girl scouts of wisconsin badgerland

STEM Resources

Badge in a Box

Daisy Space Science Explorer

Overview for Leaders	These kits are designed to allow a leader to conduct a Daisy meeting with less planning, less effort, and less cost. This kit is intended to provide the ideas and materials for the three requirements. **Do not expect to do all the activities**, but rather pick ones that you, as the leader, will have fun doing! It will rub off on your girls. In the kit, there are activities and supplies. Many supplies are provided, but not all. Make sure to look at the Materials list for the activities so that you have some lead time to order or shop. Normal troop supplies, such as scissors and markers, may be needed. Those are specified. Copies may need to be made. Materials or game pieces for each activity are designed so that at least 10 girls can do the activity at a time. Near the end of this Leader Guide, there are ideas for some completely optional activities, but they looked like too much fun to pass up! They are numbered #4. If something catches your fancy, you can pursue it. Please be a sister to the next troop when using these materials. Put them away in the same manner as you received them and report any broken/missing items when returning the box to Badgerland.
This Activity Matches These Badge Requirements	1. Explore the Sun 2. Observe the Moon 3. Meet the Stars
Outcomes	STEM • STEM Interest: Girls are excited about STEM subjects and want to learn more about them. • STEM Confidence: Girls have confidence in their STEM skills and abilities. • STEM Competence: Girls think scientifically to solve problems. • STEM Value: Girls learn the importance and relevance of STEM to people and society.
Materials Troop Needs to Supply and Preparation Actions	Edit this section to list the materials and prep work that the troop needs to do in advance of the meeting with the Girl Scouts. • Markers/crayons • Pencils • Scissors • Make copies of activity sheets from master. Depending on your copier, you may be able to leave the master in the sleeve and just lay it on the copier bed.

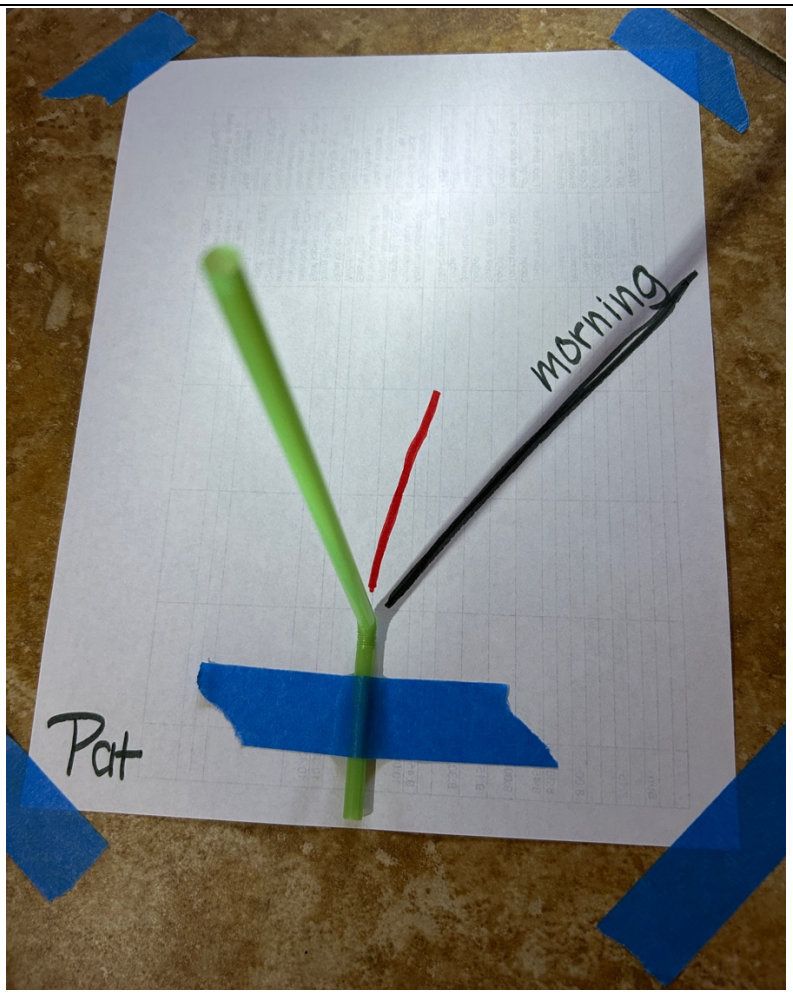
	• 1 piece of paper/girl (Activity #1 – A, both sunny and cloudy/indoor version) (troop provides)
	  • Copier paper will work. However, if you can find something heavier (card stock, half of a manilla folder, construction paper) then it will be easier for the Daisies.
	• A light source (Activity #1 – A, cloudy/indoor version) (troop provides)
	  A cell phone light will work. So will a portable work light. A good-sized, bright flashlight. A table lamp without a shade if you are desperate.
	• Garbage bag for cleanup after second observation (Activity #1 – A, both sunny and cloudy/indoor version) (troop provides)
	• 4 Oreo cookies per Girl Scout (Activity #2 – A, Oreo Moon Phases) (troop provides)
	• Each Girl Scout needs a popsicle stick or a plastic knife (Activity #2 – A, Oreo Moon Phases) (troop provides)
	• A copy of the Moon Phase chart for each Girl Scout (Activity #2 – A, Oreo Moon Phases) (troop provides, master provided)
	• Paper towel for table cleanup (Activity #2 – A, Oreo Moon Phases) (troop provides)
	• Binoculars (Activity #2 – C, Use Binoculars to Observe the Moon)
	  • ***Reserve binoculars separately from any of the three service centers. There is a kit at each one.***
	  • Copies of the 5 dot-to-dot pages for each Daisy (Activity #3 – C, Constellation Dot-to-Dot) (master provided; troop makes copies)
	  • Bag of pretzel sticks (Activity #3 – D, Constellation Snack) (troop provides)
	  • Bag of white mini-marshmallows (Activity #3 – D, Constellation Snack) (troop provides)
	  • Bowl for each Daisy: A scoop of pretzel sticks per person – maybe 30. (Activity #3 – D, Constellation Snack) (troop provides)
	  • Bowl for each Daisy: A scoop of mini-marshmallows – maybe 30 (Activity #3 – D, Constellation Snack) (troop provides)
	  • Napkin as a work area (Activity #3 – D, Constellation Snack) (troop provides)
	  • Beads, about 30 per Daisy (Activity #3 – D, Constellation Craft) (troop provides)
	  • Plain old pony beads of any color ~ or ~
	  • Star pony beads ~ or ~
	  • Glow-in-the-dark pony beads
	  • 6-7 pipe cleaners per Daisy plus spares for those that become impossibly kinked. (Activity #3 – D, Constellation Craft) (troop provides)

