



**Girl  Guides**

**Ontario Council**

For Guiding in Ontario and Nunavut



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# Introduction

Welcome to Outer Space From Your Space, Camp-in-a Box!

This exciting camp experience is designed especially for Lone or Virtual units. Although there are no big group activities, participants may still need a friend or family member to help complete a couple of activities. Some activities you can even do with your unit in an online meeting!

There are activities for all branches, and branch suggestions on each activity page, although anyone is welcome to try any activity.

In this document, you'll find detailed instructions for each activity and other helpful resources. Each activity even has a suggestion for which area and theme it can be assigned to from the [Program Platform](#).

With a variety of activities to choose from, including crafts and physical challenges, there's something for everyone! You get to decide which activities sound the most fun and work best for you.

Whether you complete them in one day, spread them out over a few days, or try them at different times, each activity lists the supplies you'll need, making it easy to set up and enjoy on your own.

Have fun exploring and creating awesome memories.

We hope you have an astronomically good time exploring space and creating beautiful memories. If you have any questions or need assistance, please email us at [on-counciloperations@girlguides.ca](mailto:on-counciloperations@girlguides.ca).

Don't forget to [purchase the crest!](#)



Have fun and happy camping!



# Land Acknowledgement

Land acknowledgements take the time to recognize the traditional territories of Indigenous peoples, both recorded and unrecorded.

We honour the Indigenous peoples, past and present, who have been living, working, and supporting the needs of the land for generations.

We thank all of the people for cherishing and appreciating the connections and importance of the land. Learning about the history of the land that you live on and Guide on is an important step. Please take the time to complete a land acknowledgement at the beginning of your camp.

The land you acknowledge will depend on where your event is taking place. To find out who to acknowledge, try the following options:

- 1 Download [Whose Land](#) –**  
A web-based app that uses GIS technology to assist users in learning about the territory your event is situated on.
- 2 Contact a local Friendship Centre.**
- 3 Create your own land acknowledgment.**

As a unit or group, you could create your own land acknowledgment and share why the land you live on is important to you and what actions you take to respect and care for it. For guidance, please visit Member Zone for resources on how to build a Land Acknowledgement for your area.

For support, please contact: [inclusivity@girlguides.ca](mailto:inclusivity@girlguides.ca).



# Subsidies

## Virtual Units:



Incorporate these Challenge activities into an application for the [Get ON Outdoors Subsidy](#) to receive subsidy reimbursement funds per girl participant for a self-led unit-based outdoor activity. For more information, please review the [FAQs](#).

## Lones Units:

Whether it's heading to camp, kayaking, building a shelter or cooking your own meal over an open fire, financial assistance is available to help girls access all the fun activities our organization has to offer.

The [Elaine Hodgson Memorial Lone Guides Campership](#) helps girls in Lones participate in outdoor adventures with their fellow Girl Guides.

## Guider Resources:

Please check out [Camping & Outdoors](#) under "Guider Resources" on Member Zone for a bunch of useful hints and tools!

## Survey:

Ontario Council wants to hear from you!  
Your feedback is important to us, please take a few moments to complete the [Outer Space From Your Space Survey](#).



# Suggested Kit Lists

## Kit List

\*\*These are only suggestions, please consider your location and activities and adjust accordingly.

Even though you may not be meeting with your unit to do the activities, it's still a good idea to be prepared and have all the items below organized before you start your activities. Before camp, consider having a pre-camp meeting if you meet virtually or discussing with friends and family what items to prepare and why they are important.

- **Water Bottle**
- **Weather appropriate clothing**
- **Hat**
- **Sunscreen**
- **Bug Spray**
- **Small backpack**



# Prepare for Camp

## Youth Preparation for Camp



### Program area suggestion: Into the Outdoors: Camping Skills and Adventures

The Leave No Trace principles are guidelines for outdoor ethics to minimize our impact on the environment. Here's a summary of the seven principles:

- 01 Plan Ahead and Prepare:**  
Proper planning ensures you have the knowledge and skills for a safe and enjoyable outdoor experience while minimizing damage to the environment.
- 02 Travel and Camp on Durable Surfaces:**  
Stick to established trails and campsites to avoid damaging fragile ecosystems. Use designated campsites when available.
- 03 Dispose of Waste Properly:**  
Pack up all trash and leftover food. Dispose of waste properly, including human waste. Use a cathole for solid human waste at least 200 feet from water, camp, and trails.
- 04 Leave What You Find:**  
Preserve the past by leaving rocks, plants, and other natural and cultural artifacts as you find them. Avoid building structures, digging trenches, or disturbing vegetation.
- 05 Minimize Campfire Impacts:**  
Use a lightweight camp stove for cooking instead of making a campfire. If campfires are allowed, use existing fire rings and keep fires small. Use only dead and downed wood.
- 06 Respect Wildlife:**  
Observe wildlife from a distance and do not feed them. Store food securely to avoid attracting animals. Control pets and keep them on a leash.
- 07 Be Considerate of Other Visitors:**  
Respect other visitors and their experience. Yield to other users on the trail, keep noise levels down, and choose campsites away from others when possible.

**By following these principles, we can help protect the environment and preserve the beauty of our outdoor spaces for future generations.**  
For more information, please visit: [leavenotrace.ca](http://leavenotrace.ca)



# Hug-a-Tree AdventureSmart

The Hug-a-Tree and Survive program is an [AdventureSmart](#) program designed to teach children how to survive in the woods if they become lost.

It emphasizes four key rules:



01

**Tell an adult where you are going:**

Always inform your parents or another trusted adult where you are going, who you are going with, and when you will be back.

02

**If you are lost, "Hug-a-Tree" and stay put:**

Stay near a tree or another landmark to protect yourself from the elements and make it easier for searchers to find you.

03

**Keep warm and dry:**

Be prepared for changing temperatures by wearing layers and having extra clothing available.

04

**Help searchers find you by answering their calls:**

Make noise and signal to searchers so they can locate you more easily.

**These rules are not only applicable in the wilderness but can also be applied in other settings like sporting events, shopping malls, public parks, and urban areas.**

**The program aims to give children the knowledge and training needed to safely enjoy the outdoors and their communities.**



# Virtual Camp

## Self-Guided Activity Expectations

1. **Be prepared** – Gather your materials before starting an activity.
2. **Create a safe space** – Choose a safe, distraction-free area to participate.
3. **Set boundaries** – If outside, tell someone where you're going and when you'll be back.
4. **Stay connected** – If joining virtually, be on time and participate respectfully.
5. **Ask for help** – Reach out to a trusted adult if you need assistance.
6. **Stay hydrated and take breaks** – just like in-person camp, remember to drink water and rest when needed.
7. **Be kind and inclusive** – Encourage and support others, even in virtual chats or group discussions.
8. **Respect nature** – If your activity is outdoors, leave no trace and follow local guidelines.
9. **Have fun!**



# Space Jokes

Why did the cow go to space? To see the Milky Way!

What do astronauts listen to on the radio? Nep-tunes.

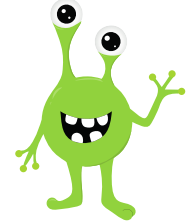
How do you organize a space party? You planet!

Why did the alien borrow a computer? To log onto Spacebook.

Why did the Sun go back to school? To get a little brighter!

Why couldn't the astronaut book a hotel on the Moon? Because it was full!

How do you put a baby astronaut to sleep? You rocket.



# Space Facts

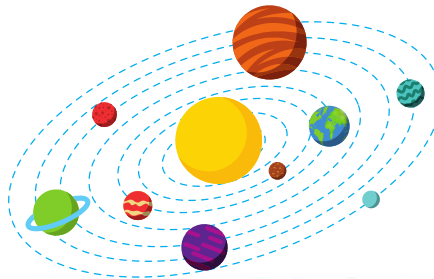
Which planet has the most moons? As of right now, Saturn has 146 moons!

Saturn's rings are made of ice and rock, not solid material.

Our solar system is part of the Milky Way galaxy, which is so large that it would take over 1,000 years to travel across in a spaceship.

There is no way for sound to travel in space, so space is completely silent.

The sun is so big that the Earth could fit inside it 1.3 million times.



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 15 to 30 Mins



# 1. Moon Jump (S) (E)

**Program Area suggestion: Experiment and Create – Science Lab**

## What is Gravity?

Gravity is a force that pulls objects toward the ground. It's what keeps us from floating away and what makes things fall when we drop them. Do you think gravity is the same on the Moon as it is on Earth? The Moon's gravity is weaker—only 1/6th as strong as Earth's! That means if you weigh 100 pounds on Earth, you will only weigh about 17 pounds on the Moon. But your muscles stay just as strong, so you'd be able to jump six times higher and farther. Let's test it out.

## Supplies:

- Chart paper (plain paper works great too!)
- Tape
- Writing instruments
- Tape measure

## Instructions (Version 1):

1. Use the tape to secure a large sheet of chart paper on the wall, high enough that the youth cannot reach the top when jumping.
2. With a marker, pencil, or pen, each Spark/Ember stands next to the wall, making a mark as high as they can reach above their heads.
3. Each Spark/Ember takes one step back, then jumps as high as they can, making a second mark on the paper.
4. Remove the paper and measure the difference between the two marks, this is how high the Spark/Ember jumped.
5. This distance is then multiplied by six (Sparks/Embers can be encouraged to try multiplying themselves). This is how high off the ground their feet would be if they jumped on the Moon!



# 1. Moon Jump - continued

## For Example:

A Spark/Ember reaches 50 inches while standing.

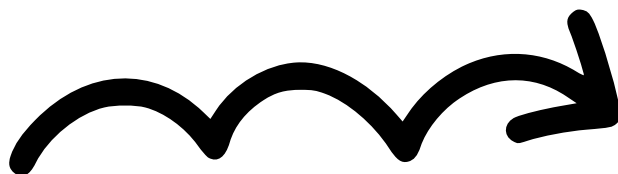
When they jump, they reach 60 inches.

The difference is 10 inches.

On the Moon, this jump would be  $10 \times 6 = 60$  inches (or 5 feet)!

## Instructions (Version 2):

1. Place a piece of tape on the ground. This is the starting line.
2. Have each child line up with their toes behind the line and then jump as far forward as they can. They could also throw a ball, beanbag or other item as far as they can if jumping is not an option. Sparks and Embers in wheelchairs can see how far they can propel themselves with one push of the wheels.
3. Write the name of each Spark or Ember on a piece of tape, then use it to mark how far they jumped, threw, or pushed.
4. Measure the distance and multiply by six (you can encourage the Sparks and Embers to do this multiplication themselves). That is how far they can jump, throw, or push themselves on the Moon!



 15 to 30 Mins



## 2. Create an Alien (S) (E)

**Program Area suggestion: Experiment and Create – Art Studio**

**\*\*Special thanks to Lisa Goodlet for this fun activity!**

### Supplies:

- Dice
- Paper
- Art supplies (pencil crayons, crayons, markers, paint)
- Instructions for each number on the dice

The universe is so huge that we can't even begin to explore all of it. With billions of stars and planets, the chances of Earth being the only place with life are pretty small. Scientists haven't found proof of aliens yet, but that just means we get to imagine what they might look like!

In this game, you'll create your own alien—one roll at a time!

### Instructions:

Roll a die. Each number tells you what to add to your alien:

- 1 – Draw a body (You must roll a 1 or 6 to start!)
- 2 – Draw a head
- 3 – Draw an arm
- 4 – Draw a leg
- 5 – Draw antennae
- 6 – Draw anything you want!

### Keep rolling and adding parts to your alien.

Stop when you run out of space on your paper or when you think your alien is complete.

Get creative! What kind of planet does your alien live on? Does it have extra eyes to see in the dark? Big feet to hop in low gravity? Spiky arms to climb walls? There are no wrong answers—just fun and imagination!



 15 to 30 Mins



### 3. Design a Rocket (S) (E) (G)

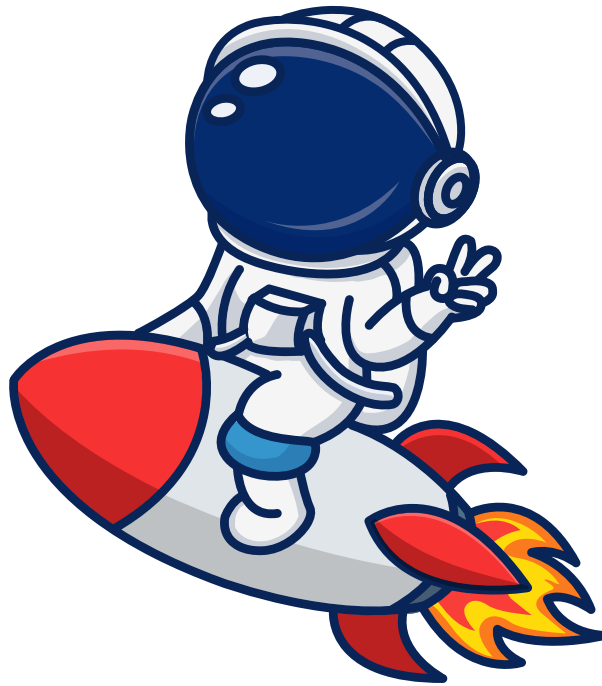
Program Area suggestion: Experiment and Create – Art Studio

#### Supplies:

- [Rocket template](#) (from resources) or blank paper
- Markers, pencils etc.

#### Instructions:

1. Look up some picture of rockets for inspiration then think about how you would design your own.
2. Use the [rocket template](#) from the resource section or sketch your own with a pencil then add your colours. What adventure will your rocket take you on?



 15 to 30 Mins



## 4. Create a Comet (S) (E) (G)

**Program Area: Experiment and Create – Science Lab**

Great comets appear every 15-20 years. They last for several nights and can usually be seen around the world. Most comets can be located but their path cannot always be predicted, that's why seeing a glowing comet is so rare. The sun is responsible for making comets glow and showing off their long tails. In this activity, you'll make your own flying comet that lasts all year long.

### **A comet has 4 parts:**

1. The comet – the body of the comet, sometimes called the nucleus, is made up of ice, gas, dust and rock.
2. The gas tail – the gas tail is a mix of gases that is unique to each comet. \*only appears when close to the sun.
3. The dust tail – the dust tail is made of pieces of dust. \*only appears when close to the sun.
4. The coma – When the comet gets close to the sun, heated gas and dust surround the comet to create the coma.

### **Supplies:**

- Chopsticks or craft sticks (1 per comet)
- Ribbon (3 different colours)
- Scissors
- Aluminum foil (30cm x 30cm; 3 squares per comet)
- Tape



## 4. Create a Comet - continued

### Instructions:

1. Cut the ribbon.

The first colour of ribbon is your comet's dust tail.

- Cut 1 long piece (60cm) and 1 medium piece (30cm)

The second colour of ribbon is your comet's gas tail.

- Cut 1 long piece (60cm) and 1 medium piece (30cm)

The last colour of ribbon is your comet's coma.

