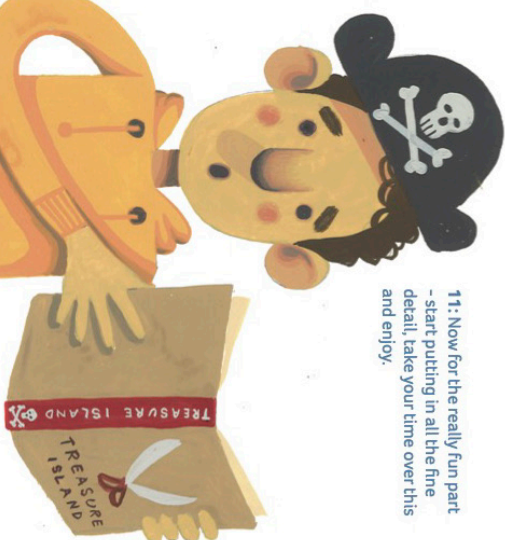
8: And now for the bucket - don't forget the handle!



8: Time to pencil in the finer details.



10: Start blocking in the colour - be brave and patient.



11: Now for the really fun part - start putting in all the fine detail, take your time over this and enjoy.



DR A W I N G

NAPOLEON



<p>1</p> <p>Draw a simple oval shape.</p>	<p>2</p> <p>Add two lines at the bottom.</p>	<p>3</p> <p>Add an oblong shape under that.</p>	<p>4</p> <p>Then a line down the body shape and the first arm.</p>
<p>5</p> <p>Add the second arm.</p>	<p>6</p> <p>Then the bottom part of the body.</p>	<p>7</p> <p>Next draw the legs.</p>	<p>8</p> <p>Don't forget his feet and the tops of his boots.</p>
<p>9</p> <p>Now draw the hat - take your time, it's a bit tricky.</p>	<p>10</p> <p>Next draw his nose.</p>	<p>11</p> <p>Add his eyes, eyebrows and ears.</p>	<p>12</p> <p>And now for a big smile.</p>

You can finish your Napoleon illustration by adding all the details to his uniform and then, color it in whichever way you like - Good luck and don't be afraid of making mistakes.

Art and Concept by Peter Willis. Napoleon character from Clang!: Ernst Chladni's Sound Experiments (Mims House)

SOLAR ECLIPSE FLIP BOOK DIRECTIONS

TO ASSEMBLE: First, photocopy the pages onto card stock and cut out on dark lines. Card stock is recommended because it gives enough weight to the pages to flip correctly. Printer paper will not work by itself. Place pages in order and hen staple the left hand side. **ALTERNATIVE:** Photocopy onto printer paper. Cut out and paste onto 3" x 5" index cards.

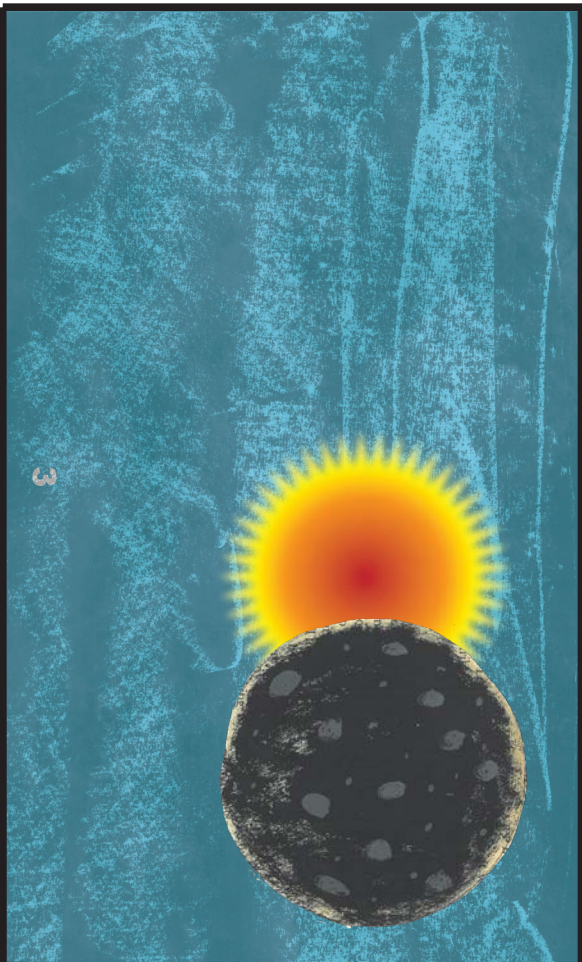
TO USE: Hold the stapled edge and SLOWLY flip the edges to watch the solar eclipse.

