

Home Learning

Priestley Primary School

During School Closures



KS2 Summer Term 2

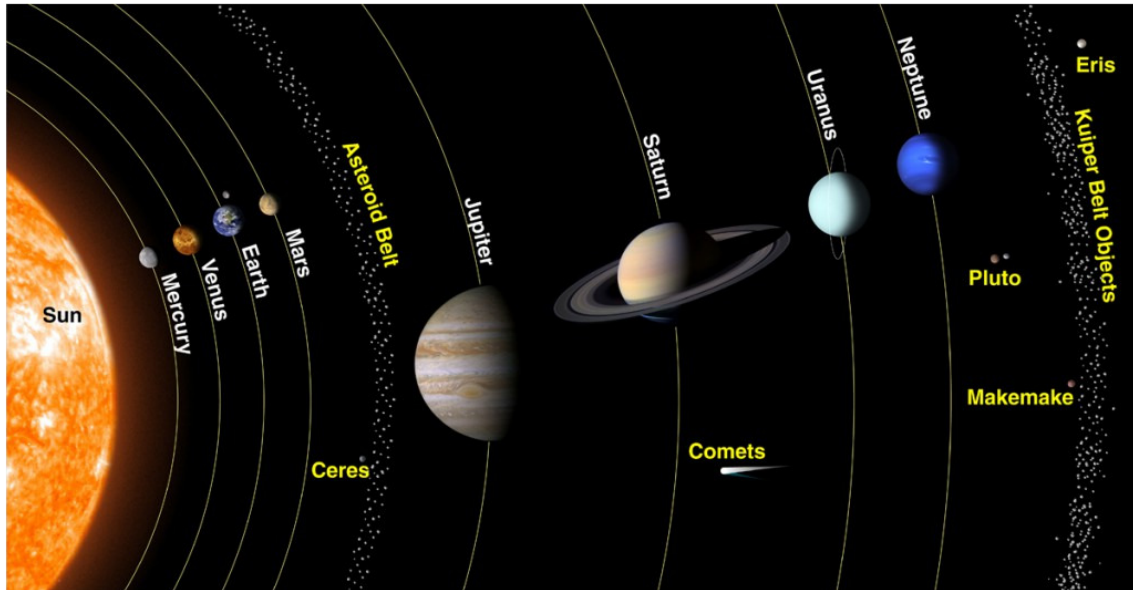
Space!

A study of what's beyond
our world.

Home Learning Project 1

Choose one of the following planets from our Solar System – Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

Research your chosen planet:



Create your own fact file about the planet, you may wish to include the following:

- ✓ Distance from the Sun
- ✓ Neighbouring Planets
- ✓ Number of moons
- ✓ Size of the planet
- ✓ Length of a year
- ✓ Weather

Home Learning Project 2

Space exploration Ten Facts

1. The first person in space was Yuri Gagarin from the Soviet Union, who travelled into orbit around the Earth in 1961.
2. The first man to walk on the Moon was an American called Neil Armstrong in 1969.
3. The Moon is the only place in space apart from Earth that humans have set foot on.
4. People who fly into space are called astronauts. They must be very careful about what they eat and what exercise they do to stay healthy while they are in space.
5. A spacecraft needs to travel at 11,000 miles per hour to get into orbit around the Earth.
6. Spacecraft use huge rockets to carry them into space.
7. The most famous type of spacecraft was the Space Shuttle. There were five Space Shuttles and one prototype – between them they flew 135 missions into space.
8. Out of billions of people who live on Earth, only 535 have been into Orbit, and only 12 have ever walked on the Moon.
9. The International Space Station is the biggest space station ever built. It can hold a crew of six people.
10. In 2012 a machine made by NASA called 'Curiosity' landed on Mars to see if it could find evidence of any creatures or plants having ever lived there.