- Cut 1 short piece (15cm)

2. Stack all your ribbons together.

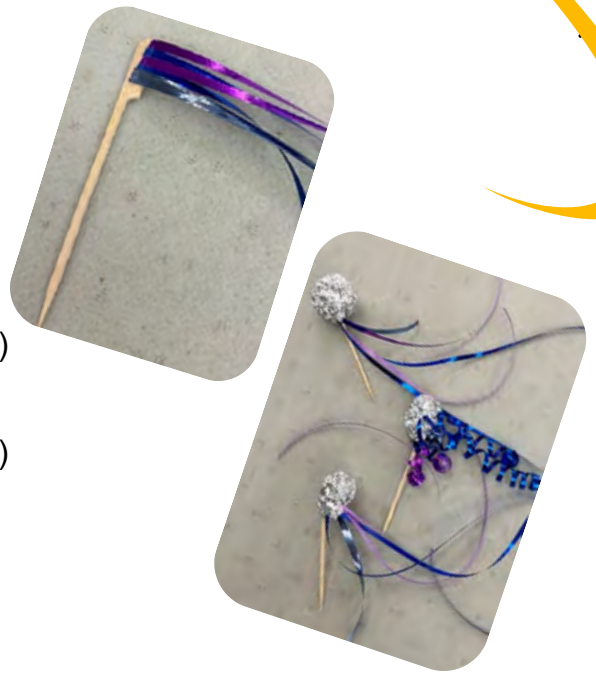
Either tie the ribbons to your stick or use tape to hold them in place.

3. Grab three squares of aluminum foil. Hold the ribbons off to one side and wrap your first sheet of foil around the stick and the ends of the ribbons, forming a ball.

4. Wrap your other two sheets of foil around the ball of foil on a stick. Comets come in different shapes and sizes. If you want your comet to be bigger, add more foil.

5. Curl your short ribbon using scissors so that it stays close to the nucleus of your comet. Let the other ribbons (gas and dust tail) hang down. (Ask an adult if you need help to curl the ribbon).

6. Hold your comet by the stick and fly it around the room.



 15 to 30 Mins



## 5. Marshmallow Constellations (S) (E) (G)

**Program Area: Experiment and Create – Science Lab**

Have you ever looked up at the night sky and wondered about the stars? Have you noticed that some stars even seem to make pictures in the sky? These groups of stars are called constellations. A constellation works like a dot-to-dot puzzle with stars as the dots. If you connected the stars with lines, they'd look like a picture.

For many hundreds of years, and still today, people across the world have seen pictures in the stars and created stories about what those pictures mean to them. In this activity, choose a creative way to make your own model of a sparkling constellation to discover its story.

### Supplies:

- Mini marshmallows
- Toothpicks
- Copies of the [constellation patterns](#) from the resource section



### Instructions:

1. Check out the [constellation patterns](#) in the resource section.
2. Gather one marshmallow for each star in your constellation.
3. Use the toothpicks to connect the marshmallows together to make a model of your constellation. If you want, you can eat it when you're done for a stellar snack!

### Hint:

If you're a **Spark** or **Ember**, you may want to start by placing the marshmallows down on the table to make the constellation pattern. If you want, you can try using tape to connect toothpicks and make your model 3D.

### Fun Fact!

Did you know there are 88 constellations that can be seen from Earth? People living in Canada see 30 constellations in the northern part of the sky, but only five of those constellations can be seen all year round. Those five are Cassiopeia, Cepheus, Draco, Ursa Major and Ursa Minor (the same ones in the [constellation patterns](#) sheet).



 15 Mins



## 6. Light Pollution (S) (E) (G)

**Program Area suggestion: Experiment and Create – Science Lab**

Have you ever looked up at the night sky in the middle of a busy city and seen only a few stars? That's because of light pollution!

Light pollution happens when there are too many bright lights at night, like streetlights, buildings, and car headlights. These lights make the sky glow, which makes it harder to see the stars.

### Why is light pollution a problem?

1. Fewer Stars!
  - The sky looks empty because the bright lights hide them.
2. Confuses Wildlife!
  - Nocturnal animals (like owls and fireflies) get mixed up when it's too bright at night.
3. Wastes Energy!
  - Lights that shine into the sky instead of down where we need them wastes electricity.

### Supplies:

- Glowsticks (they will represent stars)
- A darkroom (or outdoor space at night)
- Flashlight (optional)



## 6. Light Pollution - continued

### Instructions:

1. Turn off all the lights in a room (or go outside at night).
2. Activate one glowstick (star).
3. Look around or up at the sky. When there are no bright lights on, we can see stars clearly in the night sky.
4. Activate a couple of glowsticks and place them around the room (or outdoor space).
5. As more glowsticks get added, ask these questions:
  - Is it getting harder to see the first glowstick?
  - What do you think happens when we add even more light?
6. Turn on your flashlights and shine them on the glowsticks to stimulate streetlights and other bright city lights. If inside, turn on the lights as well. With more artificial lights added, it's harder to see the glow from the glowsticks (stars).
7. Turn off the flashlights and the inside lights so the space gets darker. As the space gets darker, it helps see the glowsticks better.

### How can you help with light pollution in your neighbourhood?

- Turn off lights when we don't need them.
- Use outdoor lights that point down instead of up.
- Close curtains at night to stop extra light from shining outside.



 15 to 30 Mins



## 7. Moon Phases with Flashlight (S) (E) (G)

**Program Area suggestion: Experiment and Create – Science Lab**

Did you know that the Moon doesn't make it's own light? It reflects sunlight. As it orbits the Earth, we see different amounts of the lit-up side, which creates the Moon phases.

**How many Moon phases are there? 8!**

1. New Moon – the Moon is between the Earth and the Sun, so we can't see it.
2. Waxing Crescent – a small sliver of the Moon starts to appear.
3. First Quarter – half the Moon is lit up.
4. Waxing Gibbous – almost a full Moon.
5. Full Moon – the whole Moon is bright and round.
6. Waning Gibbous – the Moon starts shrinking.
7. Last Quarter – half the Moon is lit again, but on the opposite side.
8. Waning Crescent – a small sliver is left before it disappears into a new cycle.

### Half Moon



### Quarter Moon



## 7. Moon Phases with Flashlight - Video



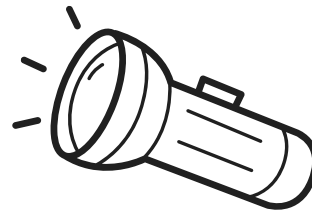
## 7. Moon Phases with Flashlight - continued

These phases repeat every 29.5 days, so if you watch the night sky, you will see the Moon changing throughout the month.

In this activity you will see why the Moon changes shape by using a flashlight as the sun, a ball as the Moon, and yourself as the earth.

### Supplies:

- Flashlight or lamp
- A small ball
- A dark room



### Instructions:

1. New Moon – Hold the ball directly in front of your face (between you and the flashlight). The side facing you is completely dark—this is the New Moon!
2. Waxing Crescent – Slowly turn your body a little to the left while holding the ball. A small sliver of light appears on the right side—this is the Waxing Crescent!
3. First Quarter – Turn more so the ball is now at a 90-degree angle to the flashlight. Half of it is lit—this is the First Quarter Moon!
4. Waxing Gibbous – Keep turning. Now, most of the ball is lit, but there's still a small dark part—this is the Waxing Gibbous!
5. Full Moon – The ball is now opposite the flashlight, fully lit up—this is the Full Moon!
6. Waning Gibbous – Keep turning, and the dark part starts growing on the right side.
7. Last Quarter – At another 90-degree angle, half of the Moon is now dark—this is the Last Quarter Moon!
8. Waning Crescent – Almost back to where you started! Only a sliver of light remains on the left side.
9. New Moon Again! – The Moon is back in front of the flashlight, starting a new cycle!



 15 to 30 Mins

## 8. Cookie Moon Phases (E) (G)

**Program Area: Experiment and Create – Science Lab**

On nights when you can see the whole Moon clearly, it's called a full Moon. But did you know that there are special names to describe the Moon no matter how it looks? As the Moon goes around the Earth (on a route called an orbit), the sun reflects off the Moon in different ways. The patterns of shadow that appear on the Moon are called its phases. In this tasty activity, use Girl Guide cookies to learn more about the Moon patterns you can see from the Earth.

### Supplies:

- Paper
- Writing utensils
- Girl Guide classic cookies - The amount is dependent on how many each girl carves. Each girl could carve 8 cookies for the 8 phases, or you could have each girl carve one or two.
- Disposable or butter knives
- [Cookie Moon Resource](#)
- Camera/cell phone camera (optional)



## 8. Cookie Moon Phases- continued

### Instructions:

1. Draw one way you've seen the Moon in the sky. Is it a big circle? A crescent shape? Somewhere in between?
  - A phase of the Moon is the way the Moon looks as it orbits (circles) the Earth. It takes the Moon about a month to orbit around the Earth, so it takes about a month to see all the phases of the Moon.
2. Open your cookies so the cream is all on one side (if you need to, you can use your butter knife to scrape it all onto one side). Try not to crack the cookies.
3. Use the [Cookie Moons resource](#) for steps to make the eight phases. If you want, you can take pictures of your cookies after you've carved them. You'll notice that most of the phases just switch from left to right!

- Phase 1: New Moon
- Phase 2: Waxing Crescent
- Phase 3: First Quarter
- Phase 4: Waxing Gibbous
- Phase 5: Full Moon
- Phase 6: Waning Gibbous
- Phase 7: Third Quarter
- Phase 8: Waning Crescent



### \*\* If you're taking pictures:

After you photograph each phase, you can put the pictures together into a mini Moon movie by scrolling through the pictures quickly or by using a free stop motion movie maker app on any device.



 30 to 45 Mins



## 9. Build a Space Suit (E) (G) (P)

Program Area suggestion: Experiment and Create – Art Studio

### Supplies:

- Disposable plastic or paper painter's suits
- Colourful tape (all kinds will work, such as painter's tape or duct tape)
- Scissors
- Markers
- Cereal boxes
- Tubing that could be used to connect the space helmet (such as dryer tubing)
- Other craft supplies that could be used to decorate space suits (felt, pipe cleaners, buttons, pompoms, etc.)



### Instructions:

1. Take some time to view photographs of astronauts in their Extravehicular Activity Suits (EVAs). Look at the different components and features of the suits, and their functions.
2. Each girl should receive a painter's suit. Using the photographs as inspiration, **Embers**, **Guides**, and **Pathfinders** can use the above craft supplies to design and create their own EVA. Cereal boxes can be used as control boxes (possibly connected to the suit by tubing), and felt can be used to make mission patches.  
(Visit <https://www.asc-csa.gc.ca/eng/missions/> to view the actual mission patches for past space expeditions.)
3. Encourage girls to add as many real-life details as they can, including ropes, tethers, pockets, and tools.
4. Decide how to show off your new suits. You could have a runway show, virtual costume party, or simply have fun wearing them!



 15 to 30 Mins

## 10. Planetary Distance Bracelets (G) (P)

**Program Area: Experiment and Create – Science Lab**

Sometimes it's hard to imagine just how BIG the solar system actually is. What if you could shrink it down so it was small enough to fit around your wrist or hang on your zipper? In this activity, you'll bring math and crafts together to create a wearable model of the solar system.

### Supplies:

- Coloured beads (1 bead per planet; 8 coloured beads per person)
  - You can use different sizes for each planet.
  - You can use a yellow or orange bead to represent the sun. If doing so, you'll need a sun bead PLUS 8 other coloured beads.
- String – long enough to fit around your wrist, with 2-4cm extra
- Black beads – 33 per person, clear or white will also work
- [Solar System Diagram](#) resource
- Optional: Bracelet clasps, keychains or hooks



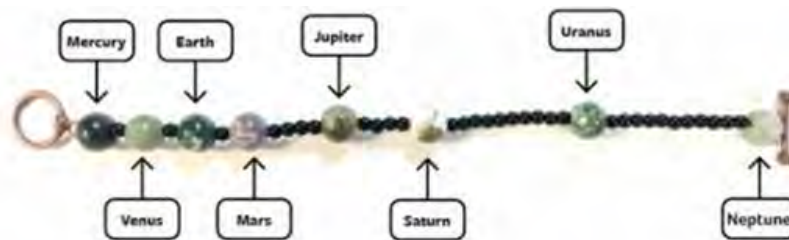
### Instructions:

1. Check out the [Solar System Diagram](#) in the resource section.
2. Decide which colour bead will represent each planet and line them up in order of their position in the solar system.
  - Remember: Pluto is no longer considered a planet.
3. Tie a knot at the end of your string. Or you can attach it to a hook, clasp, or keychain.  
You can either have the knot be the sun, or use the yellow or orange bead to be the sun by sliding it onto your string first.



## 10. Planetary Distance Bracelets- continued

- Next, thread the Mercury bead onto the string. Then add 1 of your black (or white/clear) beads after it. These neutral coloured beads represent the space between one planet and the next.
  - Each of the beads in your model is about the length of an Astronomical Unit (AU). An AU is about 150 MILLION kilometres. And one trip around the centre of the Earth is about 40,075 kilometres. That means one AU is the same distance as about 3,743 trips around the globe!



- Thread the Venus bead onto the string and 1 black bead after it.
- String on your Earth bead and 1 black bead after it
- Thread the Mars bead onto the string. Mars is a little further from Jupiter, so add 4 black beads after it.
- Thread on the Jupiter bead and add 4 black beads after it.
- Put the Saturn bead on next. There's a lot of space between Saturn and the next planet, Uranus, so add 10 black beads after Saturn.
- String on the Uranus bead and add 11 black beads after it.
- Thread on the Neptune bead.
- Tie the loose end of the string to your original knot, or connect to the other side of your clasp, making sure your wrist fits through the bracelet before securing both ends.



 30 to 45 Mins

## 11. Plush CubeSat (G) (P)

### Program Area: Experiment and Create – Science Lab

A CubeSat is a tiny satellite shaped like a cube that travels in the same orbit as the International Space Station and sends information back to earth. In this activity, you'll act like a mechanical engineer and create your own soft CubeSat.

#### Supplies:

- Blue, grey or black felt or fabric squares (10cm x 10cm; 6 pieces per person)
  - You can make a mini version using pieces that are 5cm x 5cm instead
- Yellow felt or fabric rectangles (10cm x 4cm; 4-6 pieces per person)
  - For the mini version, use pieces that are 5cm x 2cm
- Needle and thread
- Scissors
- Fabric glue or hot glue
- Stuffing
- Check out the pages in the resource section for [Sewing Instructions](#) and [Basic Stitch](#) resources

#### Instructions:

- Grab the supplies and lay them out.
- Make sure you have a copy of the [Sewing Instructions](#) printed out, or on your computer.
  - The base on the instructions is a different colour from the rest of the squares – this is to help keep track of which square is the base.