ECLIPSE

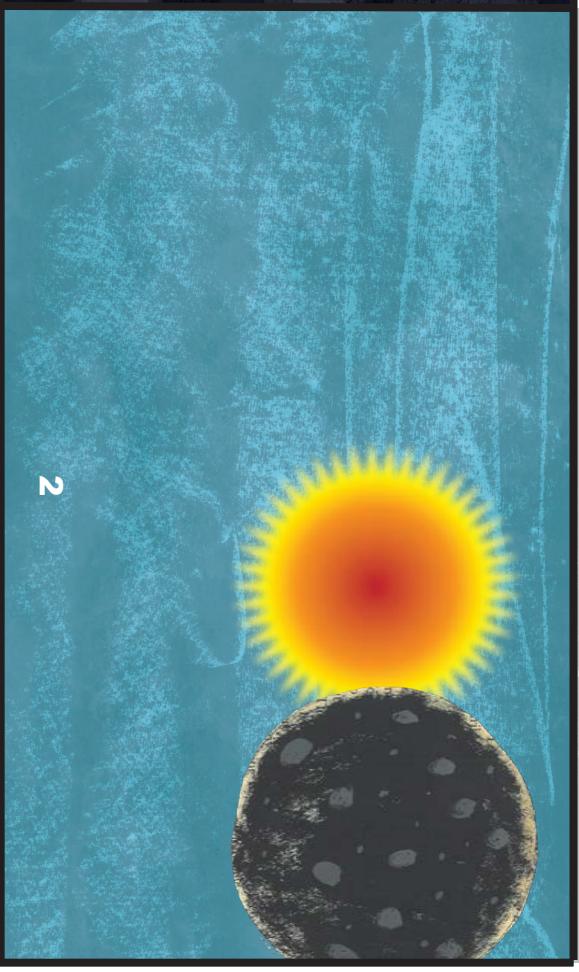
Flip Book for:

