

# Adventures in the Sky



JUNE 1998

## **THE HEART OF A MAN TO BE**

Put me in touch with the heart of a boy,  
Let me study his doubts and fears,  
Let me show him a way of life,  
And help him avoid its tears.

For the heart of a boy in its buoyancy,  
Is one that is pure and free.  
So put me in touch with the heart of a boy,  
The heart of a man to be...

## SPECIAL DEN OR PACK ACTIVITIES

### Star Gazing

Have a Family Star Gazing Party in the evening. Meet outside, away from buildings and city lights on a clear dark night. An open field or hill is ideal. (If you meet in a park, check the park hours. Many parks are closed at sundown. Check with the city or park ranger for special permission if needed.) Have boys and their families come early enough so that they can lay out their blankets and watch the stars come out. Take books and star finders with you. Local libraries have good selections of books on stars for children. Cover the flashlight lens with red cellophane so that your eyes won't be tricked into adjusting for brighter light every time you look at the star chart. Look up for constellations. Tell some stories connected with constellations. There is usually one or two parents in a pack who are knowledgeable about stars. Ask among the parents ahead of time to see any of them could act as a guide. Also ask if they have a telescope, though you don't need one to see constellations. Many parents are happy to talk about something they are interested in. (Just ask them to keep their talks simple and interesting to children.) Serve snack-size Milky Way bars as a treat. See Cub Scout Leader How-to Book, pages 8-20 and 22 for information regarding Stargazing.

San Jose Astronomical Association has a "Star Party" usually on the Friday closest to a First Quarter Moon. More information under San Jose Astronomical Association Star Party in the Field Trip section at the end of this book.

### Moonwatch

With a telescope or even binoculars, you can see the craters on the moon. Cub Scout Leader How-to Book has a small section on Moonwatch on page 8-22.

### Sunrise and Sunset

If your pack has a family camp, plan to watch the sunrise and sunset during the same day. It may be hard for you to wake up at dawn, but the boys will be up (and you will be awakened). Take them on a short hike to a vantage point to watch the sun come out. You will be surprised how much the boys enjoy the experience. Take a thermos of hot chocolate and blankets and some games to keep the boys occupied while waiting. Check your newspaper for the sunrise time. Talk to the rangers for the best locations to watch the sunrise and sunset.

Field Trips (See the Filed Trip section in the back of this book for details.)

Observatories: Foothill College is open for public viewing on clear Friday nights. They are open on clear Saturday mornings for Solar viewing as well. Lick Observatory is open some nights between June and September so you can see the night sky through their 36" and 120" reflector telescopes.

Planetariums: There are several planetariums open to the public. Two popular ones are Minolta Planetarium at De Anza College, Planetarium at Rosicrucian Museum.

NASA AMES Research Center: Two-hour tours are available for those over age 9.

Santa Clara County Model Aircraft Skypark: Watch model airplanes in the sky.

Have a kite flying contest or a paper airplane day.

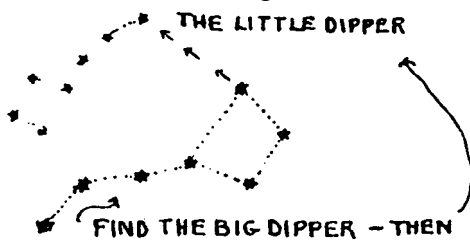
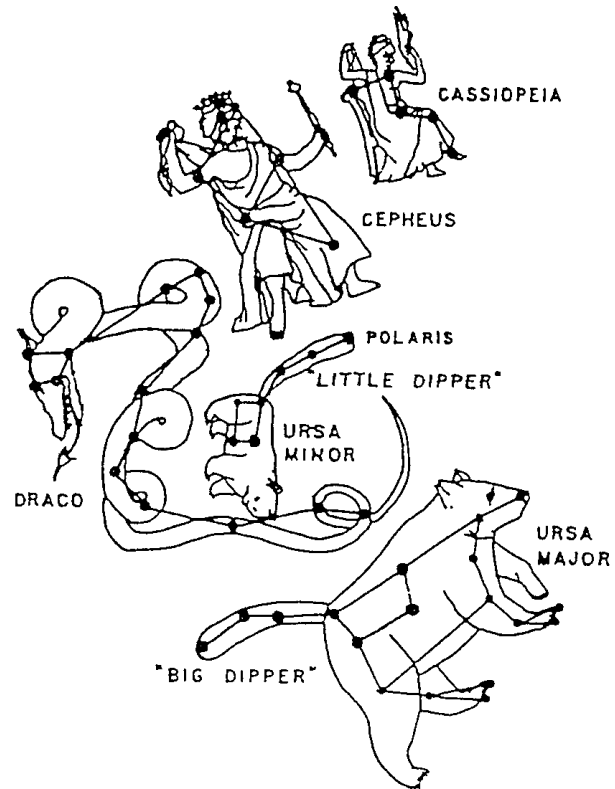
Create your own fun day with kites or paper airplanes. Combine it with a family picnic. If you are interested in a kite derby, Cub Scout Leader How-to Book lists guidelines on pages 9-18 to 9-20.