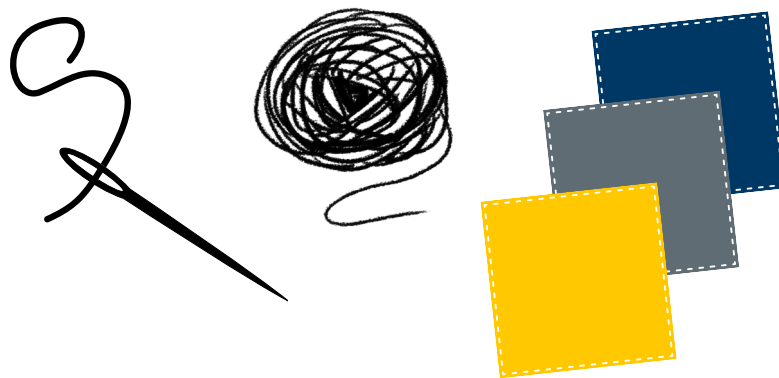
## 11. Plush CubeSat - continued

### Instructions - continued:

- Choose one square to be your base.  
You can make a little mark on the fabric to help you remember which square is the base.
- Continue following the instructions on the [Sewing Instructions](#) page.
- At the end of each step, you can tie a little knot in the thread and then cut it so that it doesn't get tangled.

### Facts about CubeSats

- A real CubeSat is 10cm x 10cm and weighs about 1kg, which is roughly the weight of a racoon.
- CubeSats have antenna and communicate using radio waves.
- Inside a CubeSat there is enough technology to power the sensors and a tiny computer to store the data until it can be sent back to earth.
- There have been more than 510 CubeSats launched into space by 50 countries.
- CubeSats leave no space debris because they burn up in the atmosphere when they stop working.



 15 to 30 Mins



## 12. Asteroid (G) (P)

**Program Area suggestion: Experiment and Create – Art Studio**

Have you ever seen a streak of light in the night sky?  
**That might have been an asteroid!**

Asteroids are space rocks that orbit the Sun. They can be as small as a boulder or as big as a mountain—some are even hundreds of kilometres wide.



If an asteroid enters Earth's atmosphere, it usually burns up, creating a meteor, also called a shooting star. But if a piece lands on Earth, it's called a meteorite. Asteroids are leftover rocky parts of the solar system. Some have remained unchanged for 4.5 billion years, while others have partially melted or even formed iron-nickel cores with rocky surfaces.

All asteroids have craters, showing evidence of past collisions. These impact marks help scientists learn about the formation and history of our solar system. Some asteroids are covered in loose dust and rock, while others are solid and bare.

Now it's your turn. In this activity, design and create your very own awesome asteroid!

### **Supplies:**

- Clay in different colors (black and gray are good realistic colors)
- Sand
- Rocks
- Marble or metal ball bearings
- Measuring spoons or other rounded ends to make craters

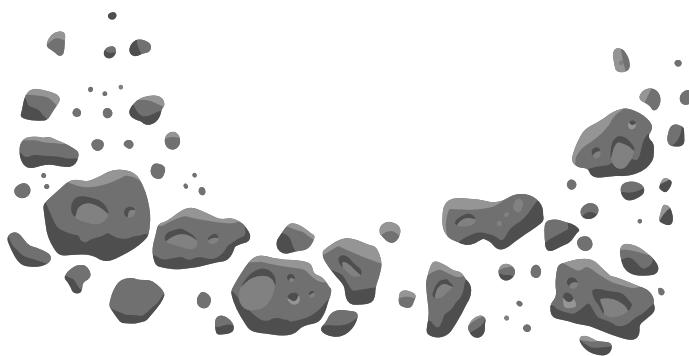


## 12. Asteroid - continued

### Instructions:

1. Google images of asteroids to get an idea of texture and look. Start thinking about what you want your asteroid to look like.
2. Select your favorite colour of clay to shape your asteroid. You can mix in "silicates" like small rocks or sand to give it a realistic, rough texture.
3. Make a Rubble-Pile Asteroid – If you want your asteroid to be a loose collection of rocks, gently press together different clay colors and small stones without fully blending them. Leave some space between the fragments to show how rubble-pile asteroids are loosely held together by gravity.
4. Make a Melted Asteroid – If your asteroid has partially melted, start with a marble or metal ball bearing in the center. Then, layer different colored clays around it. The core represents iron-nickel, while the outer layers can look rocky or have unmelted sand.
5. Add Craters – Use a pencil eraser, a marble, or your finger to press craters into the surface. Make big and small craters and overlap some to show how asteroids have been hit multiple times over billions of years.

Your asteroid is ready for space! Does it look more like a solid rock or a rubble pile? What kind of journey has it been on? Get creative and come up with your asteroid's back story!



 15 to 30 Mins



## 13. Soda Bottle Rocket (G) (P) (R)

**Program Area suggestion: Experiment and Create – Science Lab**

Creating a soda bottle rocket demonstrates Newton's Third Law of Motion:

**For every action, there is an equal and opposite reaction.**

Using baking soda and vinegar will create a chemical reaction. When pressurized gas from the chemical reaction escapes from the bottle's nozzle, it pushes the rocket upwards with an equal and opposite force.

That's the same principle that real rockets use to launch into space!

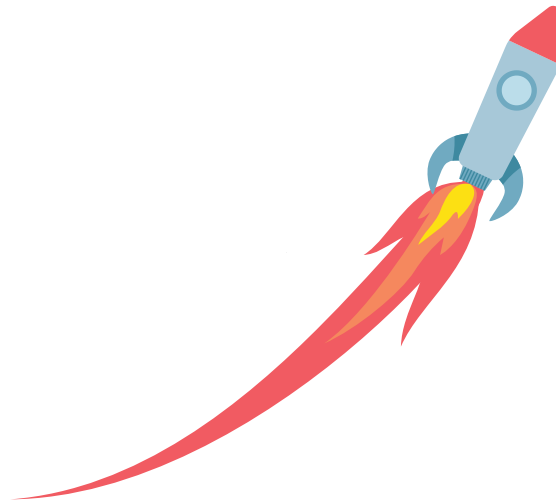
When baking soda (a base) and vinegar (an acid) mix, they create carbon dioxide gas. This gas builds up pressured inside the bottle until it forces the liquid out, launching the rocket!

### Supplies:

- Empty, rinsed 1L pop bottle
- Baking soda
- Vinegar
- Paper towel

### Instructions:

1. Put 1-2 cups of vinegar in the bottle.
2. Cut a piece of paper towel into a square and put a tablespoon of baking soda in the middle.
3. Fold the paper towel and put inside the mouth of the bottle.
4. Quickly flip the bottle and place on the ground to watch the blastoff!



15 to 30 Mins



## 14. Light Pollution – Community Light Audit (P) (R)

**Program Area suggestion: Experiment and Create – Science Lab**

Light pollution happens when artificial lights brighten the night sky too much, making it hard to see stars and disrupting the natural environment. It's caused by excessive, misdirected, or unnecessary outdoor lighting from things like streetlights, billboards, homes, and businesses.

### Types of light pollution:

- Glare – When bright lights shine directly into your eyes, making it hard to see (like car headlights at night).
- Skyglow – The glow above cities and towns that blocks out stars and makes the sky look orange or hazy.
- Light Trespass – When unwanted light spills into places it shouldn't, like a streetlight shining into your bedroom window.
- Clutter – Too many bright, uncoordinated lights in one area, like a street full of neon signs.

### Why is light pollution a problem?

- It Blocks the Night Sky – Light pollution makes it difficult to see stars, planets, and meteor showers, especially in cities.
- It Disrupts Wildlife – Many animals rely on darkness for survival. For example, sea turtle hatchlings use moonlight to find the ocean, but artificial lights can confuse them. Birds also get disoriented by bright city lights.
- It Affects Human Health – Too much artificial light at night can mess with our sleep by reducing melatonin production, leading to sleep problems and health issues.
- It Wastes Energy – A lot of outdoor lighting is poorly designed and shines light where it's not needed, wasting electricity and increasing carbon emissions.



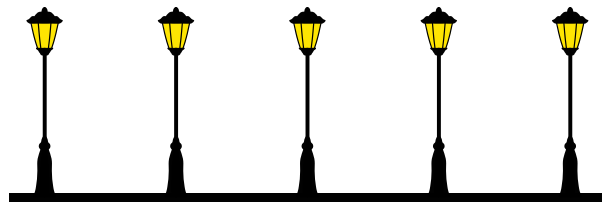
## 14. Light Pollution – Community Light Audit continued

### Supplies:

- Paper and pencil / pen
- Camera or smartphone
- Flashlight with red cover (optional, to preserve night vision)
- [Community Light Audit Sheet](#) (from the resource section)

### Instructions:

1. Set a route for your audit, it could be around your neighbourhood, a local park or a school area.
2. Walk your route at night and observe different types of artificial lighting.
3. Take notes on any examples of poor lighting design.
4. Capture photos of problematic lights to include in your report.
5. If possible, compare star visibility in well-lit areas versus darker spots.
6. Once home, review your findings and identify key problem areas.
7. What are some solutions you can think of? Consider things such as shielded light fixtures, motion sensor or timers on lights, switch to warmer, dimmer bulbs etc.
8. Brainstorm ways to spread awareness and share your findings with local community leaders or neighborhood associations to see if change can happen.



 15 to 30 Mins



## 15. Light Pollution – Sky Quality Meter (P) (R)

**Program Area suggestion: Experiment and Create – Science Lab**

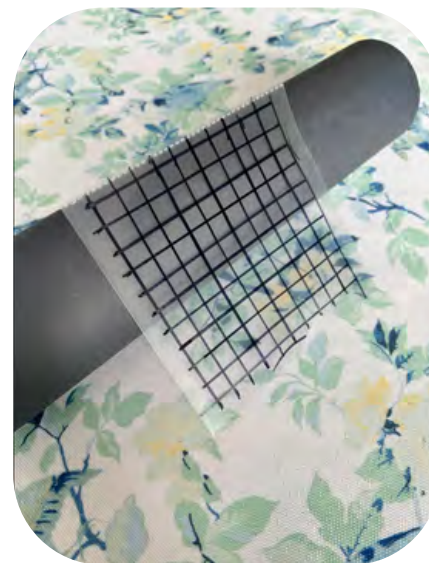
### Supplies:

- Toilet paper tube (you can also create a tube with thicker construction paper)
- Black construction paper
- A small grid (drawn on transparency paper)
- Tape or rubber band
- Notebook and pencil



### Instructions:

1. Line the tube with black paper to reduce reflections.
2. Attach the grid to one end of the tube using tape or a rubber band.
3. Select different areas with varying levels of light pollution such as:
  - A brightly lit city street
  - A residential neighbourhood
  - A suburban park
  - A rural or dark-sky area
4. At each location, hold the tube up to the night sky and look through it.

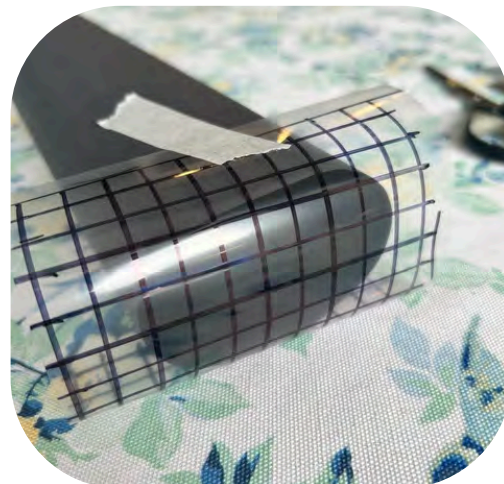


## 15. Light Pollution – Sky Quality Meter - continued

### Instructions - continued:

- Count how many stars you can see through the grid. If the stars are faint, wait a few minutes to let your eyes adjust to the darkness.
- Repeat the count several times and take the average to get a more accurate result.
- If possible, take a photo of the sky at each location to compare brightness levels later.
- Write down the number of stars counted at each location.
- Note the surroundings – are there streetlights, buildings or other sources of artificial light nearby?
- Compare the data to see how light pollution affects the visibility of stars
- Include the following in your findings report:
  - Which location had the most visible stars?
  - How did artificial lights impact your ability to see the night sky?
  - What patterns do you notice between different environments?
  - How can communities reduce unnecessary light pollution while maintaining safety?

**Here's something extra! Repeat the experiment on different nights to see how weather, moonlight or seasonal changes affect star visibility.**



 15 to 30 Mins

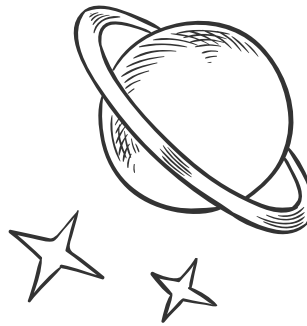
## 16. Ping Pong Ball Planets (S) (E) (G) (P) (R)

**Program Area suggestion: Experiment and Create – Art Studio**

Planets come in all different colours and patterns. Using a ping pong ball, you'll create your own planet. Will your planet be blue and green like the Earth? Red like Mars? Or will you create your own colour palette?

### Supplies:

- Ping Pong ball
- Paper or aluminum plate
- Paint
- Battery powered tealight
- Scissors or a craft knife



### Instructions:

1. Pour your paint onto the plate. You can mix colours, or make swirls or create any pattern with as many colours as you want.
2. Place the ping pong ball in the plate and gently roll it around by tilting the plate. If you need more help, grab a spoon to help move the ball around until it's completely covered in paint.
3. Let the ball dry fully.
4. Cut a small hole in the bottom of the ball, just big enough for the flame of the tealight to fit through. If needed, get an adult to help with this step.
5. Insert the battery powered tealight, turn it on and look at your new glowing planet!

### Other variations:

- Create a few different planets to make a solar system.
- Add glow in the dark paint for a cool nighttime effect.



 15 to 30 Mins



## 17. Moon Rocks (S) (E) (G) (P) (R)

**Program Area suggestion: Experiment and Create – Art Studio**

### Supplies:

- Small/medium circular flat rocks
- Biodegradable paint
- Paintbrushes
- Water
- Paper towel

### Instructions:

1. Find some small circular rocks outside that are flat enough to paint on.
2. Using biodegradable paint (if not then don't leave it outside, for sustainability reasons), paint an under layer of white/gray.
3. Using a darker colour of gray, paint the craters of the Moon and add texture as desired.
4. Leave outside to spread space themed joy to the community, give them as a gift or use them to decorate your room.

**Ontario Parks has a great article regarding the painting of rocks, you can read about it here: [Can we bring painted rocks to the park?](#)**

**Unfortunately, many paints are essentially a plastic coating. Leaving painted rocks in parks adds another source of microplastics for our ecosystems to absorb. Park staff are also noticing an increasing number of these colourful rocks, and while we appreciate the artists' intent, our priority is maintaining the ecological integrity of our shared protected spaces. But when you're done, make sure to bring the painted rocks home with you, or give them as a gift, whether to a special loved one or anyone who needs their day brightened.**



 15 to 30 Mins

## 18. Dr. Bondar Videos (S) (E) (G) (P) (R)

**Program Area: Experiment and Create – Science Lab**

Dr. Roberta Bondar was the first Canadian woman in space, and she's had quite a journey! In this activity, Dr. Bondar will share her unique experiences and answer questions from girls about space. Have you ever wondered if there is any pollution in space? Or what could be an astronaut's favourite thing to do in space? This is your chance to find out!

All branches can watch the below video about Dr. Bondar's story of becoming an astronaut and exploring space.