This activity provided by
MimsHouseBooks.com

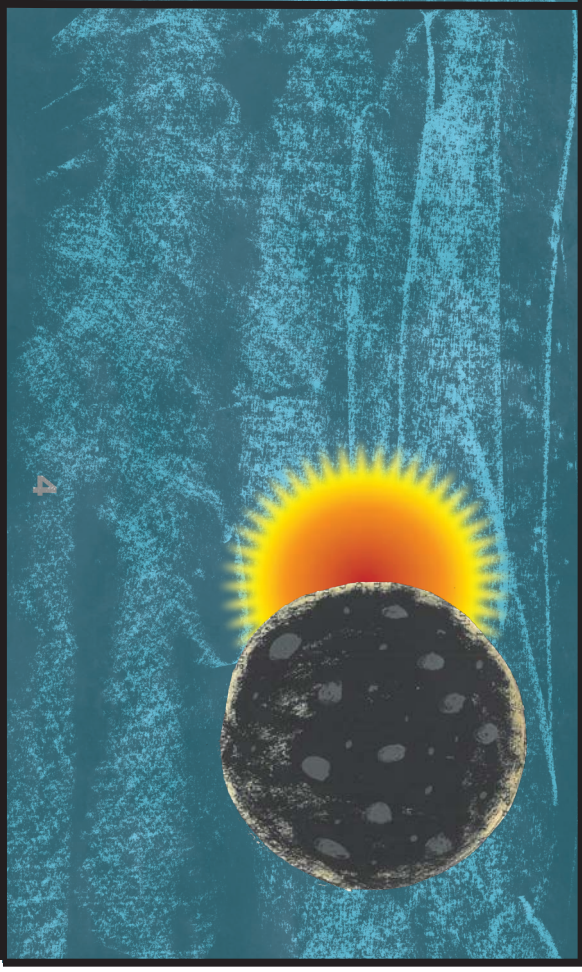
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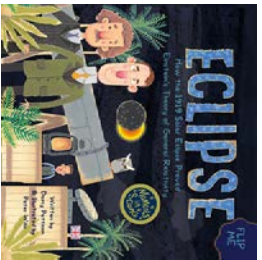
