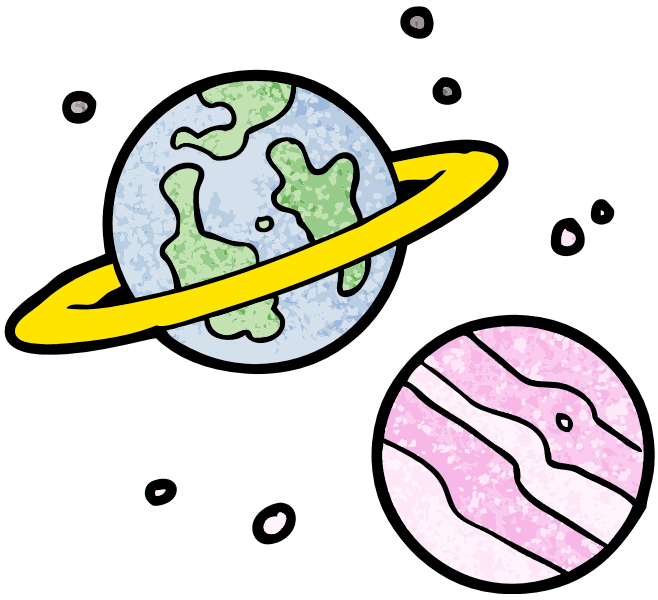
CUB SCOUT MEETING GUIDE

OUTER SPACE



CPC BSA

ADVANCEMENT ACADEMY

INTRODUCTION

OUTER SPACE

This week you will experience what it's like to be an astronaut and explore space. Use this book to help you on your adventures through space. Your adventure starts in...5...4...3...2...1...blastoff!

IN THIS GUIDE

- Lion: Mountain Lion
- Tiger: Sky is the Limit
- Wolf: Paws on the Path
- Bear: Super Science
- Webelos: Adventures in Science
- Star Finder Guide
- Skittle Color Morphing Experiment
- Planet Hike

HOW TO USE THIS GUIDE

Find your Den's Adventure and complete the activities, some activities can be completed at home and others will be completed in our meeting, this is indicated with a yellow or blue star.

 COMPLETE AT HOME

 COMPLETE IN MEETING

LIONS

MOUNTAIN LION

1.Gather the outdoor items you need to have with you when you go on an outdoor adventure, and understand how they are used. Also understand and commit to practicing the buddy system.

2.Learn what SAW (Stay, Answer, Whistle) means. Demonstrate what you can do to stay safe if you become separated from the group when you are outdoors.

3.Demonstrate an understanding of respect for animals and nature when participating in a learning hike.

TIGERS

SKY IS THE LIMIT

Complete Requirements 1 -3 plus at least one other.

1.With your den or parent/guardian/other caring adult, go outside to observe the night sky. Talk about objects you see or might see.

2.Look at a distant object through a telescope or binoculars. Show how to focus the device you chose.

3.Find out about two astronauts who were Scouts when they were younger. Share what you learned with your den.

4.Observe in the sky or select from a book, chart, computer, or electronic device two constellations that are easy to see in the night sky. With your parent/guardian or other caring adult, find out the names of the stars that make up the constellation and how the constellation got its name. Share what you found with your den.

5.Draw and name your own constellation. Share your constellation with your den.

6.Create a homemade model of a constellation.

7.Find out about two different jobs related to astronomy. Share this information with your den.

8.With your den or family, visit a planetarium, observatory, science museum, astronomy club, or college or high school astronomy teacher. Before you go, write down questions you might want to ask. Share what you learned.

WOLFS

PAWS ON THE PATH

Complete Requirements 1-5. Requirements 6 and 7 are optional.

1.Show you are prepared to hike safely in any outdoor setting by putting together the Cub Scout Six Essentials to take along on your hike.

2.Tell what the buddy system is and why we always use it in Cub Scouts. Describe what you should do if you get separated from your group while hiking.

3.Choose the appropriate clothing to wear on your hike based on the expected weather.