### Video for all branches

**Dr. Bondar with Girl Guide cookies in space**



**Sparks and Embers:** check out the video below to hear Dr. Bondar answer girls' questions about exploring space.

### Video for Sparks and Embers

**Guides:** watch the below video where Dr. Bondar answers girls' questions about exploring space.

### Video for Guides

**Pathfinders and Rangers:** check out the video below to hear Dr. Bondar answer girls' questions about exploring space!

### Video for Pathfinders and Rangers



 15 to 30 Mins



## 19. Build a Solar Eclipse Box (S) (E) (G) (P) (R)

**Program Area suggestion: Experiment and Create – Science Lab**

A total solar eclipse happens when the Moon moves in front of the Sun and completely blocks its light for a short time. This makes the sky go dark—like early morning or late evening—even in the middle of the day. If you're standing in just the right spot on Earth, you'll see the Sun disappear and a glowing ring around the Moon. That ring is called the corona, which is the Sun's outer atmosphere. Normally, the corona is too bright to see, but during an eclipse, it shines beautifully around the Moon.

It is very important that you do not look directly at the sun, especially during a solar eclipse. This activity will show you how to make a projector to watch a solar eclipse safely.

### Supplies:

- An empty cardboard box (a cereal box or granola bar box works great!)
- White paper
- Scissors
- Aluminum foil
- A pin
- Tape

### Instructions to build the box:

1. Tape a piece of white paper to one of the inner sides of the box. This will be your screen.
2. On the opposite side of the white paper, cut two small holes about 10cm apart (one for sunlight and one to look through).
3. Tape aluminum foil over one of the holes.
4. Poke a tiny hole in the middle of the aluminum foil.
5. Tape the box closed. Seal it tightly so no extra light gets in.
6. Optional – decorate the outside of the box!



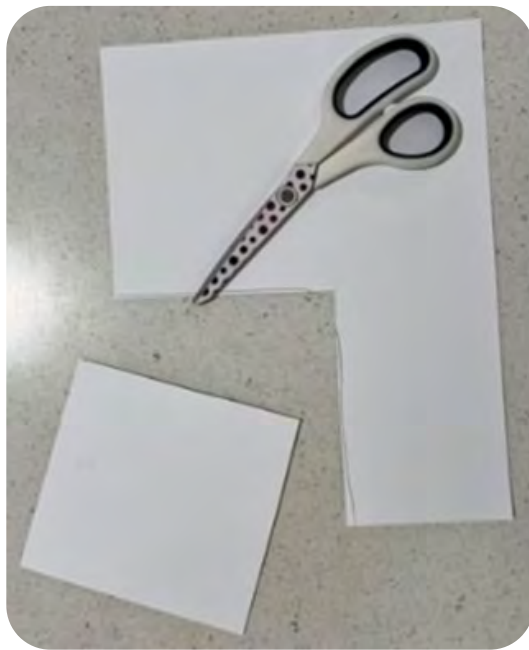
## 19. Build a Solar Eclipse Box - continued

### Instructions to use the box:

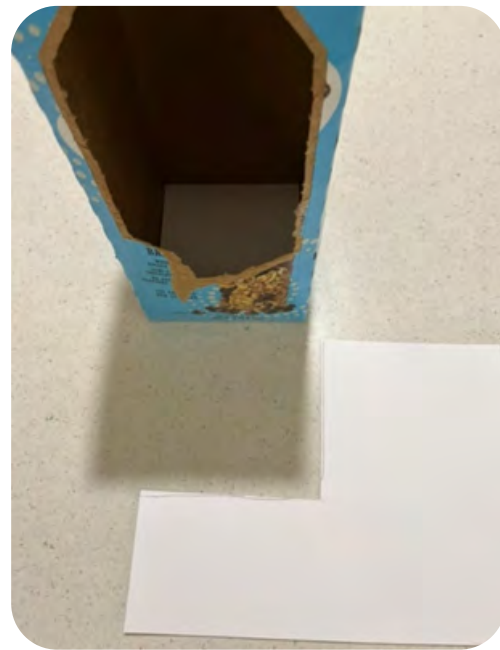
1. Take your box outside and stand with your back to the sun.
2. Sunlight will pass through the tiny hole in the foil and project it onto the white paper inside.
3. Look through the other hole to see a small image of the sun.

**The tiny hole bends light and projects a clear, small image of the Sun onto the white paper—like a camera! This lets you see the eclipse without looking directly at the Sun, which can hurt your eyes.**

### Step 1



### Step 1 - continued



## 19. Build a Solar Eclipse Box - continued

### Step 2



### Step 3



 15 to 30 Mins

## 20. Northern Lights Art (S) (E) (G) (P) (R)

**Program Area suggestion: Experiment and Create – Art Studio**

The Northern Lights, or Aurora Borealis, are a natural light display that occurs when charged particles from the Sun collide with gases in Earth's atmosphere, creating glowing, colourful waves in the sky. When the charged particles hit oxygen and nitrogen atoms in the atmosphere, they transfer energy to them. The excited atoms release energy in the form of light, creating the glowing auroras we see in the sky.

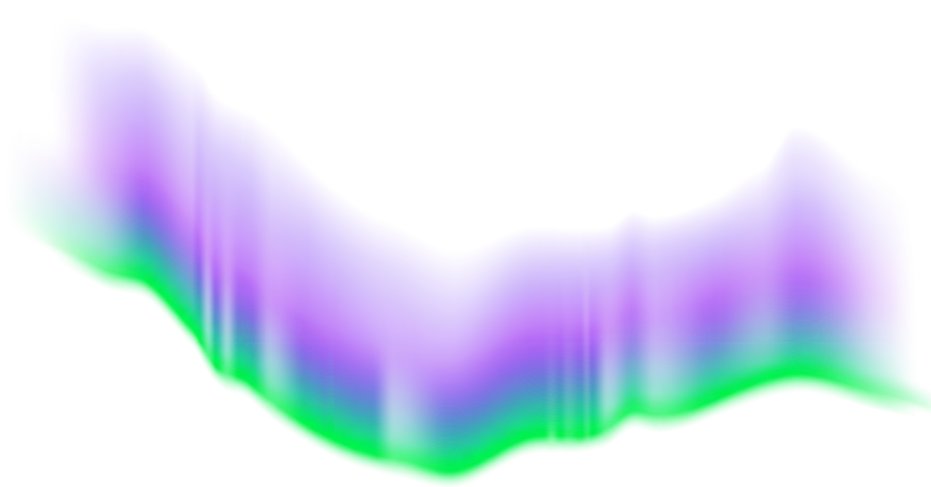
The Northern Lights have different colours depending on which gasses the solar particles hit and how high up they are.

**Green** light – oxygen. This is the most common and happens around 100-300 km high

**Red** light – oxygen. This happens at higher altitudes over 300 km

**Blue** and **Purple** light – Nitrogen. This happens lower in the atmosphere.

The best places to see the Northern Lights are closer to the North Pole, such as Canada, Norway, Sweden, Finland, Alaska and Russia. They are most visible in winter when the nights are long and dark. There is also Southern Lights (Aurora Australis) near the south pole.



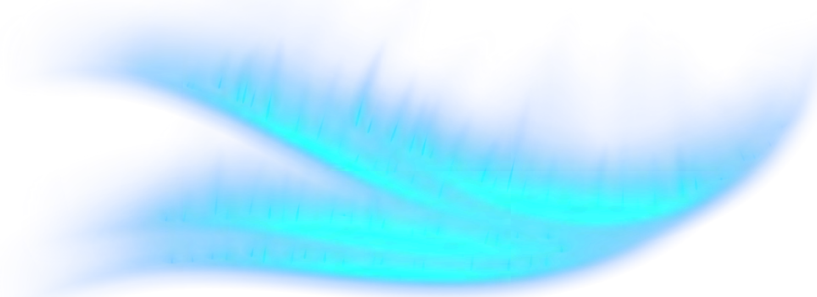
## 20. Northern Lights Art - continued

### Supplies:

- Black or dark blue paper
- Soft pastels or chalk (green, blue, purple, pink, yellow)
- Cotton balls or tissues
- White paint or gel pen
- Optional: black pen

### Instructions:

1. Grab your piece of black or dark blue paper. This will be your night sky.
2. Pick bright colours (green, blue, pink, purple) and draw curved streaks or waves on the paper.
3. Using a cotton ball, a tissue, or even your finger, gently smudge and blend the colors upwards, make them look soft and glowing.
4. Using white paint or a gel pen, add tiny stars in the sky.
5. Optional: using a black pen, create silhouettes of mountains, trees or a city skyline at the bottom.



 15 to 30 Mins



## 21. Nebula in a Jar (S) (E) (G) (P) (R)

**Program Area suggestion: Experiment and Create – Art Studio**

**\*Special thanks to Taryn Elizabeth for this activity**

A nebula is a huge cloud of gas and dust in space. Some nebulae are where new stars are born, and others are made from old stars that exploded!



### **Some types of nebulae are:**

- Star-Forming Nebulae – These are “stellar nurseries” where baby stars are made.
- Supernova Remnants – When a big star explodes, it creates a colourful cloud of gas.
- Planetary Nebulae – These form when small stars puff out their outer layers before fading away.

Nebulae come in beautiful colours and shapes because of the different gases inside them. They can be pink, blue, purple or green.

In this activity you’ll be making your own nebula in a jar!



## 21. Nebula in a Jar - continued

### Supplies:

- 3 plastic cups
- 3 ombre colours of acrylic paint (ie: light, medium and dark purple)
- Mason jar
- Large cotton balls
- Glitter (regular glitter, chunky glitter, glitter stars)
- Wooden craft sticks



### Instructions:

1. Add water to each glass until it's about  $\frac{3}{4}$  full. Add 4 or 5 drops of paint in each glass and stir with a craft stick.
2. Stretch the cotton balls out and layer the bottom  $\frac{1}{4}$  of the mason jar with the cotton balls.
3. Pour enough of the darkest paint into each jar to soak the cotton balls.
4. Add some space glitter and use the craft stick to spread the glitter all over the cotton balls.
5. Add another layer of stretched out cotton balls to the mason jar and pour the medium colour paint over the new layer of cotton balls.
6. Add more glitter and use the craft stick to spread the glitter all around.
7. Add another layer of cotton balls and pour the lightest shade of paint, sprinkle on some glitter and use the craft stick to spread it all around.
8. Top the jars with their lids to seal. \*\*give the rim of the jar a good clean before sealing the lid on tight. Glitter can sometimes get stuck and prevent a good seal, causing the jar to leak.



 15 to 30 Mins



## 22. Solar System Hike (S) (E) (G) (P) (R)

Program Area suggestion: Experiment and Create – Science Lab

**\*Special thanks to Taryn Elizabeth for this activity**

The solar system is huge, but from Earth, the planets look much closer together than they really are. This is because space is so big that distances are hard to imagine.

With this activity you will get a sense of how far apart the planets actual are.

### Supplies:

- [Planet cards](#) from the resource section
- An item to mark the sun
- A large open space (a park, or field)



### Did you know?

**A pace is a unit of length consisting of one normal walking step.**

### Instructions:

1. Place your item representing the sun at the beginning of your open space.
2. Take 10 paces from the sun and place the Mercury card.
3. Take 9 paces from the Mercury card and place the Venus card.
4. Take 7 paces from the Venus card and place the Earth card.
5. Take 14 paces from the Earth card and place the Mars card.



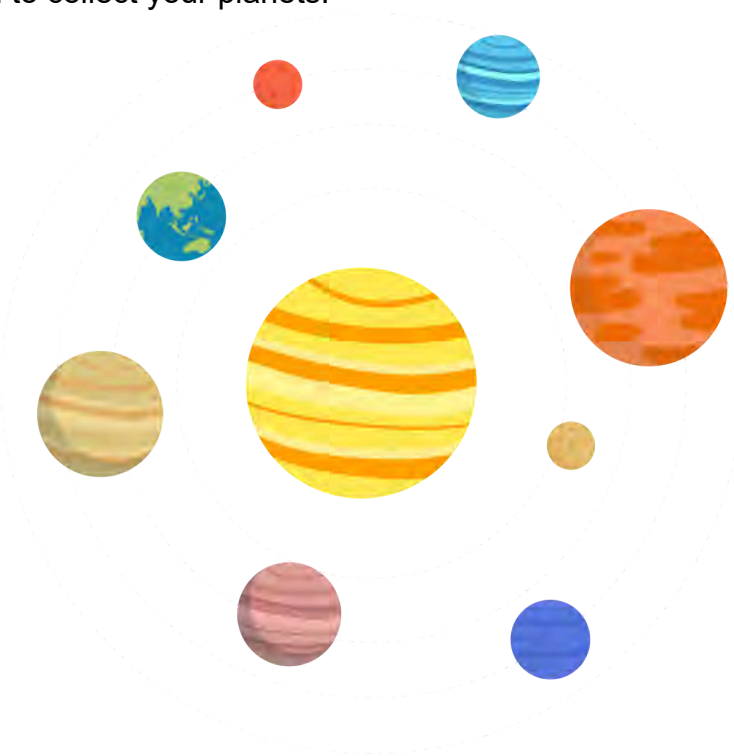
## 22. Solar System Hike - continued

Mercury, Venus, Earth and Mars are considered the inner planets. In terms of planet distance, they are considered close. The next 4 planets are very spaced out. If you do not have room to continue pacing, change your walking direction to fit all the paces in. Or walk in place to get a sense of how many paces you would be going.

6. Take 95 paces from the Mars card and place the Jupiter card.
7. Take 112 paces from the Jupiter card and place the Saturn card.
8. Take 249 from the Saturn card and place the Uranus card.
9. Take 281 paces from the Uranus card and place the Neptune.

After Neptune, it would take another 242 paces to get to the dwarf planet Pluto, which was considered a planet until 2006.

Head back along the same path to collect your planets.



 15 to 30 Mins



## 23. Flashlight Constellations (S) (E) (G) (P) (R)

Program Area suggestion: Experiment and Create – Science Lab

\*Special thanks to Taryn Elizabeth for this activity

A constellation is a group of stars that form a recognizable pattern in the night sky. These patterns often look like animals, people, objects, or mythical creatures, and they have been used for centuries to help people navigate and tell stories.

### Fun Facts About Constellations!

- They don't actually connect! The stars in a constellation may look close together from Earth, but they are often far apart in space—sometimes light-years away from each other.
- Different cultures see different pictures. Many cultures around the world have their own stories and patterns for the same stars.
- The sky changes with the seasons. Some constellations are only visible at certain times of the year because of Earth's movement around the Sun.

### Supplies:

- The [Constellation Pages](#) in the resource section
- Flashlight
- Small hole punch or needle
- A dark area

### Instructions:

1. Print out the [Constellation Pages](#) from the resource section and cut out each constellation circle.
2. Use a small hole punch or needle to poke the holes for the stars.
3. In a dark area, hold one of the constellation circles up close to your flashlight to project the constellations onto a wall or floor.

**Variations:** Grab a blank piece of paper and create your own constellation. Poke the holes for your stars and see your own constellation shine on the wall!