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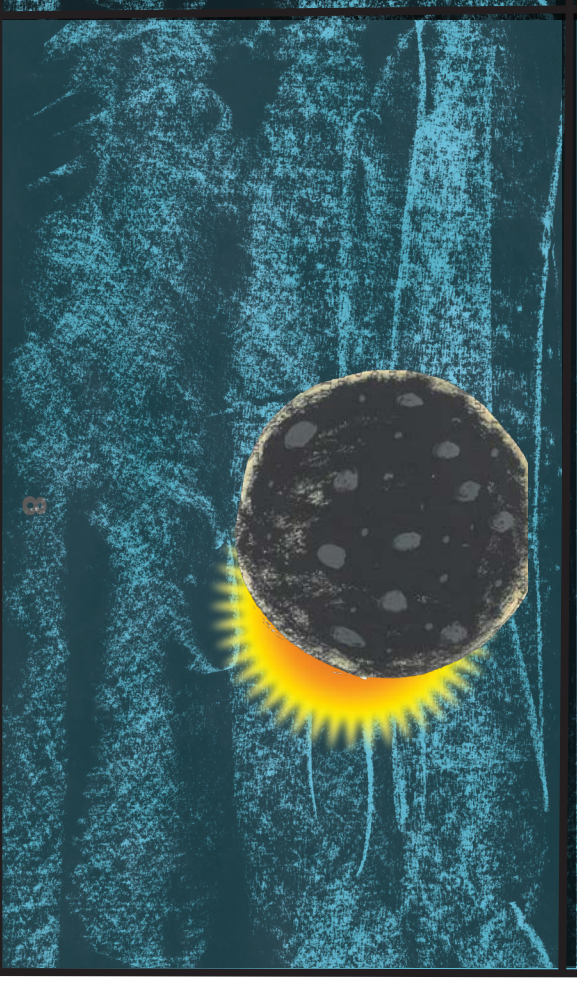
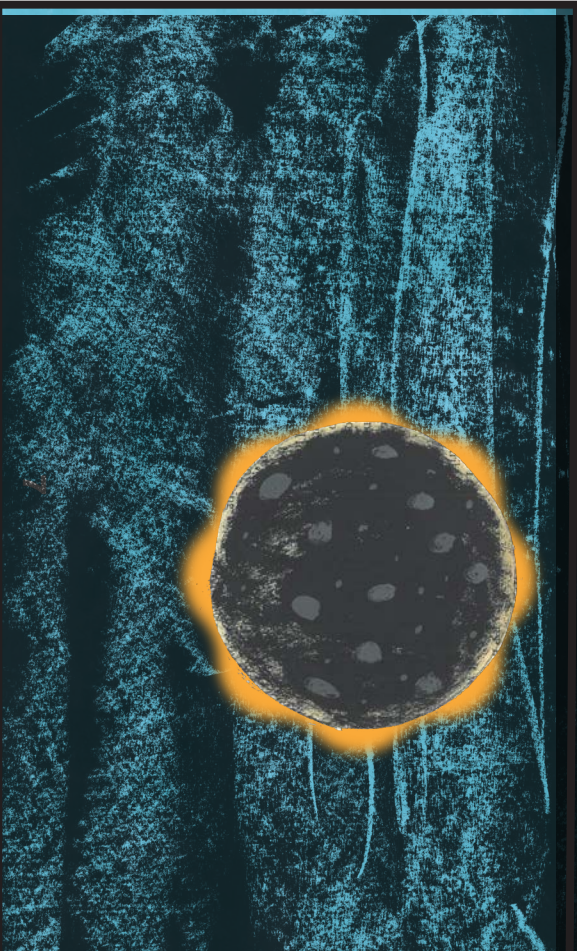
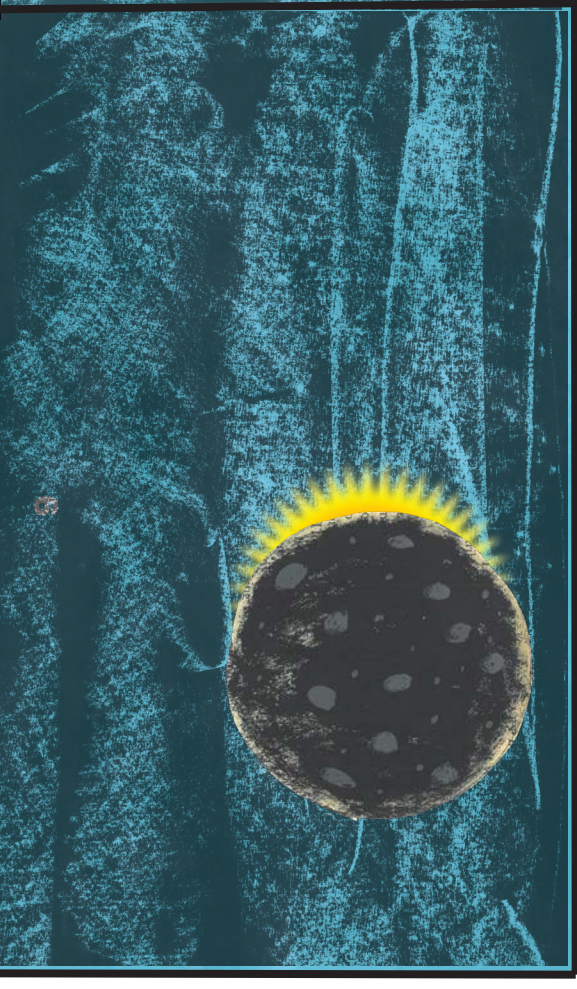
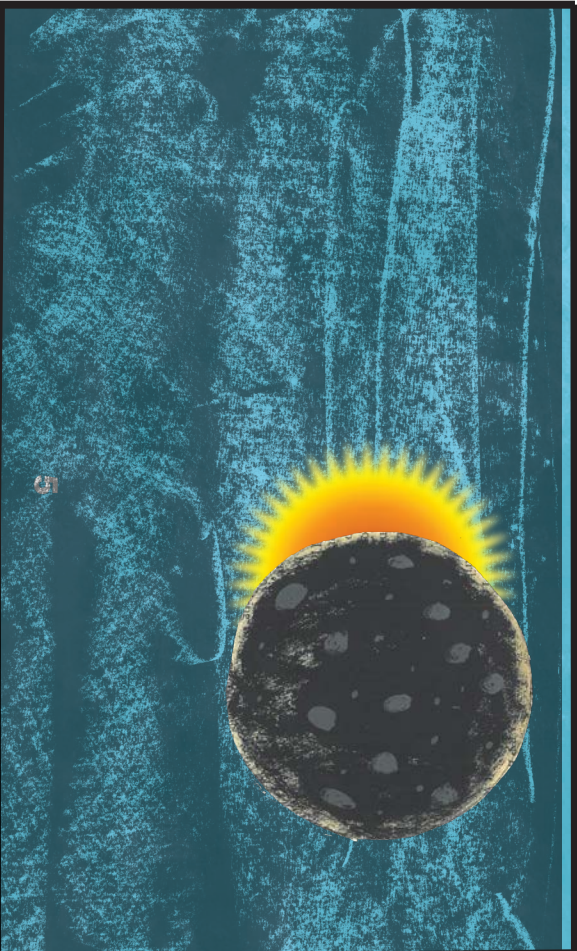


