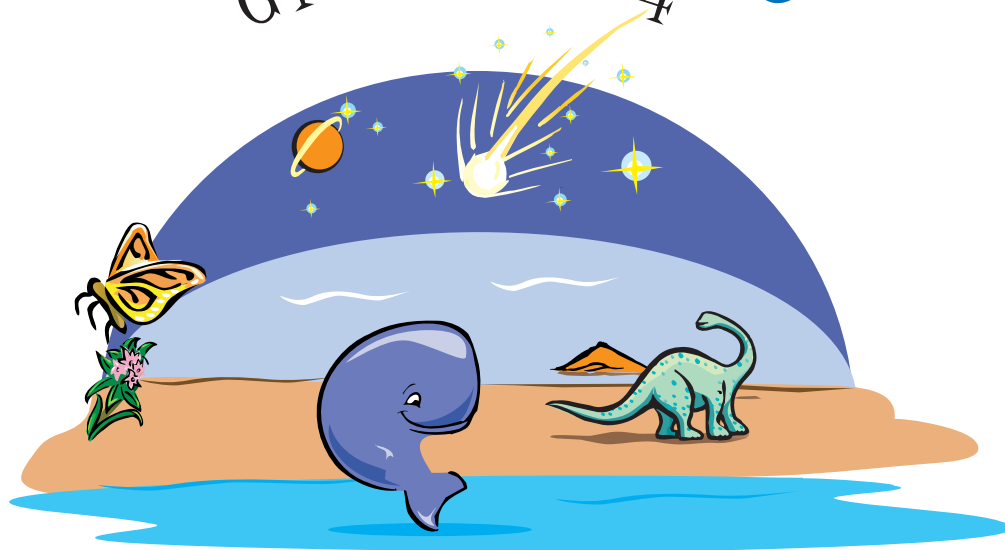


# Astronomy

Grades K-4



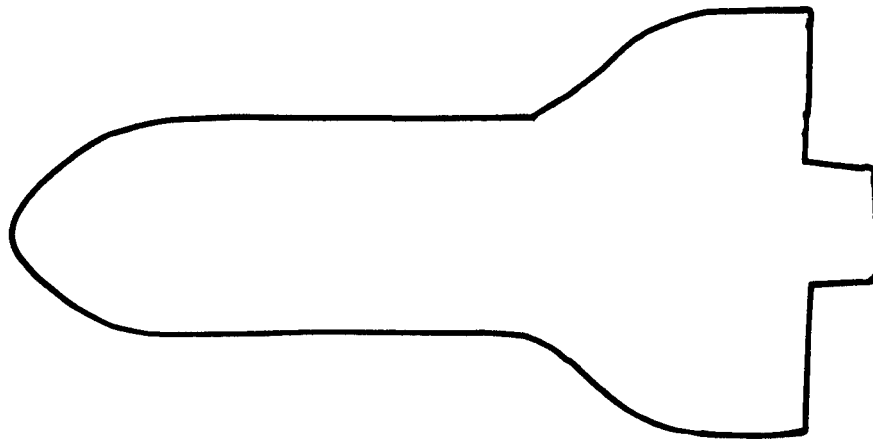
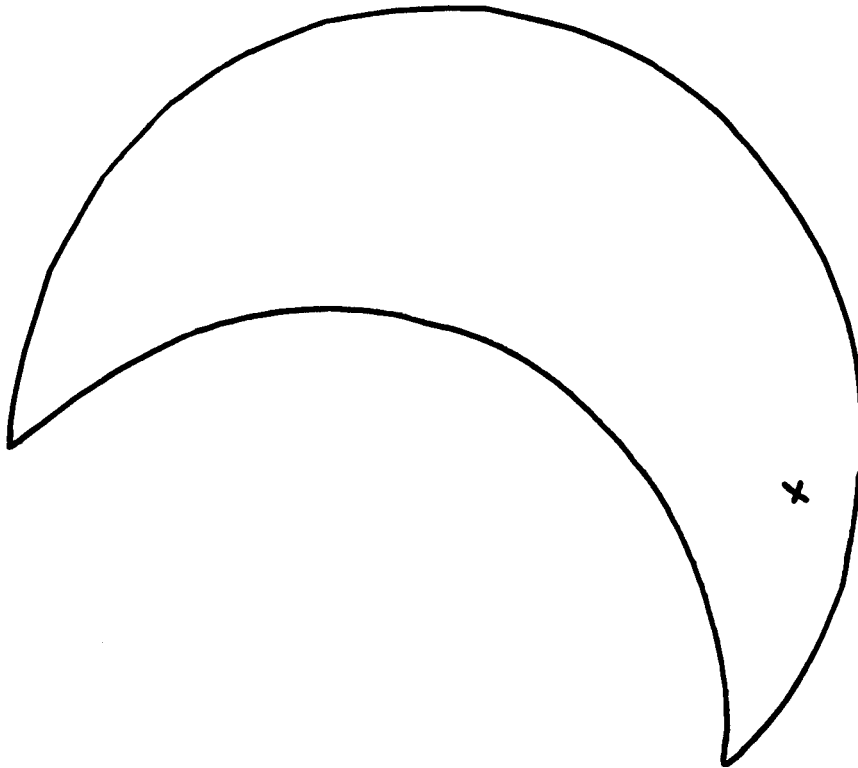
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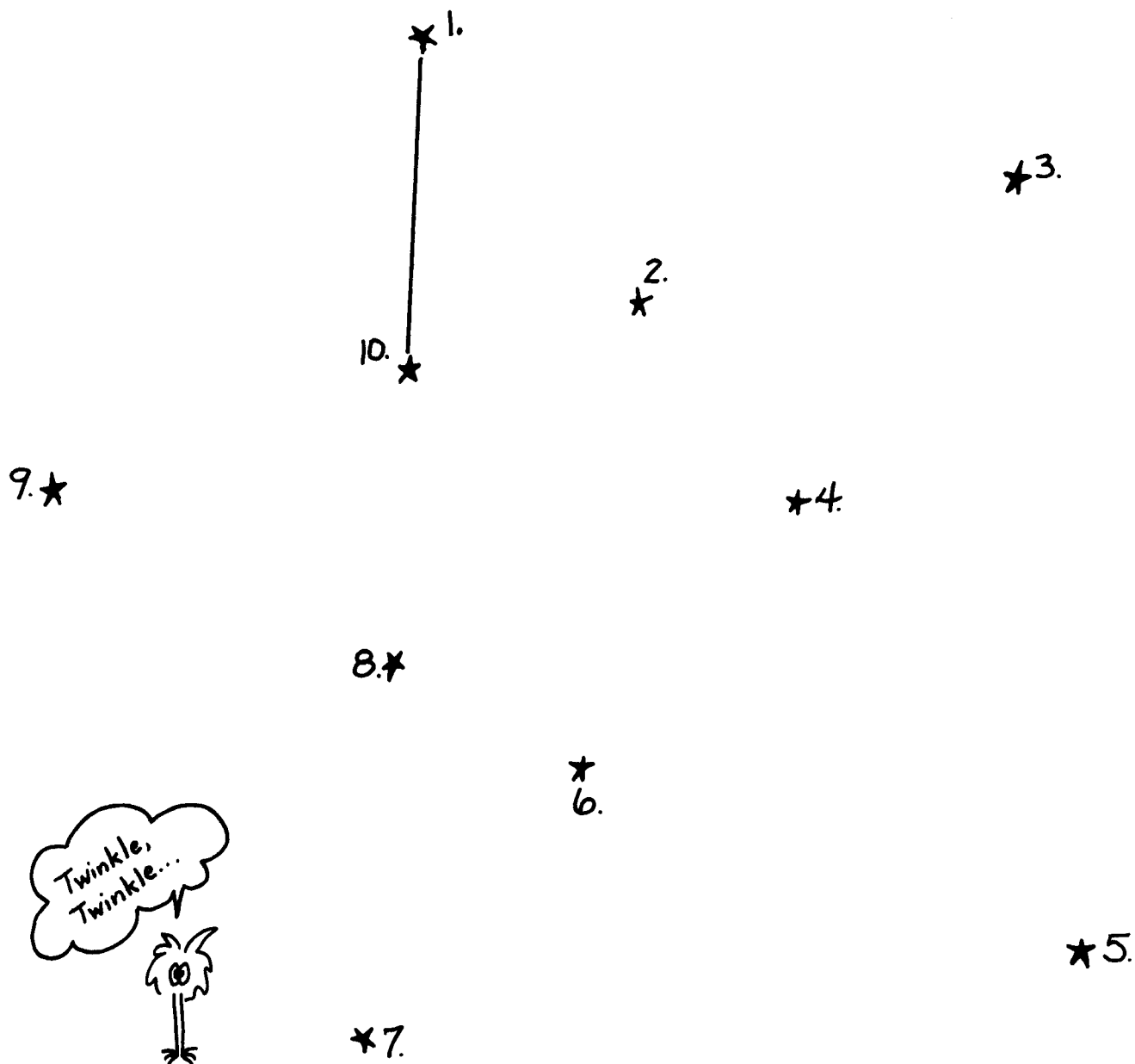


# Blast Off! I



# Stars

Connect the stars and color the picture.



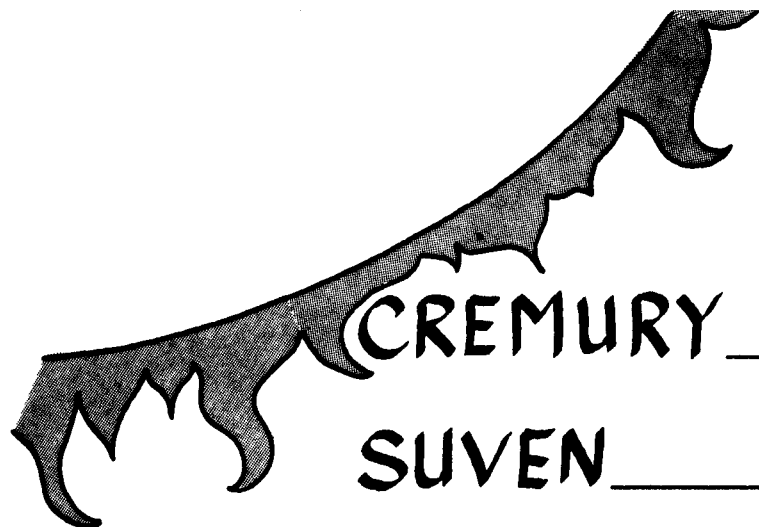
Stars seem to twinkle. This is because we are looking at them through the air. Stars are really round balls of glowing, hot gas. Starlight is very bright. It travels far through space to reach the Earth.