	• Bowl to hold the beads for each Daisy (Activity #3 – D, Constellation Craft) (troop provides)
	• Paper plate for each Daisy to use as a work space to keep the beads contained. (Activity #3 – D, Constellation Craft) (troop provides)
	• Quart-sized bag (Activity #3 – D, Constellation Craft) (troop provides)
	• Few scissors to trim pipe cleaners. (Activity #3 – D, Constellation Craft) (troop provides)
	• Copy of a Cootie Catcher for each Daisy. (Activity #3 – D, Cootie Catcher) (Master provided; troop makes copies.)
	• A copy of a pair of green outer ears and a pair of pink inner ears per Daisy. (Activity #4 – A, Yoda ears) (Master provided; troop makes copies.)
	  • Green 24 lb. copier paper is strong enough and will work in a printer/copier. Or green construction paper.
	  • Any pink paper is okay for the inner ear.
	• Cardstock for making the headband. Any color. About ¾ - 1 inch wide. (Construction paper is less sturdy but will work if that's what you have around.) (Activity #4 – A, Yoda ears) (troop provides)
	• A way to attach the pink inner ear to the green outer ear: glue sticks, double-stick tape or ordinary tape. (Activity #4 – A, Yoda ears) (troop provides)
	• A way to attach the green outer ear to the headband. Staplers are great but tape can work. (Activity #4 – A, Yoda ears) (troop provides)
	• A way to attach the headband segments together. Staplers are great but tape can work. (Activity #4 – A, Yoda ears) (troop provides)
	• Postcards and stamps for each Daisy (Activity #4 – B, Postcards to Space) (troop provides)
	• Bigger envelope for mailing all the completed postcards to Club for the Future, and stamps for it (Activity #4 – B, Postcards to Space) (troop provides)

Contents in the Box	00. Master set of activity sheets 01. Leader's Guide 02. Laminated card: Promise and Law 03. Feedback form 04. 2 different colored markers/girl: black, red (Activity #1 – A, both sunny and cloudy/indoor version) (provided) 05. 1 tall bendable straw/girl (Activity #1 – A, both sunny and cloudy/indoor version) (provided) 06. tape (Activity #1 – A, both sunny and cloudy/indoor version)

	(provided) 07. 4 intermediate skewers/girl (Activity #1 – A, sunny version) (provided) 08. Flashlight (Activity #2 – A, Oreo Moon Phases) (provided) 09. Tennis ball (Activity #2 – A, Oreo Moon Phases) (provided) 10. Hard plastic golf ball (Activity #2 – A, Oreo Moon Phases) (provided) 11. 12 laminated pages of the full moon, one per Daisy. (Activity #2 – B, Pictures in the Moon) (provided) 12. 6 laminated pages that have a full moon on one side, with a question of something they might see in the moon. On the flip side, there is an outline sketch of that item or person. (Activity #2 – B, Pictures in the Moon) (provided) 13. Binoculars a. ***Reserve binoculars separately from any of the three service centers. There is a kit at each one.*** 14. Moon poster (Activity #2 – C, Use Binoculars to Observe the Moon) (provided) 15. Tape (Activity #2 – C, Use Binoculars to Observe the Moon) (provided) 16. Star stickers, 5 per Daisy (Activity #3 - A , Make Your Own Constellation) (provided) 17. White crayons (Activity #3 - A , Make Your Own Constellation) (provided) 18. Black paper (Activity #3 - A , Make Your Own Constellation) (provided) 19. 12 copies of three different Constellation Detective cards (white, blue and pink) (Activity #3 - B, Constellation Detective) (provided) 20. Answer key in a binder (Activity #3 - B, Constellation Detective) (provided) 21. A diagram sheet of constellations for each Daisy (Activity #3 – D, Constellation Snack and Craft) (provided)
#1 - A: **Requirement: Explore the Sun** **Sunny day version and cloudy or indoor version**	The ideal way to do this requirement is to have a meeting on a sunny day and do the first half of the activity immediately (even before snack!) and the second half of the activity at the end of the meeting, just before closing friendship circle. For many troops, they meet indoors after school in the winter, when it is already dark. Or the day for this meeting is a cloudy day. Therefore, there is a sunny day version and a cloudy/indoor version so that every troop can be successful.