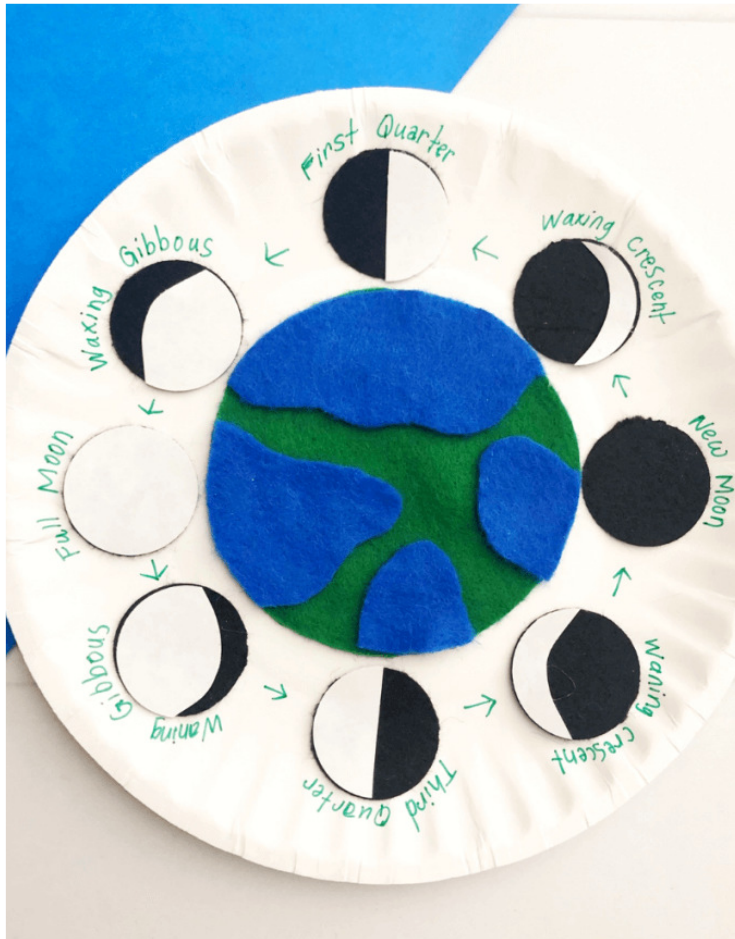
Activities

Use the ten facts above to create a quiz, a poster, a leaflet or a knowledge organiser about space exploration.

Home Learning Project 3

The moon phases are the shape of the directly sunlit portion of the Moon as viewed from Earth. The phases gradually change over the period of a month, as the positions of the Moon around Earth and of Earth around the Sun shift.

Research the phases of the moon and create your own way to show how they phases change.



Now you know about the phases of the moon, can you keep a moon diary for the next two weeks tracking which phase the moon is in each day?

Home Learning Project 4

Did You Know?

- Space starts 100 kilometres (62 miles) above the surface of the Earth.
- The first man to walk on the moon was Neil Armstrong. He was an American who travelled there in 1969 on NASA's Apollo 11 mission. As he stepped onto the Moon he said, "That's one small step for man, one giant leap for mankind."
- A satellite is what we call a machine that is launched into orbit around the Earth. Some satellites do things like taking photographs or broadcasting TV channels, and others are used by scientists.
- The first satellite was called Sputnik I and was launched by the Soviet Union in 1957. It circled the Earth for three months.
- When a space mission includes people, we call it a manned space expedition. When it only includes machines, we call it an unmanned expedition.
- Nobody has ever stepped on any object in space apart from the Moon, but we have sent machines to investigate Mars, Jupiter, Saturn and many other places.
- There is no air in space, so astronauts must take air with them from Earth so that they can breathe. If they want to go outside their spacecraft, they must wear special airtight clothes called a space suit.
- A space station is a place built in space so that astronauts can live and work in space.
- There is so little gravity in orbit around the Earth that instead of walking on the ground, astronauts in the space shuttles or on the International Space Station float in the air. This is called weightlessness.
- Astronauts must exercise every day to keep their muscles strong while they are in space. They also must eat specially prepared foods that are nutritious, easy to prepare and don't make a mess when you eat them in space. Ice cream is too messy to eat in space so astronauts must have it freeze-dried so that they can eat it for dessert!

Activity

Create your own 'Did You Know' fact cards and illustrate them to help you remember the facts.

Home Learning Project 5

Words to know for space exploration:

Astronaut – a person who has travelled in space

Curiosity – a large rover sent to Mars by NASA to look for signs of life

ESA – the European Space Agency, which consists of all the countries in Europe working together on missions to explore space

NASA – the North American Space Agency, which is the organisation from the USA that explores and investigates space

Orbit – When something goes into orbit, it is high enough that it keeps circling the Earth, instead of falling back to the ground.