4



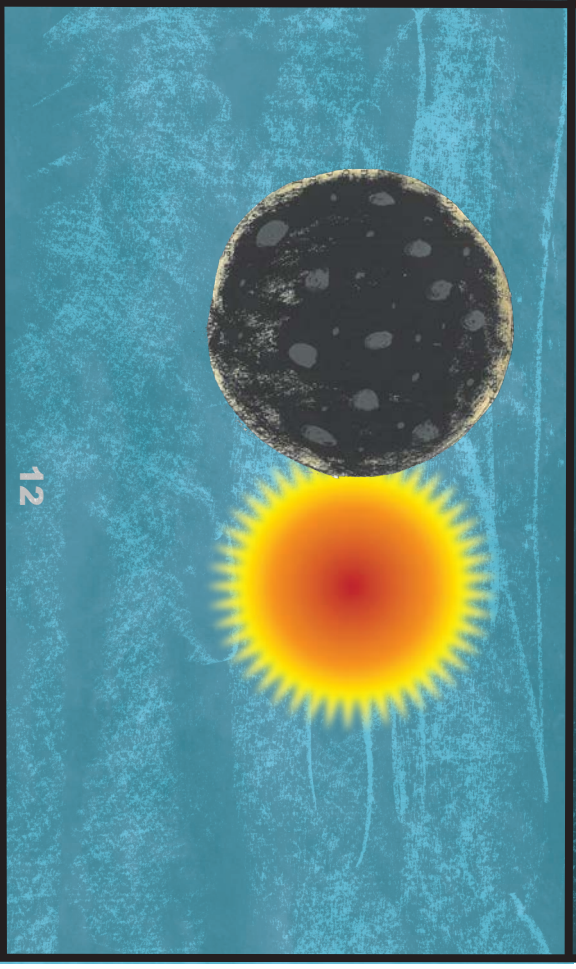
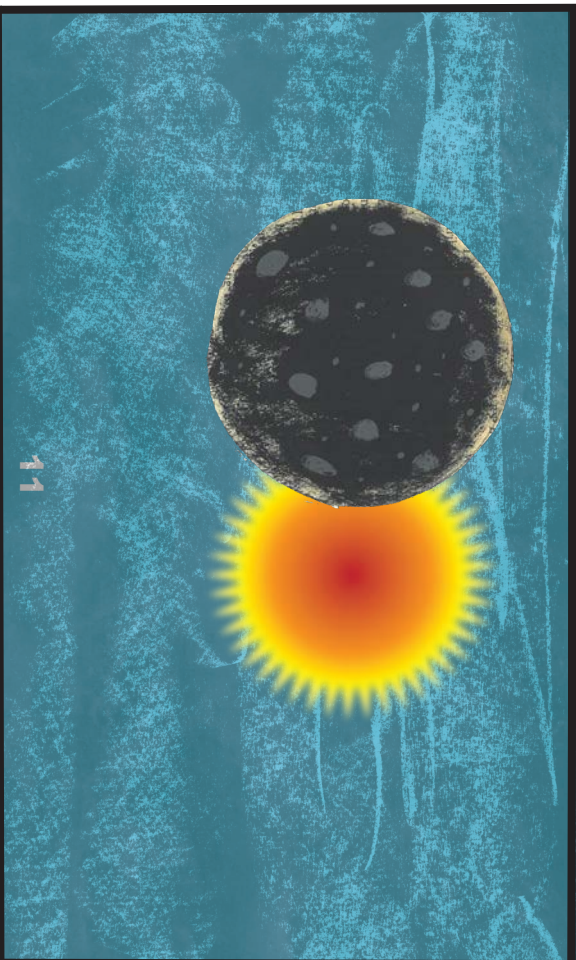
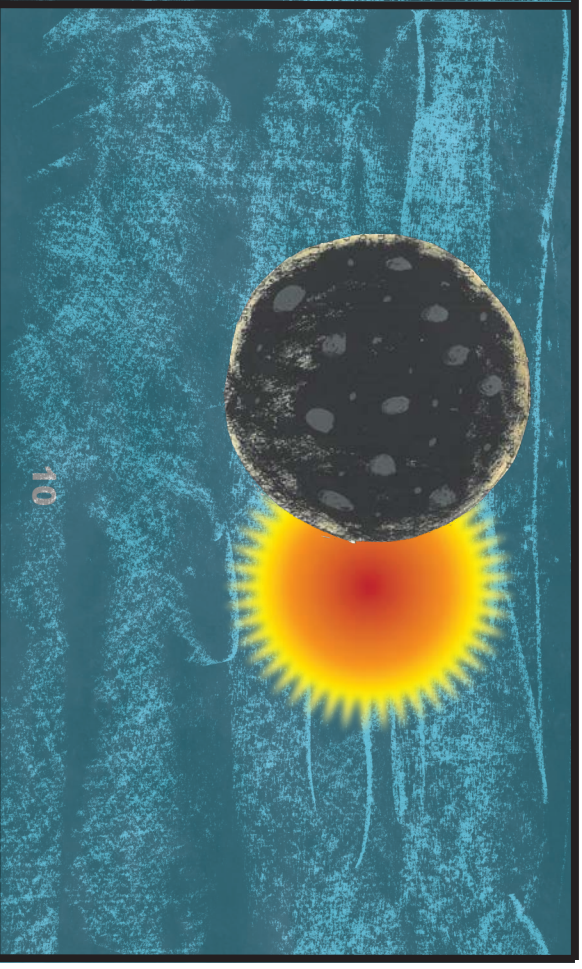
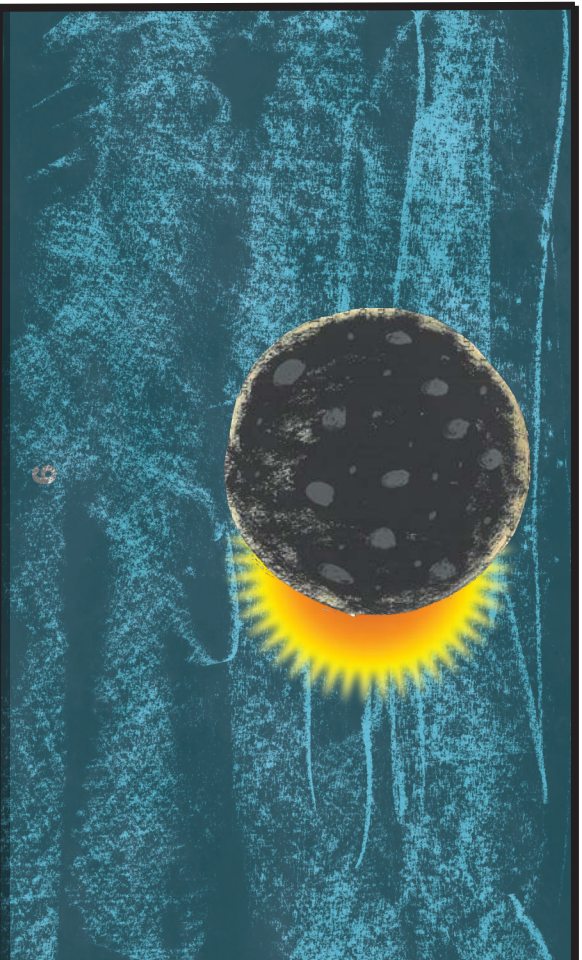
Based on the children's picture book:
ECLIPSE: How the 1919 Solar Eclipse Proved Einstein's Theory of Relativity,
by Darcy Pattison, illustrated by Peter Willis

MimmsHouseBooks.com/products/eclipse



DISCUSSION

- 1) When does a solar eclipse happen? During the day or night?
- 2) Why does the sky get darker during an eclipse?
- 3) Talk about a lunar eclipse. How is it similar to and different from the solar eclipse?