## STAR GAZING

It doesn't take much effort to lift up your eyes, and what a reward you get when you do! When you are looking up at the sky, you are doing something that men have done for thousands of years.

Since we live north of the equator, there are five constellations that are visible all year around.  
 Ursa Major (The Great Bear, The Big Dipper)  
 Ursa Minor (The Little Bear, The Little Dipper)  
 Cassiopeia (The Queen)  
 Cepheus (The King)  
 Draco (The Dragon)

The most famous single star is POLARIS, THE NORTH STAR. It is the most famous because men sailed their boats and found their way on land by its fixed position long before there were any compasses. One of the best ways to find the North Star is to start by finding the Big Dipper. Follow a line through the two outside stars of the



cup of the Big Dipper to the tip of the handle of the Little Dipper. The star at the tip is the North Star. Don't be surprised; it's not a very bright star. (The North Star seems to be fixed in the position because the North Star is directly over the axis of the Earth.)

**A STAR AND A PLANET:** A Star shines by its own light, like our sun. A planet shines by reflected light from the sun. The average person can see about 2,000 stars on a clear night.

**COLORS OF STARS:** Stars are different colors. A star's color depends on its temperature. Blue stars are the hottest. Red stars are cooler. The brightest star of summer is Vega, a bluish white star in the constellation Lyre. You can find Vega by finding Draco, the Dragon. Follow the tip of the dragon's head to the brightest star you see. That's Vega.

**EVENING "STAR":** It is always a planet and will be in the sky near where the sun has gone down. The most famous evening "star" is the planet Venus. Venus is also known as the Morning Star. In the morning you can find Venus in the east. It is the brightest object in the sky, except for the sun and the moon.

**SHOOTING STARS:** Shooting stars are actually meteors. They are mostly pieces of rock or ice. Some are large, large enough to crash into the Earth, but most are small and they burn up before hitting the earth. A meteor heats up from friction with the air as it passes through the atmosphere. It becomes so hot that it glows white hot. You can see shooting or falling stars almost any night if you look at the sky long enough.

**HIDDEN PLANETS**

The names of all nine planets are hidden in the letters below. Can you find them? Look up, down, sideways, and diagonally. Be careful--some words overlap, and some are written backwards.

L M V E N U S O  
 R O E E A R T H  
 E S M R K A F P  
 T A O A C N L R  
 I T A P R U U R  
 P U P L T S R E  
 U R M O O O N Y  
 J N E P T U N E

The nine planets are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto.

This is how you memorize the order of the planets:

“**M**y **V**ery **E**ducated **M**other **J**ust **S**erved **U**s **N**ine **P**izzas.”

The first letter in each word gives the first letter in the names of the planets in order from the sun.

**SPACE UNSCRAMBLE**

These scrambled words are related to outer space. Unscramble the letters to make sense.

- |            |              |               |
|------------|--------------|---------------|
| 1. ANTRSU  | 7. RIBTO     | 13. RATSTONAU |
| 2. TTLSHUE | 8. NISEVURE  | 14. RTIJUPE   |
| 3. OSMOCS  | 9. OOMN      | 15. TALEPN    |
| 4. CCIEENS | 10. UCYRMER  | 16. ESUVN     |
| 5. TECRKO  | 11. PELTSCOE | 17. LAGAYX    |
| 6. TOMCE   | 12. TRIGAYV  | 18. OPTUL     |

1. Saturn. 2. Shuttle. 3. Cosmos. 4. Science. 5. Rocket. 6. Comet. 7. Orbit. 8. Universe. 9. Moon. 10. Mercury. 11. Telescope. 12. Gravity. 13. Astronaut. 14. Jupiter. 15. Planet. 16. Venus. 17. Galaxy. 18. Pluto.

