



**PEEC**

Pajarito Environmental  
Education Center

# The Latest from PEEC

The Los Alamos Nature Center is still closed to the public, but PEEC has lots of things you can do to connect with nature from home. Check our website, [peecnature.org](http://peecnature.org), for the latest events and information.

## Take It Outside:

Check our website every week for new outdoor challenges to help you learn about nature all summer long. Participate in our Summer Nature Challenge using the challenge sheet included in this packet to earn stickers for your efforts!

## Passports to the Pajarito Plateau:

Summer is a great time to complete our three trails passports! Check [peecnature.org/passport](http://peecnature.org/passport) for more information. Did you know you can order Passports for pick-up (for free) through our online store? Visit [peecnature.org/shop](http://peecnature.org/shop) to order.

## Summer Family Evenings:

These popular Wednesday evening events are happening virtually this year! See [peecnature.org/events](http://peecnature.org/events) for details and to register. Thanks to Del Norte Credit Union for sponsoring these events in 2020!

## Join us for:

- June 17: Classic Air Medical
- June 24: Assistance Dogs of the West
- July 8: Explora Science Museum
- July 15: New Mexico House Rabbit Society
- July 22: Mesa Public Library
- July 29: Harrell House of Natural Oddities

## Live-streamed Talks:

Join us every week for live-streamed talks about nature and astronomy. Visit [peecnature.org/events](http://peecnature.org/events) for details and to register.

## Activity: Make an Artificial Campfire!

Camping makes us think of campfires, but with fire safety and fire restrictions in mind (especially if you are camping in your living room!), you can't always have a real campfire. But that doesn't mean you can't get into the spirit! Use your imagination to craft a fantastic mock campfire.

### Ideas:

- Use strips of colored paper for flames ... let them flap in the wind!
- Toilet paper rolls or real sticks make great logs.
- Create a fire ring with pebbles.
- Make it glow with electronic tea lights or decorative solar lights!

If you like, tune in to the library's Zoom call at 7:30 PM to make a campfire craft along with County librarians! Share your final product on the Los Alamos Community Services Facebook page, @LosAlamosCommunityServices.

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## Activity: Summer Scavenger Hunt

How many of the following signs of summer can you find?

### Evening:

	Sunset	Tonight is the summer solstice, or longest day of the year! The sun will set around 8:20 PM in Los Alamos, though you might see it go behind the mountains earlier. It will also set furthest to the northwest tonight.
	Flying Insects	See them around a porch light or streetlight, or try shining a flashlight onto a wall or light-colored fabric to attract them.
	Bats	You can also see them around flashlights, or over water bodies like Ashley Pond.
	Summer Constellations	Use the SkyMap to find the Big Dipper, Scorpius and the Summer Triangle (made up of the stars Vega, Deneb, and Altair).

### Morning:

	Sunrise	The sun will rise at 5:45 AM for an early start to the day! It will rise in the northeast.
	Baby Birds	This is baby bird season! Look for adults feeding their babies, or scruffy-looking fledglings leaving the nest.
	Flowers	Look for red penstemons and yellow Greenthread (also known as Hopi or Navajo Tea) in Los Alamos, or pink cholla in White Rock.