Math -

PHOTOGRAPHING STARS IN 1919

Photographing stars in 1919 was hard. A 10-by-8-inch (25.4 x 20.32 cm) piece of glass, called a glass plate, was coated with special chemicals. The glass plate was inserted into a slot in the telescope behind a piece of cardboard that blocked light. To take a photo, Stanley pulled out the cardboard for a certain amount of time to let the light hit the glass plate. To stop the exposure, he replaced the cardboard. To take the next photo, he had to change the glass plate. Stanley had a schedule for taking photos and planned to alternate 5-second and 10-second exposures. Later, Stanley would dip the glass plates into special chemicals to develop the photograph, or to make it show up.

For the 1919 solar eclipse on Principe Island, they had 302 seconds to photograph the eclipse. Longer exposures might mean sharper, clearer photographs, but there wouldn't be as many photographs.

How many minutes is 302 seconds?

In 302 seconds, how many photographs could you take if each photo was 10 seconds?

In 302 seconds, how many photographs could you take if each photo was 5 seconds?

In 302 seconds, how many photographs could you take if you alternate 10 second and 5 second exposures?

10-second photos

5-second photos

Think of another schedule for photographing the eclipse in 302 seconds. How many high quality (10 seconds or more) and how many lower quality (around 5 seconds) photos could you make?

CURRICULUM STANDARDS

Solar Eclipse Introduction 2-3

Standards

SEP.3.K-2.2 Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. Next Generation Science Standards Science

SEP.3.K-2.5 Make observations from several sources to construct an evidence-based account for natural phenomena. Next Generation Science Standards Science

CCC.1.K-2.3 Patterns in the natural and human designed world can be observed. Next Generation Science Standards Science

CCC.1.K-2.4 Patterns in the natural world can be observed. Next Generation Science Standards Science

CCC.1.3-5.6 Similarities and differences in patterns can be used to sort and classify natural phenomena. Next Generation Science Standards Science

Solar Eclipse Introduction 4-5

Standards

4-ESS2-2 Analyze and interpret data from maps to describe patterns of Earth's features. Next Generation Science Standards Science

SEP.1.3-5.1 Analyze and interpret data to make sense of phenomena using logical reasoning. Next Generation Science Standards Science

SEP.4.3-5.1 Develop models to describe phenomena. Next Generation Science Standards Science

SEP.4.3-5.4 Develop a model to describe phenomena. Next Generation Science Standards Science

SEP.4.3-5.4 Develop a model to describe phenomena. Next Generation Science Standards Science

SEP.4.3-5.5 Use models to describe phenomena. Next Generation Science Standards Science

Solar Eclipse Model & Diagram - 2-3

Standards

ESS.1.B Earth and the Solar System Next Generation Science Standards DCI Arrangements

K-2.AF.2.1 Distinguish between a model and the actual object, process, and/or events the model represents. Next Generation Science Standards Appendix F: Science and Engineering Practices (2013)

3-5.AF.2.4 Develop and/or use models to describe and/or predict phenomena. Next Generation Science Standards Appendix F: Science and Engineering Practices (2013)

K-2.AF.4.1 Record information (observations, thoughts, and ideas). Next Generation Science Standards Appendix F: Science and Engineering Practices (2013)

K-2.AF.4.2 Use and share pictures, drawings, and/or writings of observations. Next Generation Science Standards Appendix F: Science and Engineering Practices (2013)

K-2.AF.4.3 Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems. Next Generation Science Standards Appendix F: Science and Engineering Practices (2013)

2-ESS1-1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly. Next Generation Science Standards Science

SEP.3.3-5.1 Use evidence (e.g., observations, patterns) to support an explanation. Next Generation Science Standards Science

SEP.3.3-5.2 Use evidence (e.g., observations, patterns) to construct an explanation. Next Generation Science Standards Science

SEP.4.3-5.1 Develop models to describe phenomena. Next Generation Science Standards Science

SEP.4.K-2.3 Develop a model to represent patterns in the natural world. Next Generation Science Standards Science

CCC.1.K-2.3 Patterns in the natural and human designed world can be observed. Next Generation Science Standards Science