**S-A-T-E-L-L-I-T-E**

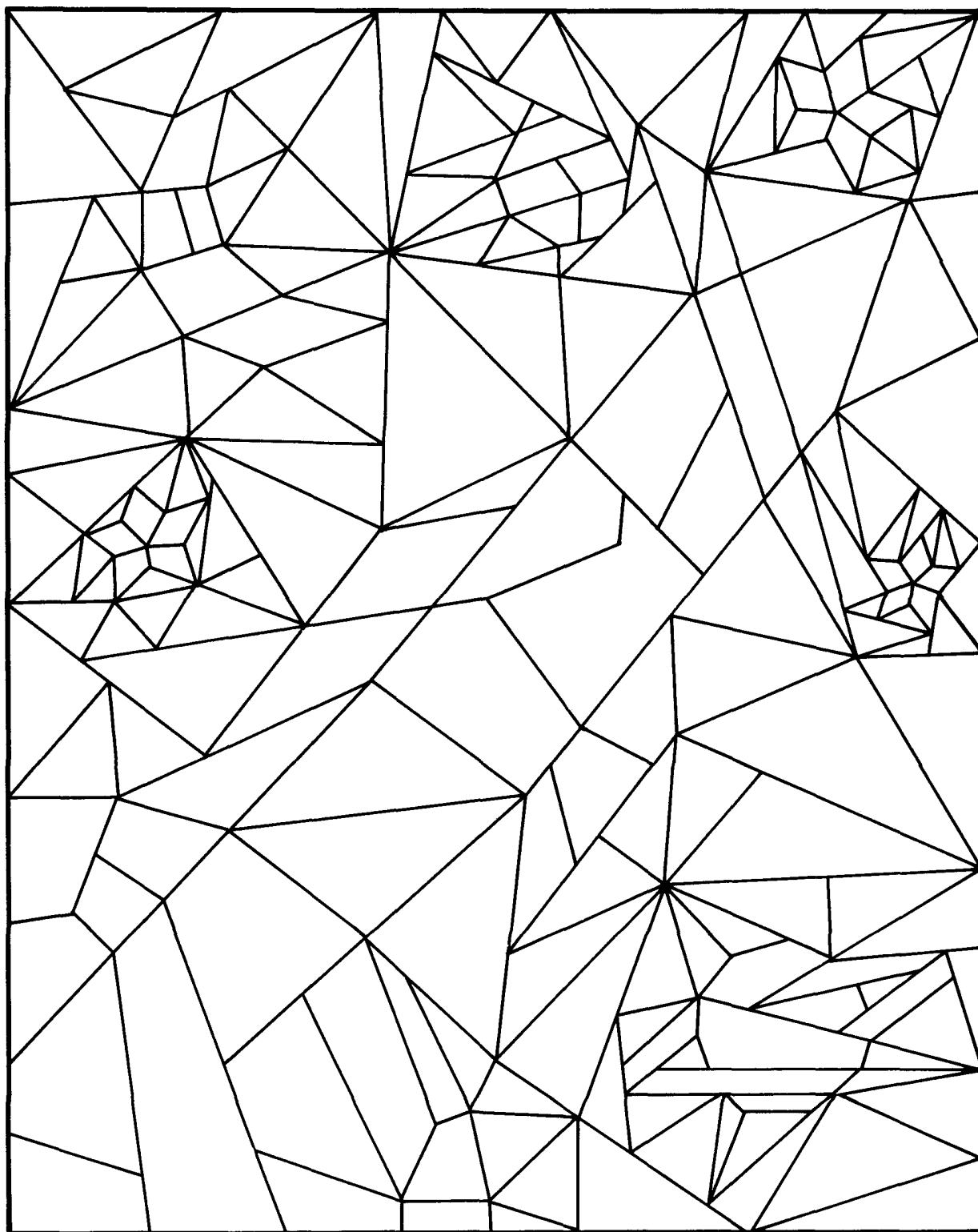
The word SATELLITE contains many smaller words. SAT and LET are two that are easy to find. There are at least twenty-five other words of three letters or more orbiting around here. How many words can you find in SATELLITE?

**PLANETS - PREOPENING GAME**

Have name tags made up using the nine planets. As the people arrive, they are to find as many of their planet as possible and remember who the others are. The winner is the one who can remember the most names.