Rocket – Rockets burn a lot of fuel to get to very high speeds very quickly. You have to do this if you want to get from the surface of the Earth into orbit.

Rover – a mobile robot sent to land on another planet or moon and explore

Satellite – a machine put into orbit around the Earth, and often used for science or communications

Spacecraft – a vehicle for travelling in space or into space

Space Shuttle – Made by NASA, this is the most famous type of spacecraft to be made.

Space station – a permanent structure in space where astronauts can live and work

Spacesuit – special airtight clothes that keep an astronaut safe and warm outside their spacecraft

Sputnik – the first satellite to be put into orbit around Earth

Voyager I and Voyager II – spacecraft that were sent to explore the outer parts of the Solar System

Activities

Create your own glossary of space exploration words. Make them into small fact cards and illustrate them with pictures to help you remember them.

Home Learning Project 6

Space explorers – create your own fact cards

Name: Date:

Here are some famous astronauts. Use the Internet or reference books to find out more about them and complete each fact file.

Yuri Gagarin

The first person ever in space



Place and date of birth:

Name and date of first space mission:

Name of space vehicle on first mission:

Date of death:

Alan Shepard

The first American in space



Place and date of birth:

Name and date of first space mission:

Name of second space mission:

Date of retirement from NASA:

Neil Armstrong

The first man on the Moon



Place and date of birth:

Name and date of first space mission:

What did he famously say when he stepped on to the Moon?

Name one other mission he completed:

Buzz Aldrin

The second man on the Moon



Place and date of birth:

Name and date of first space mission:

Name of one other space mission:

What job did he do before he became an astronaut?

Home Learning Project 7

- **The Sun is 93 million miles from the Earth. The light from the Sun only takes 8 minutes to travel to the Earth, but it would take Usain Bolt – the fastest man on Earth – 450 years to run from the Sun to the Earth.**
- The Earth travels around the Sun in a loop that is shaped a bit like an oval. We call this the Earth's **orbit**.
- **The Earth is always spinning around** – sometimes from where you stand on the Earth you can see the Sun (this is the daytime) and sometimes the part of the Earth where you are is facing away from the Sun so it is dark (this is the nighttime). It takes 24 hours for the Earth to spin all the way around, and we call this a day. Find out more about [night and day](#).
- There are eight planets that orbit around the Sun. In order, going from the closest planet to the Sun, to the one that is farthest away, they are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. There is a lot of difference between the planets. **Some planets like Earth are made of rock, and some like Jupiter are made of gas.** The hottest planet is Venus where the average temperature is 460°C, and the coldest is Uranus, which is -220°C.
- The biggest planet is Jupiter. Jupiter is made of gas and is so big that you could fit 1,321 planets the size of Earth inside it. There is even a storm on Jupiter that is bigger than Earth – this storm has been blowing for hundreds of years and is called the 'Great Red Spot'.
- Saturn is famous for having rings of small pieces of ice and dust around it. Like Jupiter, it is made of gas and is much bigger than Earth.
- **The Moon is a ball of rock that orbits around the Earth**, in the same way that the Earth orbits around the Sun. It is much smaller than the Earth and takes 28 days to complete one orbit. The Moon is 239,000 miles away and is the only place in the Solar System that man has travelled to apart from Earth.

Use these Top Facts about Space and create a poster or leaflet .