4.Before hiking, recite the Outdoor Code and the Leave No Trace Principles for Kids with your leader. (This may be combined with Requirement 3 of The Call of the Wild Adventure.) After hiking, discuss how you showed respect for wildlife.

5.Go on a 1-mile hike with your den or family. Find two interesting things that you've never seen before and discuss with your den or family.

6.Name two birds, two insects, and/or two other animals that live in your area. Explain how you identified them.

7.Draw a map of an area near where you live using common map symbols. Show which direction is north on your map

BEARS

SUPER SCIENCE

Complete at least four of the following and explain what you learned.

1. Make static electricity by rubbing a balloon or a plastic or rubber comb against another material, such as a fleece blanket or wool sweater. Explain what you learned.
2. Conduct one other static electricity investigation. Explain what you learned.
3. Do a sink-or-float investigation. Explain what you learned.
4. Do a color-morphing investigation. Explain what you learned.
5. Do a color-layering investigation. Explain what you learned.

WEBELOS

ADVENTURES IN SCIENCE

Complete Requirements 1-3.

1.An experiment is a "fair test" to compare possible explanations. Draw a picture of a fair test that shows what you need to do to test a fertilizer's effects on plant growth.

2.Visit a museum, a college, a laboratory, an observatory, a zoo, an aquarium, or other facility that employs scientists. Prepare three questions ahead of time, and talk to a scientist about his or her work.

3.Complete any four of the following:

(a)Carry out the experiment you designed for Requirement 1.

(b)If you completed 3a, carry out the experiment again but change the independent variable. Report what you learned about how changing the variable affected plant growth.

(c)Build a model solar system. Chart the distances between the planets so that the model is to scale. Use what you learned from this requirement to explain the value of making a model in science.

(d)With adult supervision, build and launch a model rocket. Use the rocket to design a fair test to answer a question about force or motion.

(e)Create two circuits of three light bulbs and a battery. Construct one as a series circuit and the other as a parallel circuit

WEBELOS

ADVENTURES IN SCIENCE

- (f)Study the night sky. Sketch the appearance of the North Star (Polaris) and the Big Dipper (part of the Ursa Major constellation) over at least six hours (which may be spread over several nights). Describe what you observed, and explain the meaning of your observations.
- (g)With adult assistance, explore safe chemical reactions with household materials. Using two substances, observe what happens when the amounts of the reactants are increased.
- (h)Explore properties of motion on a playground. How does the weight of a person affect how fast they slide down a slide or how fast a swing moves? Design a fair test to answer one of those questions.
- (i)Read a biography of a scientist. Tell your den leader or the other members of your den what the scientist is famous for and why his or her work is important.