	Sunny Day Materials 2 different colored markers/girl: black, red (provided) You will use the black and red markers for the first observation and just the black marker for the second observation, 1 piece of paper/girl (troop provides) Copier paper will work. However, if you can find something heavier (card stock, half of a manilla folder, construction paper) then it will be easier for the Daisies. 1 tall bendable straw/girl (provided) tape (provided) 4 intermediate skewers/girl (provided) Garbage bag for cleanup after second observation (troop provides) **Cloudy Day/Indoor Materials** 2 different colored markers/girl: black, red (provided) You will use the black and red markers for the first observation and just the black marker for the second observation, 1 piece of paper/girl (troop provides) Copier paper will work. However, if you can find something heavier (card stock, half of a manilla folder, construction paper) then it will be easier for the Daisies. 1 tall bendable straw/girl (provided) tape (provided) Garbage bag for cleanup after second observation (troop provides) A light source (troop provides) A cell phone light will work. So will a portable work light. A good-sized, bright flashlight. A table lamp without a shade if you are desperate. **Sunny Day Preparation:** Find an outdoor, grassy space that is out of the way and is big enough for everyone in your troop to be able to set up their own piece of paper. It helps if it is flat. **Cloudy Day/Indoor Preparation:** Find an indoor floor space that is big enough for everyone in your troop to be able to tape down their own piece of paper on the floor and stand next to it. **Sunny Day Activity:** 1. Each girl needs a piece of paper and a straw.

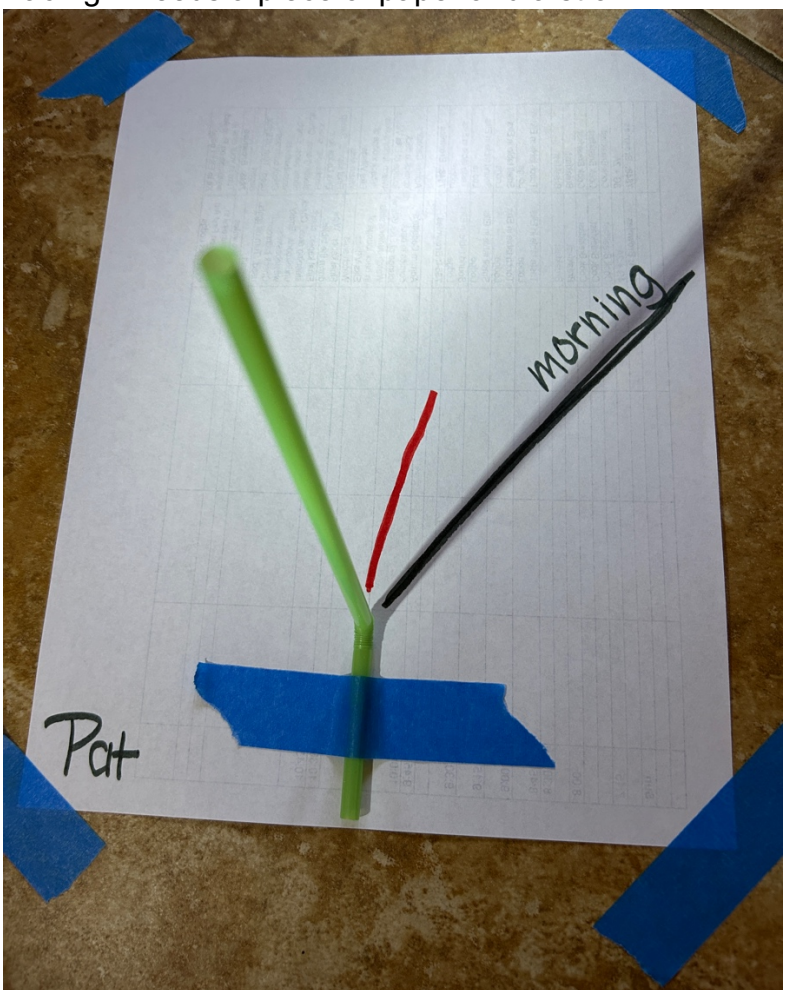


2. Bend the straw so it makes an L.
3. Tape the straw so that the long part stands upright.
4. Give each girl a paper and a black and red marker. Ask her to put her name on the paper.

5. Each girl should find a space in the grass in the sun for her paper. Hand out 4 small sized skewers and use them skewers to anchor the paper to the ground.
    - You might want to guide the girls on which direction should be the long way of the paper so that the shadow falls on the paper.
6. Using the **black** marker, have the girls trace the shadow.
7. Write down the time next to the shadow. These are Daisies so simplify the time to the nearest hour if you choose.
8. Then ask the girls to use their **red** marker to predict where the shadow will be when they return at the end of your meeting.
9. Depart, hoping it stays sunny.
   Second Observation
10. Bring the garbage bag with you.
11. Each girl should find her paper. She should compare her prediction made with her red marker to the shadow she sees.
    - Take a moment to talk about it.
        - Is the shadow longer or shorter than they predicted?
        - Is the shadow on the same side of the paper that they predicted?
12. Using the **black** marker, have the girls trace the actual shadow that they see.
13. Write down the time next to the shadow.
14. Each girl can clean up her space by pulling up and throwing out the skewers.
15. She can take her paper home.
16. Return the markers to the kit.

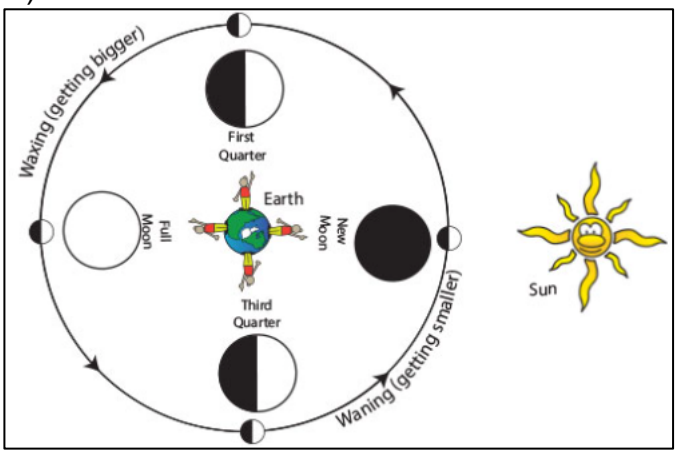
Cloudy Day/Indoor Activity:

1. Each girl needs a piece of paper and a straw.



2. Bend the straw so it makes an L.
3. Tape the straw so that the long part stands upright.
4. Give each girl a paper and a black and red marker. Ask her to put her name on the paper.
5. Each girl should find a space on the floor for her paper.
    - You might want to guide the girls so the long part of the paper is lined up in the same direction for all girls.
    - Give each girl 4 pieces of tape to attach her paper to the floor.
6. Tell the girls that you are going to use a light (cellphone, flashlight, worklight) and make pretend it is morning. Ask them where the sun is when they wake up.
    - Hopefully, they will say the sun is rather low in the sky.
    - So hold the light about waist high or so.
    - Stand on one side of all the girls. Stand so that the shadow falls down the length of the paper.

	○ You might find that other lights, such as overhead lights, are also casting shadows and confusing the girls. Perhaps you can turn them off. This may be challenging. 7. Using the **black** marker, have the girls trace the shadow. 8. Write down morning next to the shadow. These are Daisies so simplify the time to 'M' if you choose. 9. Ask the girls where the sun is at lunchtime. ○ Hopefully, they will say the sun is above them. 10. Then ask the girls to use their **red** marker to predict where the shadow will be when it is lunchtime. *Second Observation* 11. Now you will pretend it is lunchtime. ○ Tell the girls that you are going to use a light (cellphone, flashlight, worklight) and make pretend it is noon. ○ They have said that the sun would be above them. ○ So hold the light above them. ▪ Maybe it will help to stand on a chair or a stool. 12. Each girl should compare her prediction made with her red marker to the shadow she sees. ○ Take a moment to talk about it. ▪ Is the shadow longer or shorter than they predicted? ▪ Is the shadow on the same side of the paper that they predicted? 13. Using the **black** marker, have the girls trace the actual shadow that they see. 14. Write down 'noon' next to the shadow. 15. Each girl can clean up her space. 16. She can take her paper home. 17. Return the markers to the kit.
#2 - A: **Requirement: Observe the Moon** **Activity: Oreo Cookie Moon Phases** There are three options included for this requirement. You only need	➔ ***Are you short on prep time? Do the next activity, #2 – B, because everything you need is in this kit!*** The objective of this activity is that the Daisy Girl Scouts learn the names of the four basic phases of the moon: • Full Moon • New Moon • First Quarter Moon • Third Quarter Moon As an added bonus, you may help the Girl Scouts understand where the Earth, Sun and Moon are positioned to create what they see. **Materials:** • 4 Oreo cookies per Girl Scout (troop provides) ○ Double stuff cookies are better

to do one.	○ There are reports that cookies that are at room temperature will twist off more easily. ○ You may wish to 'twist off' the cookies and bag them in advance. ○ You may wish to have Girl Scouts work in pairs so that each Girl Scout has 2 oreos to eat at the end of the activity. • Each Girl Scout needs a popsicle stick or a plastic knife (troop provides) • A copy of the Moon Phase chart for each Girl Scout (troop provides)  • Pen/pencil, 1 per Girl Scout (troop provides) • Paper towel for table cleanup (troop provides) • Flashlight (provided). (please take batteries out after use.) representing the Sun. You may find that your cell phone light is brighter. • Tennis ball (provided) representing the Earth. • Hard plastic golf ball (provided) representing the Moon. **Preparation:** • You may wish to 'twist off' the cookies and bag them in advance. • Make a copy of the Moon Phase chart for each Girl Scout • Test the flashlight or your cell phone light **Activity:** ***Background*** To start, the phases of the Moon are the different ways the Moon looks from Earth over the course of about a month. As the moon orbits around the Earth, the half of the moon that faces the sun will be lit up. The different shapes of the lit up portion of the moon that can be seen from the Earth are known as the phases of the Moon.

Each phase repeats itself every 29.5 days. There are 8 phases that the moon goes through. This activity focuses on four of them.

How to do this activity

As a leader, you may be content that the Daisies learn the names of four of the phases of the moon. If so, do ***Basic*** items B, D, F and H.

However, you may want to have the Daisies start to understand how the Sun, Earth and Moon relate to each other to create the Moon's phases. If so, there is a flashlight, a tennis ball and a smaller ball to help them visualize. The instructions on how these objects are positioned are called the ***Bonus*** items A, C, E and G. You would do the Bonus item first, followed by the Basic item.

Beginning Discussion

Have the girls sit and talk a bit about the moon itself. Here are some facts that would be good for the Girl Scouts to know.

- The moon moves around the Earth.
- The moon is smaller than the Earth.
- The moon does not make its own light, like the sun. It reflects light from the sun and that is why we can see it.
- Depending on where the sun is, and where we are standing, and where the moon is – this causes the reflected light to change.
- The shape of the reflected light goes through a pattern that repeats.
- The shapes of the reflected light have names, which we are going to learn today.

A: Bonus: Full Moon: Explain what the Full Moon is

It is the light completely reflecting back to the Earth.

a. Use flashlight/balls to illustrate. You can have the girls actually hold the balls in place and the leader turns on the flashlight.
b. Make sure the girls understand
    I. Which ball is the moon
    II. Which ball is the earth and where the girl is standing on the earth, looking at the moon. ***This is key; the girls have to imagine where they are on the earth, looking at the moon, to understand how the light reflects to create each phase.*** The chart that each Girl Scout has shows the relative position of the Sun, Moon, Earth and the child viewing the Moon.

c. Once they understand the moon and their position on the earth, then turn on the flashlight. Walk them through how the light goes from the sun, past the earth, hits the moon, and then reflects back to their eyes.
d. Try and help them understand that the entire surface of the moon will be illuminated by the sunlight, and so the entire circle will be lit and thus they will see a complete circle of light reflected back to their eyes.
e. Tell them that this complete circle of reflected light is called the Full Moon.
f. Take your time here,

***B: Basic: Full Moon*:** Have the girls find an Oreo cookie that has all of its frosting and place it on their paper on top of the circle labeled 'Full Moon'.