**TRIANGLE TANGLE**

Color in each area that has exactly three sides, and you'll see something that's out of this world.



**CONSTELLATION OPENING**

Narrator and 8 boys holding cards spelling CUB SCOUT.

Thousands of years ago, people saw shapes among stars. They are called constellations. You can still see them. Let's look at the night sky and you'll also see Cub Scouts. (Boys with signs hold them up).

C      Cassiopeia, the Queen.  
 U      Ursa Major, the Great Bear  
 B      Bootes, the Herdsman  
  
 S      Sagittarius, the Archer  
 C      Cepheus, the King  
 O      Orion, the Hunter  
 U      Ursa Minor, the Little Bear  
 T      Taurus, the Bull

Now let's look at the stars in our flag and repeat the Pledge of Allegiance.

**JOURNEY TO THE PLANET YOB OPENING SKIT**

This is done without any props. Astronauts are in Cub Scout uniform. YOB's are in oversize T-shirts over their uniform. Two Astronauts are on stage.

Captain's voice: Captain's log, stardate 1, 9, 9, 8. It's been a fabulous journey aboard the Scoutpower (pack #). Soon we'll be landing on the planet Y-O-B.

Astronaut 1: Prepare for landing. Ready for touchdown. Touchdown.  
 Astronaut 2: There is life on this planet!  
 YOB 1: (walking in with YOB 2) What sort of creatures are you?  
 Astronaut 2: We're Cub Scouts.  
 YOB 2: What is Cub Scouts?  
 Astronaut 1: We're boys who have more fun.  
 YOB 1: What is fun?  
 Astronaut 2: Doing your best, learning together, building, playing and giving goodwill.  
 YOB 2: Can we be Cub Scouts?  
 Astronauts 1: Yes. Just do your best.  
 YOB 1, 2: We'll do our best.  
 (YOB 1 and 2 quickly take off the T-shirts. All four face the audience.)  
 Astronaut 2: (to the audience) Please rise and repeat the Cub Scout Promise with us.

## NINE PLANET OPENING

First comes the planet Mercury. It's nearest to the sun.  
Each year is 88 days long. That means lots of birthday fun!

Venus is the next...under one big, dusty cloud.  
It has constant storms with lightning! Wonder if the thunder's loud.

Earth's the perfect place to live, not just another rocky ball.  
Air to breathe, water to drink...it's the best planet of all!

Mars is the red planet. It has craters and volcanoes.  
Brrr! It's always below zero there. Far too cold to grow tomatoes.

Jupiter's the biggest, but we've known that all along.  
It spins around so very fast, a day is 10 hours long.

Saturn has rings made of ice and snow.  
They surround that cold planet. I'd wear mittens, I know.

Uranus, Neptune and Pluto are all so far away.  
We know little about them to this very day.

Now that you know the planets and can name every one,  
Let's find out more about the Solar System for out of this world fun!

## OLD GLORY - AN OPENING CEREMONY

O: Old Glory! A beautiful nickname for our standard, our ensign, our banner, ours--yours and mine.

L: It flies over our land, a place to live, learn and labor.

D: It stands for a dream come true, and a destiny we will help determine.

G: It stands for good, great, and government which we can guide.

L: It means leadership, to teach lessons of loyalty by example.

O: It gives opportunity to serve, obligations to cheerfully fill, looking onward.

R: It is a republic which depends on respect, reverence, and responsibility.

Y: It is Yankee of yesterday and the youth of today. Let us stand for the presentation of that great flag.

(The color guards enter and present the flag. Repeat the Pledge of Allegiance.)

*Observe Flag Day on June 14.*



## SPACE SHUTTLE CLOSING

The word CUBS is spelled out on a poster board replica of a space shuttle. “Fanfare of the Common Man,” Aaron Copland composer, or a similar piece, is played in the background. A flashlight or other spotlight lights each letter as it is shown.

Speaker 1: “C” stands for catch. Catch the spirit of Scouting and you’re starting the countdown.

Speaker 2: “U” stands for unite. When we unite, we see how much we can do and how important teamwork really is.

Speaker 3: “B” stands for balance. In Scouting, the hard work that we do can be fun. As a Scout, work and fun are balanced.

Speaker 4: “S” stands for straight. The Cub Scout Promise and the Law of the Pack remind us that if our arrow is true, we may cross the bridge and become Boy Scouts.