15 to 30 Mins



## 24. Space Swaps (S) (E) (G) (P) (R)

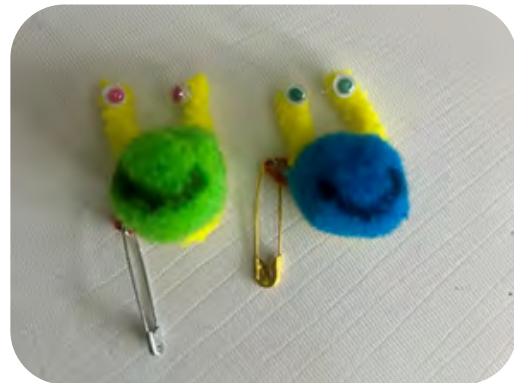
Program Area suggestion: Guide Together – Spirit of Guiding

Special Whatchamacallits Affectionately Pinned Somewhere, a.k.a. “SWAPS,” are crafts you can fit in your hand and pin just about anywhere. You may have seen some on hats, backpacks or maybe even traded some with another Girl Guide! Create these just for yourself or make a bunch to trade at your next Guiding event!

### Pompom Alien (S) (E) (G) (P) (R)

#### Supplies:

- Pompoms
- Pipe cleaners
- Googly eyes
- Glue
- Marker
- Optional: Safety pin and string



#### Instructions:

Using either hot glue or white glue, glue a small length of pipe cleaner in a ‘U’ shape so the two end pieces stick up like antennae. Glue googly eyes to the two end pieces of the pipe cleaner that are sticking up. Grab a marker and add a smiley face! Optional: If you want to be able to put the swap on your backpack or hat, glue a piece of string to the back that has a safety pin attached to it.

### Glue Gun Alien (E) (G) (P) (R)

This swap uses a hot glue gun. Please ask an adult to help if needed. You can practice your glue gun skills with this activity from the platform: [Goopy Glue Guns](#)



## 24. Space Swaps - continued

### Glue Gun Alien - continued

#### Supplies:

- Hot glue gun
- Parchment paper
- Pipe cleaners
- Googly eyes
- Optional: Safety pin and string



#### Instructions:

Gently squeeze the glue gun trigger so the hot glue comes out. Make a small pile of glue on a piece of parchment paper. It can be a simple glob or you can try and form a shape. While the glue is still hot, drop on a googly eye and add some pipe cleaner or ribbon to give your alien a wacky hair style. Optional: If you want to be able to put the swap on your backpack or hat, glue a piece of string to the back that has a safety pin attached to it, or attach the safety pin to one of the pipe cleaners you used.

### Pop Tab Alien (E) (G) (P) (R)

#### Supplies:

- Pop tabs
- Yarn
- Googly eyes
- Glue
- Optional: Safety pin and string



#### Instructions:

Grab some yarn and tie it to one end of the pop tab. For a frizzy look, you can pull apart the yarn. Glue on a googly eye. Optional: If you want to be able to put the swap on your backpack or hat, glue a piece of string to the back that has a safety pin attached to it.



 15 to 30 Mins

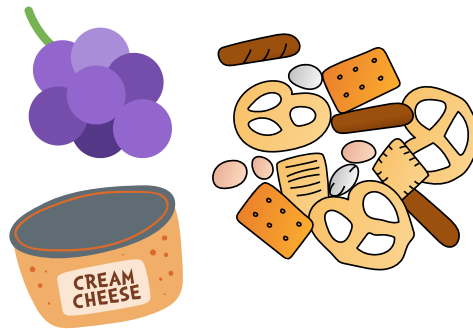


## 25. Edible Campfire (S) (E) (G) (P) (R)

**Program Area suggestion:  
Into the Outdoors: Camping Skills and Adventures**

### Supplies:

- Circle crackers (large)
- Cheese
- Grapes
- Cream cheese
- Pretzel sticks
- Plates
- Knives



### Instructions:

1. Take a cracker to be the base of your campfire.
2. Spread cream cheese on your cracker.
3. Make the rocks: stick the grapes to the top of your cracker around the edge. Hint: They may stick better if you cut them in half!
4. Make the flames: Rip the cheese into pieces and put them so they stand up in the middle of the grapes
5. Lay your wood: Put your pretzel pieces so they stick to the cheese and are held up by the grapes

**Enjoy your campfire!**

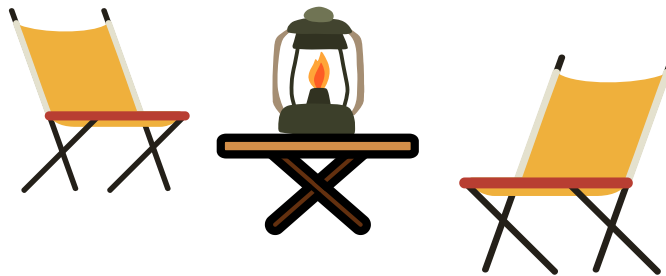


# Closing

## Campfire \*

- Check provincial and local fire rules and bans.
- Discuss campfire safety.  
Program area suggestion: [Into the Outdoors - Camping Skills and Adventures](#)
- Have a campfire snack.  
Program area suggestion: [Into the Outdoors - Camping Skills and Adventures](#)
- Sing some songs!
  - Check out [Let's Sing](#) on Member Zone for suggestions and lyrics
  - Sing [Taps](#) or [Daylight Taps](#)
- Hand out Outer Space From Your Space Crest (optional) and say goodbye.
- Make sure the fire is completely out before the last leader leaves.

**\* Campfires do not have to be real.  
Units can still gather around an imaginary campfire and  
sing songs or join an online campfire.**



# Taps and Daylight Taps



## TAPS

Day is done, gone the sun,  
From the lake (sea), from the hills, from the sky.  
All is well, safely rest.  
Peace is nigh.

## FRENCH

C'est la nuit, tout se tait  
Sur la pleine, les collines, et les bois,  
C'est la paix, tout est bien  
Toutes – bon soir.

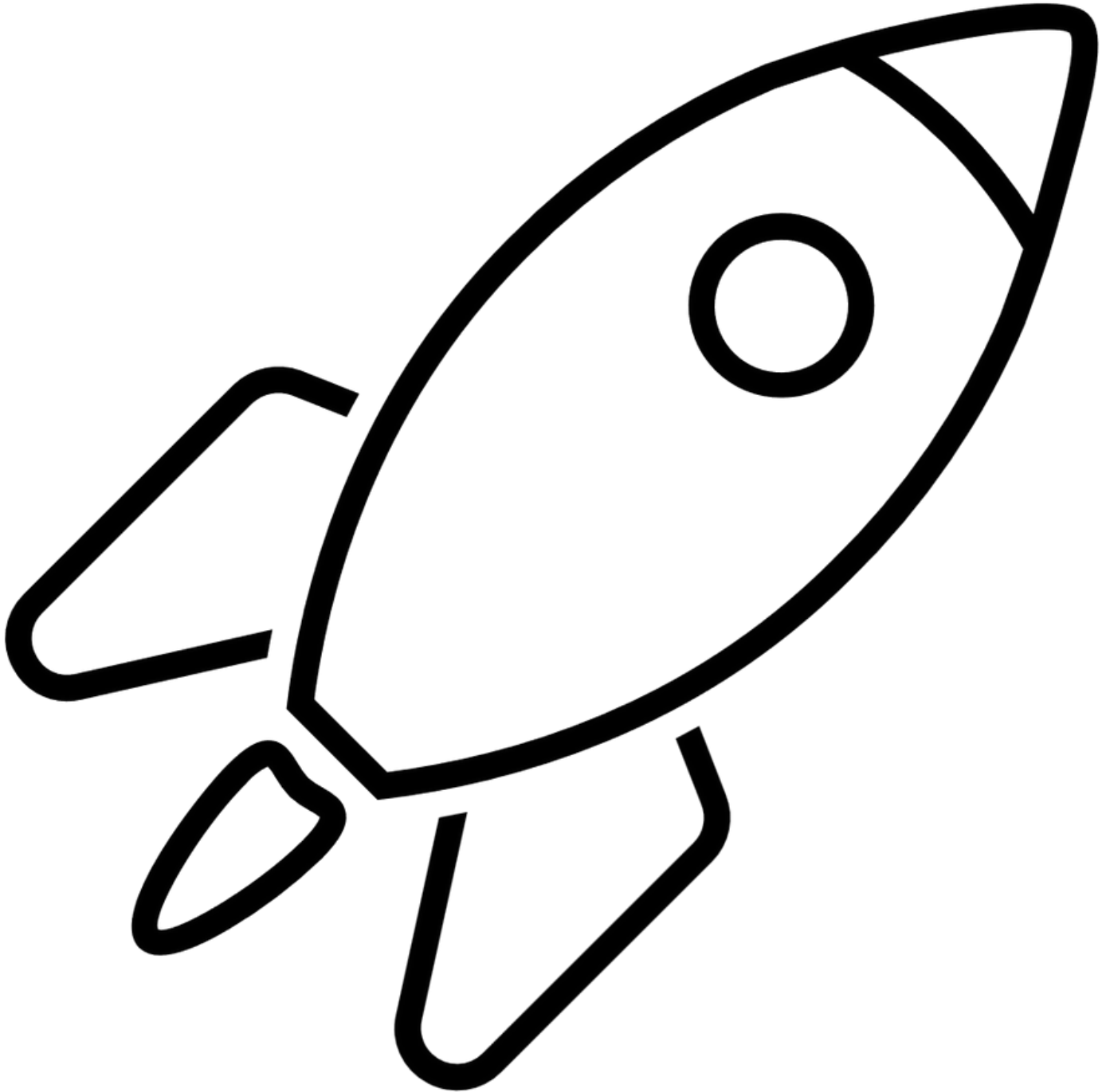
## DAYLIGHT TAPS

Thanks and praise, for our days,  
'Neath the sun, 'neath the stars, 'neath the sky.  
As we go, this we know:  
We are Guides.



# RESOURCES

For activity 3 – Design a Rocket



**Cassiopeia**

In Greek mythology, Cassiopeia was a selfish queen who was married to King Cerpheus and had a daughter named Andromeda. She used to brag that she was more beautiful than the sea nymphs. To make her humble, when she was placed in the stars after her death, she was made to spend half her time sitting upside down in her chair. She sometimes looks like a "W" and the rest of the time like an "M".<sup>1</sup>

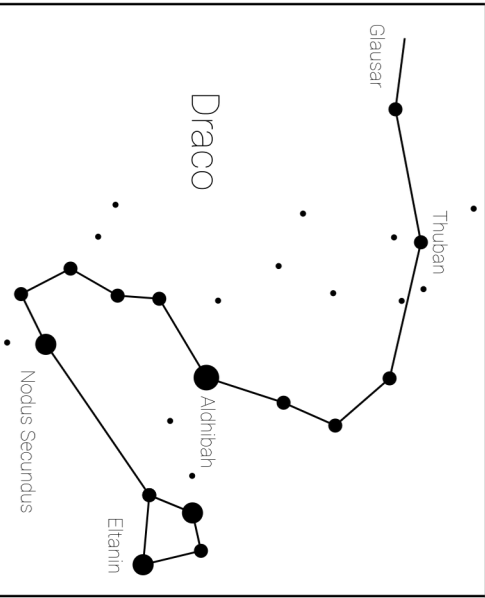
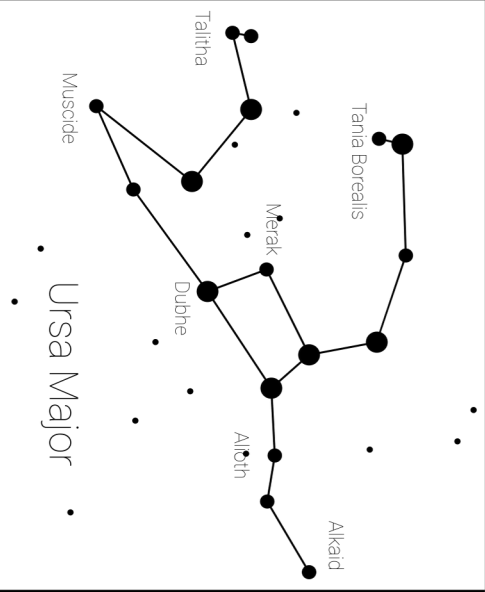
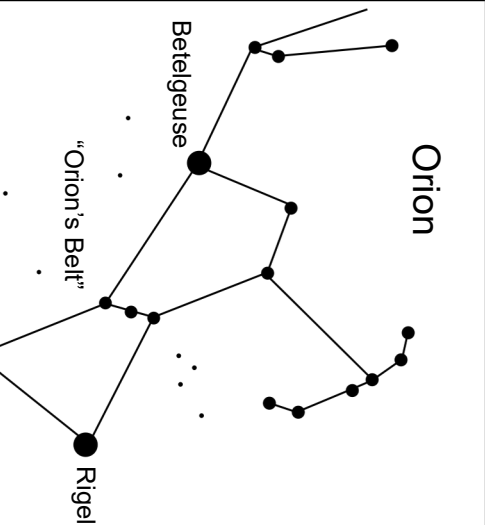
**Cerpheus**

In Greek mythology, King Cerpheus was married to Queen Cassiopeia and was Andromeda's father. Because he was related to Zeus, the king of the Gods, he was placed in the stars between his wife and daughter after his death.<sup>2</sup>

**Ursa Minor**

Ursa Minor (the lesser bear) is related to the story of Ursa Major. The Greeks believed that Zeus turned Callisto's son Arcas into a bear and threw him into the skies with his mother, Ursa Major. The little dipper is part of this constellation, so is the North Star (Polaris).<sup>3</sup>

<sup>1</sup> Modified from *Cassiopeia (constellation)* from Britannica Kids, accessed November 2019. <https://kids.britannica.com/students/article/Cassiopeia/341172>  
<sup>2</sup> Modified from *Cerpheus (constellation)* from Britannica Kids, accessed November 2019. <https://kids.britannica.com/students/article/Cerpheus/341173>  
<sup>3</sup> Modified from *Ursa Minor (constellation)* from Britannica Kids, accessed November 2019. <https://kids.britannica.com/students/article/Ursa-Minor/31395>

<p>According to Roman mythology, the dragon Draco was a troublemaker who was thrown into the sky by the goddess of intelligence, Minerva.<sup>4</sup></p>	 <p>Draco</p>
<p>There are many stories from many cultures about this constellation. Some Greeks believed that Ursa Major (the great bear), was a human named Callisto that was turned into a bear by the goddess Hera and thrown into the heavens by Zeus. The bear's tail is so long because Zeus stretched it when he swung the bear around to hurl it into the sky. The big dipper is part of this constellation.<sup>5</sup></p>	 <p>Ursa Major</p>
<p>This story is about the three stars of Orion's Belt, a part of the larger constellation of Orion. In Inuit storytelling, four men were hunting a bear. The bear escaped by climbing up into the sky, and the hunters followed the bear into the stars. As they climbed higher and higher, one of the Inuit lost a mitten and decided to return to Earth to fetch it. The other hunters continued their hunt, and we can still see them today in the three stars. The Inuit hunter who returned to Earth to find his mitten told the story to his community of the bear hunt in the stars.<sup>6</sup></p>	 <p>Orion</p>