C: Bonus: New Moon: Explain what the New Moon is
Now we are going to work on the 'New Moon' but we aren't going to start by giving the Girl Scouts the words for this phase. Giving the phase the name 'New Moon' happens at the very end.

a. Set it up first.
b. Begin with the Earth. You should keep the Earth in the same spot as it was for the Full Moon activity above.
c. However, now the Moon is on the opposite side of the Earth when compared to the Full Moon configuration. That is, it is between the Earth and the Sun.
d. Establish where the person is standing on the Earth, looking to see the Moon. The person is standing on the other side of the Earth (when compared to the Full Moon configuration), looking toward both the Moon and the Sun.
    - Take your time here, because here is the key question: How much light is *reflected* off the sun and towards the person looking at the moon. The right answer is "no light"; but because the Sun is shining directly at the person looking at the moon, there will be lots of confusion. Take your time and see if you can get all of the girls to understand this key thought: 1. The Moon does not make its own light; 2. We only see the Moon when it reflects light; 3. In this set-up, no light is reflected.
    - Then ask them what is means? Can they see the moon or not? The answer is that with no reflected light, the moon would not be visible. The name for this phase is a 'New Moon'. (The girls might think the word 'new' is a funny choice for this situation; if you get this question, then you can explain that it is

because it is starting a *new* cycle of moon phases and thus gets the name 'new'.)

- (A clever girl may ask 'Why isn't this an eclipse, because an eclipse happens when the moon blocks the sun? And this is the situation during a New Moon?" The answer is that 'sometimes the Moon is above the straight line between the Earth and the Sun, and sometimes it is below. So it doesn't block the sun. But every once in a while it will line up exactly: a little more than 200 times a century. At any one point on Earth, there would only be a total eclipse every 3-400 years.)

***D: Basic: Full Moon*:** Now have the girls find an Oreo cookie that has none of its frosting and place it on top of the circle labeled 'New Moon'.

E: Bonus: First Quarter Moon: Explain what the First Quarter Moon is

Set up another situation between the Moon, the Earth and the Sun.

a. Keep the Earth in the same place.
b. Move the Moon counter-clockwise, a quarter turn around the Earth.
c. Establish where the person is standing on the Earth, looking at the Moon.
d. Reiterate where the Moon is, where the Earth is, and where the person is. Turn on the flashlight to create the Sun.
e. Ask the girls what part of the Moon is receiving Sunshine.
    I. Remind the girls that the person on the Earth can only see the reflected light.
    II. So have them determine that only the right half of the moon would be receiving light that it can reflect to the Earth. (The other part of the Moon reflects light, but it doesn't bounce towards the Earth; it bounces away from the Earth instead.)
    III. So how much of the Moon reflects: Half of the Moon.
f. We are going to give this moon phase a name: it's called the First Quarter.
    - So a clever girl is going to be confused by this. She can see *half* of the Moon. So why is it called a *quarter* moon? The answer is because the Moon is one-quarter of the way through the cycle of phases. Yes, it is very confusing. We have to live with it.

***F: Basic: First Quarter Moon*:** Now have the girls find an Oreo cookie that has more than half of its frosting. Using their plastic knife, scrap off some frosting so that half of the cookie has frosting. Place it on top of the circle labeled 'First Quarter'.

G: Bonus: Third Quarter Moon: Explain what the Third Quarter Moon is

Set up another situation between the Moon, the Earth and the Sun.

a. Keep the Earth in the same place.
b. Move the Moon counter-clockwise, to the opposite side of the Earth, between the Full Moon position and the New Moon position.
c. Establish where the person is standing on the Earth, looking at the Moon.
d. Reiterate where the Moon is, where the Earth is, and where the person is. Turn on the flashlight to create the Sun.
e. Ask the girls what part of the Moon is receiving Sunshine.
    I. Remind the girls that the person on the Earth can only see the reflected light.
    II. So have them determine that only the left half of the moon would be receiving light that it can reflect to the Earth. (The other part of the Moon reflects light, but it doesn't bounce towards the Earth; it bounces away from the Earth instead.)
    III. So how much of the Moon reflects: Half of the Moon.
f. We are going to give this a name: it's called the Third Quarter.
    I. So, as. Before, a clever girl is going to be confused by this. She can see *half* of the Moon. So why is it called a *quarter* moon? The answer is because the Moon is three-quarters of the way through the cycle of phases. Yes, it is very confusing. We have to live with it.

H: Basic: Third Quarter Moon. Now have the girls find an Oreo cookie that has more than half of its frosting. Using their plastic knife, scrap off some frosting so that half of the cookie has frosting. Place it on top of the circle labeled 'Third Quarter'.

Out loud, say all the phases of the moon in order. Now you have earned the prize of eating the cookies!

