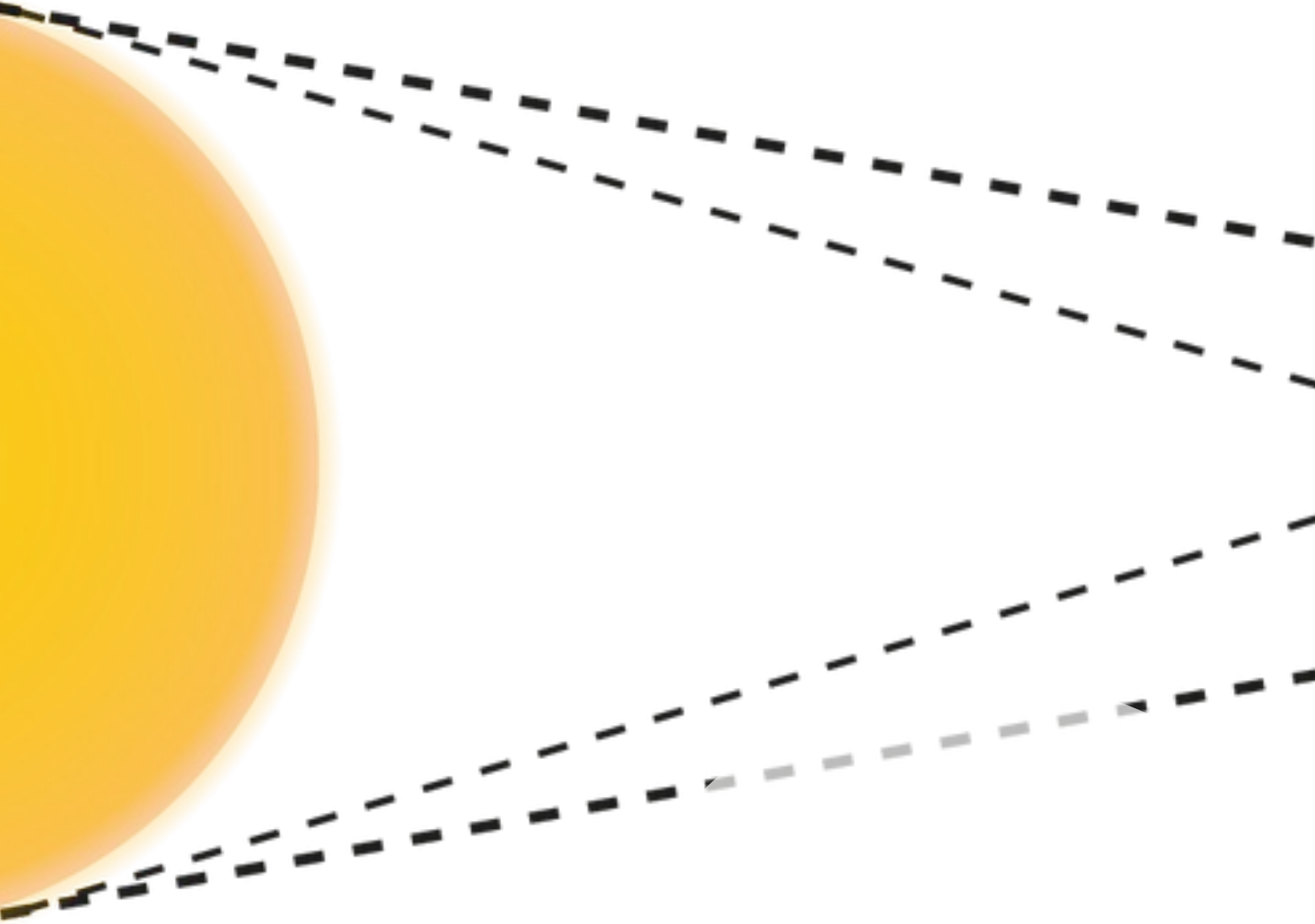


SOLAR ECLIPSE ACTIVITIES

in anticipation of April 8, 2024



TEACHER GUIDE

Big Ideas for Little Scholars



RESOURCES for GIFTED
& ADVANCED LEARNERS

Introductory Activity

Objective: Students will share prior knowledge, be able to explain the events that cause a solar eclipse, and define terms related to this type of eclipse.