CCC.2.K-2.2 Events have causes that generate observable patterns. Next Generation Science Standards Science

CCC.10.K-2.1 Scientists study the natural and material world. Next Generation Science Standards Science

CCC.12.3-5.1 Science affects everyday life. Next Generation Science Standards Science

Solar Eclipse Model & Diagram 4-5

Standards

SEP.4.3-5.1 Develop models to describe phenomena. Next Generation Science Standards Science

SEP.4.3-5.2 Develop a model using an analogy, example, or abstract representation to describe a scientific principle. Next Generation Science Standards Science

SEP.4.3-5.4 Develop a model to describe phenomena. Next Generation Science Standards Science

SEP.4.3-5.5 Use models to describe phenomena. Next Generation Science Standards Science

SEP.4.3-5.4 Develop a model to describe phenomena. Next Generation Science Standards Science

SEP.9.2 Science findings are based on recognizing patterns. Next Generation Science Standards Science

DCI.ESS1.A.3-5.2 The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from

Earth. Next Generation Science Standards Science

DCI.ESS1.B.3-5.2 The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between

its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and

different positions of the sun, moon, and stars at different times of the day, month, and year. Next Generation Science Standards Science

CCC.3.3-5.2 Natural objects exist from the very small to the immensely large. Next Generation Science Standards Science

CCC.11.3-5.3 Science assumes consistent patterns in natural systems. Next Generation Science Standards Science

CCC.11.3-5.3 Science assumes consistent patterns in natural systems. Next Generation Science Standards Science

CCR.R.7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Common Core State Standards Common Core English/Language Arts

CCR.R.7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Common Core State Standards Common Core English/Language Arts

W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. Common Core State Standards

Common Core English/Language Arts

W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. Common

Core State Standards Common Core English/Language Arts

CCR.SL.5 Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

Common Core State Standards Common Core English/Language Arts

CCR.SL.5 Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

Common Core State Standards Common Core English/Language Arts

SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics

and texts, building on others' ideas and expressing their own clearly. Common Core State Standards Common Core English/Language Arts

SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics

and texts, building on others' ideas and expressing their own clearly. Common Core State Standards Common Core English/Language Arts

Solar Eclipse Glasses 2-5

Standards

K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that

can be solved through the development of a new or improved object or tool. Next Generation Science Standards Science

SEP.2.3-5.2 Define a simple problem that can be solved through the development of a new or improved object or tool. Next Generation Science Standards Science

Video From Space

Standards

SEP.7.K-2.5 Make observations (firsthand or from media) to collect data which can be used to make comparisons. Next Generation Science Standards Science

SEP.3.K-2.5 Make observations from several sources to construct an evidence-based account for natural phenomena. Next Generation Science Standards Science

SEP.1.3-5.1 Analyze and interpret data to make sense of phenomena using logical reasoning. Next Generation Science Standards Science 4-PS3 Energy Next Generation Science Standards Science

SEP.1.3-5.1 Analyze and interpret data to make sense of phenomena using logical reasoning. Next Generation Science Standards Science

SEP.7.3-5.6 Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. Next

Generation Science Standards Science

SL.2.1 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger

groups. Common Core State Standards Common Core English/Language Arts

CCR.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas

and expressing their own clearly and persuasively. Common Core State Standards Common Core English/Language Arts

CCR.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas

and expressing their own clearly and persuasively. Common Core State Standards Common Core English/Language Arts

CCR.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas

and expressing their own clearly and persuasively. Common Core State Standards Common Core English/Language Arts

Map-Totality

Standards

D2.Geo.2.3-5 Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and

regions and their environmental characteristics. National Council for the Social Studies Social Studies

D2.His.10.3-5 Compare information provided by different historical sources about the past. National Council for the Social Studies Social Studies

Math - Map Skills

Standards

2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s. Common Core State Standards Common Core Mathematics

Reading Eclipse 2-3

Standards

CCR.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing

or speaking to support conclusions drawn from the text. Common Core State Standards Common Core English/Language Arts

CCR.R.2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas. Common

Core State Standards Common Core English/Language Arts

RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. Common

Core State Standards Common Core English/Language Arts

RI.2.2 Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text. Common Core State Standards

Common Core English/Language Arts

RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

Common Core State Standards Common Core English/Language Arts

RI.2.7 Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text. Common Core State Standards

Common Core English/Language Arts

CCR.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing

or speaking to support conclusions drawn from the text. Common Core State Standards Common Core English/Language Arts

CCR.R.2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas. Common

Core State Standards Common Core English/Language Arts

RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. Common Core

State Standards Common Core English/Language Arts

RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea. Common Core State Standards Common