# The Evening Sky Map

FREE\* EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

## Sky Calendar - June 2020

Get Sky Calendar on Twitter  
<http://twitter.com/skymaps>

- Moon near Spica (evening sky) at 8h UT.
- Moon at perigee (closest to Earth) at 3:35 UT (distance 364,366 km; angular size 32.8').
- Venus at inferior conjunction with the Sun at 18h UT. The brightest planet passes into the morning sky.
- Mercury at greatest elongation east (24° from Sun, evening sky) at 13h UT. Mag. 0.5.
- Moon near Antares (midnight sky) at 12h UT.
- Penumbral Lunar Eclipse from 17:46 to 21:04 UT, mid-eclipse at 19:25 UT. Best seen at mid-eclipse. Visible worldwide except from most of the Americas.
- Full Moon at 19:12 UT.
- Moon, Jupiter and Saturn within a circle of diam. 5.1° (morning sky) at 22h UT. Mags. -2.6 and 0.4.
- Moon near Mars (morning sky) at 3h UT. Mag. -0.2.
- Last Quarter Moon at 6:24 UT.
- Moon at apogee (farthest from Earth) at 1h UT (distance 404,595 km; angular size 29.5').
- Moon near the Pleiades at 23h UT (morning sky).
- Moon, Venus and Aldebaran within a circle of diam. 4.9° (morning sky) at 11h UT. Mags. -4.3 and 0.9.
- June solstice at 21:45 UT. The time when the Sun reaches the point farthest north of the celestial equator marking the start of summer in the Northern Hemisphere and winter in the Southern Hemisphere.
- Annular Solar Eclipse from 4:48 to 8:32 UT. Greatest eclipse at 6:40 UT. The narrow path of annularity extends from central Africa to south Asia, China and the Pacific. Partial eclipse from Africa, SE Europe and Asia.
- New Moon at 6:41 UT. Start of lunation 1206.
- Moon near Beehive cluster M44 (evening sky) at 3h UT.
- Moon near Regulus (evening sky) at 18h UT.
- First Quarter Moon at 8:15 UT.
- Moon near Spica (evening sky) at 14h UT.
- Moon at perigee (closest to Earth) at 2:07 UT (distance 368,958 km; angular size 32.4').

More sky events and links at <http://Skymaps.com/skycalendar/>

All times in Universal Time (UT). (USA Eastern Daylight Time = UT - 4 hours.)

SAVE ON RECOMMENDED PRODUCTS • <http://Skymaps.com/store>

- STAR ATLAS & PLANISPHERES
- TELESCOPES & BINOCULARS
- BOOKS FOR SKY WATCHERS

All sales support the production and free distribution of The Evening Sky Map. Thank you!