Preparation: Make a copy of the Word Search (next page) for each student
Have [this slide show](#) ready to share

Ask students if they know of any special event coming up in April. You can provide a hint saying the event will be an "astronomical" one or one that will be seen by many across the country.

(Slide 3) Open the slide show and elicit from students what they already know or understand about an eclipse.

(Slide 4-5) Pass out the word search puzzle (see next page) and explain that normally a Word Search puzzle has a word bank, but you thought it might be fun to see how many words they can find without a word bank. They are looking for ten terms that have something to do with an *eclipse (and one might be made up of more than one word)*. A hint is provided for the word *eclipse*. This is intentional because *the word eclipse also appears in the bottom row, but you don't want students to circle that one. Students may find the words SUN, MOON, SOLAR, SHADOW and perhaps others*.

(Slide 6) Have students put their pencils down and proceed to Slide 6. Explain that you want them to set aside the puzzle for a minute and just watch a quick video that gives a very basic understanding of a solar eclipse.

(Slide 7) After the first showing, you can show it a second time and pause at 14 seconds and 25 seconds to record the terms *UMBRA* and *PATH OF TOTALITY*. Write these on the board for students.

(Slides 8-9) The video excerpt on Slide 9 presents additional words- *CORONA*, *ORBIT*, and *PENUMBRA*, the name of the larger shadow. People in the *PENUMBRA* experience a partial eclipse. Record these terms on the board and have students find all ten terms.

(Slide 10-12) These slides reveal a riddle within the puzzle. Have students follow the directions to reveal the riddle and allow them to guess before sharing the final slide.

(Slides 13-14) These two slides are just for fun! Students may enjoy seeing what airline passengers experience during a total eclipse. If you teach Greek / Latin roots, your students may understand the word *umbrophile (lover of a total eclipse)*.

Word Search Puzzle

Find ten terms associated with a solar eclipse.