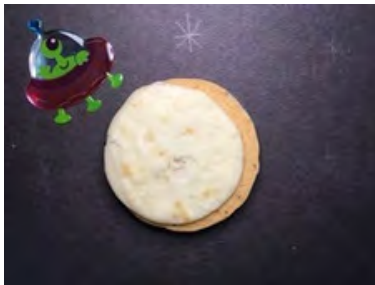

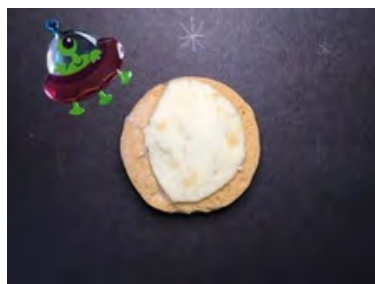


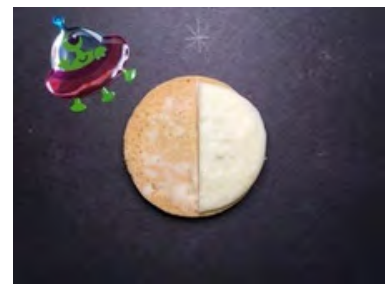
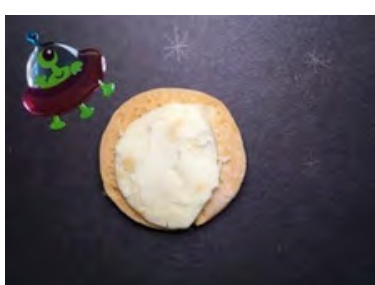

<sup>4</sup> Modified from *Draco (constellation)* from Britannica Kids, accessed November 2019. <https://kids.britannica.com/students/article/Draco/341192>  
<sup>5</sup> Modified from *Ursa Major (constellation)* from Britannica Kids, accessed November 2019. <https://kids.britannica.com/students/article/Ursa-Major/313956>  
<sup>6</sup> Modified from *The Inuit Sky* from The Virtual Museum of Canada accessed August 2021. [https://astro-canada.ca/le\\_ciel\\_des\\_inuits-the\\_inuit\\_sky-eng](https://astro-canada.ca/le_ciel_des_inuits-the_inuit_sky-eng)

# RESOURCES

## EG-Resource-Cookie Moons

### Step 1: Carve your cookies

Start by opening up each of the four cookies as carefully as you can so all the cream ends up on one side of the cookie. Then, follow the steps below to create eight different cookie faces:









<p><b>Cookie #1:</b> Split your cookie apart so all the cream is on one side. That's it for this one!</p>		
<p><b>Cookie #2:</b> Carve a small crescent of cream off the left side of the full cookie face and put it on the left side of the empty cookie face.</p>		
<p><b>Cookie #3:</b> Carve off half of the cream on the left side of the full cookie face and put it on the left side of the empty cookie face.</p>		
<p><b>Cookie #4:</b> Carve a small crescent of cream off the right side of the full cookie face and put it on the right side of the empty cookie face.</p>		

# RESOURCES

## EG-Resource-Cookie Moons

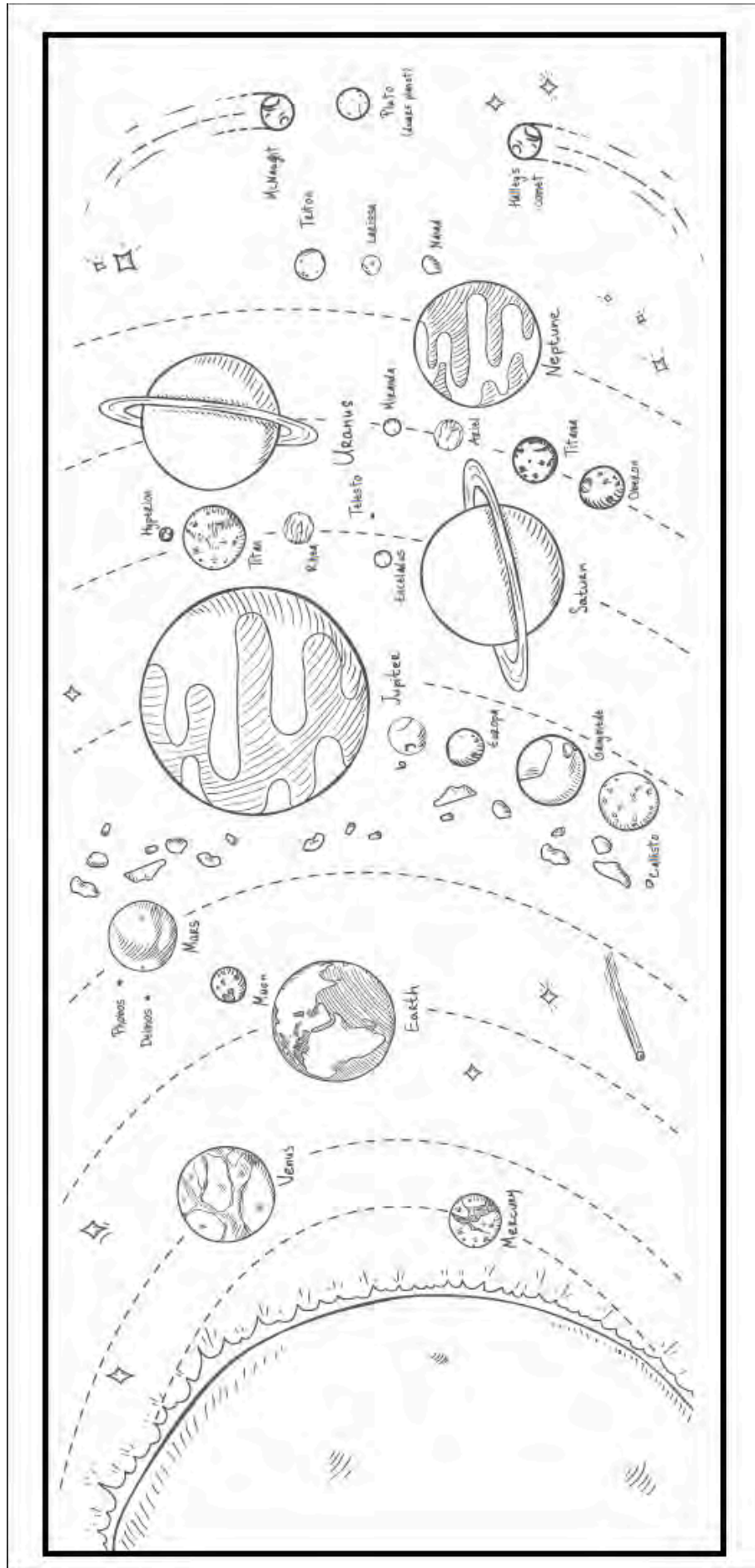
### Step 2: Put your cookies in order

Work together to get your cookies in the order below to show the phases of the Moon.

	<p><b>Phase 1: Full Moon</b></p> <p>The whole cream circle looks like a full Moon. A full Moon happens when the sun and Moon are lined up so the side facing the Earth is also facing the sun.</p>
	<p><b>Phase 2: Waxing Gibbous</b></p> <p>The cookie with a little cream missing from the right side looks like the waxing gibbous Moon. Waxing means something is getting bigger. Gibbous describes the semi-circle shape in between the full Moon and first quarter Moon.</p>
	<p><b>Phase 3: First Quarter</b></p> <p>The cookie with the cream on the right half looks like the first quarter Moon. It's called this because about a quarter (or one week) of the month has passed since the full Moon when this Moon is out. Sometimes this is called a half Moon.</p>
	<p><b>Phase 4: Waxing Crescent</b></p> <p>The cookie with the small crescent on the right side looks like the waxing crescent Moon. Have you noticed? The part of the cookie without cream is getting bigger.</p>
	<p><b>Phase 5: New Moon</b></p> <p>The cookie with no cream on it looks like a new Moon. When there's a new Moon, it almost looks like the Moon has disappeared! It happens when the Moon gets between the Earth and the sun and the sun is shining on the side of the Moon we can't see.</p>
	<p><b>Phase 6: Waning Crescent</b></p> <p>The cookie with the small crescent on the left side looks like the waning crescent Moon. Waning means something is getting smaller – the part of the cookie without cream will get smaller in the next two phases!</p>
	<p><b>Phase 7: Third Quarter</b></p> <p>The cookie with the cream on the left half looks like the third quarter Moon. It's called the third quarter Moon because about three quarters (or three weeks) of the month has passed since the full Moon when this Moon is out.</p>
	<p><b>Phase 8: Waning Gibbous</b></p> <p>The cookie with more cream, missing just the crescent shape on the right, looks like the waning gibbous Moon.</p>

# RESOURCES

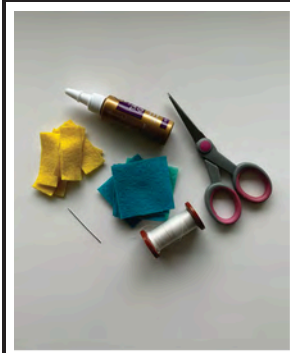
## EGP-Resource-Solar System Diagram



# RESOURCES

## Plush CubeSat - Sewing Instructions

Activity: Plush CubeSat Resource:  
CubeSat Sewing Instructions



### Step 1

Grab your supplies and lay them out on a clean surface.

You'll notice that in these photos, the base is a different colour from the rest of the squares. This is to help you keep track of which square is the base.



### Step 2

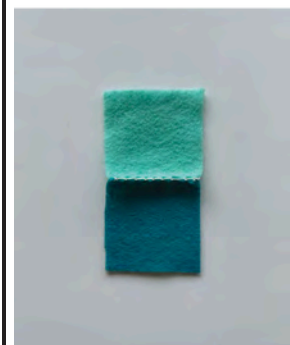
Choose one square to be your base.

If you want, you can make a little mark on the fabric to help you remember which square is the base.



### Step 3

Place your second square so that it lines up with one edge of your base.



### Step 4

Sew the two pieces together using a blanket stitch.

- Check out the Basic Stitches resource for details.
- All the sewing in this activity is done using a blanket stitch. At the end of each step, you can tie a little knot in the thread and then cut it so that it doesn't get tangled.






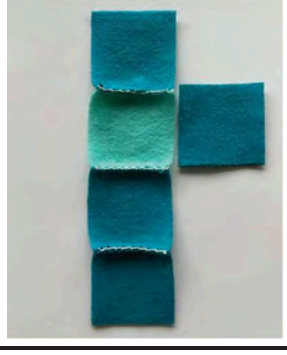

### Step 5

Place your third square so that it lines up with your second square on the edge opposite the one you just sewed to the base.

# RESOURCES

## Plush CubeSat - Sewing Instructions

Activity: Plush CubeSat Resource:  
CubeSat Sewing Instructions

	<p><b>Step 6</b> Sew the two pieces together.</p> <p>Make sure that all your blanket stitches are facing up or each side will look different.</p>
	<p><b>Step 7</b> Place your fourth square so that it lines up with your base on the edge opposite the one you sewed your second square to.</p>
	<p><b>Step 8</b> Sew the two pieces together.</p>
	<p><b>Step 9</b> Place your fifth square so that it lines up with one of the free sides of your base.</p>
	<p><b>Step 10</b> Sew the two pieces together.</p>

# RESOURCES

## Plush CubeSat - Sewing Instructions




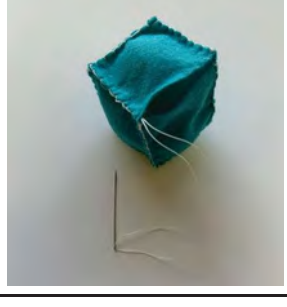

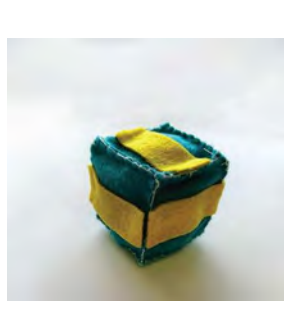
Activity: Plush CubeSat Resource:  
CubeSat Sewing Instructions

	<p><b>Step 11</b> Place your sixth and final square so that it lines up with the last free side of your base.</p>
	<p><b>Step 12</b> Sew the two pieces together.</p>
	<p><b>Step 13</b> To create the cube shape, fold up the three single squares around your base.</p> <p>You'll sew only one square at a time, so it's okay if the others flop back down to the table.</p>
	<p><b>Step 14</b> Sew the middle square to the edge of one of the side squares.</p>
	<p><b>Step 15</b> Sew the middle square to the edge of the other side square.</p> <p>It's okay if your square is floppy at this point; it will puff up when the stuffing is added.</p>

# RESOURCES

## Plush CubeSat - Sewing Instructions

Activity: Plush CubeSat Resource:  
CubeSat Sewing Instructions

	<p><b>Step 16</b> Fold up the remaining two squares that are attached to the base.</p>
	<p><b>Step 17</b> Repeat Steps 14 and 15 on both edges of the square closest to the base to create a box shape.</p> <p>It should look like a box with an open lid.</p>
	<p><b>Step 18</b> Line up the last square on top of your box and sew two of the three edges to the squares around them.</p> <p>Don't cut the string this time! Leave the string attached to make it easier to seal the cube after stuffing it.</p>
	<p><b>Step 19</b> Fill your cube with stuffing. The more stuffing you add, the firmer it will feel and the puffier it will look.</p>
	<p><b>Step 20</b> Sew the final edge together. Tie a knot in the string and cut it. Your cube is complete!</p>
	<p><b>Step 21</b> Glue the rectangles along each of the cube faces to represent the cameras and sensors.</p> <p>If you want to add details to the rectangles with fabric markers, do that before you glue them to the cube.</p> <p>Let the glue dry before you play with your plush CubeSat.</p>

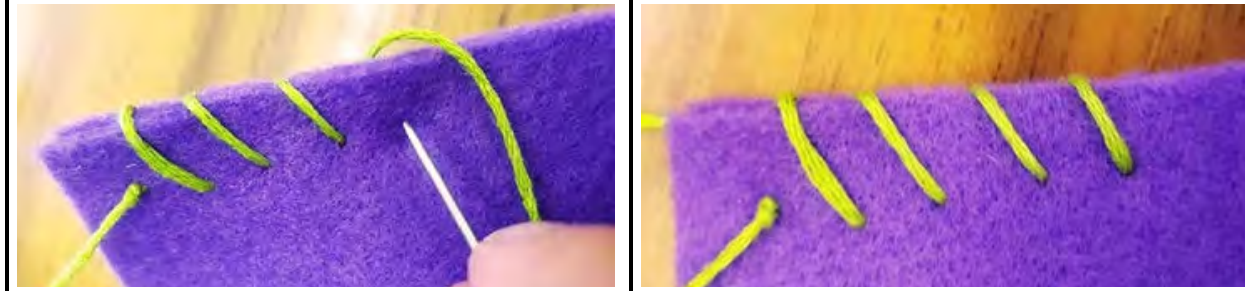
# RESOURCES

## Plush CubeSat - Basic Stitch

### Basic Stitches

Here are some basic stitches you may find useful for different sewing and DIY projects.  
Happy stitching!