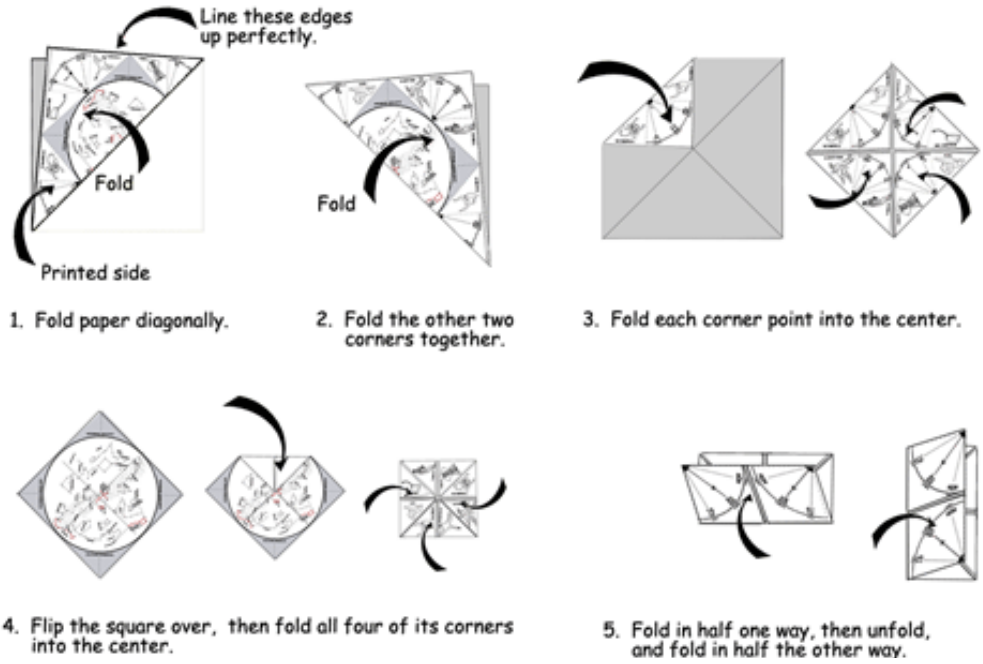
STAR FINDER GAME

MATERIALS

- Star Finder Activity Sheet
- Crayons, markers, or colored pencils
- Scissors

MAKING YOUR STAR FINDER

- Color and decorate your Star Finder.
- Cut it out on the solid lines.
- Follow the pictures below to fold your Star Finder.



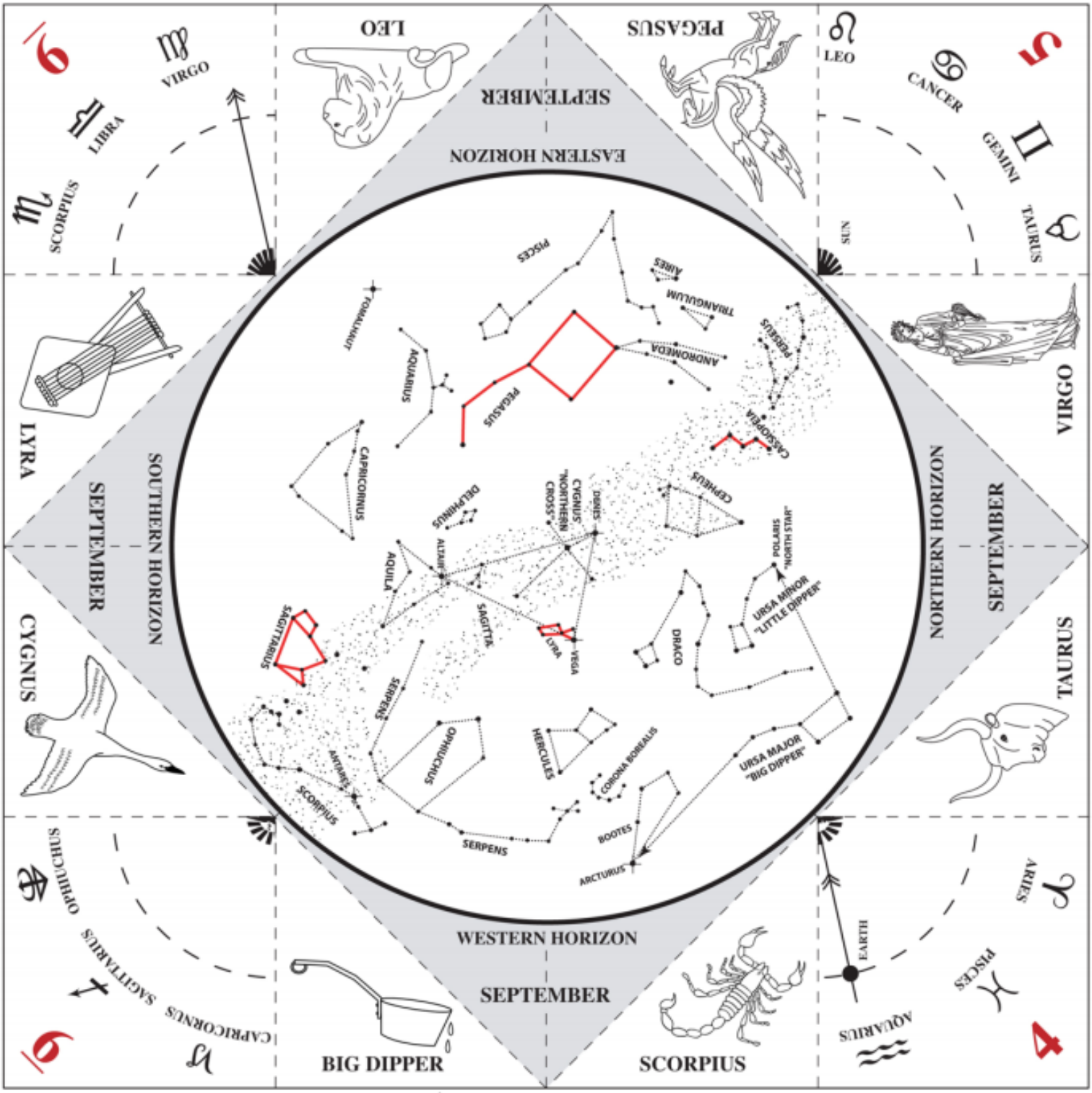
1. Fold paper diagonally.
2. Fold the other two corners together.
3. Fold each corner point into the center.
4. Flip the square over, then fold all four of its corners into the center.
5. Fold in half one way, then unfold, and fold in half the other way.