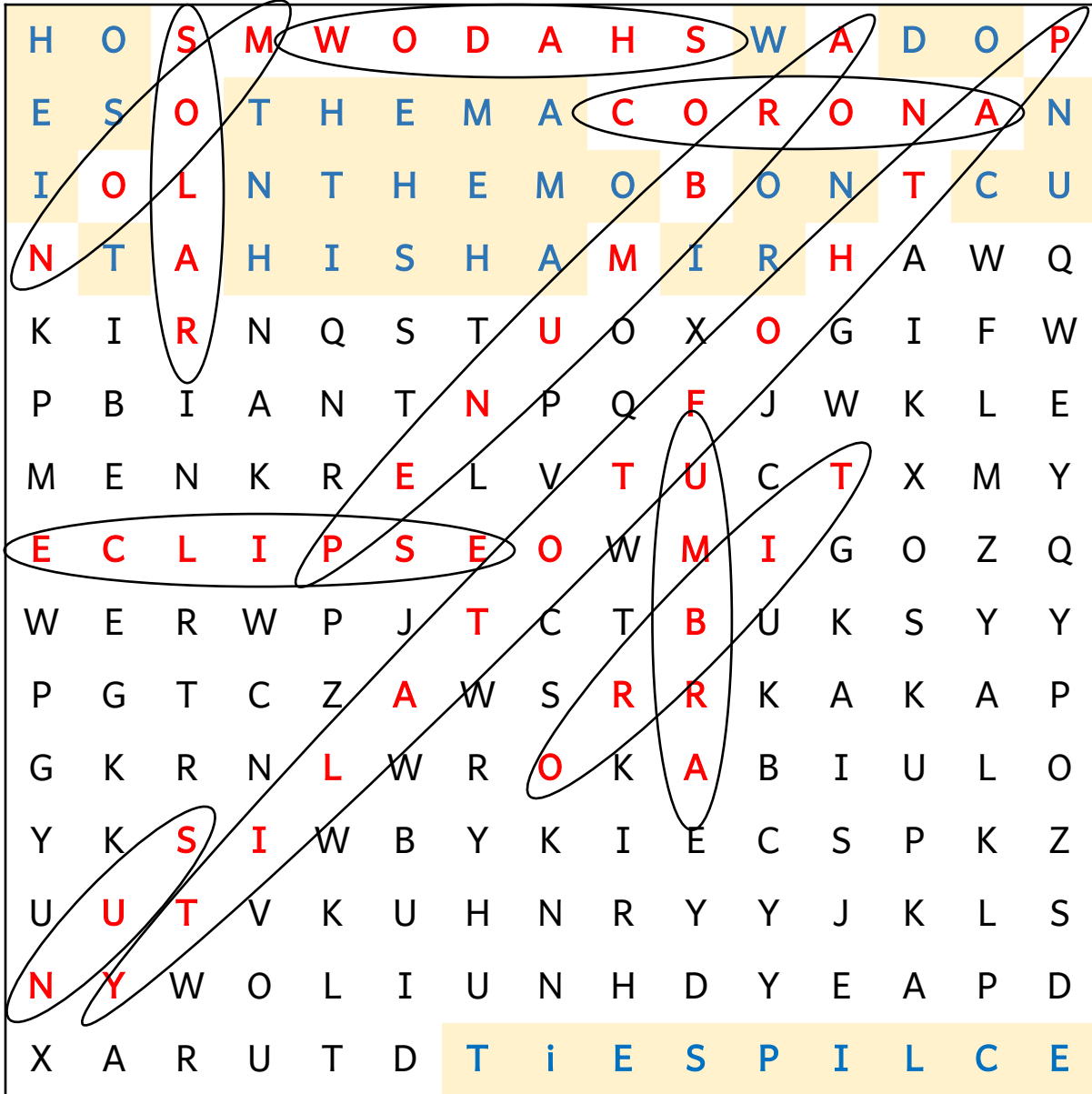
H	O	S	M	W	O	D	A	H	S	W	A	D	O	P
E	S	O	T	H	E	M	A	C	O	R	O	N	A	N
I	O	L	N	T	H	E	M	O	B	O	N	T	C	U
N	T	A	H	I	S	H	A	M	I	R	H	A	W	Q
K	I	R	N	Q	S	T	U	O	X	O	G	I	F	W
P	B	I	A	N	T	N	P	Q	F	J	W	K	L	E
M	E	N	K	R	E	L	V	T	U	C	T	X	M	Y
E	C	L	I	P	S	E	O	W	M	I	G	O	Z	Q
W	E	R	W	P	J	T	C	T	B	U	K	S	Y	Y
P	G	T	C	Z	A	W	S	R	R	K	A	K	A	P
G	K	R	N	L	W	R	O	K	A	B	I	U	L	O
Y	K	S	I	W	B	Y	K	I	E	C	S	P	K	Z
U	U	T	V	K	U	H	N	R	Y	Y	J	K	L	S
N	Y	W	O	L	I	U	N	H	D	Y	E	A	P	D
X	A	R	U	T	D	T	I	E	S	P	I	L	C	E

_____ ?

_____ !

Answer Key

Write the highlighted letters from left to right, top to bottom to reveal the riddle:
How does the man in the moon cut his hair?



Write the last nine letters in the final row from right to left (in reverse) to find the answer to the riddle "Eclipse it."

E C L I P S E I T!

Celestial Showdown

Objective: Students will use creative and critical thinking as well as math problem-solving to complete timed activities in a friendly team competition.

Preparation:

Arrange desks/ tables to create five stations. Make copies of the five station activity pages, class sets of each. Put each class set of copies into folders labeled with the name of the station (see illustration below). Each team will also need a folder of some kind (folded construction paper is fine). Have a timer handy for timing the stations. (opt.- a bell to signal "start" and "stop")

Divide the class into small groups (teams of 2-5, depending on your class size. If time allows, the teams may create "cosmic" names (e.g., Superstars, Galactic Warriors) to write on their team folder which will be carried from station to station.