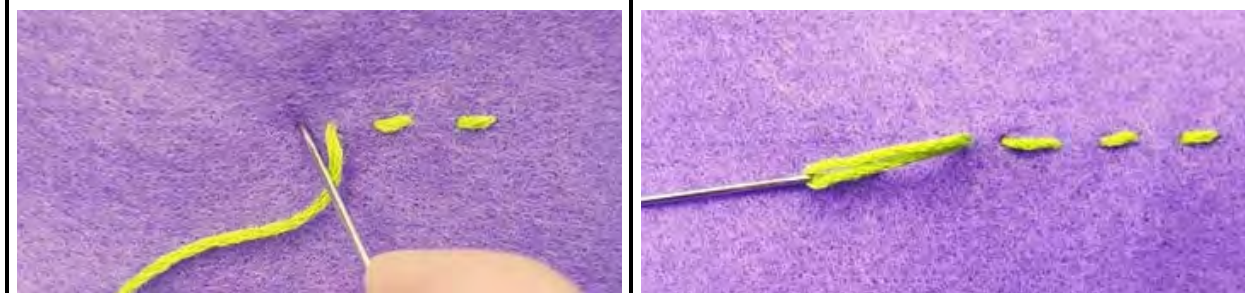
#### Whip Stitch



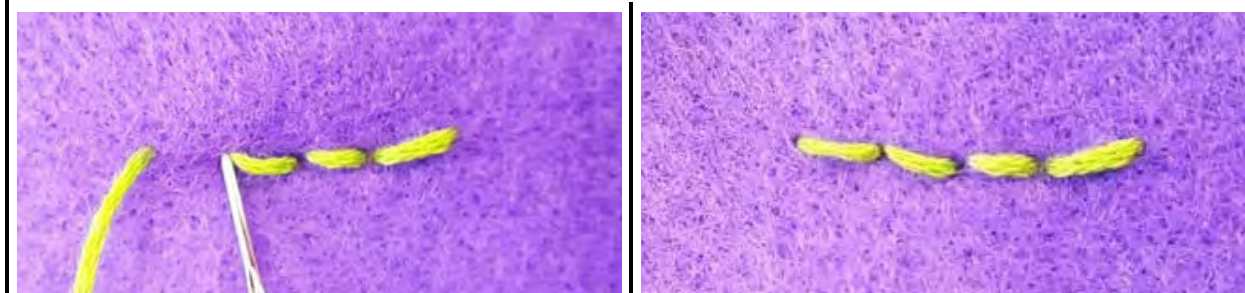
#### Blanket Stitch



#### Running Stitch



#### Back Stitch



#### Slip Stitch





# RESOURCES

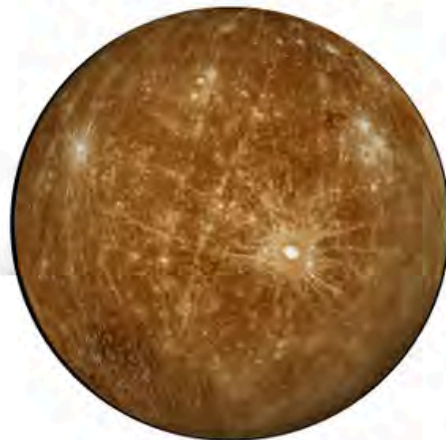
## Solar System Hike Planet Cards

### EARTH



- Our Earth is the fifth largest planet of our solar system
  - Earth is the third planet from the Sun and has one natural satellite - the moon
  - Only planet known to support life as we know it
- About 70% of the Earth's surface is covered with water

### MERCURY



- Mercury is the smallest planet of our solar system
- It is the closest planet to the Sun and is about the size of our moon
  - The planet is the fastest planet in the solar system.
  - It gets very hot during the day and very cold at night
- The planet is named after the Roman messenger of the gods

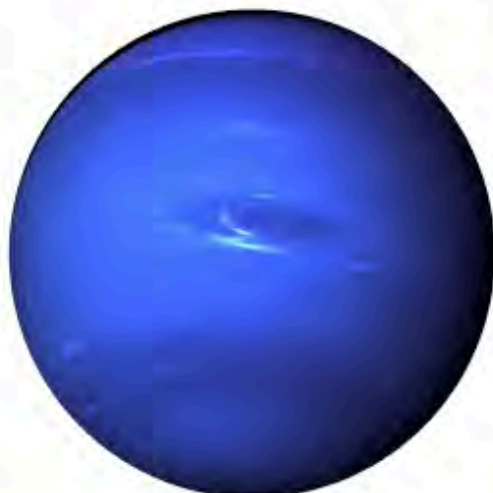
### URANUS

- Uranus is the seventh planet from the Sun
- The planet orbits on its side and has 27 moons
- Uranus is the fourth largest planet and an ice giant
- The planet is named after the Roman god of the sky



### NEPTUNE

- Neptune is the eighth planet from the Sun and it takes 165 years for Neptune to travel around the sun
- The planet is known as a gas giant and is 17 times bigger than Earth
  - The planet is named after the Roman god of the sea
  - Coldest planet, has at least 27 moons
- Neptune is a planet with wild weather and storms with heavy winds more than 1600 km/hr



### VENUS



- Venus is the hottest planet in the solar system
- second planet from the sun and almost as large as Earth
- Most of Venus is covered with lava, hot rocks that come from volcanoes
  - Venus is very bright and does not have any moons
- You can see Venus at night - looks like the brightest star in the sky
  - The planet is named after the Roman goddess of beauty

### JUPITER



- Jupiter is the fifth and largest planet of the solar system - it is so big that all the other planets could fit inside it
  - Gas giant named after the Roman king of gods
- Looks cloudy because it spins very fast pulling clouds into bands around it
- The planet has more than 80 moons and the largest moon of all planets

# RESOURCES

## Solar System Hike Planet Cards

### MARS



- Mars is the fourth planet from the Sun
  - This planet is also called Red Planet
- Looks reddish because there is a lot of iron in the rocks on the surface
  - Mars has two moons: Phobos and Deimos
- This planet is very cold and dry but there is ice at the poles

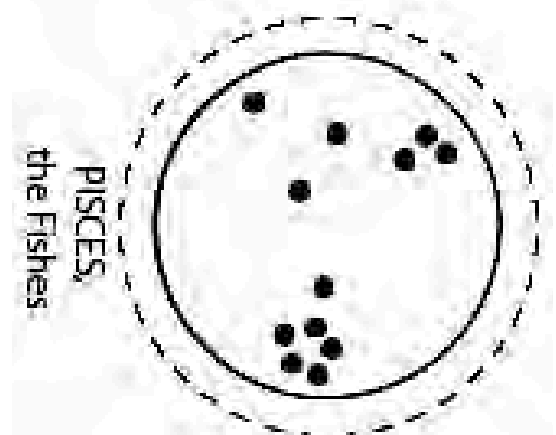
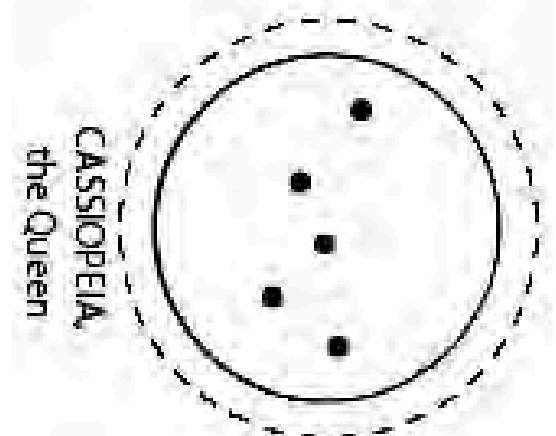
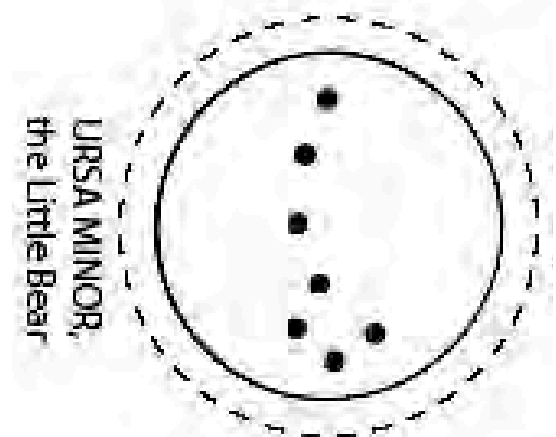
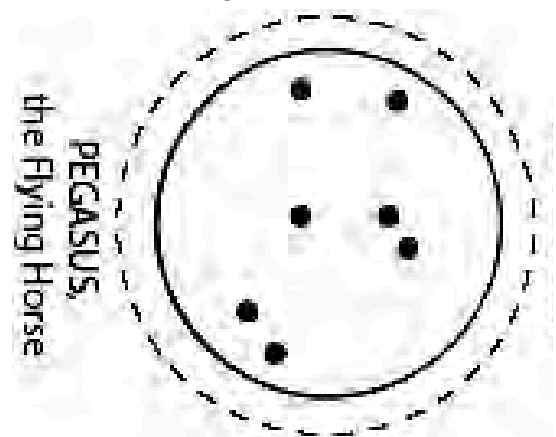
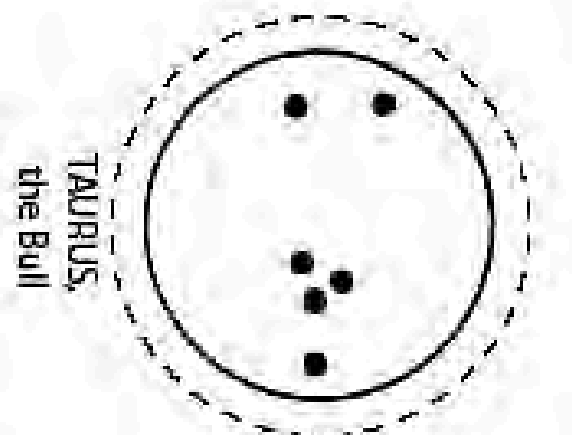
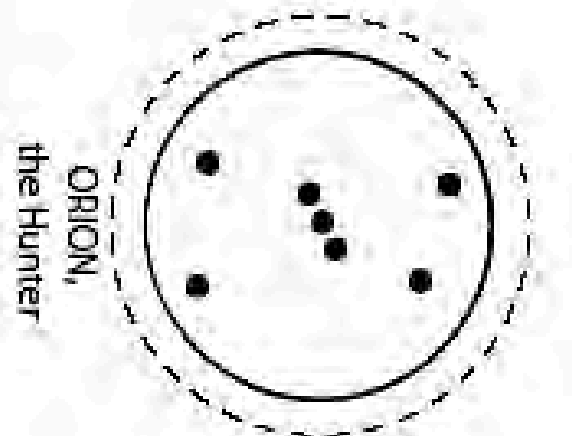
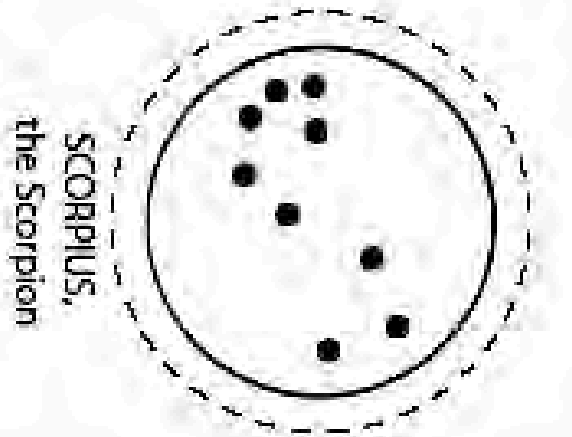
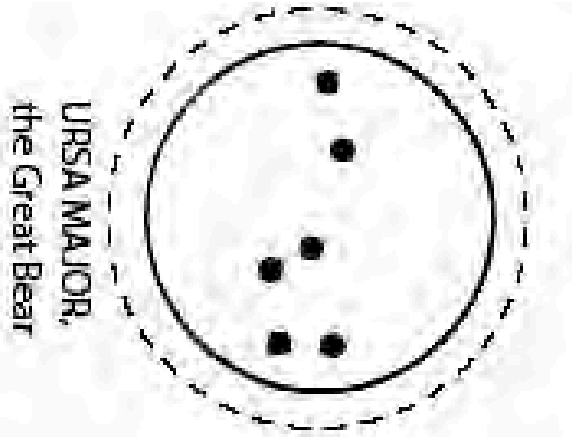
### SATURN

- Saturn is the second largest planet of our solar system
  - The huge planet is made of gas and has thousands of visible rings
- The rings are made up of bits of icy rocks – some as small as specks of dust
  - Saturn has 146 moons in its orbit - ranging in size from larger than the planet Mercury to as small as a sports arena
    - The planet is sixth planet from the sun
    - named after the Roman god of agriculture



# RESOURCES

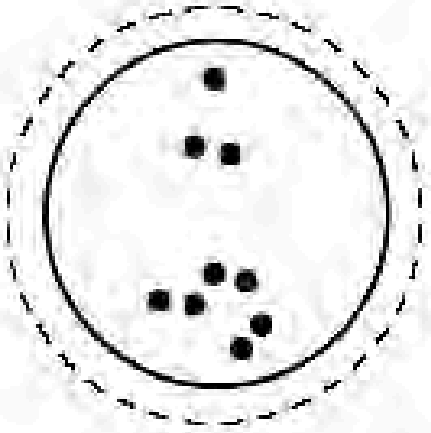
Resource for Flashlight Constellations.