The Sun is our nearest star. The Sun is a middle-size star. Some stars are much bigger. They look small because they are so very far away.

★ What is our nearest star? \_\_\_\_\_



## The Planets



Unscramble the letters to form the names of the planets.

CREMURY \_\_\_\_\_

SUVEN \_\_\_\_\_

TRAHE \_\_\_\_\_

SARM \_\_\_\_\_

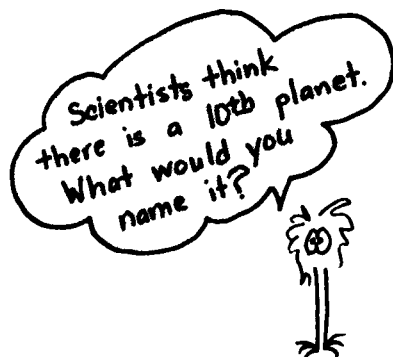
PRUJIE \_\_\_\_\_

TRANUS \_\_\_\_\_

SRUNAU \_\_\_\_\_

TENNUPE \_\_\_\_\_

TULOP \_\_\_\_\_





\_\_\_\_\_





# The Moon

Cut out the moons at the bottom of this sheet. Then glue each one in the correct sentence.


1. The  is our closest neighbor in space.

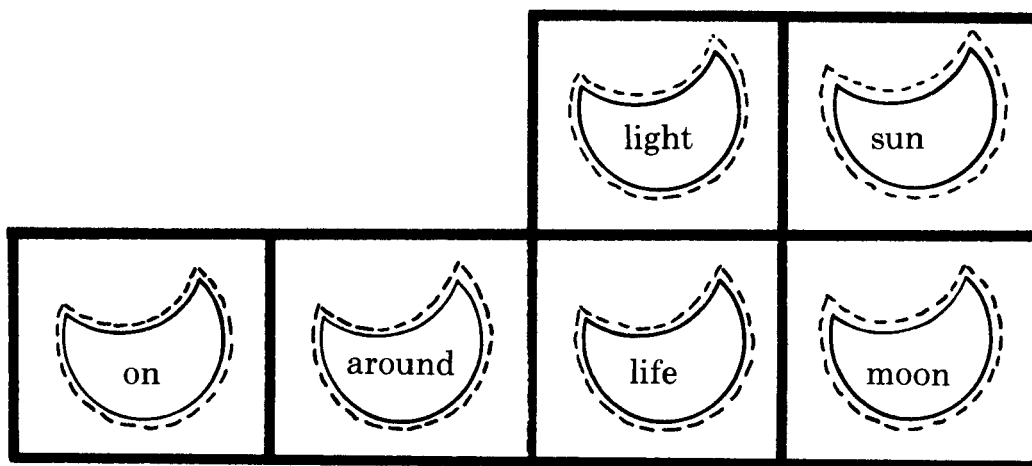
2. The moon has no  of its own.

3. Moonlight is light reflected from the .

4. There is no air or water  the moon.

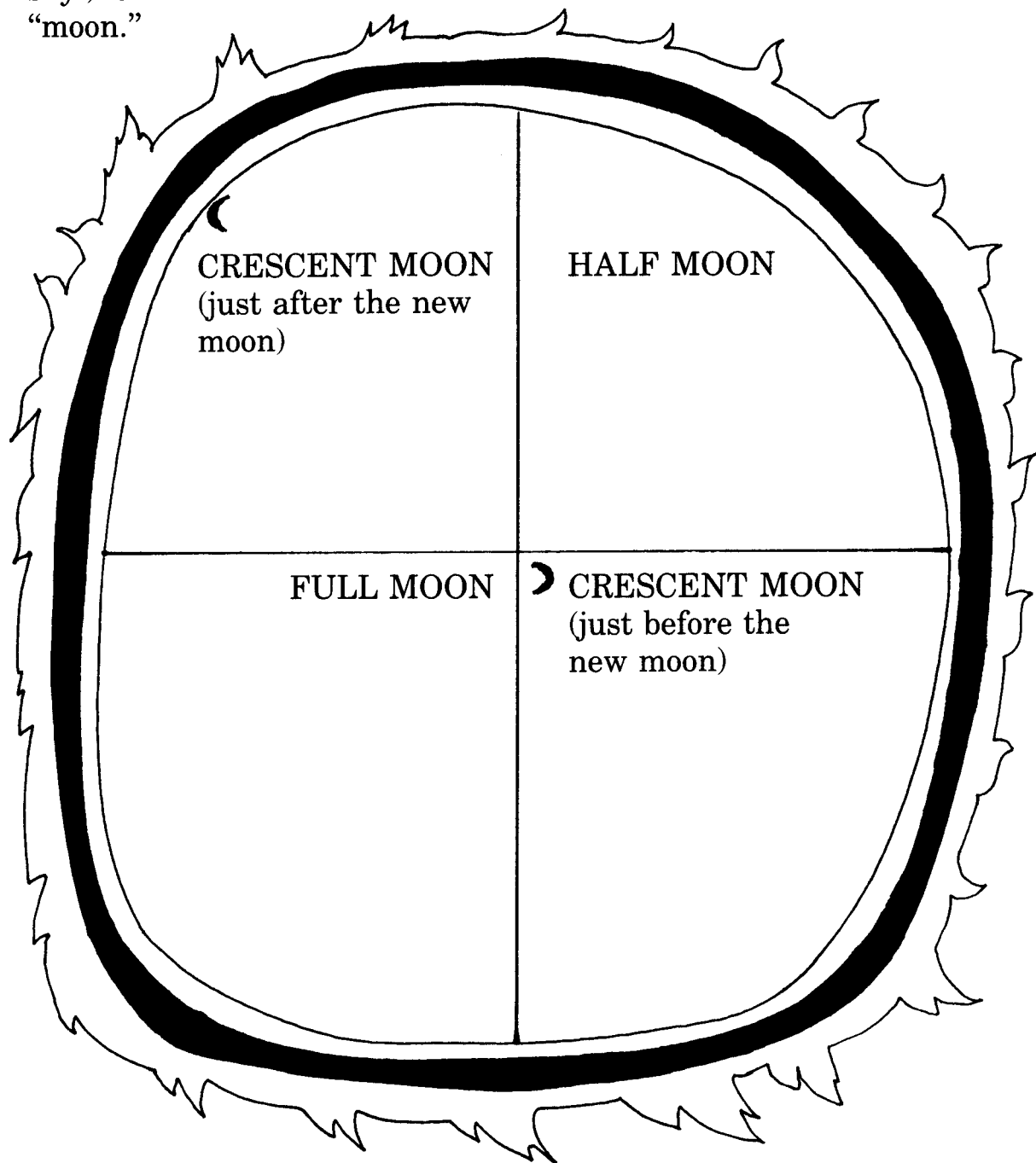
5. There is no  on the moon.

6. The moon takes 28 days to go  the earth.



## Phases of the Moon

The moon orbits the earth every month. As it travels around the earth, we see different amounts of the moon's sunlit half. The moon has no light of its own, but reflects the light of the sun. In the spaces below, draw a diagram of the phases of the moon. (The new moon lies between the earth and the sun, so we cannot see it in the sky.) SPECIAL NOTE: The word "month" comes from the word "moon."



# Calling the Man in the Moon

Suppose you could have a conversation with the man in the moon! He has lots of information about space. He can talk for hours about stars, meteors, planets, the sun, astronauts, black holes, and so on. Select four topics, and learn three facts about them so you can carry on a conversation with the man in the moon.



Topic 1: \_\_\_\_\_  
\_\_\_\_\_

Topic 2: \_\_\_\_\_  
\_\_\_\_\_

Topic 3: \_\_\_\_\_  
\_\_\_\_\_

Topic 4: \_\_\_\_\_  
\_\_\_\_\_

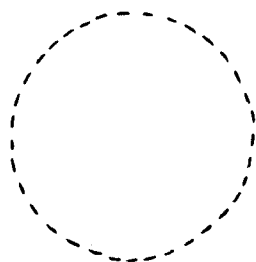




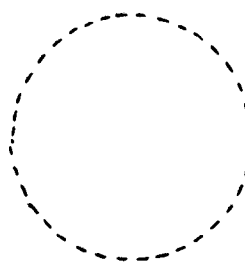
# Moon Phases

The moon does not change shape. At different times of the month, it looks like it does. The shadow of the earth on the moon makes it look that way. The different ways the moon looks are called PHASES OF THE MOON.

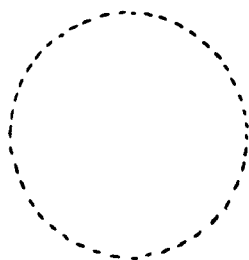
Read about four of the moon's phases, then follow the directions at the bottom of the page.



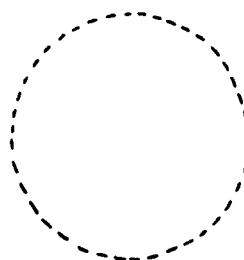
Most of the moon is in the shadow. We see a CRESCENT MOON.



The earth's shadow covers only a little of the moon. We see a THREE-QUARTER MOON.