(Slide 15) - intentionally left blank

(Slides 16-18) - competition title and basic explanation of the competition

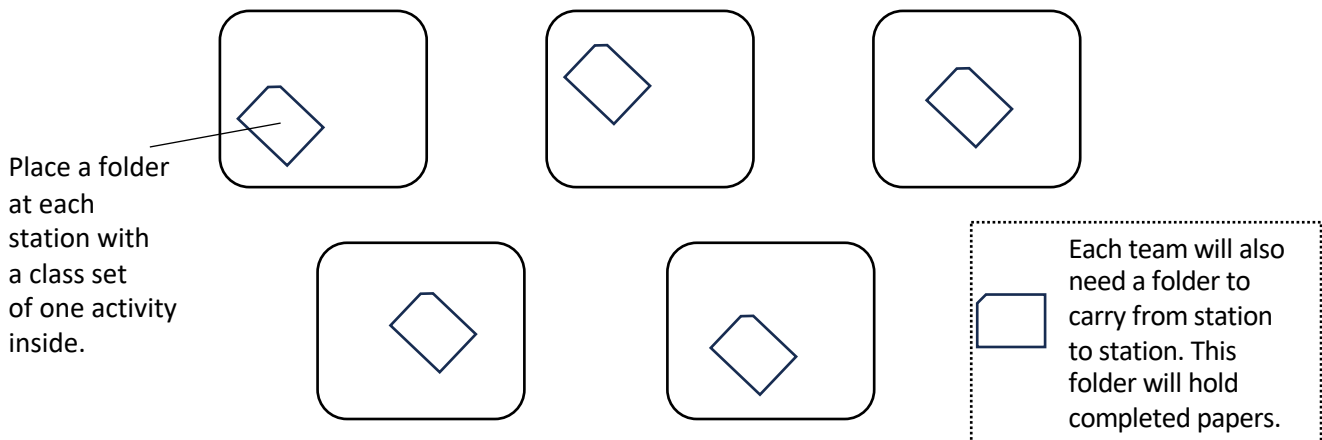
Explain that the competition is made up of 5 stations with 5 different kinds of challenges. Each student needs only a pencil, and the teams will rotate from station to station. A total solar eclipse is expected to last about 4 ½ minutes, so teams will have **5 minutes at each station**. Obviously, this is not enough time to complete an activity, and it can be adjusted as you see fit.

Some challenges will have correct answers, but others require creative thinking. Points will be awarded for responses that are unique (that no other team thought of). The directions at each station will be easy to understand and follow. Students do not need to write their names on their papers, as all papers will be kept in a team folder. Students may work together and share answers.

Once students understand the guidelines, and are seated at stations, place one folder at each table. Remind students not to open the folder until you've given the signal. Then, to avoid ripping of folders due to hurry, explain that you are going to assign one member at each table to open the folder and pass one paper to each team member, and THEN you will give a signal to start. (Have one student at each table pass out papers to team members). Signal the start by ringing a bell or saying, "Begin!"

Set a timer for 5 minutes. At the end of 5 minutes. say, "Pencils down!" Have one team member pick up the papers from team members and place in a team folder. Before rotating teams to the next station, be sure the activity folders are neatly closed, ready for the next group.

Have teams rotate according to your instructions and repeat the steps above for each station.



Scoring: (Optional- a red and yellow marker for each student.)

When teams have rotated through all five stations, have each team check to be sure all papers are in their team folders.

If you don't have time to check all activities together as a class, you can have teams choose one paper for each activity to turn in for scoring. For example:

Ask the teams to remove the Cosmic Computation and the Where Will They Watch? pages from the team folders. Each team must select one of each to turn in for scoring. Be sure the two pages turned in for the team have a student or team name written on them.

If you check as a class, it's fun to share and discover **unique** answers, **responses that only ONE team recorded**. If you do this, have students put away pencils and have only red and yellow markers out.

Cosmic Creativity

Call on student volunteers one at a time (from any team) to share what they drew for the first category. As responses are shared, team members put a red X over any drawing that more than one team drew. If there is a question about something, they may circle it with a yellow highlighter for the teacher to consider later. Repeat this with each category until all responses have been shared. Have teams turn in one paper for final scoring. Award 3 points for each unique drawing

Cosmic Computation

Award 5 points for each correct answer.