Home Learning Project 8

SPACE POETRY

When I'm An Astronaut

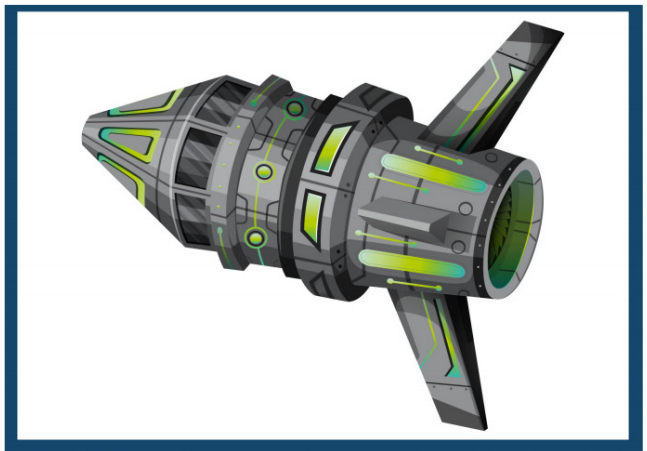
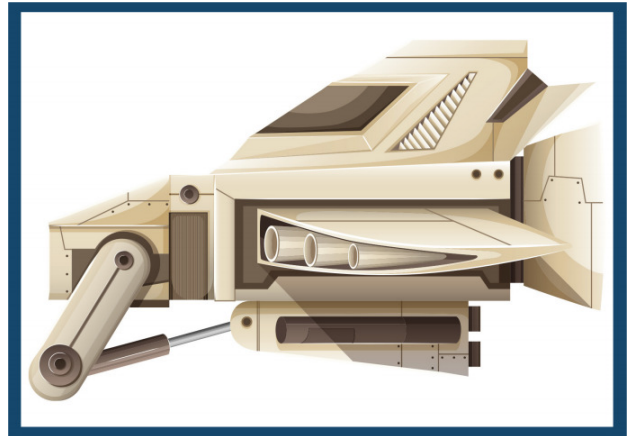
First I'll get into my spacesuit.
Then I'll bravely wave good-bye.
Next I'll climb into my spacecraft
Built to sail right through the sky!
In command inside the capsule,
I will talk to ground control.
When we've checked out
all the systems,

I'll say, "Let the countdown roll!"
And it's 4-3-2-1 - - blast off - -
With a smile upon my face,
I'll spin loops around the planets
up, up, up in outer space!

What words can you think of linked to Space?
Use them to create your own poem/song/rap

Home learning Project 9

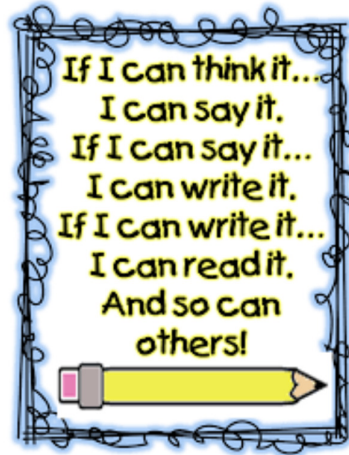
Design and make a model spaceship or rocket using a variety of junk materials. Investigate different ways to make and join their structures, using taping, gluing and tying. Explore ways of making a structure sturdier so that it can stand alone.



Home Learning Project 10

Imagine you were in Space, think about the following things:

- What would you hear?
- What would you see?
- What would you smell?
- What would you taste?
- Who would you be with?
- What objects might you come across?



Be creative and write your own description

Modelled Write

"Curiously, I stepped out of my towering craft. I could smell a fantastic odour coming from what seemed to be a cosmic flower bed. I saw massive craters that dug two miles beneath the ground. Thick amethyst smoke cuddled at my feet. I quickly sprinted forward, I suddenly fell into a pit of lime green slime. I struggled and squirmed but I only sank deeper. I closed my eyes in hope of survival. With a thud I landed. I opened my eyes once more and saw a cave. The walls were blacker than the blackest segment of obsidian ore. Before long, I reached a mossy wall covered in vines that led to the surface. Once I climbed back up, I reached the other side of the planet. Sunlight reflected off of the silver water. Magenta trunked trees with butterscotch yellow leaves stood hunchbacked casting a shadow. A whirlpool of stars dazzled and glimmered. In a blink of an eye, a beacon like light burst out of space."

Write your own description using all the features listed.

Prepositions, Adjectives, Powerful verbs, Adverbs, Metaphors/Similes,
Personification & Alliteration.

