



A Dark Day



image by Dale Cruikshank, courtesy NASA

There's a big event happening up in the sky in a few days. Are you ready to experience the 2017 solar eclipse? The Mini Page explores the science of the eclipse and safe ways to observe it.

What is an eclipse?

An **eclipse** happens when one body in space passes in front of another. A **solar eclipse** happens when the moon passes between the Earth and sun, blocking the sun's light.

The solar eclipse expected on Aug. 21 will cover a large path from Oregon to South Carolina. In its direct path, experts say, the eclipse will make it appear as dark as dusk outside.

The last time a total solar eclipse passed over the continental United States was in 1979.

Watching from space

Scientists will get some rare views of the eclipse from several different spacecraft. For example, in 2006, the International Space Station (ISS) photographed the darkened Earth during an eclipse.



photo courtesy NASA

In 2006, the ISS watched a solar eclipse pass over the area around Turkey and Cyprus near the Mediterranean Sea.

Other spacecraft observing the eclipse will be the DISCOVER, the Deep Space Climate Observer; LRO, the Lunar Reconnaissance Orbiter; and solar observatories called IRIS and Hinode. These spacecraft will be able to send different views and types of data back to NASA for scientists to analyze.

Scientists and students will also make observations from the ground and using high-altitude balloons.

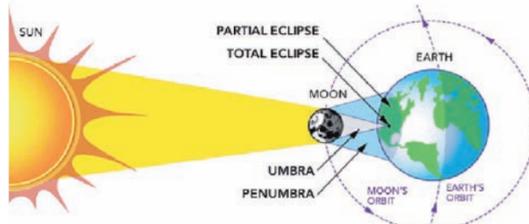


image courtesy NASA

Viewing the event

No matter where you live in North America, you'll be able to see at least a partial eclipse on Aug. 21. The path of **totality**, where people will see a total eclipse, is only about 70 miles wide and stretches from Lincoln Beach, Oregon, to near Charleston, South Carolina.

The shadow causing the partial eclipse is called the **penumbra** (peh-NUH-bruh). The shadow of the total eclipse is the **umbra** (UM-bruh).

Mini Fact:

The moon is too small to cover the entire sun's disk, so a ring, or **annulus**, of bright sunlight surrounds the moon.

Moon in motion

There are several stages of a total eclipse. In the first stage, the moon is partially blocking the sun. This stage can last more than an hour.

As the eclipse becomes total, the last bits of sunlight streaming through valleys on the moon cause a bright flash, known as the **diamond ring effect**.

When the diamond ring disappears and the moon completely covers the sun, it's safe to look at the eclipse. But this will only last for a few seconds. When you begin to see a crescent on the other side of the moon, it's time to protect your eyes again.

Safety first!

Looking directly at the sun can cause serious damage to your eyes!



photo by Kevin Hale

The only way to look directly at the eclipse is through special "eclipse glasses." Even very dark sunglasses are not safe to watch through. Don't look through a camera, telescope or binoculars, even with eclipse glasses.

You can also use a pinhole projector to watch the eclipse safely. Read more about protecting your eyes in the Resources section below.

Resources



On the Web:

- eclipse.stream.live
- eclipse2017.nasa.gov/safety
- eclipse.aas.org/eye-safety
- exploratorium.edu/eclipse/how-to-view-eclipse
- bit.ly/MPpinhole

Try 'n' Find

Words that remind us of eclipses are hidden in this puzzle. Some words are hidden backward or diagonally, and some letters are used twice. See if you can find:



ANNULUS, AUGUST,
BALLOONS, CRESCENT,
DIAMOND, EARTH,
ECLIPSE, EFFECT,
GLASSES, LIGHT, MOON,
ORBIT. PARTIAL, PATH,
PENUMBRA, PROJECTOR,
RING, SAFETY, SHADOW,
SOLAR, SPACE, SUN,
TOTALITY.

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

Cook's Corner

Spicy Baked Potato

You'll need:

- 1 medium-size potato
- 2 teaspoons margarine or butter
- 1/2 teaspoon taco seasoning
- 2 tablespoons shredded reduced-fat cheddar cheese

- 1 tablespoon low-fat sour cream
- 1 tablespoon chunky salsa
- 1/2 cup black beans, drained and rinsed



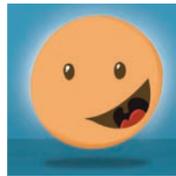
* You'll need an adult's help with this recipe.

What to do:

1. Wash, dry and poke holes in potato with a fork. Cook potato in microwave for 6 to 7 minutes on high.
2. Cut potato in half lengthwise; allow to cool slightly. Scoop out potato into a medium-size bowl. Mix and mash in butter, taco seasoning, cheese, sour cream and salsa.
3. Place mixture back in potato shell; microwave for 45 to 50 seconds. Top with black beans. Serves 1.

7 Little Words for Kids

Use the letters in the boxes to make a word with the same meaning as the clue. The numbers in parentheses represent the number of letters in the solution. Each letter combination can be used only once, but all letter combinations will be necessary to complete the puzzle.



1. it attracts metal (6) _____
2. what you drink with cookies (4) _____
3. long strings of pasta (9) _____
4. large ape (7) _____
5. kind of salad dressing (5) _____
6. yellow hot dog topping (7) _____
7. winter month (8) _____

BER	ILLA	HET	CEM
ARD	TI	LK	CH
GOR	NET	RAN	MAG
MUST	SPAG	DE	MI

Answers: magnet, milk, spaghetti, gorilla, ranch, mustard, December.

Mini Jokes



Mikey: How does a man on the moon get his hair cut?
Miles: E-clipse it!

Eco Note



Have you ever used a magnifying glass to concentrate sunbeams and burn a piece of paper? This same idea is at the core of a new energy idea, **solar thermal energy**. The sun's light is focused onto a small area using mirrors. The beam causes a liquid to get very hot, and then that liquid is pumped through pipes to a tank of water. When the water boils, the steam spins a turbine, which powers a generator.

adapted from NASA.gov

For later:

Will the path of the total eclipse pass close to your home? Make a plan for viewing the eclipse with your family.

Teachers:

For standards-based activities to accompany this feature, visit: bbs.amuniversal.com/Everyone_content/Teaching_Guides/The_Mini_Page/

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