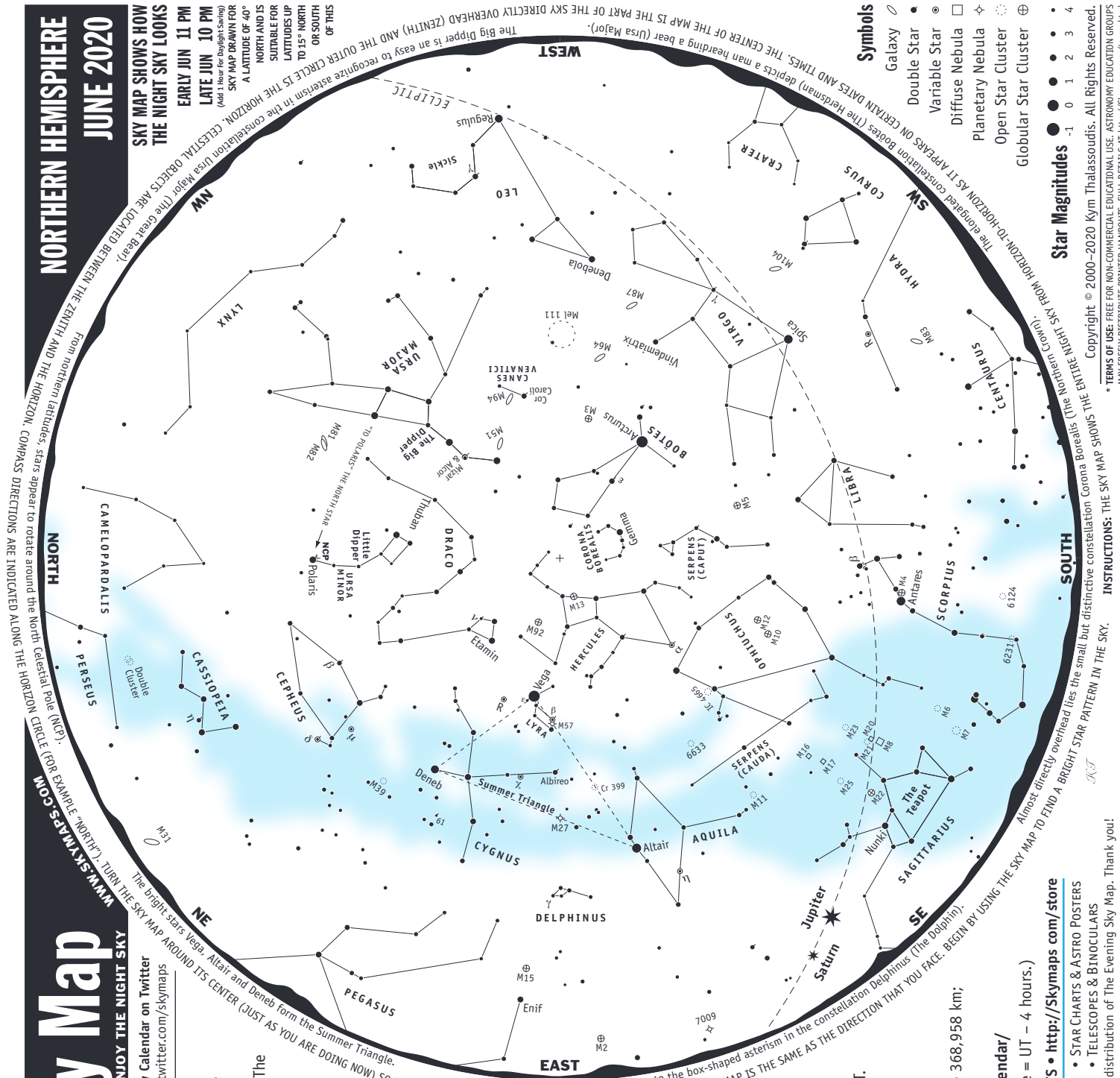


# NORTHERN HEMISPHERE JUNE 2020

## SKY MAP SHOWS HOW THE NIGHT SKY LOOKS

- EARLY JUN 11 PM
- LATE JUN 10 PM

(Add 1 hour for Daylight Saving)  
 SKY MAP DRAWN FOR A LATITUDE OF 40° NORTH AND IS SUITABLE FOR LATITUDES UP TO 15° NORTH OR SOUTH OF THIS



- ### Symbols
- Galaxy
  - Double Star
  - Variable Star
  - Diffuse Nebula
  - Planetary Nebula
  - Open Star Cluster
  - Global Star Cluster

- ### Star Magnitudes
- 1
  - 0
  - 1
  - 2
  - 3
  - 4

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From northern latitudes, stars appear to rotate around the North Celestial Pole (NCP), and the horizon circle (for example "north"). TURN THE SKY MAP AROUND ITS CENTER (JUST AS YOU ARE DOING NOW) SO THE COMPASS DIRECTION THAT APPEARS ALONG THE HORIZON CIRCLE (FOR EXAMPLE "NORTH") AND THE OUTER CIRCLE (FOR EXAMPLE "WEST") ARE IN THE CORRECT DIRECTIONS. COMPASS DIRECTIONS ARE INDICATED ALONG THE HORIZON CIRCLE (FOR EXAMPLE "NORTH").

The bright stars Vega, Altair and Deneb form the Summer Triangle. Job's Coffin is the name given to the box-shaped asterism in the constellation Delphinus (The Dolphin). Almost directly overhead lies the small but distinctive constellation Corona Borealis (The Northern Crown). The ecliptic constellation Ursa Major (The Great Bear) depicts a man hearing a bear (Ursa Major). THE CENTER OF THE MAP IS THE PART OF THE SKY DIRECTLY OVERHEAD (ZENITH) AND THE OUTER CIRCLE IS THE HORIZON. CELESTIAL OBJECTS ARE LOCATED BETWEEN THE GREAT BEAR. THE BIG DIPPER IS AN EASY TO RECOGNIZE ASTERISM IN THE CONSTITUTION OF URSA MAJOR.