Stellar Speller

Begin by asking students to share the longest words they listed. If more than one team has a word, it is crossed out in red. Work down to the 4-letter words, crossing out words written by more than one team. Have teams choose one paper to turn in for final scoring. Award points for unique words as follows; 1 point for each 4-letter word, 2 pts. for 5-letter words, 3 pts. for words with more than 5 letters.

Where's the Sun?

Award 1 point for each correct answer.

Where Will They Watch?

Award 1 point for each correctly circled item on the grid chart. Points may be scored for correct determinations even if the logic puzzle is not completed.

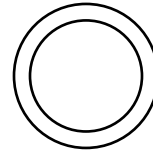
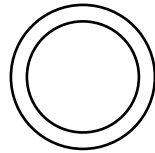
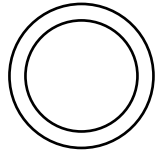
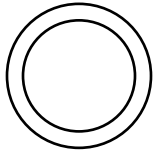
Cosmic Creativity

Directions: Add to each "total eclipse" shape to create items that fit into each category. Add by drawing lines with your pencil. Label your drawings.

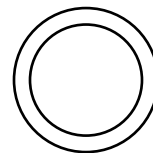
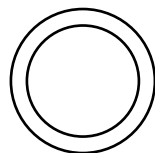
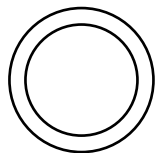
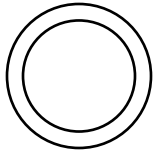
Example: "something worn"



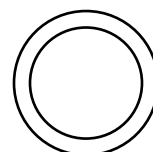
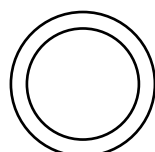
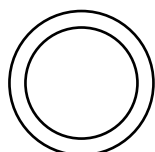
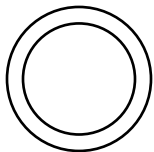
Items that are worn:



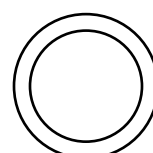
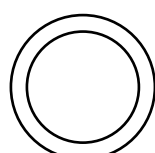
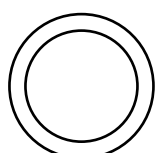
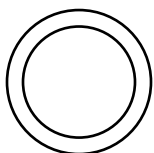
Things found in a classroom:



Things found in a kitchen:



Anything else that comes to mind:



Cosmic Computation

Directions: Solve each problem using the data provided. Use the back of your paper to do figuring. Be sure to label each answer (i.e., a number alone is an incomplete answer).

August 2017 Eclipse (U.S.)		April 2024 Eclipse (U.S.)	
width of path	62 – 71 miles	width of path	108 – 122 miles
number of people in path	about 12 million	number of people in path	about 37 million
max. length of totality	about 2 ½ min.	max. length of totality	about 4 ½ min.

Delta Air Lines Eclipse Flight April 8, 2024	Ticket Price: \$1129.00 (one-way) per person Leaves Austin, Texas - 12:15 p.m. Central Time Arrives Detroit, Michigan – 4:20 p.m. Eastern Time
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Problem 1 - About how much longer will totality be visible in 2024 than in 2017?

Answer _____

Problem 2 - How much would one-way tickets on the Delta flight cost for 3 people?

Answer _____

Problem 3 - About how many more people will be in the 2024 eclipse path than in 2017?

Answer _____

Problem 4 - About how much wider is the path of the 2024 eclipse than the one in 2017?
(round to nearest ten)

Answer _____

Problem 5 - About how long will the Delta flight last?

Answer _____

Problem 6 - The Delta flight sold out (194 seats). How much ticket money was taken in?

Answer _____

Where's the Sun?

Directions: Using the sentence clues below, write words in the blanks that contain the letters S, U, and N. Extra points will be given for correct spelling! The number of letters is given.

Example: Scientists discovered a ship that had sunk in the 1700's. (4 letters)

1. According to the forecast, the morning would be cloudy, but the afternoon would be _____ . (5 letters)
 2. Would you prefer a banana split or an ice cream _____ ? (6)
 3. When an earthquake happens underwater, it can cause a _____ . (7)
 4. I think you _____ what I said. Let me explain again. (13)
 5. Has she _____ this song before? (4)
 6. The light outside is hurting my eyes! I'm going to grab my _____ . (10)
-

Directions: In the blanks below, write words that contain the letters S, T, A, and R.