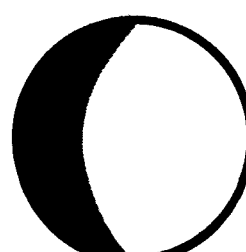
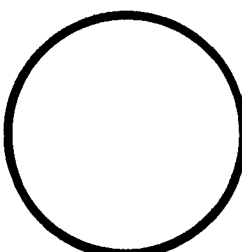
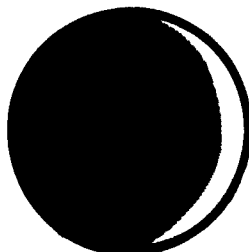
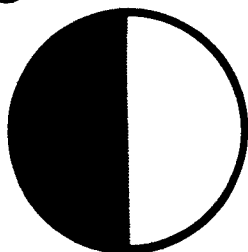
The moon is half in the earth's shadow. We see a HALF MOON.



The moon is all out of the earth's shadow. We see a FULL MOON.

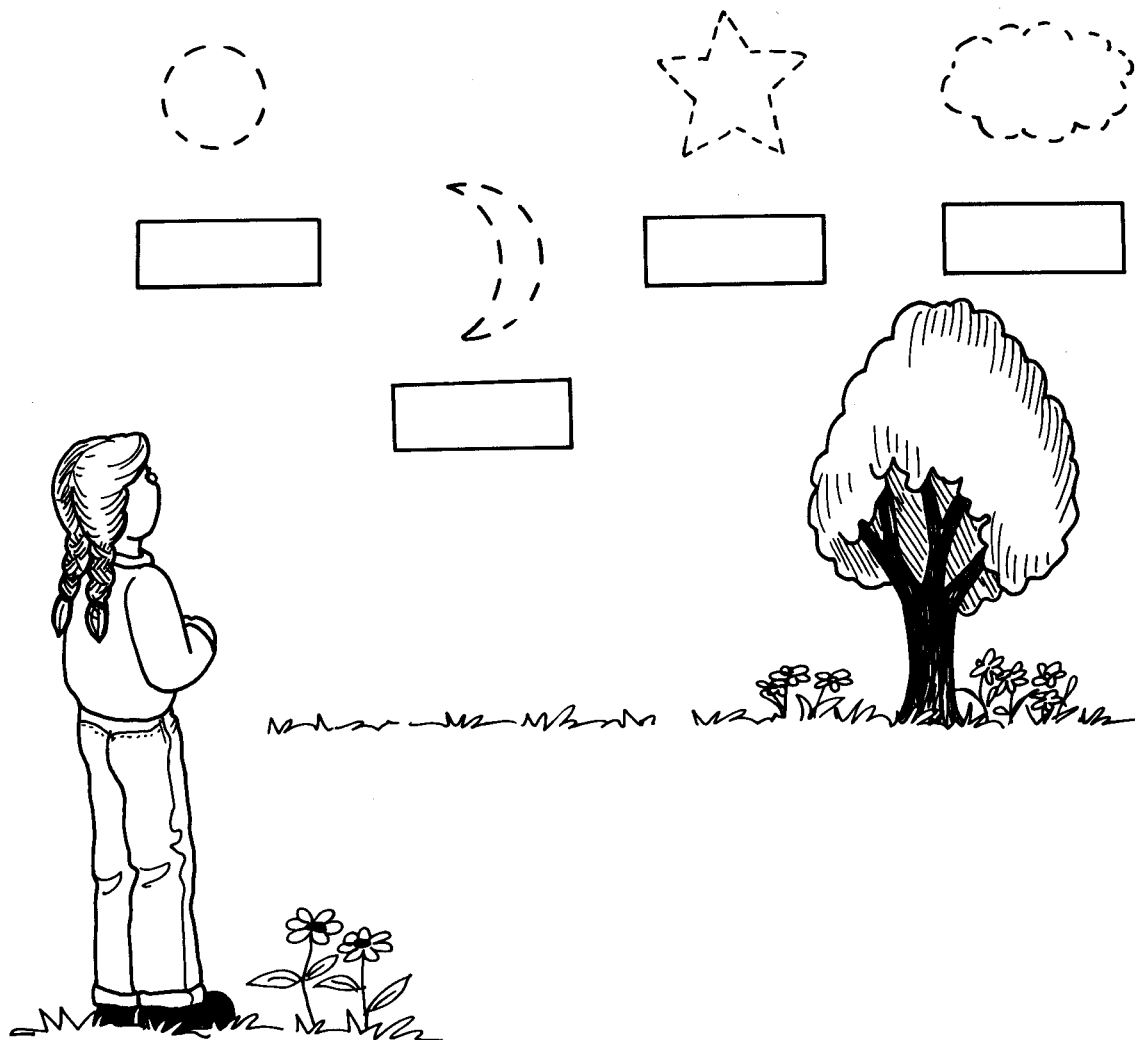


Cut out these four moons. Paste each in its place above.



# In My Sky

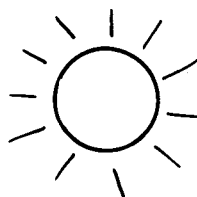
In our sky we see objects that are not made by man. We know these objects because of their shape. Match the shapes below. Can you also match the word?



sun



cloud



moon



star



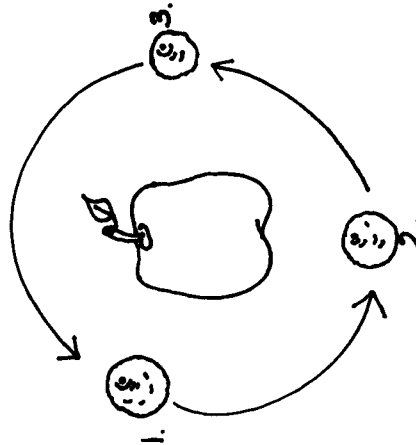
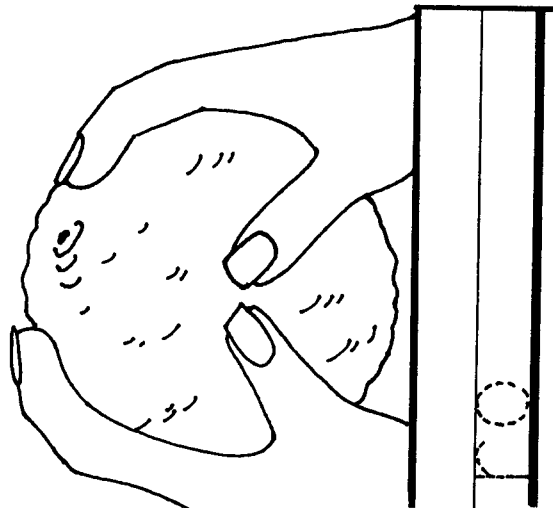
# The Orange Rotation/Revolution Experiment

**ROTATE**—Take a whole orange and hold it in your two hands. Slowly move it around and around. This is an example of making an object rotate.

**REVOLVE**—Put an object, like an apple, in the center of a table. Move the orange around and around the object. This is an example of making an object revolve.

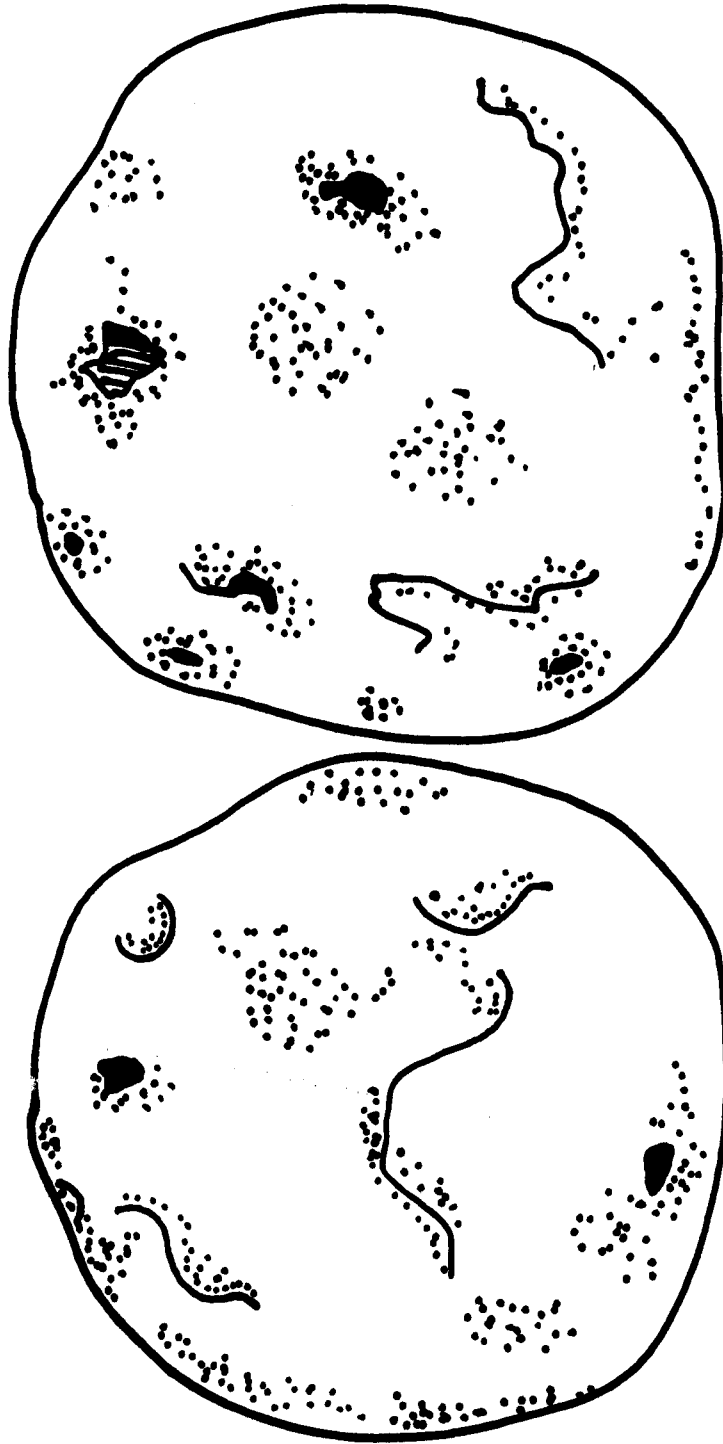
Did you know that the earth does both? It rotates and revolves around the sun.