Core English/Language Arts

RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using

language that pertains to time, sequence, and cause/effect. Common Core State Standards Common Core English/Language Arts

RI.3.7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g.,

where, when, why, and how key events occur). Common Core State Standards Common Core English/Language Arts

Reading Eclipse 4-5

Standards

CCR.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing

or speaking to support conclusions drawn from the text. Common Core State Standards Common Core English/Language Arts

CCR.R.2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas. Common

Core State Standards Common Core English/Language Arts

CCR.R.3 Analyze how and why individuals, events, and ideas develop and interact over the course of a text. Common Core State Standards Common Core

English/Language Arts

CCR.R.7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Common Core State Standards Common Core English/Language Arts

RI.5.2 Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

Common Core State

Standards Common Core English/Language Arts

RI.5.3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical

text based on specific information in the text. Common Core State Standards Common Core English/Language Arts

RI.5.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

Common Core State Standards Common Core English/Language Arts

RI.5.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support

which point(s). Common Core State Standards Common Core English/Language Arts

CCR.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing

or speaking to support conclusions drawn from the text. Common Core State Standards Common Core English/Language Arts

CCR.R.2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas. Common

Core State Standards Common Core English/Language Arts

RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. Common

Core State Standards Common Core English/Language Arts

RI.4.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text. Common Core State Standards Common Core

English/Language Arts

RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on

specific information in the text. Common Core State Standards Common Core English/Language Arts

RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive

elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

Common Core State

Standards Common Core English/Language Arts

RI.4.8 Explain how an author uses reasons and evidence to support particular points in a text. Common Core State Standards Common Core English/Language Arts

Compare 1919 & 2024 Maps

Standards

D2.Geo.2.3-5 Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and

regions and their environmental characteristics. National Council for the Social Studies Social Studies

D2.His.10.3-5 Compare information provided by different historical sources about the past. National Council for the Social Studies Social Studies

Write Narrative

Standards

CCR.W.3 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured

event sequences. Common Core State Standards Common Core English/Language Arts

CCR.W.7 Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject

under investigation. Common Core State Standards Common Core English/Language Arts

CCR.W.8 Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate

the information while avoiding plagiarism. Common Core State Standards Common Core English/Language Arts

CCR.W.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. Common Core State

Standards Common Core

English/Language Arts

CCR.W.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day

or two) for a range of tasks, purposes, and audiences. Common Core State Standards Common Core English/Language Arts

Write Informative

Standards

RL.2.7 Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting,

or plot. Common Core State Standards Common Core English/Language Arts

RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. Common

Core State Standards Common Core English/Language Arts

CCR.W.2 Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective

selection, organization, and analysis of content. Common Core State Standards Common Core English/Language Arts

CCR.W.7 Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject

under investigation. Common Core State Standards Common Core English/Language Arts

CCR.W.8 Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate

the information while avoiding plagiarism. Common Core State Standards Common Core English/Language Arts

CCR.W.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. Common Core State

Standards Common Core

English/Language Arts

CCR.W.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day

or two) for a range of tasks, purposes, and audiences. Common Core State Standards Common Core English/Language Arts

Math Word Problem

Standards

4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place

value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using

equations, rectangular arrays, and/or area models. Common Core State Standards Common Core Mathematics

5.NBT.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place

value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using

equations, rectangular arrays, and/or area models. Common Core State Standards Common Core Mathematics

4.NBT.A.7 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, and justify the solution. Missouri

Mathematics (K-5) (2016)

4.RA.A Use the four operations with whole numbers to solve problems. Missouri Mathematics (K-5) (2016)

Art

Standards

Students use different media, techniques, and processes to communicate ideas, experiences, and stories National Standards for Arts Education Arts

Education

Students identify connections between the visual arts and other disciplines in the curriculum National Standards for Arts Education Arts Education

Geography

Standards

D2.Geo.2.3-5 Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and

regions and their environmental characteristics. National Council for the Social Studies Social Studies

D2.His.10.3-5 Compare information provided by different historical sources about the past. National Council for the Social Studies Social Studies

Music

Standards

Students perform easy rhythmic, melodic, and chordal patterns accurately and independently on rhythmic, melodic, and harmonic classroom

instruments National Standards for Arts Education Arts Education

Students improvise simple rhythmic and melodic ostinato accompaniments National Standards for Arts Education Arts Education

PE

Standards

SHAPE 1 The physically literate individual demonstrates competency in a variety of motor skills and movement patterns. Society of Health and

Physical Educators Physical Education

SHAPE 2 The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and

performance. Society of Health and Physical Educators Physical Education

Students accurately demonstrate nonlocomotor/axial movements (such as bend, twist, stretch, swing) National Standards for Arts Education Arts

Education