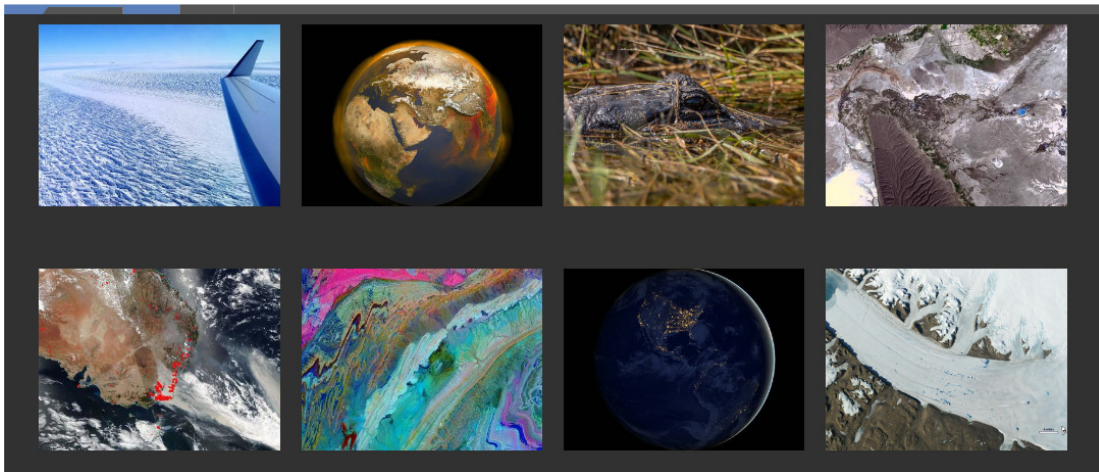
Home Learning Project 12

Get a rocket's eye view.

Visit the [NASA](#) website to see and discuss images of Earth from space.

Explore the Earth from above on mapping websites, identifying basic geographical features such as a sea, ocean, land, island, forest, city, lake and river.

Try to spot similar features on other planets in a selection of aerial photographs, such as Martian river beds and mountains on Venus.



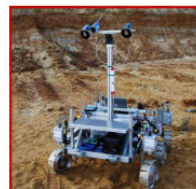
Home Learning Project 13

Find some recycled materials at home create your own space collage.
Have a look at some of the examples to inspire you!



Home Learning Project 14

You are going to be the first team of astronauts to land on Mars in 2030. You have travelled in a rocket for 7 months and you are now in orbit around Mars. Mission control have told you that you will be going down to the surface of Mars for 8 hours tomorrow. You need to plan what you are going to take with you. Because the landing shuttle can't be too heavy you are only allowed to take 6 items. Look at the items you are allowed to choose from. Decide what items your team will take. Mission control needs to know why you need these items more than the others. Remember to explain why.



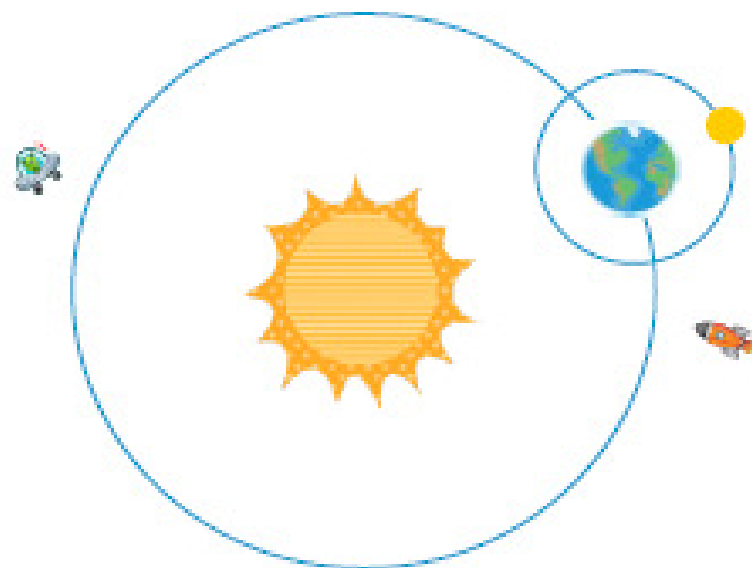
Earth, Sun and Moon research pack



L.O: I can explain the relationships between the Sun, Earth and Moon

Copy this simple diagram into your book, use a whole page. **Note the diagram is NOT to scale.** Use the words below to help you label the diagram. Cut out the captions below and stick them around your diagram.

Sun	solar flare	sunspot	corona	orbit	Moon
Earth	atmosphere	land	ocean	plains	mountains



The moon orbits the Earth once every 28 days.	The Earth spins on its axis once every 24 hours. As we turn away from the Sun, we enter night.	The Earth orbits the Sun once every 365 1/4 days.	The Sun is a star at the centre of our Solar System.
The Moon doesn't change shape; it is the Sun's light that makes it appear to wax and wane.	The Earth's tilt on its axis is what causes our seasons.	The Moon is about 320,000 km away from the Earth.	The Moon is only held in place by the gravitational pull of the Earth.
The Moon doesn't shine. It reflects the Sun's light.	The corona of the Sun is made from helium and hydrogen.	Water covers 70% of the Earth, the other 30% is covered by land.	The Sun is 15 million degrees hot at its centre.