**Print or write “rotate” in the space below.**



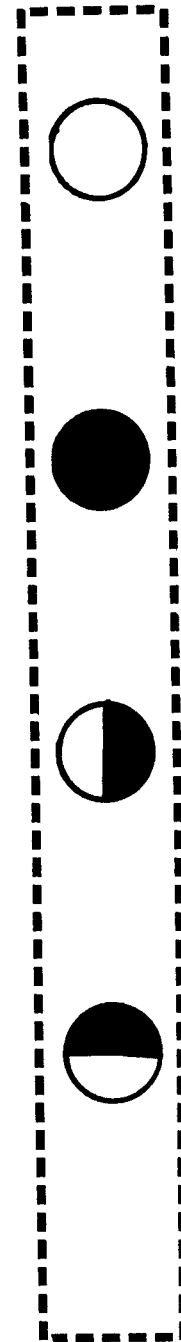
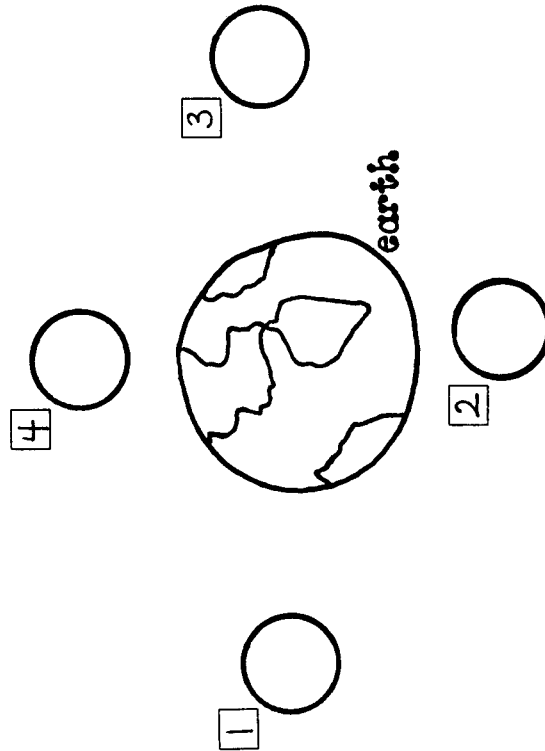
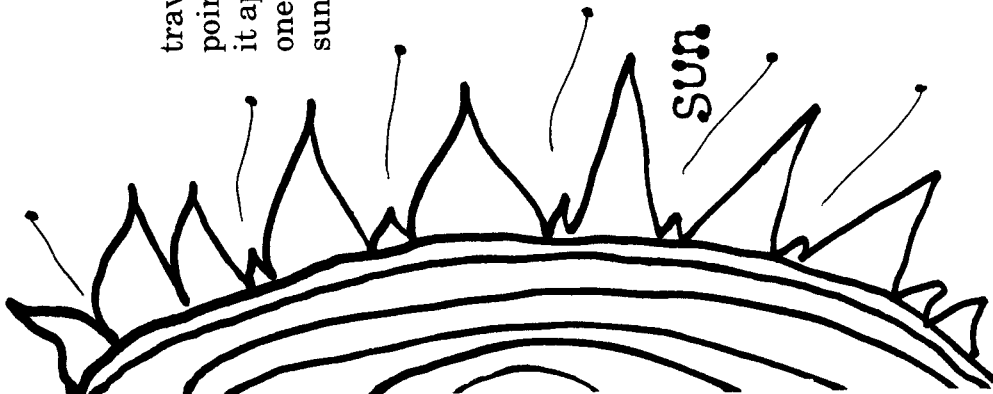
# Once in a Blue Moon

Occasionally, but not often, there is not one but TWO full moons in the same month. When this happens, the second full moon is called the "blue moon." There was a second full moon (or a blue moon) in July 1985, in May 1988, and there will be a blue moon again in December 1990. It doesn't happen very often, so that's where we get the saying, "Once in a blue moon." Color the first moon **YELLOW**, and color the second full moon **BLUE**.



# How the Moon Gets Its Light

The moon does not give off its own light. It reflects the light of the sun. Because the moon travels around the earth approximately once per month, it looks different from the earth's point of view. It seems to "grow" from a little slice to a half moon and then to a full moon. Then it appears to get smaller again. Cut the four moon shapes from the strip below, and paste each one in the appropriate circle AS IT WOULD LOOK FROM PLANET EARTH. Color the earth, sun, and sky.



# Space Snapshots

Pretend you're able to visit the planet about which you've been reading. You've taken four snapshots while on the planet. In the boxes below, draw the pictures and write a statement about each.

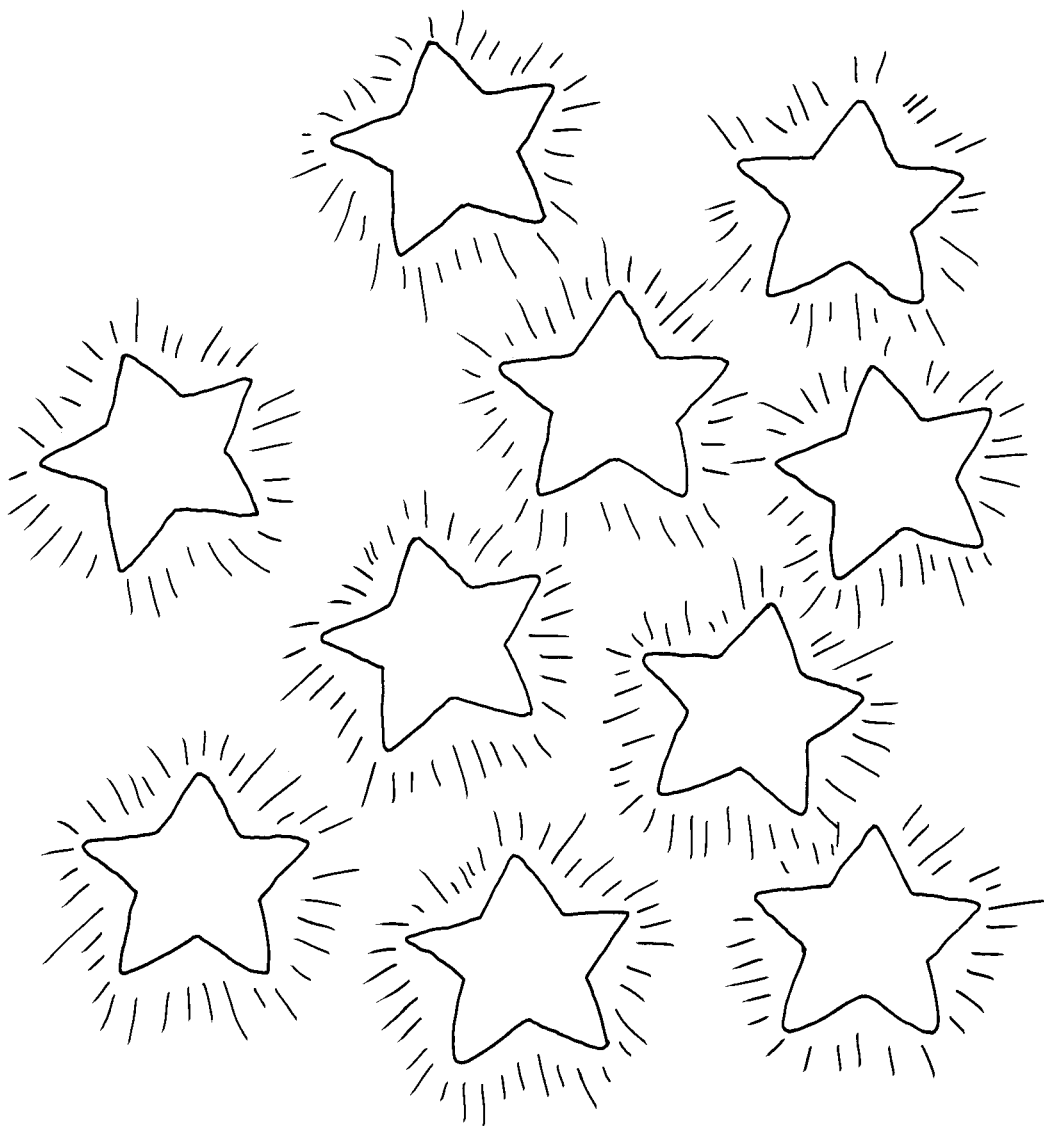
<div>Snapshot 1 _____</div> <div>_____</div>	<div>Snapshot 2 _____</div> <div>_____</div>
<div>Snapshot 3 _____</div> <div>_____</div>	<div>Snapshot 4 _____</div> <div>_____</div>

# I Wish Upon a Star

Here are some interesting facts about stars:

- ... A star is made up of bright, hot gases.
- ... Stars are either blue-white, orange, yellow, or red.  
Their color depends upon their age.
- ... The younger a star, the hotter it is.
- ... Our sun is a young star that is very hot.