PLAY THE STAR FINDER GAME

- Stick your thumbs and first two fingers into the four pockets on the bottom of the Star Finder.
- Ask another person to choose one of the top four squares. Then, depending on the number on the square they chose, open and close the Star Finder that many times (open up and down, close, open side to side, close, etc.). For example, if they chose number 6, open and close the Star Finder 6 times.

- Then, ask the person to look inside the Star Finder and pick one of the four visible constellations. This time, open and close the Star Finder once for each letter to spell out their choice. For example, if they chose "Lyra," you would open and close the Star Finder 4 times, once for each letter: L - Y - R - A.
- Ask the player again to pick one of the four constellations visible. Open the panel to see the name of a constellation (highlighted in red). Challenge them to try to find that constellation in the sky this month.
- Note: Not every part of the Star Finder may show a highlighted constellation for you to find. In this case, just try to find the constellation that is nearest to the part of the sky you picked. Or, just find any constellation!

You can find this activity and additional star charts at spaceplace.nasa.gov/starfinder/



Cut here

NASA Space Place
spaceplace.nasa.gov

SOLAR SYSTEM HIKE

Our solar system is so big it is almost impossible to imagine its size. To help see the distance of each planet from the Sun, use the chart below to go on a solar system hike.

MATERIALS

- Planet Chart
- Tape Measurer

Planet	Distance to the Sun in miles	Distance to Hike in Feet (1/1,000,000 scale)	Distance to Hike in Feet (1/10,000,000 scale)
Mercury	35,000,000	35	3.5
Venus	67,000,000	67	6.7
Earth	93,000,000	93	9.3
Mars	142,000,000	142	14.2
Jupiter	485,000,000	485	48.5
Saturn	893,000,000	893	89.3
Uranus	1,784,000,000	1,784	178.4
Neptune	2,815,000,000	2,815	281.5

HIKING THE SOLAR SYSTEM: SHORT HIKE

- Before you begin the hike, make sure you are prepared with water and any other essentials you may need. This is a great family activity so invite your family to join you.
- Pick a starting location that will act as the Sun. Then travel the distance of one planet at a time looking back to see how far you've gone. You can use a tape measure to help you measure the distance.
    - To travel from the Sun to Mercury walk 3.5 feet.
    - To travel from Mercury to Venus walk 3.2 feet. You are now 6.7 feet from the Sun.
    - To travel from Venus to Earth walk 2.6 feet. You are now 9.3 feet from the Sun.
    - To travel from Earth to Mars walk 4.9 feet. You are now 14.2 feet from the Sun.
    - To travel from Mars to Jupiter walk 34.3 feet. You are now 48.5 feet from the Sun. Can you see the spot where you started?
    - To travel from Jupiter to Saturn walk 40.8 feet. You are now 89.3 feet from the Sun.
    - To travel from Saturn to Uranus walk 89.1 feet. You are now 178.4 feet from the Sun.
    - To travel from Uranus to Neptune walk 103.1 feet. You are now 281.5 feet from the Sun.
- Tip: If you have multiple hiking buddies, try starting off with two people at the Sun as the rest of you travel to Mercury, Venus, Earth, then Mars to help
  see the distance you are traveling.