Home Learning Project 16



This is Van Gogh's painting called 'Starry Night.'



Choose your own night sky or space theme and recreate the picture using pencil, collage or paint.

Home Learning Project 17

Stars and Constellations

This focuses on one of the most awesome things we can see in the night sky: stars and star patterns that we call constellations. Stars are big exploding balls of gas — mostly hydrogen and helium — held together by their own gravity. Astronomers think that there are 200 billion stars in the Milky Way, the galaxy where our own solar system lives.

Questions to guide explorations and experiments

- What is a star? Why do they shine and seem to twinkle?
- Where do stars come from?
- What is a constellation?

Why did people name patterns of stars and create stories about them?



Activity 1: Twinkle, Twinkle



Introduction

Stars are so far away from Earth that, even through large telescopes, they appear only as tiny points of bright light. Stars seem to twinkle because we see them through the layers of the atmosphere — the gases that surround our planet.

The movement of air and dust in the atmosphere bends, or refracts, a star's light in different directions. Because the light is scattered by the time it reaches our eyes on Earth, stars appear to twinkle. You might think of it as the light traveling a zig-zag path to our eyes, instead of the straight path the light would travel if Earth didn't have an atmosphere.

Supplies

- 12-inch x 12-inch square of aluminum foil
- 2-quart glass bowl
- Water
- Flashlight
- Pencil (optional)



This activity works best in a darkened room

Get kids thinking

In this activity, kids will be exploring why stars appear to twinkle.

Ask kids: Have you ever looked at stars in the night sky? What have you observed?

Have you ever looked up high in the night sky at the stars and then moved your head down closer to the horizon. Do the stars seem to change?

Stars closer to the horizon will appear to twinkle more than stars higher up in the sky because there is a lot more atmosphere between you and a star near the horizon.



Activity 1: Twinkle, Twinkle



Let's get started!

Demonstrate this activity in front of the kids, and then let them try it themselves in small groups. Crumple your square of foil, then open it up, and place it on a table or on the floor. Fill your clear bowl with tap water and place it on top of the crumpled foil.

Darken the room by turning off the lights. Hold the flashlight about 12 inches above the bowl. Look at the foil through the undisturbed water. **Ask the kids:** What does the reflected light look like?

Now using your finger or a pencil, tap the surface of the water gently. Look at the foil through the moving water. **Ask the kids:** How does the reflected light look like now?

What happened? The light rays reflecting from the foil when there was a movement in water appears to blur or twinkle.

Why? The movement of the water causes the depth of the water to vary. The light rays twinkle because they bend or **refract** in different direction when it passed through the different depths of water.

This is similar to the light rays from the stars. They appear to be twinkling when you are observing from Earth because they refract differently as the light rays move through the different thickness of air in the **atmosphere**. The scientific word for this twinkling phenomenon is **scintillation**.

More activities

Do Stars Really Twinkle (video)

<https://www.youtube.com/watch?v=-GfT6jK44>



Activity 2: Explore Constellations

Three Ways



Introduction

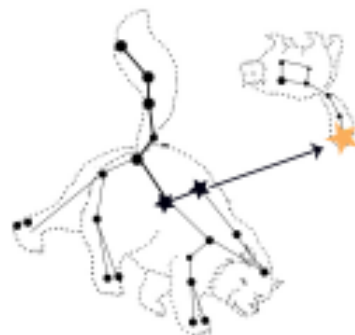
A constellation is a group of stars that make up an imaginary shape in the night sky.

In ancient times, people saw patterns of stars in the night sky that seemed to make recognizable shapes. Some of them are named after mythical heroes like Hercules and Orion the Hunter. Other star patterns are named after animals, like [Ursa Major](#) — the big bear.

The star patterns became a way to preserve stories, like the legend of Perseus rescuing the princess Andromeda from a sea monster named Cetus.

As astronomers began mapping the night sky, these star patterns were included in the maps and called “constellations.” There are 88 official constellations, according to the International Astronomical Union. At different times of the year, different constellations can be seen in the sky.