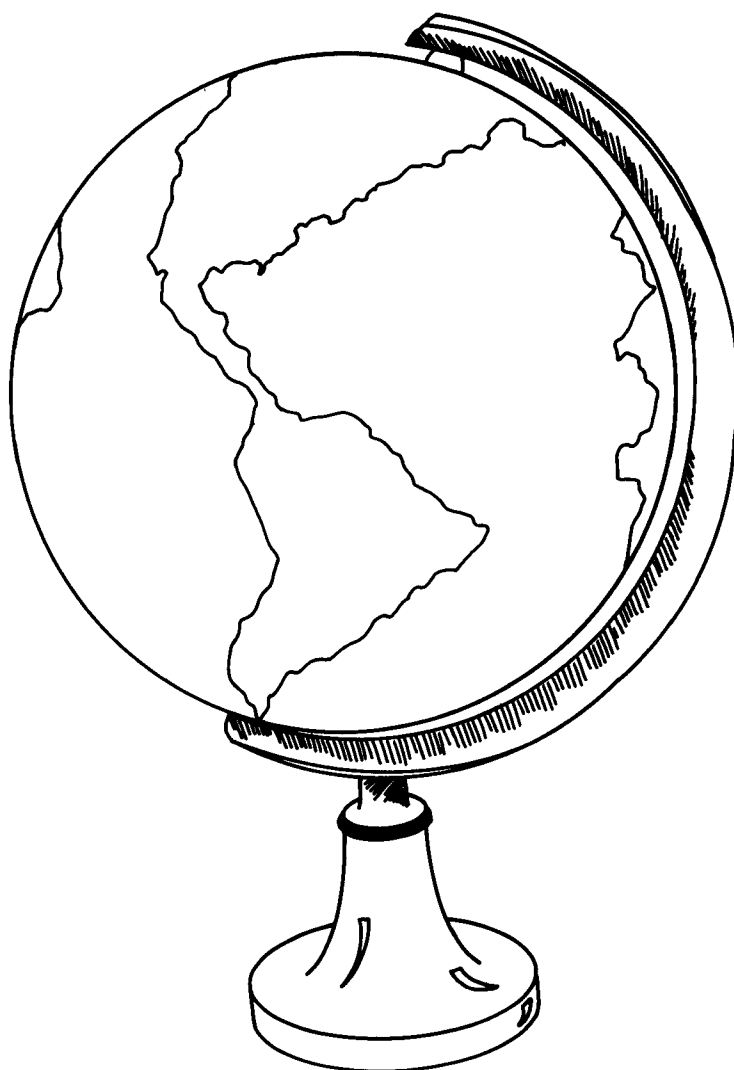
**DIRECTIONS:** Use your crayons and color 3 blue-white stars, 2 orange stars, 1 red star, and 4 yellow stars.



## Where Is the North Star?

The North Star can be found over the North Pole of the Earth.  
All other stars can be found around the North Star.

1. Write "North" on the North Pole of the earth.
2. Draw the North Star above the North Pole.
3. Color the star yellow.



The \_\_\_\_\_ Star is found above the \_\_\_\_\_ Pole of the earth.





# Our Solar System

There are nine planets in our Solar System. They are:

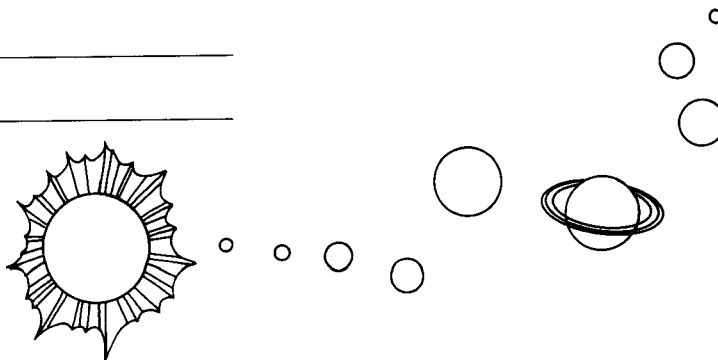
Mercury  
Venus  
Earth

Mars  
Jupiter  
Saturn

Uranus  
Neptune  
Pluto

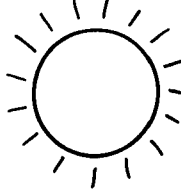

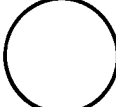

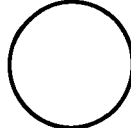
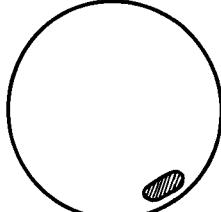
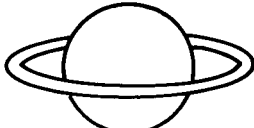
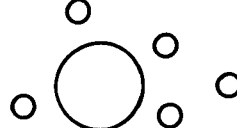
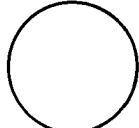

Answer the following questions about the planets:

1. Which two planets have names that begin with the letter M?  
\_\_\_\_\_  
\_\_\_\_\_
2. On which planet do you live?  
\_\_\_\_\_
3. Which planet is also the name of a cartoon dog?  
\_\_\_\_\_
4. Which planet has a name that begins with the letter N?  
\_\_\_\_\_
5. Which two planets have names that begin with letters near the end of the alphabet?  
\_\_\_\_\_  
\_\_\_\_\_
6. Which two planets have you not named above?  
\_\_\_\_\_  
\_\_\_\_\_



# A Planet Pictionary

Cut out the boxes and staple together to make your own Planet Pictionary.

<p><u>PLANET Pictionary</u></p> <p>_____</p> <p>NAME</p>	 <p><u>Sun</u>-A star at the center of our solar system.</p>	 <p><u>Mercury</u>-The planet closest to the Sun.</p>
 <p><u>Venus</u>-The cloudy planet second to the sun.</p>	 <p><u>Earth</u>- Our planet with water, plants, and animals.</p>	 <p><u>Mars</u>- Planet number four is made of red rocks.</p>
 <p><u>Jupiter</u>- The largest planet has a big red spot.</p>	 <p><u>Saturn</u>- The sixth planet has rings of little rocks.</p>	 <p><u>Uranus</u>- Planet number seven has five moons.</p>
 <p><u>Neptune</u>- The eighth planet is made of blue-green gas.</p>	 <p><u>Pluto</u>- Planet number nine is the farthest and coldest.</p>	<p><u>NINE PLANETS</u></p> <p>Mercury-1</p> <p>Venus-2</p> <p>Earth-3</p> <p>Mars-4</p> <p>Jupiter-5</p> <p>Saturn-6</p> <p>Uranus-7</p> <p>Neptune-8</p> <p>Pluto-9</p>



## Did You Know?

The Earth is a part of the Solar System that is made up of many planets. Within the Solar System, there are many galaxies. All of the galaxies make up what is known as the universe.

Let's see if you can answer the following questions by marking either YES or NO.

	YES	NO
1. The Earth is a part of the universe.	_____	_____
2. The Earth is a planet.	_____	_____
3. The Solar System has two planets.	_____	_____
4. The Earth is located in a galaxy.	_____	_____
5. The Earth is found in our Solar System.	_____	_____



Now, in your own words, define the following:

GALAXY \_\_\_\_\_

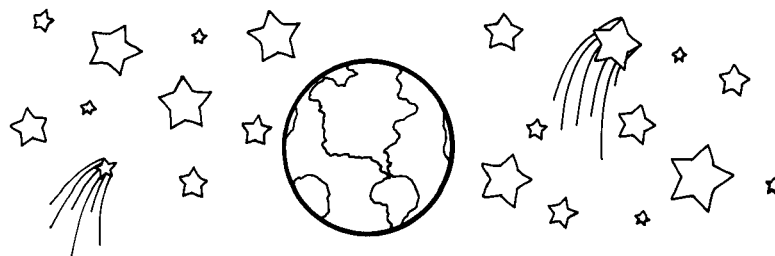
\_\_\_\_\_

SOLAR SYSTEM \_\_\_\_\_

\_\_\_\_\_

EARTH \_\_\_\_\_

\_\_\_\_\_



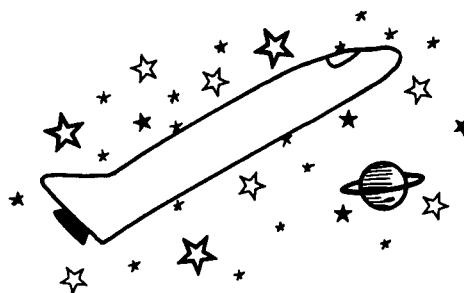
# Window View from a Space Ship

As you look back at the planet Earth from your space ship, what do you see? Tell about the size of the earth, colors, shapes, and objects you see as you move away from the earth.

A large rectangular window frame with rounded corners and four small circles at the corners, representing a space ship window. Inside the frame are 20 horizontal lines for writing.

# Design Your Own Space Suit

Think about travel to outer space. What would your space suit look like? What tools, equipment, etc., would you carry? Draw a picture below and label the special pockets, tools, etc., on your space suit. Be prepared to explain your space suit.



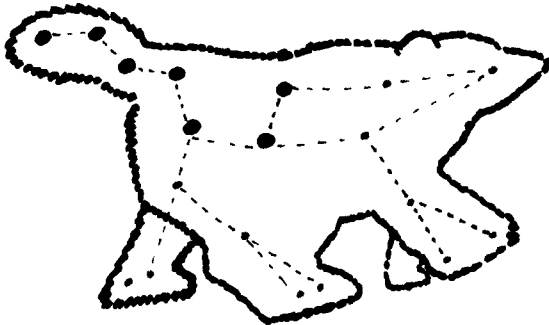
# Space Ahoy

This astronaut is going to the moon. Draw a circle around each thing the astronaut actually needs for the trip.