#2 - B: **Requirement: Observe the Moon** **Activity: What picture do you see in the full moon?** There are three options included for this requirement. You only need to do one.	**Materials:** • 12 laminated pages of the full moon, one per Daisy. (provided) • 6 laminated pages that have a full moon on one side, with a question of something they might see in the moon. On the flip side, there is an outline sketch of that item or person. (provided) **Preparation:** None. **Activity:** 1. Hand out the plain cards with a picture of the full moon, 2. Ask the girls to imagine a picture from the pattern of the light and dark areas and share what they think. This is much like looking at the sky and seeing cloud pictures. 3. Then take the second set of cards which have a question on the side that has the full moon picture. • Read the question to the Daisies and give them some time to imagine where that picture/image might be. • Then flip over the card so that everyone can see the outline. • Repeat for all 6 questions,
#2 - C: **Requirement: Observe the Moon** **Activity: Use binoculars to observe the moon: indoor or outdoor options** There are three options included for this requirement. You only need to do one.	The objective is that the Daisies use binoculars to observe the moon. Depending on your meeting time and place, that may be a challenge. • You can use this website to determine if you can see the moon during your meeting time. https://www.timeanddate.com/moon/ ○ The website allows you to put in your location and select a date ○ It will tell you how much of the moon will be visible. ○ Yes! You can see the moon during the day! • Indoor option: ○ Put the poster of the full moon at one end of your meeting place. ○ Have the girls stand at the other end with binoculars. **Materials:** • Binoculars ○ ***Reserve binoculars separately from any of the three service centers. There is a kit at each one.*** • Moon poster (provided) • Tape (provided) **Preparation:** • Reserve binoculars. • Decide whether to do indoor or outdoor option. ○ Research the moon's status for outdoor option.

	Activity: 1. Ask the girls to try and spot these things: a. A really big crater caused by an impact b. A crater inside a crater c. A crater that is on the wall of another crater d. A 'starburst' spray of rocks that were thrown into the air when the crater was formed e. The dark areas which resulted from lava flowing into a crater f. Mountain ridges g. An area that doesn't have any craters
#3 - A: **Requirement: Meet the Stars** **Activity: Make Your Own Constellation** There are 5 options for this requirement. You only need to do one.	➔ ***Are you short on prep time? Do activity #3 – A or #3 - B because everything you need is in this kit!*** **Materials:** • Star stickers, 5 per Daisy (provided) • White crayons (provided) • Black paper (provided) **Preparation:** None. **Activity:** 1. Provide each Daisy the five star stickers and the black paper. 2. Ask the Daisies to place the star stickers on their paper in the places of their choosing. 3. Provide the Daisies a white crayon. Ask them to add their name. 4. Tell the Daisies that they are going to use their white crayon to draw lines between the star stickers. a. Each sticker should only have one or two lines that connect it to other stars, not more. 5. Ask the Daisies to look at this pattern and imagine what it makes them think of. This is like looking at clouds and imagining cloud pictures. a. Perhaps it looks like an animal, such as a bird flying. b. Perhaps it looks like a cup in the kitchen or a house. c. Perhaps it looks like a dragonfly. d. Perhaps it looks like eyes and a nose. 6. Have the Daisies take turns sharing their star pattern and why they think it looks like something. They can give their constellation a name. Perhaps they have a story about how this object ended up in the sky. 7. If time, they can embellish their paper with a design that makes it easier to see the object that their constellation represents.
#3 - B: **Requirement:**	➔ ***Are you short on prep time? Do activity #3 – A or #3 - B because everything you need is in this kit!***

Meet the Stars **Activity: Constellation Detective** There are 5 options for this requirement. You only need to do one.	**Materials:** • 12 copies of three different Constellation Detective cards (white, blue and pink) (provided) • Answer key in a binder (provided) **Preparation:** None. **Activity:** 1. Give all of the Daisies one of the cards (either the white card, the pink card or the blue card,). It is suggested you start with the white one, which is the Big Dipper and the easiest. 2. Tell them that the star chart on the right is an actual picture of the night sky. 3. Tell them that there is a constellation in the stars. a. Their job will be to find it. b. The constellation that they are to find is the diagram on the lower left. 4. When they find it, they can trace it on their card with their finger. a. You may wish to remind them that it could be upside down or a different size than what they see in the key. 5. The answer key has the constellation diagrammed on the Star Map that you can share with the Daisies. 6. Repeat with the other two cards. The blue card is the hardest. *Thanks to the Astronomical Society of the Pacific for this activity.*
#3 - C: **Requirement: Meet the Stars** **Activity: Constellation Dot-to-Dot** There are 5 options for this requirement. You only need to do one.	**Materials:** • Copies of the 5 dot-to-dot pages for each Daisy (master provided; troop makes copies) • Pencils (troop provides) **Preparation:** 1. Make copies of dot-to-dot sheets from master. Depending on your copier, you may be able to leave the master in the sleeve and just lay it on the copier bed. 2. Perhaps make packets of all five pages for each Daisy to make handing them out more efficient **Activity:** 1. Give each Daisy a packet of the dot-to-dot pages and a pencil. Ask them to complete the pages. 2. Have a discussion about pages 1 and 2, the Big and Little Dipper. Ask the Daisies if the constellation actually looks like a dipper (or a ladle) or if they need to use their imagination.

	3. Next have them look at page 3, the constellation Cassiopia. Ask them what they think it is, other than the letter 'W'. a. After they have had a chance to provide their ideas, tell the Daisies that Cassiopia was a beautiful Greek queen who was vain and boastful. She is seated on her throne, as if reclining in a lounge chair at a pool. b. Using their imaginations, ask the Daisies if they now can see her. 4. Next, ask them to look at page 4, called Draco. Ask them what they think it is. a. After they have had a chance to provide their ideas, tell the Daisies that Draco represents the dragon Ladon who guarded a Greek goddess' golden apples. When he was killed while guarding the apples, the Greek Goddess honored him by placing him in the sky. b. Now that they know the story, ask the Daisies if they can imagine that this constellation looks like a dragon? 5. Lastly, look at page 5 titled Orion. Again ask them what they think it is. a. After they have had a chance to provide their ideas, tell the Daisies that Orion was a Greek hunter. You can see that he holds a club up high with one hand (stars #1 and 2). He also holds a shield, which is stars #9 through #13. b. Orion was banished to the sky for boasting about how many animals he could kill. As punishment, he is eternally chasing constellations Taurus the bull and the Pleiades sisters, but he is never able to catch them. c. Now that they know the story, ask the Daisies if they can imagine that this constellation looks like a hunter?