Sailors have used constellations to help with navigation for thousands of years. It's pretty easy to spot [Polaris \(North Star\)](#) once you've found [Ursa Minor \(Little Dipper\)](#).



Get kids thinking

- Have you ever looked for the [Little Dipper](#) and the [North Star](#) in the night sky?
- Can you guess why we see different constellations in the summer night sky than we see in the fall, winter, or spring? In the summer, we can see Hercules the Hero but we can't see [Orion the Hunter](#) (we see Orion in the winter sky).
- Do you know any stories about constellations, like the stories of Hercules, Orion the Hunter, or Pegasus the winged horse?

This would be a great time to read a story about constellations, such as this Native American tale about the creation of the [Big Dipper](#) such as *Her Seven Brothers* by Paul Goble. Or you could read one of the stories from these books by Jaqueline Mitton: *Zoo in the Sky* or *Once Upon a Starry Night*.



Activity 2: Explore Constellations Three Ways



Option 1: Sidewalk Chalk Constellations

Supplies

- Summer sky constellation template and constellation card templates (provided)
 - Buckets of sidewalk chalk
 - Plastic buckets with rocks, pebbles, bottle caps (these are the "stars" in your constellation)
-

Let's get started!

In this activity, kids will build a favorite constellation outside using rocks, pebbles, bottle caps, and chalk.

Print out a copy of the summer sky constellation chart for each child. Also print out enough of the individual constellation pages so that the kids will have some options when they choose their constellation for this activity. The templates can be found after page 23.

Get everyone together in a circle, pass around the summer sky constellation charts, and talk about the different constellations on the chart. **Ask the kids:** Can you identify any of the animals or characters?

Tell the kids that you've set out copies of different constellations on the table, and invite the kids to select one that they would like to "build" outside.

Time to head outside! Bring the buckets of rocks, pebbles and bottle caps outside where there's lots of sidewalk space. Show the kids how to draw their constellation on the sidewalk, starting with the pebbles, rocks, and bottle caps (these are the "stars") and then use the chalk to connect the stars and complete their constellation. Thing big! And don't forget to have the kids write the names of their constellations in chalk next to their creation.



Activity 2: Explore Constellations Three Ways



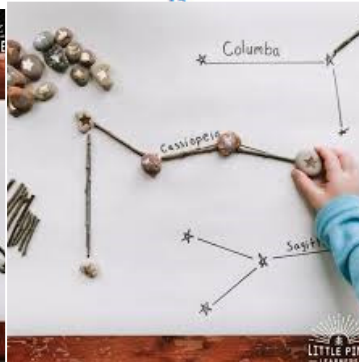
Option 1: Sidewalk Chalk Constellations

As a group, take a walking tour of your "night sky" and encourage each child to identify their constellation, and share a story about their animal or character if they know one.

To extend this activity, you can encourage the kids to create their own constellations — the "sky's the limit" when it comes to using their imaginations!

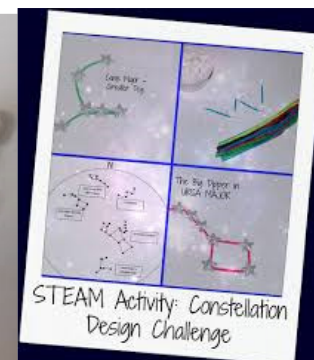
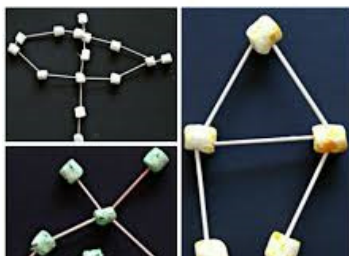


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**STICK AND STONE
CONSTELLATIONS**
An outdoor kids activity

SUMMER SKIES Marshmallow Constellations



Use whatever you can find to create a constellation- sticks & stones or mini marshmallows & chocolate matchsticks. An edible constellation!!



Writing About Stars



Writing helps kids process and solidify new knowledge and gives them an opportunity to use new vocabulary and concepts. Offer one or more of these prompts or questions to get your Space Rangers writing.