HIKING THE SOLAR SYSTEM: LONG HIKE

- Before you begin the hike, make sure you are prepared with water and any other essentials you may need. This is a great family activity so invite your family to join you.
- Pick a starting location that will act as the Sun. Then travel the distance of one planet at a time looking back to see how far you've gone.
    - To travel from the Sun to Mercury walk 35 feet.
    - To travel from Mercury to Venus walk 32 feet. You are now 67 feet from the Sun.
    - To travel from Venus to Earth walk 26 feet. You are now 93 feet from the Sun.
    - To travel from Earth to Mars walk 49 feet. You are now 142 feet from the Sun.
    - To travel from Mars to Jupiter walk 343 feet. You are now 485 feet from the Sun. Can you see the spot where you started?
    - To travel from Jupiter to Saturn walk 408 feet. You are now 893 feet from the Sun.
    - To travel from Saturn to Uranus walk 891 feet. You are now 1,784 feet from the Sun.
    - To travel from Uranus to Neptune walk 1,031 feet. You are now 2,815 feet from the Sun.
- Tip: If you have multiple hiking buddies, try starting off with two people at the Sun as the rest of you travel to Mercury, Venus, Earth, then Mars to help see the distance you are traveling. If you choose
  to hike in a straight line and back your
  hike will be about 1 mile.

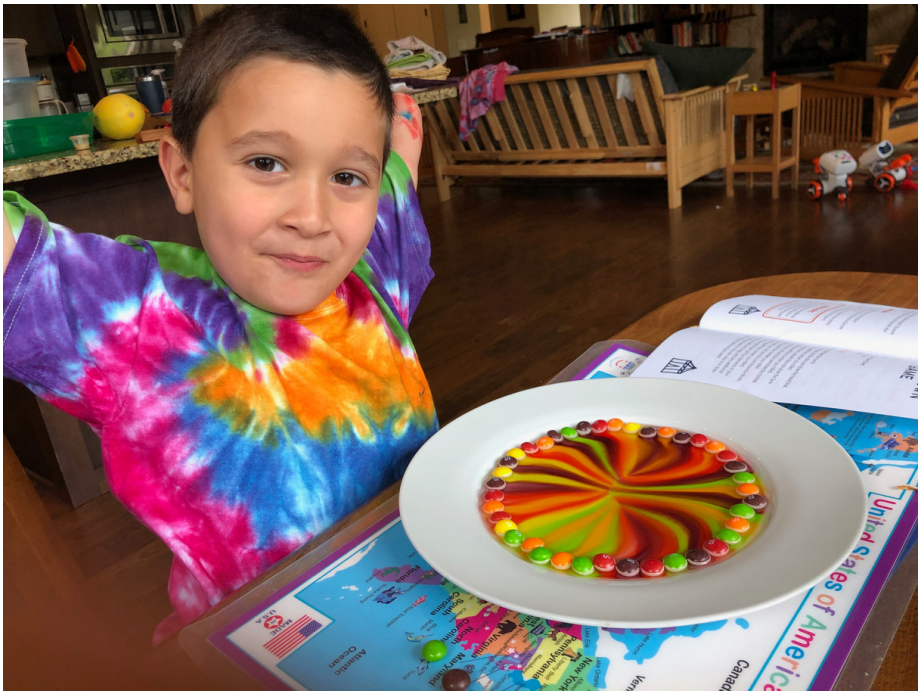
SKITTLES EXPERIMENT

MATERIALS

- Skittles
- White container or plate
- Water

MAKING A RAINBOW

- Place your skittles in a circle on your container. Alternate the colors so that none of the colors that are touching are the same.
- Carefully pour water into the container. If the skittles move, put the back quickly. Watch what happens.
- Combine two colors into a layer by using a toothpick or utensel to mix them. Watch what happens. What new colors are made?

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