1. I know you're hungry, but you're certainly not going to _____ .(6)
 2. Would you like ketchup or _____ on your hot dog? (7)
 3. Do you make that _____ with eggs and milk? It's like pudding! (7)
 4. I don't think she speaks English. When I ask a question, she just _____ at me. (6)
 5. When my computer freezes, sometimes it helps to _____ it. (7)
 6. That loud bang _____ me! (8)
-

Directions: In the blanks below, write words that contain the letters S, K, and Y.

1. I think hiking on that mountain might be a little too dangerous and too _____ for us to attempt. (5)
2. The _____ in our kitchen ceiling sometimes leaks. (8)
3. You may see a dog sled in Alaska race pulled by a Siberian _____ . (5)
4. The cold weather makes the horses _____ and playful. (6)

Where Will They Watch?

Directions: Four families will be traveling in April to experience the total eclipse. Use the clues and the logic grids to determine the destination city and location of each (Puzzle 1). If you have time, do Puzzle 2 to determine the size of each family and the distance they will travel.

PUZZLE 1

Williams	Garcia	Trent	Chan
Fort Worth, TX	Fort Worth, TX	Fort Worth, TX	Fort Worth, TX
Conway, AR	Conway, AR	Conway, AR	Conway, AR
Dayton, OH	Dayton, OH	Dayton, OH	Dayton, OH
Rochester, NY	Rochester, NY	Rochester, NY	Rochester, NY
community park	community park	community park	community park
museum lawn	museum lawn	museum lawn	museum lawn
college campus	college campus	college campus	college campus
restaurant patio	restaurant patio	restaurant patio	restaurant patio

Clues:

1. The city one family will visit begins with the same letter as the family's last name.
2. The Trent family will not go to Texas, but they will be on a college campus.
3. The family planning to view from a community park will be in Ohio.
4. The Williams reserved a patio table at a restaurant in Fort Worth.

PUZZLE 2

	Williams	Garcia	Trent	Chan
number of people in the family	6 people	6 people	6 people	6 people
	5 people	5 people	5 people	5 people
	4 people	4 people	4 people	4 people
	3 people	3 people	3 people	3 people
miles of travel	24 miles	24 miles	24 miles	24 miles
	100 miles	100 miles	100 miles	100 miles
	250 miles	250 miles	250 miles	250 miles
	400 miles	400 miles	400 miles	400 miles

Clues:

1. The largest family will travel the greatest distance to see the eclipse.
2. The two smallest families are Chan and Trent. The Trents will go the shortest distance.
3. The Garcia family will travel exactly four times farther than the Williams.
4. The Garcia family is twice as large as the Chan family.

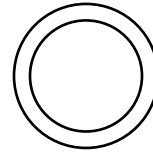
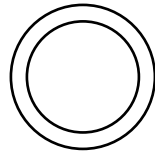
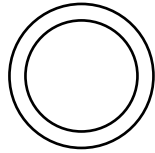
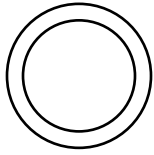
Cosmic Creativity

Directions: Add to the "total eclipse" shape to create items that fit into each category. Add by drawing lines with your pencil.

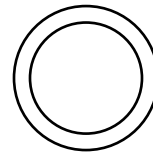
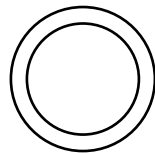
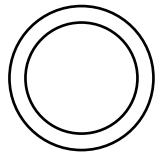
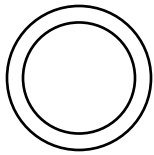
Example: "something worn" (a ring)



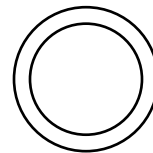
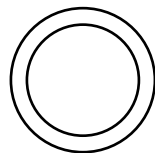
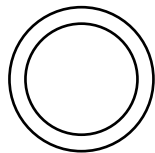
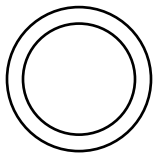
Items that are worn: **hat, earring, hair tie, glasses, button, watch, necklace, bandage**