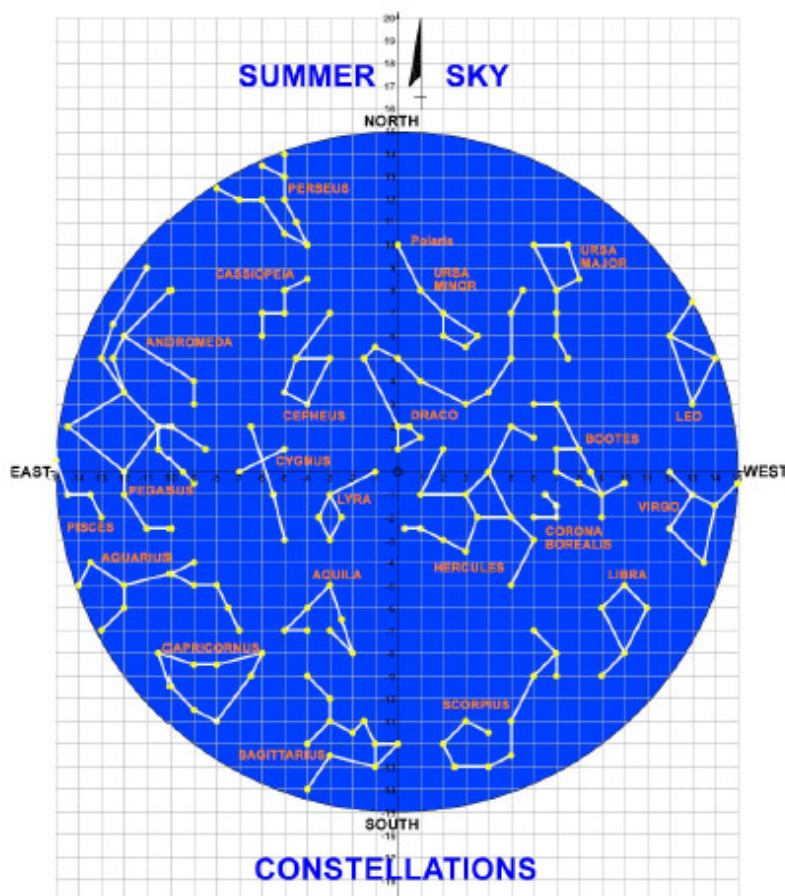
Write a constellation myth

Talk about what a myth is — a made-up story that explains the existence of something in nature, such as where thunder comes from or how the Milky Way formed. Myths often feature supernatural and heroic characters who have the power to make amazing things happen.

Next, read a constellation myth to the group, and tell the kids that they'll be writing their own constellation myths.

Give the kids a copy of the Summer Star Chart (see the next page) and paper, pens, pencils, and/or markers for writing and drawing.

Look together at the stars on your star chart. What kinds of patterns do the kids see? Ask each child to find a cluster of stars and design a new constellation with its own modern-day myth. The constellation myth should explain how and why this particular constellation is in the sky.



Myths

<https://www.youtube.com/watch?v=Jf8Nh4iOkcl> – Myth of Orion
<https://www.youtube.com/watch?v=bH2mCcivliQ> – The Never Ending Bear Hunt
<https://www.youtube.com/watch?v=dtBqbMfug1I> – The Star That Does Not Move
<https://www.youtube.com/watch?v=5x-LtgO2avY> – Quillwork Girl and her Seven Brothers

Information

<https://www.youtube.com/watch?v=SjBGpA2Muyc> – Constellation Song
<https://www.youtube.com/watch?v=Hm2MKez7atI> -Science report on the Night Sky
<https://www.youtube.com/watch?v=MZffhapfOgg> – Super Stars
<https://www.youtube.com/watch?v=BbzCA0Lgf3Y> – Constellation Location
<https://www.youtube.com/watch?v=M41yLjQ2ot0> – Seeing Stars



Writing About Stars



Blackout poetry

Blackout poetry is like a treasure hunt since you find hidden meanings and secret messages in unlikely places. It also creates a beautiful “night sky” — with words as the twinkling stars of your poem.

Create an example for the kids as you explain the activity.

Supplies (for each child)

- Old newspapers or magazines
- Thin and thick black markers
- Highlighters (optional)

How to

1. Select a newspaper or magazine page.
2. Look at all of the words on the page.
3. Go back over the page, and with a thin black marker draw a box around the words that you want in your poem.
4. Color in (black out) the rest of the words on the page with the thick black marker, leaving just the words you selected.
5. Highlight all or some of the words, if you like, to create a more colorful effect.