INSTRUCTIONS: THE SKY MAP SHOWS THE ENTIRE NIGHT SKY FROM HORIZON-TO-HORIZON AS IT APPEARS ON CERTAIN DATES AND TIMES. Symbols

## About the Celestial Objects

Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. **Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars.** They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

**Tips for Observing the Night Sky**

When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it's always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today's large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

## Astronomical Glossary

**Conjunction** – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.

**Constellation** – A defined area of the sky containing a star pattern.

**Diffuse Nebula** – A cloud of gas illuminated by nearby stars.

**Double Star** – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (").

**Ecliptic** – The path of the Sun's center on the celestial sphere as seen from Earth.  
**Elongation** – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.

**Galaxy** – A mass of up to several billion stars held together by gravity.

**Globular Star Cluster** – A ball-shaped group of several thousand old stars.

**Light Year (ly)** – The distance a beam of light travels at 300,000 km/sec in one year.

**Magnitude** – The brightness of a celestial object as it appears in the sky.

**Open Star Cluster** – A group of tens or hundreds of relatively young stars.

**Opposition** – When a celestial body is opposite the Sun in the sky.

**Planetary Nebula** – The remnants of a shell of gas blown off by a star.

**Universal Time (UT)** – A time system used by astronomers. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT.

**Variable Star** – A star that changes brightness over a period of time.

## Easily Seen with the Naked Eye

Altair	• Brightest star in Aquila. Name means "the flying eagle". Dist=16.8 ly.
Arcturus	• Orange, giant K star. Name means "bear watcher". Dist=36.7 ly.
δ Cephei	• Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion.
Deneb	• Brightest star in Cygnus. One of the greatest known supergiants. Dist=1,400±200 ly.
α Herculis	• Semi-regular variable. Magnitude varies between 3.1 & 3.9 over 90 days. Mag 5.4 companion.
Vega	• The 5th brightest star in the sky. A blue-white star. Dist=25.0 ly.
Antares	• Red, supergiant star. Name means "rival of Mars". Dist=135.9 ly.
Polaris	• The North Pole Star. A telescope reveals an unrelated mag 8 companion star. Dist=433ly.
Spica	• Latin name means "ear of wheat" and shown held in Virgo's left hand. Dist=250 ly.

## Easily Seen with Binoculars

η Aquilae	• Bright Cepheid variable. Mag varies between 3.6 & 4.5 over 7.166 days. Dist=1,200 ly.
M3	• Easy to find in binoculars. Might be glimpsed with the naked eye.
μ Cephei	• Herschel's Garnet Star. One of the reddest stars. Mag 3.4 to 5.1 over 730 days.
Mel 111	• Coma Berenices. 80 mag 5-6 stars in 5 deg. Dist=283 ly. Age=400 million years.
χ Cygni	• Long period pulsating red giant. Magnitude varies between 3.3 & 14.2 over 407 days.
M39	• May be visible to the naked eye under good conditions. Dist=900 ly.
ν Draconis	• Wide pair of white stars. One of the finest binocular pairs in the sky. Dist=100 ly.
M13	• Best globular in northern skies. Discovered by Halley in 1714. Dist=23,000 ly.
M92	• Fainter and smaller than M13. Use a telescope to resolve its stars.
ε Lyrae	• Famous Double Double. Binoculars show a double star. High power reveals each a double.
ρ Lyrae	• Semi-regular variable. Magnitude varies between 3.9 & 5.0 over 46.0 days.
M12	• Close to the brighter M10. Dist=18,000 ly.
M10	• 3 degrees from the fainter M12. Both may be glimpsed in binoculars. Dist=14,000 ly.
IC 4665	• Large, scattered open cluster. Visible with binoculars.
6633	• Scattered open cluster. Visible with binoculars.
M8	• Lagoon Nebula. Bright nebula bisected by a dark lane. Dist=5,200 ly.
M25	• Bright cluster located about 6 deg N of "teapot's" lid. Dist=1,900 ly.
M22	• A spectacular globular star cluster. Telescope will show stars. Dist=10,000 ly.
M4	• A close globular. May just be visible without optical aid. Dist=7,000 ly.
M6	• Butterfly Cluster. 30+ stars in 7x binoculars. Dist=1,960 ly.
M7	• Superb open cluster. Visible to the naked eye. Age=260 million years. Dist=780 ly.
M5	• Fine globular star cluster. Telescope will reveal individual stars. Dist=25,000 ly.
Mizar & Alcor	• Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion.
Cr 399	• Coathanger asterism or "Brocchi's Cluster". Not a true star cluster. Dist=218 to 1,140 ly.