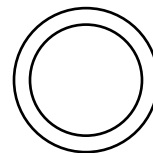
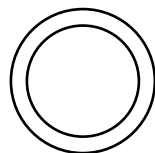
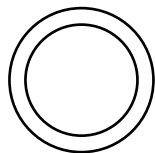
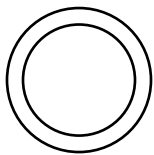
Things found in a classroom: **marker, trashcan, clock, chalk, knob, game pieces, buttons**



Things found in a kitchen: **plate, bowl, skillet, saltshaker, measuring cup/ spoon, burner**



Anything else that comes to mind: **dartboard, cut log, etc.- accept reasonable responses**



Cosmic Computation

Directions: Solve each problem using the data provided. Use the back of your paper to do figuring. Be sure to label each answer (i.e., a number alone is an incomplete answer).

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width of path	62 – 71 miles	width of path:	108 – 122 miles
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-------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------

Problem 1 - - About how much longer will totality be visible in 2024 than in 2017?

Answer **2 minutes**

Problem 2 - How much would one-way tickets on the Delta flight cost for 3 people?

Answer **\$3387.00**

Problem 3 - About how many more people will be in the 2024 eclipse path than in 2017?

Answer **25 million**

Problem 4 - About how much wider is the path of the 2024 eclipse than the one in 2017?
(round to nearest ten)

Answer **50 miles**

Problem 5 - About how long will the Delta flight last?

Answer **3 hours** (time change)

Problem 6 - The Delta flight sold out (194 seats). How much ticket money was taken in?

Answer **\$219,026**

Where's the Sun?

Directions: Using the sentence clues below, write words in the blanks that **contain the letters S, U, and N**. Extra points will be given for correct spelling! The number of letters is given.

Example: Scientists discovered a ship that had sunk in the 1700's. (4 letters)

1. According to the forecast, the morning would be cloudy, but the afternoon would be sunny. (5 letters)
 2. Would you prefer a banana split or an ice cream sundae? (6)
 3. When an earthquake happens underwater, it can cause a tsunami. (7)
 4. I think you misunderstood what I said. Let me explain again. (13)
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2. The skylight in our kitchen ceiling sometimes leaks. (8)
3. You may see a dog sled in Alaska race pulled by a Siberian husky. (5)
4. The cold weather makes the horses frisky and playful. (6)

ANSWER KEY

Where Will They Watch?

Directions: Four families will be traveling in April to experience the total eclipse. Use the clues and the logic grids to determine the destination city and location of each (Puzzle 1). If you have time, do Puzzle 2 to determine the size of each family and the distance they will travel.

PUZZLE 1

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Fort Worth, TX	Fort Worth, TX	Fort Worth, TX	Fort Worth, TX
Conway, AR	Conway, AR	Conway, AR	Conway, AR
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Rochester, NY	Rochester, NY	Rochester, NY	Rochester, NY
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Clues:

1. The city one family will visit begins with the same letter as the family's last name.
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PUZZLE 2

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Big Ideas for Little Scholars



RESOURCES for GIFTED & ADVANCED LEARNERS

Find additional resources on the website created for gifted and advanced learners. You'll also find puzzle tutorials and many kinds of original puzzles [HERE](#), puzzle tutorials [HERE](#) and free virtual scavenger hunts [HERE](#). Enjoy!

VISIT THE SITE TO FIND THESE AND MANY OTHER FREE RESOURCES

[Virtual Scavenger Hunts](#)

Oh, the Places you May Go!

Virtual Field Trip

Scavenger Hunt

Puzzles and Code

[Games for Advanced K-2](#)

GUS and GABBY
Number Logic
Guessing Game

GUS: 8

GABBY: 3

[The Math Behind the Fun and Games](#)

COMBINATORICS

A Branch of Mathematics

MATHLER: A daily math puzzle inspired by Wordle. Find the solution that equals 59.

Ooodle: A math puzzle grid.

HOW MANY DIFFERENT OUTFITS ARE POSSIBLE?