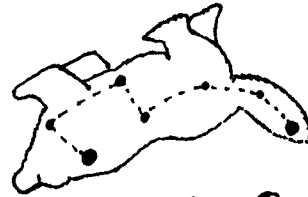


# Constellation Shapes

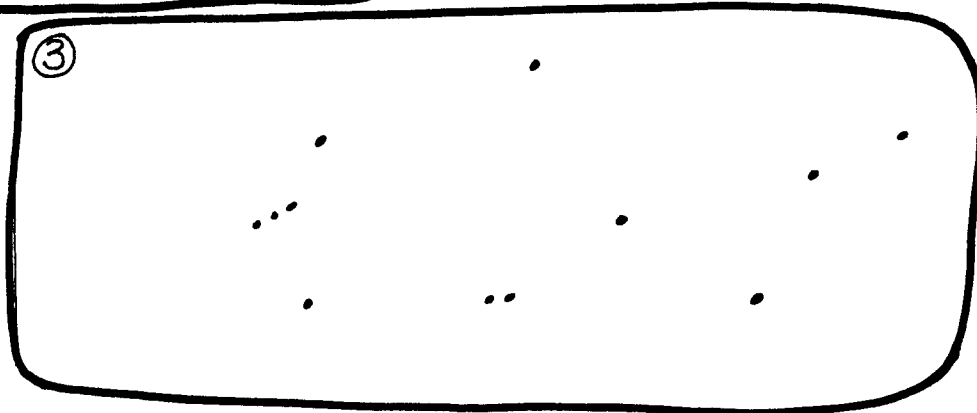
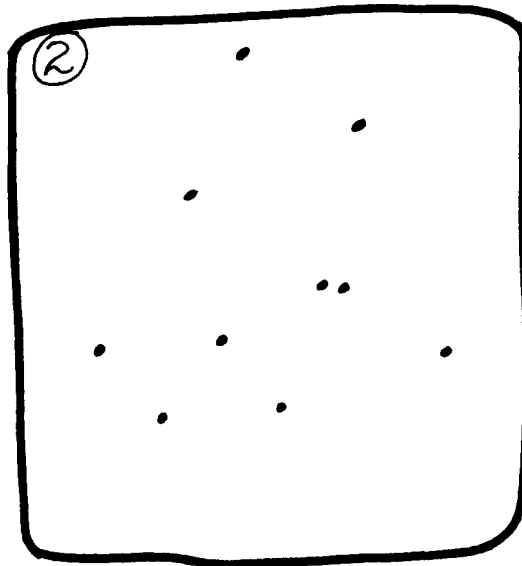
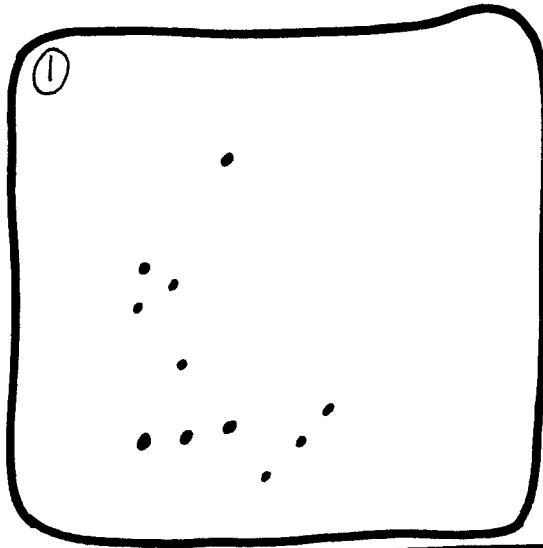
Groups of stars, or *constellations*, form pictures in our imagination. Below is the Great Bear and the Little Bear. Different people think of many different shapes and things when they observe a constellation. In the three spaces below, make a shape around the group of stars and name it. Then tell a story about it.



*Great Bear*



*Little Bear*



# A Space Log

You are the captain of the first space ship to fly beyond Pluto! Fill in the log below, using another sheet of paper to write your answers.

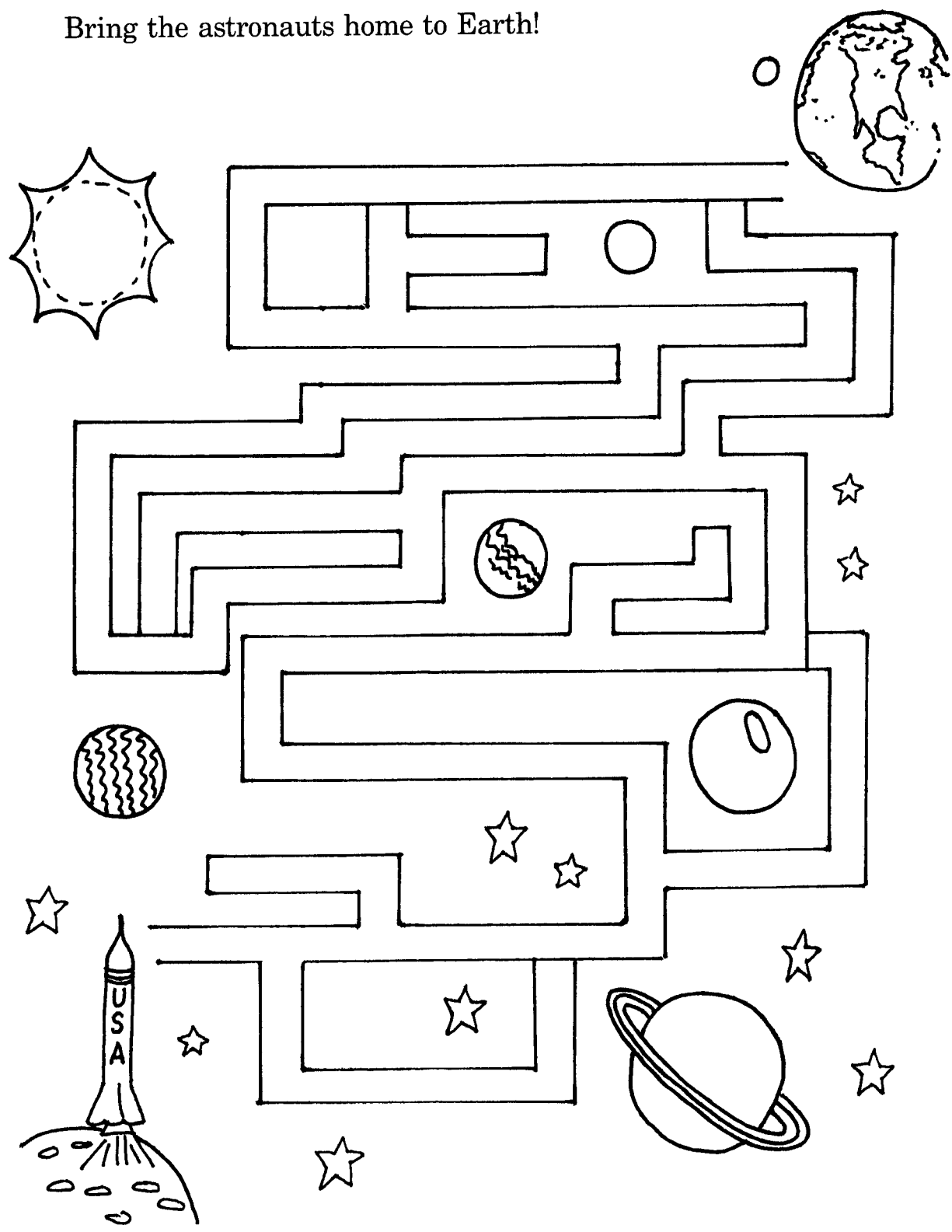
1. Describe what you see from your spaceship.
2. Where is your ship going?
3. Why are you going there?
4. Describe a mechanical problem you have had on your journey and how you handled it.
5. You have four other people on your ship. Who are they? Describe the jobs they do.
6. How long will your trip last?
7. How will things have changed when you return home?





# A Space Maze

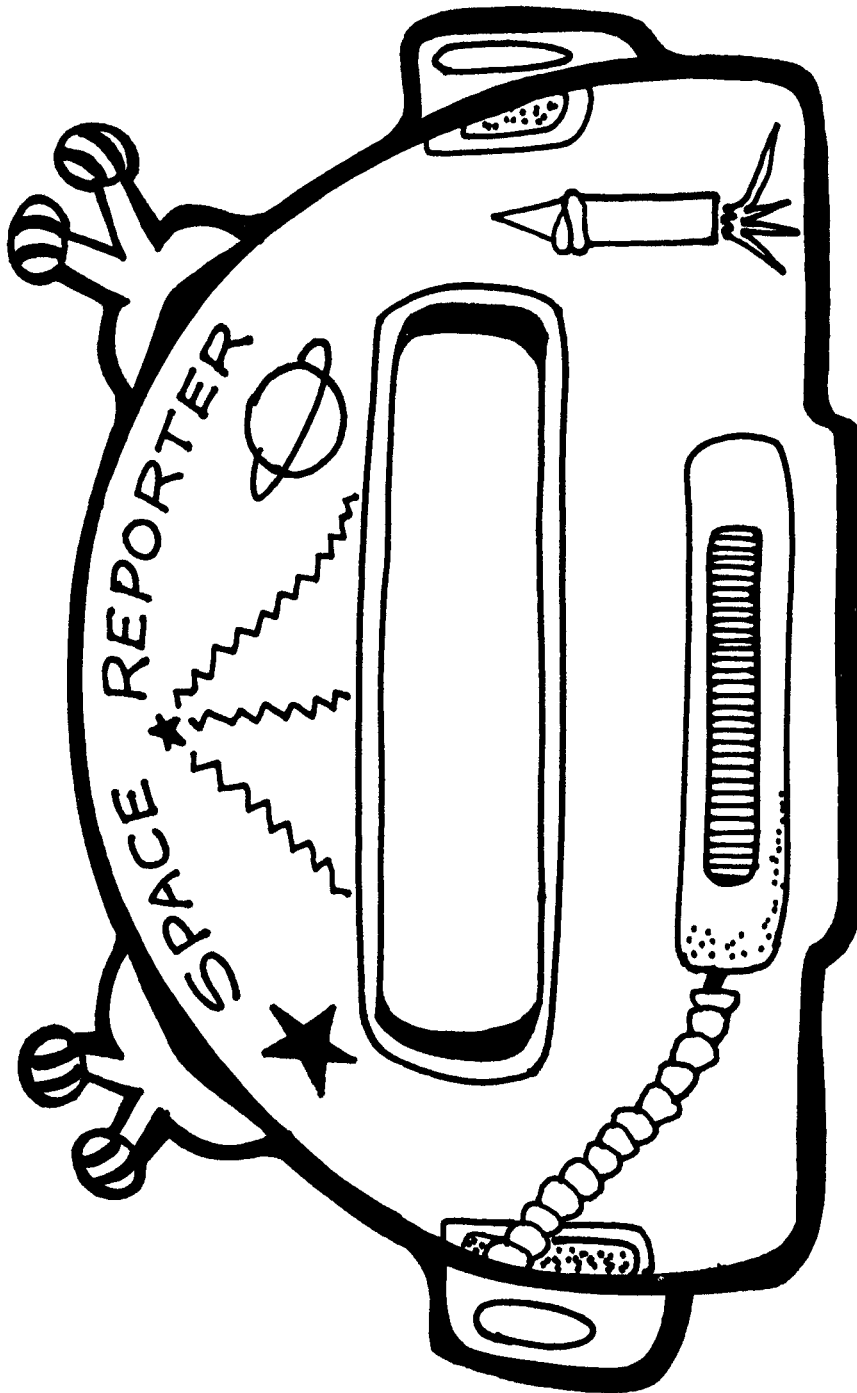
Bring the astronauts home to Earth!