#3 - D:

Requirement: Meet the Stars

Activity: Constellation Snack or Constellation Bead Craft

There are 5 options for this requirement. You only need to do one.

Big Picture

Girls will have some diagrams of some common constellations. They will pick a constellation and try to duplicate the pattern.

There are two options for creating the patterns:

- Snack: They will use mini-marshmallows for the stars. They will use pretzel sticks to hold the marshmallows in place to create the picture.
- Craft: They will use beads for the stars. They will use pipe cleaners to hold the beads in place to create the pattern.

Materials

1. Snack version: bag of pretzel sticks (troop provides)
2. Snack version: bag of white mini-marshmallows (troop provides)
3. Snack version: Bowl for each Daisy: A scoop of pretzel sticks per person – maybe 30. (troop provides)
4. Snack version: Bowl for each Daisy: A scoop of mini-marshmallows – maybe 30 (troop provides)
5. Snack version: Napkin as a work area (troop provides)

6. Craft version: Beads, about 30 per Daisy (troop provides)
   - Plain old pony beads of any color ~ or ~
   - Star pony beads ~ or ~
   - Glow-in-the-dark pony beads
7. Craft version: 6-7 pipe cleaners per Daisy plus spares for those that become impossibly kinked. (troop provides)
8. Craft version: bowl to hold the beads for each Daisy (troop provides)
9. Craft version: a paper plate for each Daisy to use as a work space to keep the beads contained. (troop provides)
10. Craft version: a quart-sized bag (troop provides)
11. Craft version: a few scissors to trim pipe cleaners. (troop provides)

12. Snack and craft version: A diagram sheet of constellations for each Daisy (provided)

Preparation:

- Obtain all the supplies.
- If doing the craft version, write names on the bags in advance.

Activity:

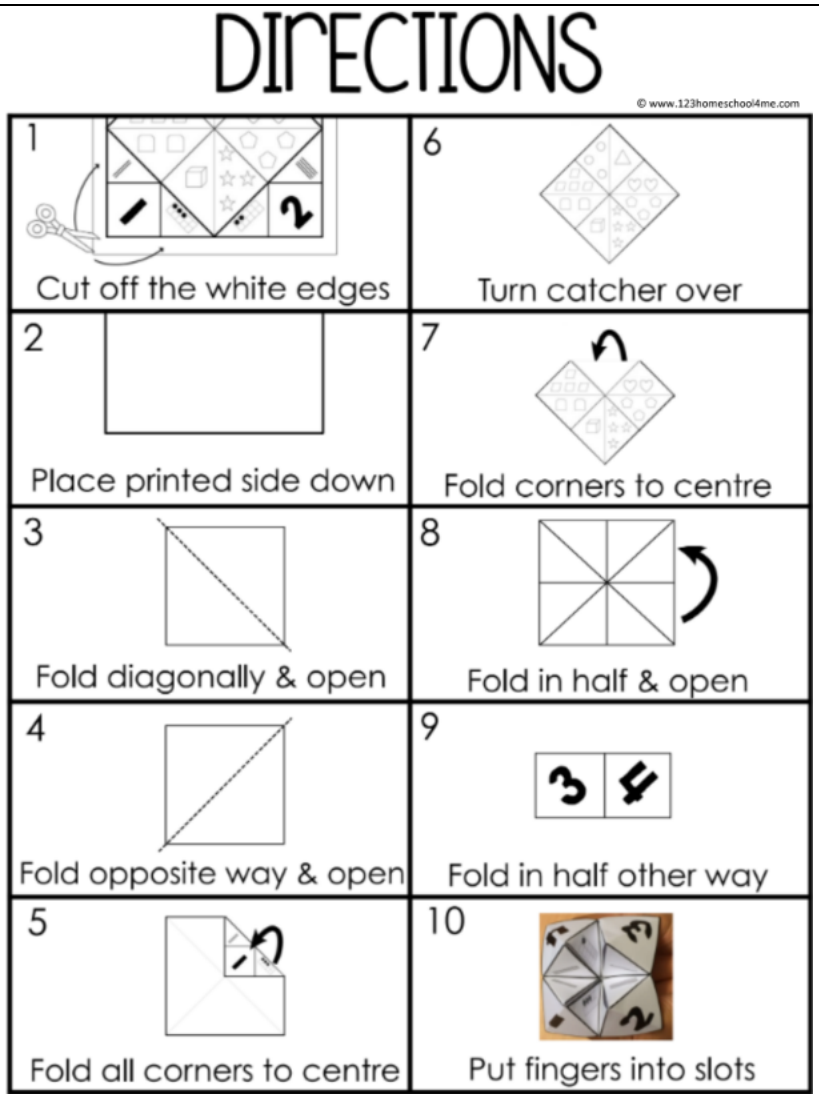
Snack version:

1. Put a scoop of pretzel sticks (maybe 30) in a bowl and a scoop of mini marshmallows (maybe 30) in a bowl.
2. Take a napkin.
3. Take a constellation sheet.
4. Unfold the napkin in front of you.
5. Pick one of the constellations as your pattern. Cassiopia is a great start.
6. Gather one marshmallow for each star in your constellation.
7. Start by placing the marshmallows down on the napkin to make the constellation's pattern.
8. Place pretzel sticks between the stars to match the pattern.
9. Use the pretzel sticks to connect the marshmallows together to make a model of your constellation.
10. Eat!
11. Repeat by picking another constellation.