Speaker 5: Together these letters form the vehicle that will transport us to the outer limits of Scouting in hopes of one day being able to say those well-earned words,

**“Another Eagle Has Landed.”**

## BECOMING AN ASTRONAUT - CLOSING

To be read by the Cubmaster or a few Cub Scouts.

Many a Cub Scout I’m sure  
Has dreamed of becoming an astronaut,  
And we should always remember  
That these dreams are not for naught.  
Most of our present astronauts  
Were Scouts when they were young.  
The training that this program gives  
Has praises to be sung.  
Just as the men in space exploration  
Tackle their jobs with a courageous, firm hand,  
We should tackle our earthbound problems  
To make this a better land.  
As we preserve our environment  
By increasing our knowledge each day,  
Using courage and imagination  
In the Scouting - Astronaut way.

## CLOSING THOUGHT - AIM FOR THE STARS

The words “Aim for the Stars” has an important meaning to Cub Scouts. Think of the Wright brothers who tried and failed many times before they made the world’s first powered, sustained and controlled flight. They never quit trying. A Cub Scout who tries to do his best and keeps trying, is preparing himself for greater responsibilities when he becomes a man. What you do and how well you do it becomes your launching pad to “aim for the stars.”

### **LEADER RECOGNITION CLOSING**

Props: Large gold stars to be held by the boys. Write leaders' positions and names on each star. Each boy, in turn, repeats the following speech while showing his star.

"My star represents our \_\_\_\_ (position) \_\_\_\_, \_\_\_\_ (name) \_\_\_\_ and his assistants \_\_\_\_ (names) \_\_\_\_."

When all have done this, then all repeat in unison:

"On behalf of all Cub Scouts, we wish to say thank you for the leadership you have given our pack."

### **NORTH STAR ADVANCEMENT**

Equipment: Pinhole planetarium punched for the Big Dipper and the North Star (instructions in Bear Book). Flashlight. (If your meeting place does not lend itself to dimming the lights, this ceremony can also be performed with a backdrop of dark blue or black and stars taped in position for the Big Dipper constellation and the North Star.)

The lights are dimmed, Cubmaster beams the flashlight through the pinhole planetarium at the ceiling or a wall, showing the Big Dipper and the North Star.

Cubmaster:

For thousands of years, men have known that the North Star is fixed. Shepherds knew it before the time of Christ, and seamen have used the North Star and other heavenly bodies to guide their ships to port ever since they first dared leave the sight of land. Even today, the stars are important in navigation for ships, jet planes and spaceships.

Cub Scouts don't need the stars to find their way. But even so, we do have our own guiding stars to help us though life. There is your church, for instance, and your school. In Cub Scouting, our navigational aids are the Promise and the Law of the Pack. They tell us how we should act and what we should do for ourselves and for others. The Promise and the Law of the Pack are just like the stars by which the seaman steers his ship.

Tonight we honor \_\_\_\_ (names) \_\_\_\_\_. These Cub Scouts are navigating straight and true on the Cub Scout trail. With their parents' help, they have advanced a rank and have shown that they live by the Promise and the Law.

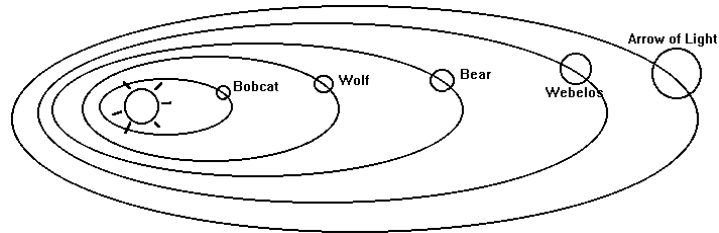
(Call advancing boys and parents forward and give badges to parents to present to their sons.)

See Staging Den and Pack Ceremonies for "A Guiding Star" closing ceremony, pp. 60-61.

## FLIGHT THROUGH SPACE ADVANCEMENT

Preparation: Ceremony board resembling chart of sun and planets. Planets are labeled as Cub Scout ranks (Cub Scout insignia stickers may be used). A small blue and yellow cardboard rocket should be made for each boy getting a badge and placed on or under his old rank. Place a loop of masking tape on the back of each rocket, so it can be moved to new rank.

Cubmaster: Will the following boys and their parents please come forward?  
(Read names of boys who are receiving awards.)



Cub Scouts, we are happy to see you have taken another flight forward in our Cub Scout galaxy. Please face your fellow Cub Scouts and the Den Chief \_\_\_\_\_ will lead them in the rocket cheer. (Pause for rocket cheer.)