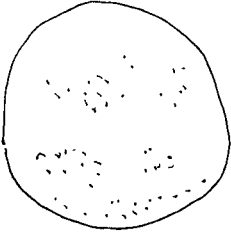
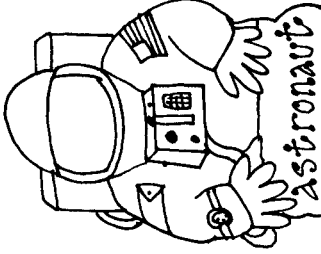
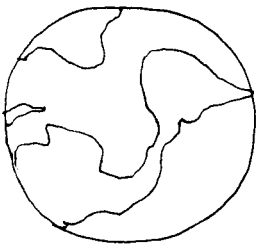
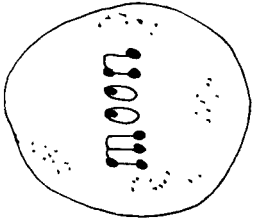

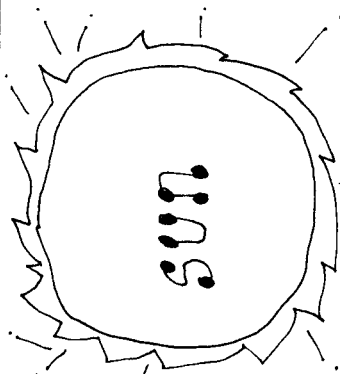
## Reporting from Outer Space

I plan to give a report while wearing the mask below. My report will be on the following topic (check one):

\_\_\_\_\_ the sun \_\_\_\_\_ a planet \_\_\_\_\_ stars \_\_\_\_\_ astronauts

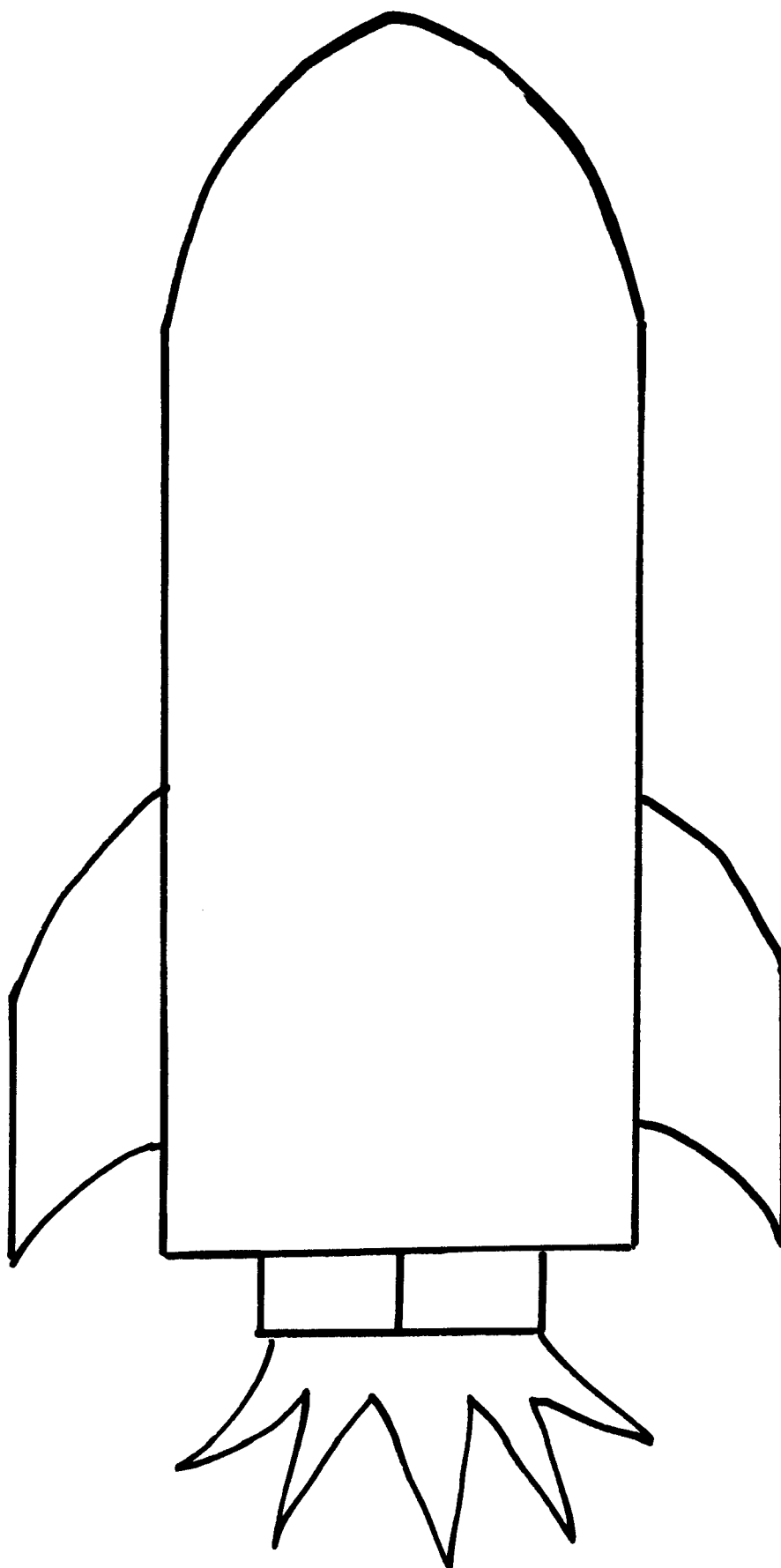


# Matching Space Game

 <p>Mars</p>	 <p>astronaut</p>	<p>I have a red glow.</p>
 <p>Earth</p>	<p>You live on me.</p>	<p>I am the Big Dipper.</p>
 <p>moon</p>	<p>I light and warm the earth.</p>	
 <p>sun</p>	<p>I get my light from the sun.</p>	<p>I travel in outer space.</p>



## Blast Off! II



# Space Pictures

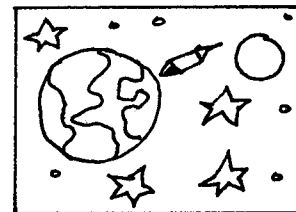
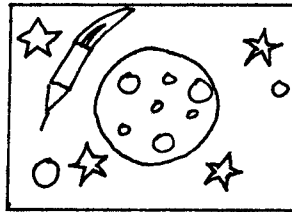
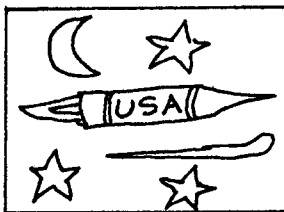
## Materials:

1. 12"x18" white construction paper
2. crayons
3. thin black tempera paint
4. wide paint brush

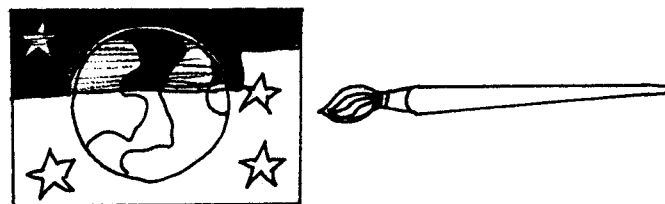


## Steps:

1. Have child draw a space picture. Suggest the use of stars, flames from rockets, moon, people on the moon, spaceships, sun, etc. (See suggested samples)



2. Remind children to color very heavily with the crayon. This does not mean so much pressing heavily as it does going over the drawing with the crayon several times. Also, some areas should be solid color.
3. Paint over the picture with the very thin, runny black paint to make the scene look like it is in outer space.



## Hints:

1. The paint should be thick enough to turn the paper black but thin enough to run off the crayoned parts.
2. Set up a table for painting the black wash, covered with newspaper and set up for three or four people to paint at one time.



# Handwriting - Planets



Sun \_\_\_\_\_

Mercury \_\_\_\_\_

Venus \_\_\_\_\_

Earth \_\_\_\_\_

Mars \_\_\_\_\_

Jupiter \_\_\_\_\_

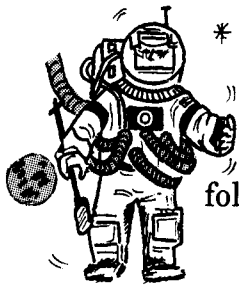
Saturn \_\_\_\_\_

Uranus \_\_\_\_\_

Neptune \_\_\_\_\_

Pluto \_\_\_\_\_





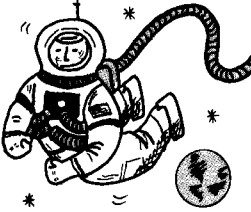
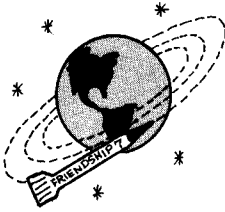

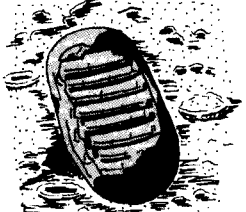
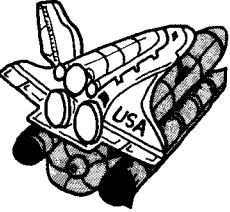


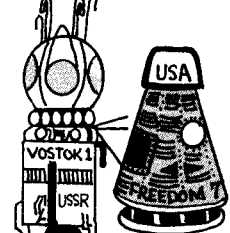
# Man in Space

Read about these historic events in man's exploration of space. Then follow the directions below.