## Telescopic Objects

ε Booötis	• Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split.
M94	• Compact nearly face-on spiral galaxy. Dist=15 million ly.
M51	• Whirlpool Galaxy. First recognised to have spiral structure. Dist=25 million ly.
M64	• Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star".
Albireo	• Beautiful double star. Contrasting colours of orange and blue-green. Sep=34.4".
61 Cygni	• Attractive double star. Mags 5.2 & 6.1 orange dwarfs. Dist=11.4 ly. Sep=28.4".
γ Delphini	• Appear yellow & white. Mags 4.3 & 5.2. Dist=100 ly. Struve 2725 double in same field.
β Lyrae	• Eclipsing binary. Mag varies between 3.3 & 4.3 over 12.940 days. Fainter mag 7.2 blue star.
M57	• Ring Nebula. Magnificent object. Smoke-ring shape. Dist=4,100 ly.
M23	• Elongated star cluster. Telescope required to show stars. Dist=2,100 ly.
M20	• Trifid Nebula. A telescope shows 3 dust lanes trisecting nebula. Dist=5,200 ly.
M21	• A fine and impressive cluster. Dist=4,200 ly.
M17	• Omega Nebula. Contains the star cluster NGC 6618. Dist=4,900 ly.
M11	• Wild Duck Cluster. Resembles a globular through binoculars. V-shaped. Dist=5,600 ly.
M16	• Eagle Nebula. Requires a telescope of large aperture. Dist=8,150 ly.
M81	• Beautiful spiral galaxy visible with binoculars. Easy to see in a telescope.
M82	• Close to M81 but much fainter and smaller.
M87	• Super giant galaxy with supermassive black hole at its core. Dist=53.5 million ly.
γ Virginis	• Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005.
M27	• Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly.

# CELESTIAL OBJECTS



# PEEC Summer Nature Challenge



Take It Outside this summer with the Pajarito Environmental Education Center! Participate in our challenges and track your experiences to earn a different sticker each week.

Write a few words, draw a picture, or take a photo to capture each experience outdoors. Bring or mail your completed form to the Los Alamos Nature Center to receive your stickers! Our address is: 2600 Canyon Rd., Los Alamos, NM 87544.

If you'd prefer, submit your entries online! Visit [peechnature.org/take-it-outside](http://peechnature.org/take-it-outside) to learn more.

**Name:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Mailing Address (if you want us to send you stickers!):**

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## How to Earn Your Stickers:

You can earn up to 10 different stickers this summer!

For each topic, you will earn a sticker if you draw or write about your experience. If you participate in all 9 weeks, you'll receive a bonus sticker!

Do one of our suggested activities printed in each square, check [peechnature.org/take-it-outside](http://peechnature.org/take-it-outside) each week for ideas, or come up with your own activity for each topic!

Have any questions?  
Email [takeitoutside@peechnature.org](mailto:takeitoutside@peechnature.org) or call 505-662-0460 and leave a message.

**Signs of Summer**  
*Look for baby birds • Sketch a wildflower*

**Camping or Outdoor Adventures**  
*Stargaze • Go fishing • Go hiking*

**Geology**  
*Find different-colored rocks • Make a mud pie*

**Animals**  
*Go on a bug hunt • Find animal tracks*

**Plants**  
*Grow a seed • See, feel, and smell a tree*

**Ecology**  
*Look for pollinators • Discover what an animal eats*

**Nature Art**  
*Paint a landscape •  
Make art out of natural objects*

**Weather & Climate**  
*Measure rainfall • Watch the clouds*

**Naturalist's Choice**  
*Explore a favorite topic •  
Try something new*

**Track Your Progress! Fill in this bar for each challenge you complete!**

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Choose your own challenge this week!  
Explore more about one of your favorite topics or try something new!