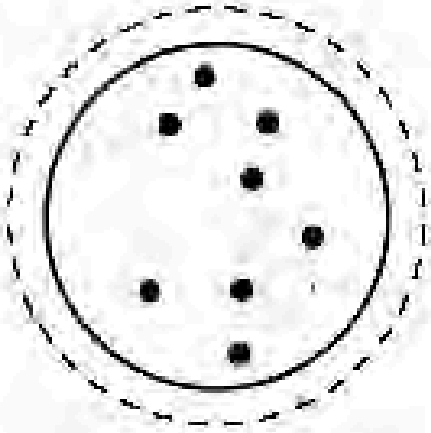
# RESOURCES

## Resource for Flashlight Constellations.

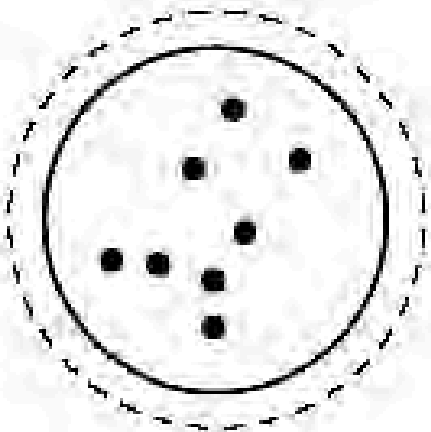
**LEO,**  
the Lion



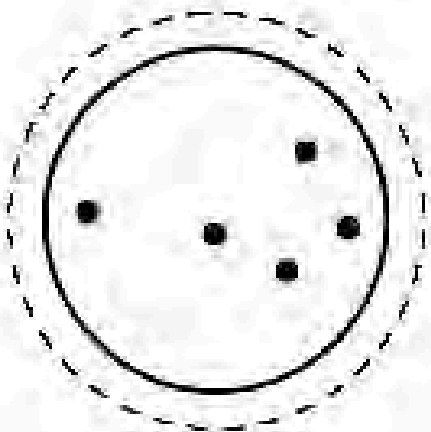
**SAGITTARIUS,**  
the Archer



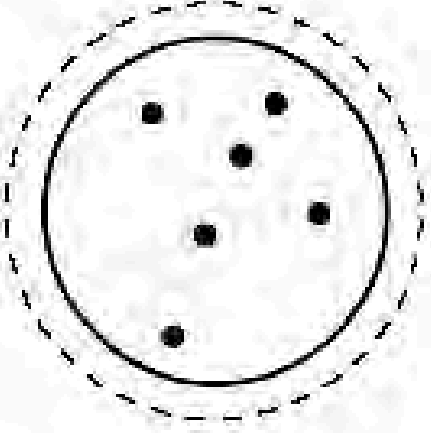
**GEMINI,**  
the Twins



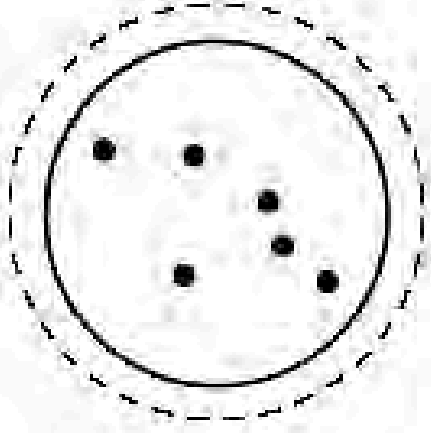
**BOOTES,**  
the Herdsman



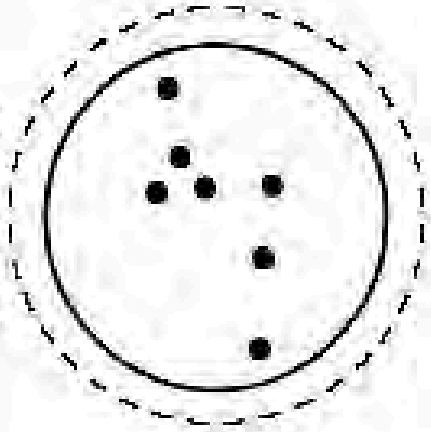
**CYGNUS,**  
the Swan



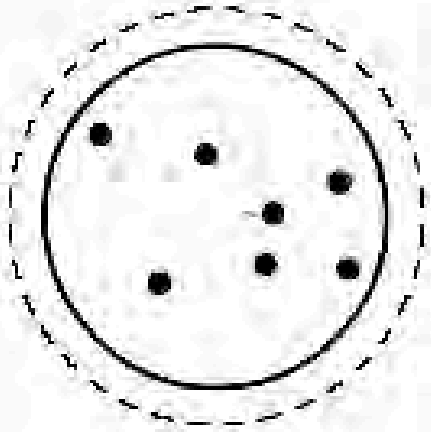
**PERSEUS,**



**CANIS MAJOR,**  
the Big Dog



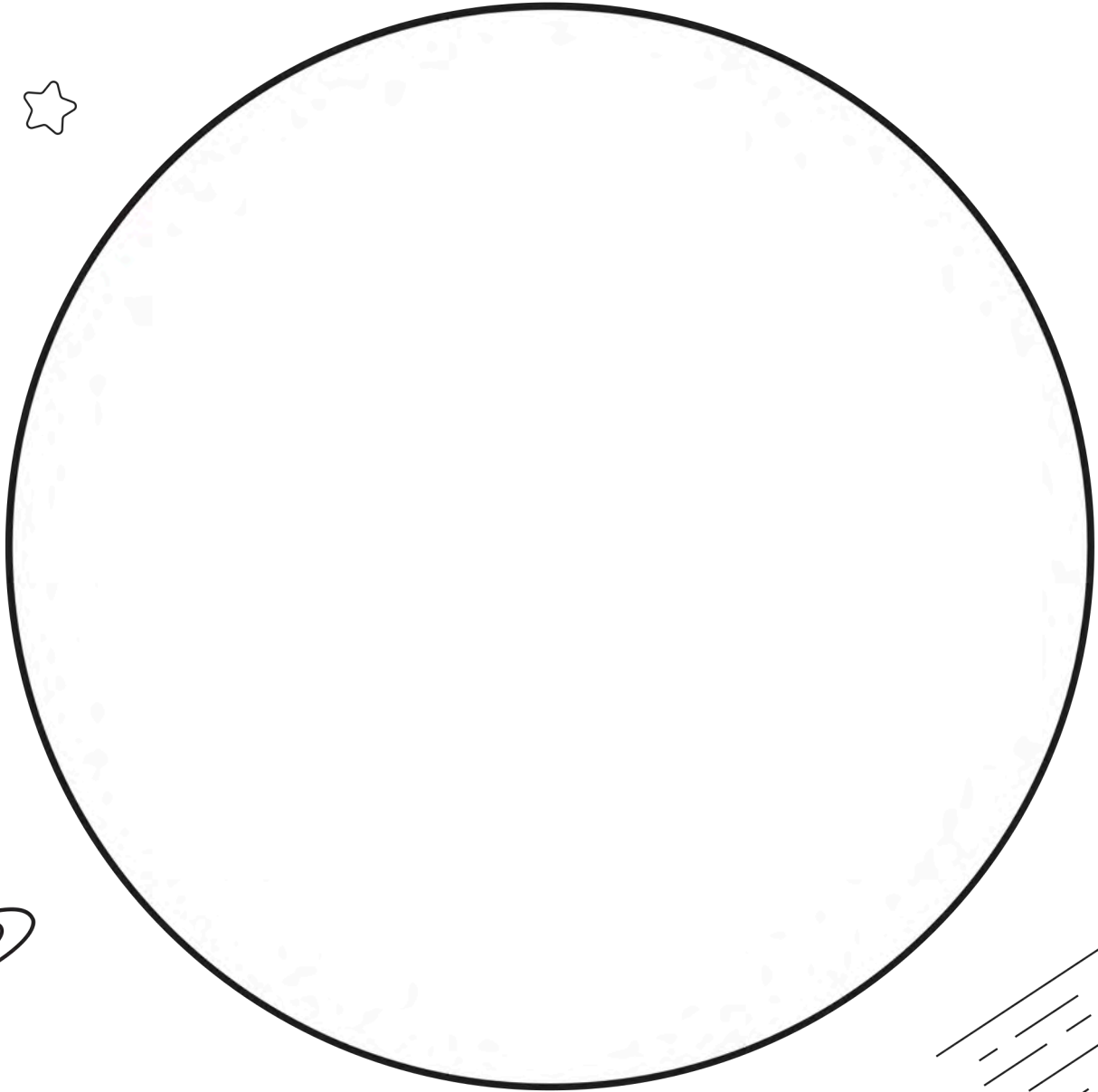
**HERCULES,**



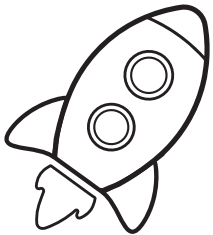
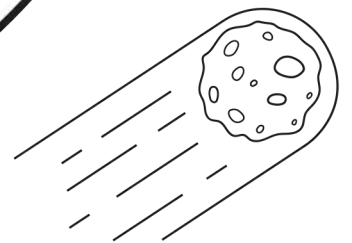
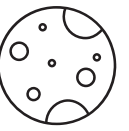
# ★ RESOURCES

## MY PLANET

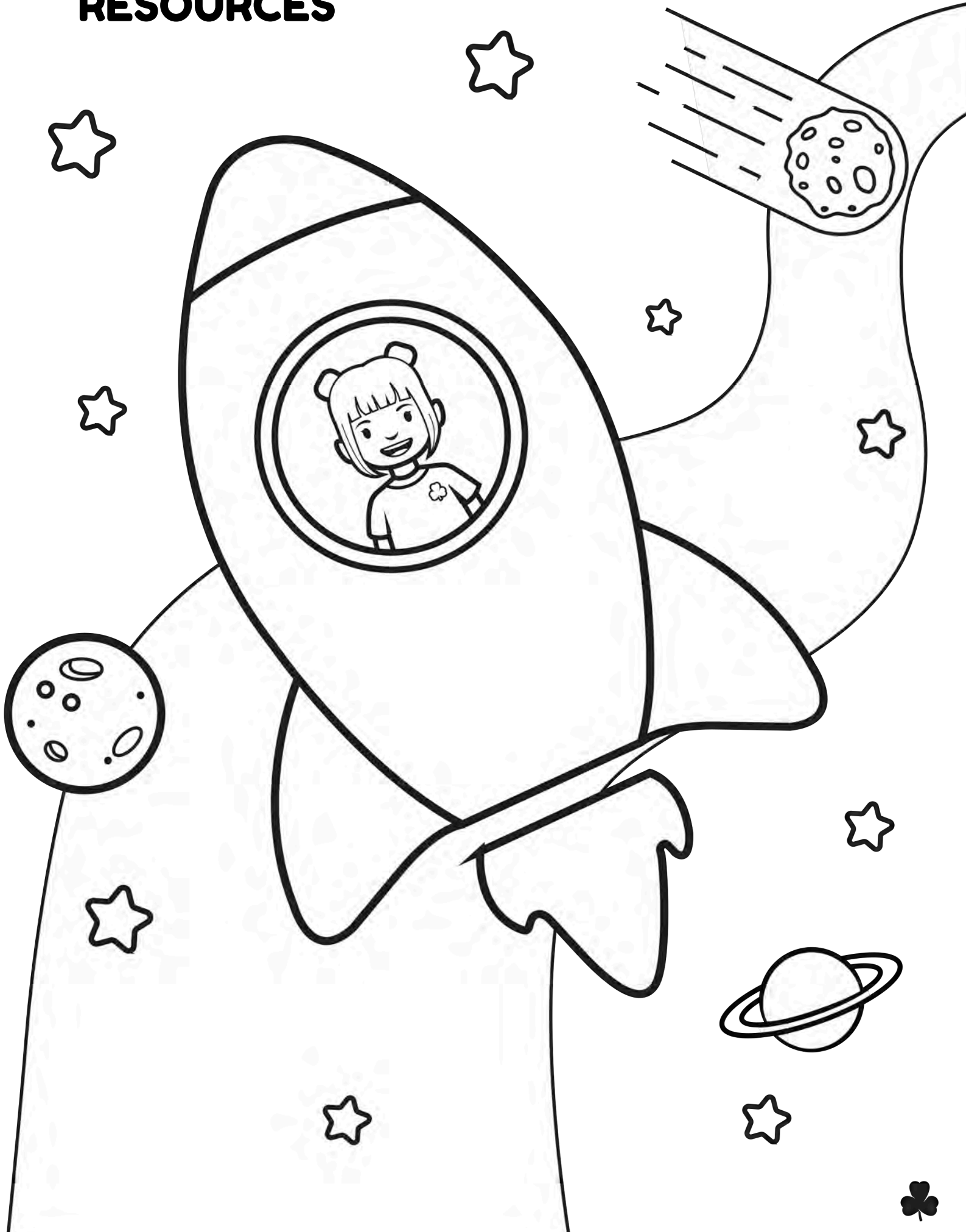
Draw your own planet! Think about who might live there, and what makes it special. Then give your planet a name!

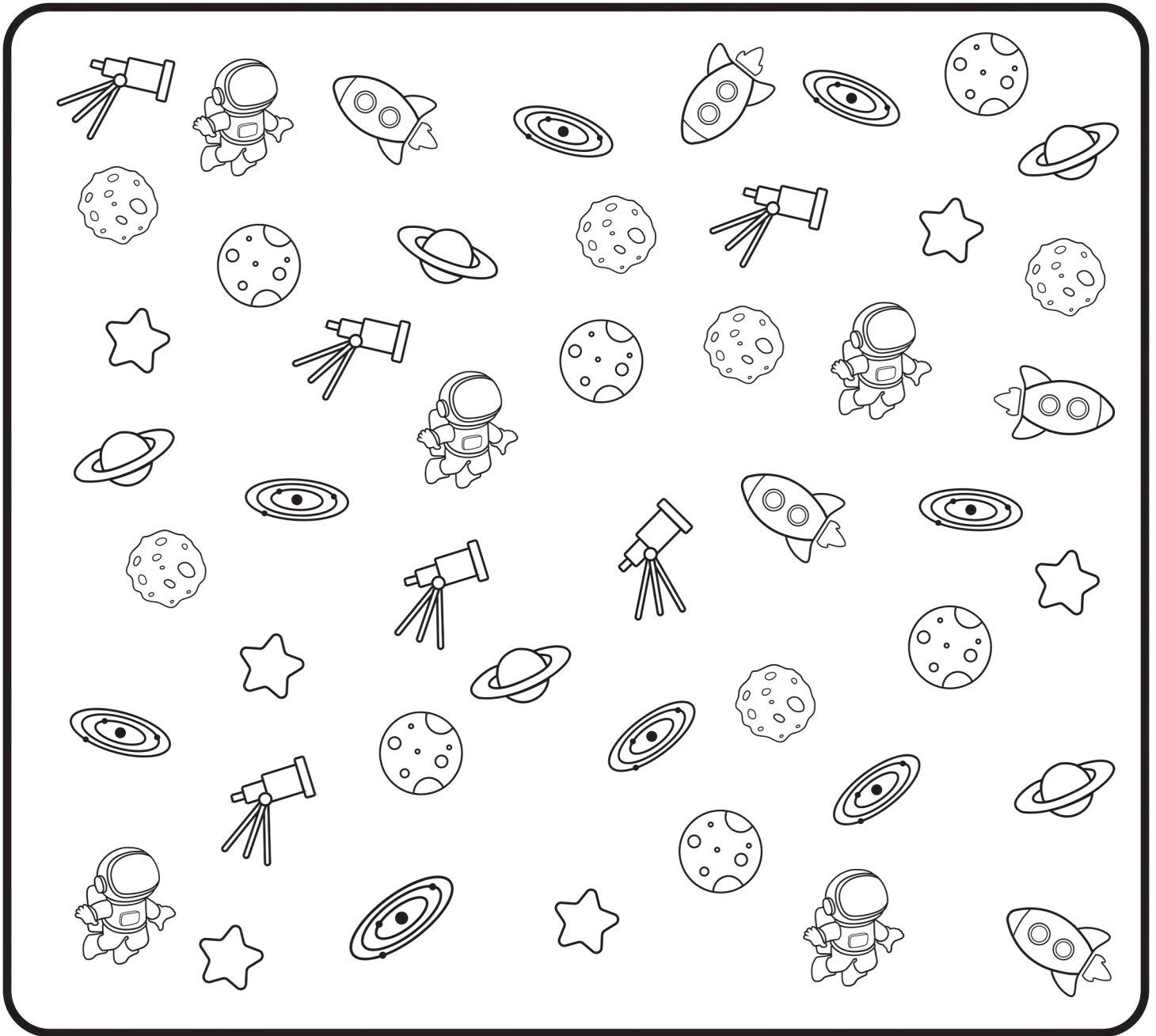


**Name of Planet**

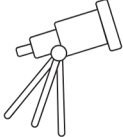
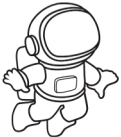








# RESOURCES





Count the number of space images in the box above. Write how many you find of each image below.

	_____		_____		_____		_____
	_____		_____		_____		_____



# RESOURCES

## Space Maze

Help the astronaut make their way through space and back to their rocket.