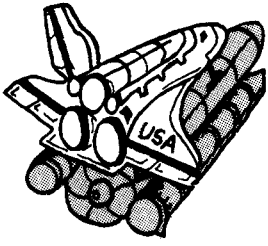
- ▲ Sputniks 1 and 2 were launched in 1957. Laika was the first living creature in space.
- ▲ Both the United States and the USSR launched the first men into space in 1961.
- ▲ In 1962, John Glenn became the first American to orbit Earth.
- ▲ The USSR sent the first woman into space in 1963. She orbited Earth 48 times.
- ▲ For the first time, astronauts left their spacecrafts to walk in space in 1965.
- ▲ The first soft landings on the moon were made by both the US and the USSR in 1966.
- ▲ United States astronaut Neil Armstrong made the first footprints on the moon in 1969.
- ▲ The space shuttle "Columbia" was launched in 1981. It was the first spacecraft to land like an airplane.



Fill in the date for each event. Cut along the heavy lines.  
Glue the pictures in order to a paper strip to make a timeline.

 <p>Walk in Space date: _____</p>	 <p>U.S. Orbits Earth date: _____</p>	 <p>Soft Moon Landing date: _____</p>	 <p>Moon Footprints date: _____</p>
 <p>Space Shuttle date: _____</p>	 <p>Woman in Space date: _____</p>	 <p>Sputnik date: _____</p>	 <p>Men in Space date: _____</p>





## Your Trip into Space

Welcome aboard! You are about to become the first child in space. You will be a passenger aboard a spacecraft. Try to imagine just what it will be like.

The rockets fire and you are pressed back into your seat as if a huge hand is squeezing down on you. As you leave Earth's atmosphere, you feel lighter. At the "zero gravity point," you are weightless. Any objects not strapped down float—even you!

Early astronauts ate food from tubes. You can eat almost anything as long as it's moist. Moist food, like pudding, sticks to your tray. Watch out for potato chips...dry foods float away in zero gravity.

After lunch, you prepare for a space walk outside the spacecraft. You put on a special suit. It has oxygen, a radio, earphones, and even air conditioning. Just in case, there is a safety line to keep you from floating away.

All this activity has made you tired. You can't just lie down. In zero gravity, there is no "down." Zip yourself into your sleeping bag attached to the wall. Don't forget to strap down your pillow so it doesn't float off while you're asleep.



Now read each question. Think about your adventure aboard the spacecraft. Write your best answer for each of the questions.

Choose two people to be your fellow astronauts and tell why you think each is a good choice.

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What three things from Earth would you miss most and why?

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## Your Trip into Space, cont'd

What would be the best part of your space flight?

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What would be the worst part of your space flight?

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Would you really volunteer to be the first child in space? Why or why not?

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# ANSWER KEYS

## BLAST OFF! I

*Objective:* Students will develop manual dexterity.

*Directions:* Say to your students, "This space shuttle is going to the moon! Color the space shuttle and write the country's name on it. Color the moon and give it a smile. Tape or tie a 10-inch piece of string to the top of the space shuttle. With your pencil, carefully make a hole in the moon at the X. If possible, put a hole reinforcer around the hole. Put the end of the string through the hole. Then hold the moon with one hand and gently pull the string with your other hand. Your space shuttle will start heading for the moon. Don't forget the count-down!"

## STARS

*Objective:* Students will learn some facts about stars and complete a puzzle.

*Answer Key:* The picture will be of a star.

## THE PLANETS

*Objective:* Students will become familiar with the names of the planets.

*Answer Key:* MERCURY; VENUS; EARTH; MARS; JUPITER; SATURN; URANUS; NEPTUNE; PLUTO

## THE MOON

*Objective:* Students will understand facts about the moon.

*Answer Key:* 1. moon; 2. light; 3. sun; 4. on; 5. life; 6. around

## PHASES OF THE MOON

*Objective:* Students will diagram four phases of the moon (crescent moon just after the new moon, half moon, full moon, and crescent moon just before the new moon).

*Directions:* Students should have already learned that the moon has no light of its own, but rather it reflects light from the sun as it travels in its orbit around the earth.

## CALLING THE MAN IN THE MOON

*Objective:* Students will be exposed to vocabulary words that pertain to space.

*Directions:* A good resource book is The ABC's of Space by Isaac Asimov (New York: Walker & Co., 1969).

## MOON PHASES

*Objective:* Students will identify moon phases.

## IN MY SKY

*Objective:* Students will match the shapes of the sun, moon, stars, and clouds.

## THE ORANGE ROTATION/REVOLUTION EXPERIMENT

*Objective:* Students will demonstrate the concepts of rotate and revolve.

*Directions:* Have on hand an orange, a ball, or a sphere shape.

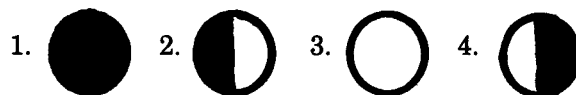
## ONCE IN A BLUE MOON

*Objective:* Students will learn that, although rare, a full moon can occur twice in one month.

## HOW THE MOON GETS ITS LIGHT

*Objective:* Students will learn that the moon does not give off its own light, but rather reflects the sunlight.

*Answer Key:*



## SPACE SNAPSHOTS

*Objective:* Students will observe important attributes of a planet.

## I WISH UPON A STAR

*Objective:* Students will learn about the color, size, and makeup of a star.

## WHERE IS THE NORTH STAR?

*Objective:* Students will locate the North Star.



## OUR SOLAR SYSTEM

*Objective:* Students will become familiar with the names of the planets in our Solar System.

*Answer Key:* 1. Mars, Mercury; 2. Earth; 3. Pluto; 4. Neptune; 5. Uranus, Venus; 6. Saturn, Jupiter.

## WINDOW VIEW FROM A SPACE SHIP

*Objective:* Students will tell the earth's characteristics as "viewed" from space.

## DESIGN YOUR OWN SPACE SUIT

*Objective:* Students will design their own space suits and tell about their special features.

## SPACE AHOY

*Objective:* Students will choose correct items needed for space travel.

## CONSTELLATION SHAPES

*Objective:* Students will create an animal, person, or thing from a constellation (group) of stars, just as our ancestors did.

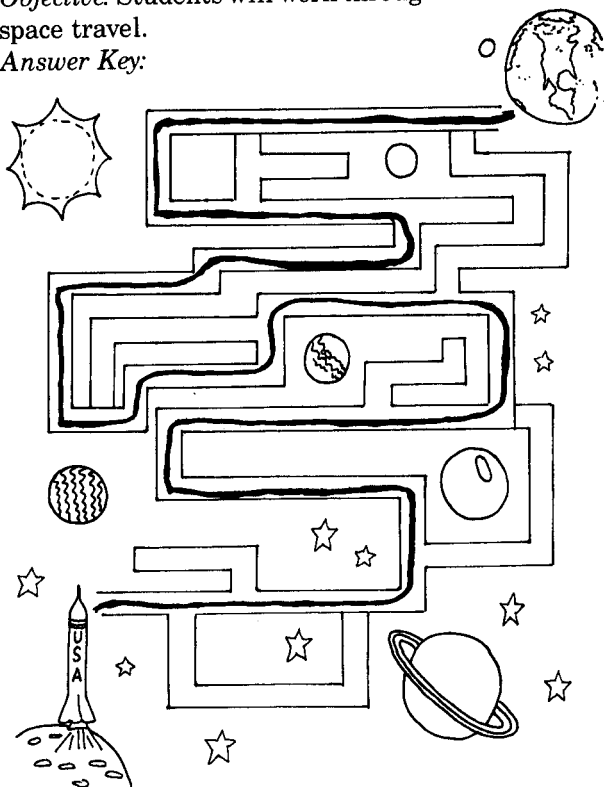
## A SPACE LOG

*Objective:* Students will describe what they think space travel will be like beyond our farthest planet.

## A SPACE MAZE

*Objective:* Students will work through a maze about space travel.

*Answer Key:*



## REPORTING FROM OUTER SPACE

*Objective:* Students will make oral reports on science topics.

*Directions:* Students can role play as "space reporter," and can broadcast from the site or a spaceship or a satellite.

## MATCHING SPACE GAME

*Objective:* Students will match the picture with the description.

*Directions:* First, learn to match the picture with the correct description sentence. Then cut out the 12 cards and match them again. With a partner, put all the cards face down in a pile. Take turns turning over one card at a time. The player with more "matching" cards wins. Shuffle and try again.

## BLAST OFF! II

*Objective:* Students will make a paper rocket.

*Directions:* Say to the students, "Write U.S.A. on your rocket. Color the rocket and cut it out. Punch a hole at the top of the rocket. Glue on a paper saver. Cut open a large thin rubber band. Knot one end into the hole. Hold the other end in one hand. Pull the rocket down with your other hand, and then let go! Remember to do a countdown. Be sure to not let your rocket head towards you or anyone else."

## MAN IN SPACE

1. Sputnik - 1957
2. Men in space - 1961
3. US orbits Earth - 1962
4. Woman in space - 1963
5. Walk in space - 1965
6. Soft moon landing - 1966
7. Moon footprints - 1969
8. Space shuttle - 1981



*Astronomy (K-4)* is compiled from:

- *Art Today and Every Day: Classroom Activities for the Elementary School Year* by Jenean Romberg and Miriam Rutz. Published by Parker.
- *Ready-to-Use Science Activities for the Elementary Classroom* by Debra L. Seabury and Susan L. Peebles. Published by CARE.