Craft version:

12. Put 20 beads in a bowl.
13. Take a pipe cleaner.

	14. Take a constellation sheet. 15. Place a paper plate in front of each Daisy as a work area. 16. Pick one of the constellations as your pattern. Cassiopia is a great start. 17. Count out the number of stars in the constellation and place them on the plate. 18. First, slide the beads on the pipe cleaners to match the positions of the stars. 19. Bend the pipe cleaners to match the shape. 20. Hints: • To stop the beads falling off the end of the pipe cleaner, fold over the end of the pipe cleaner and push the bead onto the thicker folded piece. This will help secure it. • You can cut your pipe cleaners to different lengths as required for your constellation designs. • For any cross over lines, you can fit two pipe cleaners through one bead. 21. The finished projects can go home in the labeled quart-sized bag.
#3 - E: **Requirement: Meet the Stars** **Activity: Constellation Cootie Catchers** There are 5 options for this requirement. You only need to do one.	**Materials:** • Copy of a Cootie Catcher for each Daisy. There are 4 versions. (Master provided; troop makes copies.) • Scissors (troop provides) • Pencils/markers or putting names on them (troop provides) **Preparation:** • Make copies of Cootie Catcher sheets from master. Depending on your copier, you may be able to leave the master in the sleeve and just lay it on the copier bed. • Optionally, you may trim the copies into squares, especially if you have a paper cutter. **Activity:** • Write name at the corner.



Thanks to 123Homeschool4ME for this project.

#4 – A:

Additional Fun Idea

Activity: Make Baby Yoda Ears Headband

Bonus activity: no materials provided in the kit but the details are here because this was just too much fun to pass up!

Materials:

- A copy of a pair of green outer ears and a pair of pink inner ears per Daisy. (Master provided; troop makes copies.)

	○ Green 24 lb. copier paper is strong enough and will work in a printer/copier. Or green construction paper. ○ Any pink paper is okay for the inner ear. • Cardstock for making the headband. Any color. About ¾ - 1 inch wide. Several pieces may need to be combined. (Construction paper is less sturdy but will work if that's what you have around.) (troop provides) ○ 1 headband needed per Daisy • Scissors (troop provides) • Pencils/markers or putting names on the headbands. (troop provides) • A way to attach the pink inner ear to the green outer ear: glue sticks, double-stick tape or ordinary tape. (troop provides) • A way to attach the green outer ear to the headband. Staplers are great but tape can work. (troop provides) • A way to attach the headband segments together. Staplers are great but tape can work. (troop provides) **Preparation:** • Make copies of outer ears on green paper and inner ears on pink paper from master. Depending on your copier, you may be able to leave the master in the sleeve and just lay it on the copier bed. ○ Notice that there are 2 sets of inner ears on the page so you need to make half the number of copies. • Cut strips of cardstock. Connect 2 or 3 together in advance but don't make it into a circle yet. **Activity:** • Write name on headband. • Daisies cut out their inner and outer ears. • Attach pink inner ear to outer ear. • With an adult's help, make a headband circle that matches the size of the Daisy's head. • Attach ears to opposite sides of the headband using the tab on the green outer ear. Bend so they stick out. • Time for a troop photo op!
#4 – B: **Additional Fun Idea** **Activity: Send Postcards to Space**	Bonus activity: no materials provided in the kit but the details are here because this was just too much fun to pass up! **Big Picture** The girls are asked to draw a picture of why the Earth needs Space on the blank side. They put their address on the stamped side. The postcards are mailed to Club for the Future, part of Blue Origin. They are flown in space and mailed back.

	The Club for the Future
	• puts the post cards on a rocket,
	• sends it to space,
	• retrieves the postcards,
	• stamps them 'Flown in Space',
	• and mails them back to the girl.
	
	Materials:
	• Postcards and stamps for each Daisy (troop provides)
	  ○ Keep the postcard stamps separate so that if a girl needs to start over, then that stamp isn't wasted
	• Some markers or some colored pencils or some crayons (troop provides)
	• Pencils/pens for addressing the postcards (troop provides)
	• Bigger envelope for mailing all the completed postcards to Club for the Future, and stamps for it (troop provides)
	
	Preparation:
	Obtain materials.
	
	Activity:
	1. On the printed side of the post card, ask the girls to put their name and address. Help them know where to place it …. On the bottom half of the pre-stamped side of the card.
	  a. It takes Daisies *forever* to write anything so it is recommended that you have them just put their name on the first line and ask an adult to fill in the rest, to keep it legible!
	
	2. On the blank side, asked them to draw a picture of why the Earth needs Space (or really, why they need Space or what they would do if they got to travel to Space or really anything else about Space that they think is neat.)
	
	3. Add the stamp to the card once the Daisy has successfully decorated her postcard.
	
	4. Mail them to
	Club for the Future
	
	35961 State Highway 54
	
	PO Box 1552
	
	Van Horn, Texas 79855-1552

	5. We have no idea how quickly the postcards will be returned.
End	**Great! You have completed the Daisy Space Science Explorer badge. Hope you had fun!**
Supplies	**Consumables to be replenished by Badgerland** • Markers/girl: black, red (Activity #1 – A, both sunny and cloudy/indoor version) • Tall bendable straw/girl (Activity #1 – A, both sunny and cloudy/indoor version) • Tape (Activity #1 – A, both sunny and cloudy/indoor version) • Intermediate skewers/girl (Activity #1 – A, sunny version) • Star stickers, 5 per Daisy (Activity #3 - A , Make Your Own Constellation) • White crayons (Activity #3 - A , Make Your Own Constellation) • Black paper (Activity #3 - A , Make Your Own Constellation)

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