These Cub Scouts have done a fine job in our pack. They are progressing through our Cub Scout galaxy. This would not be possible if it were not for the interest and help of their parents. I'm proud of the parents in our pack. As I move your rocket forward in our galaxy, your parent will present you with your badge. (Cubmaster calls off names and new rank of Scouts as he moves rockets to appropriate ranks on ceremony board while parents present badges. Cubmaster congratulates boys and parents with Cub Scout handshake.)

## GREAT AND LITTLE BEARS ADVANCEMENT

Equipment: Two posters, one illustrated with the Big Dipper and one with the Little Dipper. The North Star is emphasized.

Cubmaster: The constellations we call the Big and Little Dippers are also known as the Great Bear and the Little Bear. Tonight, we would like to use them to present \_\_\_\_\_ with his Bear Badge.

(Put up poster showing the Little Dipper.) This is the Little Bear. The North Star is part of this constellation and has guided many people for thousands of years.

(Put up poster showing the Big Dipper.) This is the Great Bear. Many people look first for the Great Bear in order to find the North Star. Like Baloo, the bear in the Jungle Book and the Big Bear Cub Scout Book, it helps us to find the guiding star. He is like \_\_\_\_\_ who has earned his Bear Badge tonight. Other Cub Scouts will now look up to him as someone who can show them the right way."

(Presents the award now. Award could be attached to a shiny star.)

**THE TRIP TO NEPTUNE**

Take a seated position in front of the audience so they can all see you narrate the following:

Would you like to go on a trip to the Neptune? O. K., let's go! Watch me and do all the things I do and repeat after me the things I say. Here we go!

We're going on a space trip! We're ready for the countdown.

10-9-8-7-6-5-4-3-2-1 LIFT OFF! (Make a lift-off sound as you thrust arms swiftly toward the sky.)

We are coming to the Milky Way - What a pretty display. We can't go around it. We can't go under it. We can't go over it. I guess we'll have to slide down it. (Put feet out in front of you and hold both sides of chair as if sliding down slide while saying, "Whee-ee.")

We are coming to a shooting star - a great big star. We can't go around it. We can't go under it. We can't go over it. I guess we'll just have to ride it. (Hold hands as if holding coil of rope and then throw out as if to lasso a point of the star and pull back hard while saying, "Zoom-oom-oom!")

We're coming to a meteorite-a great bit meteorite. We can't go around it. We can't go under it. We can't go over it! Guess we'll have to dodge it. Ready, here goes! (Dodge from side to side while saying, "Whew-w-w-w" and wiping sweat from brow.)

We're coming to Neptune. What a lonely place! We can't go around it. We can't go under it. We can't go over it. I guess we'll just have to land on it. (Jerk back in seat as if jolted on landing.) (Holding hands over eyes and looking out) It sure is dark out there. (Reach out in front of you as if grasping door knob and ever so slowly push open spaceship door. Just as arm is extended full length as if door is all the way open, a loud voice coming from someplace close by says, "BOO!") Let's get out of here! (Quickly pull arm back as if shutting door.)

(At this point, retrace all the motions hurriedly. Lift-of, dodge meteorite, ride shooting star, slide down Milky Way. Hold arms over head in front of you, simulating a parachute, then looking down at floor say loudly, "SPLASH." Motion opening spaceship door, motion swimming to shore.) I beat you home, and now you have been on a trip to Neptune!



**ALL-STAR APPLAUSE:** Clap and yell to this rhythm: Clap, clap, pause, pause, clap, clap, "These guys are our all-stars," clap, clap, pause, pause, clap, clap, "They deserve our best," clap, clap, pause, pause, clap, clap, "They are our all-stars," clap, clap, pause, pause, clap, clap, "They deserve our best -- YEA, ALL-STARS!"

**ROCKET CHEER:** Count down, 10, 9, 8, 7, ... on zero. Everybody yells, "Blast Off!" and moves from a crouching position to jumping high in the air.

**TRIP TO PLUTO**

Spaceship: “Whoooooosh”  
 Astronauts: “Yeah!”  
 Pluto: “OOOOOOOOOOOOOOO”  
 Food: “Yum, Yum”  
 Turkey: “Gobble, Gobble”

One fine day, our heroes, the ASTRONAUTS, decided to take their SPACESHIP on a trip to PLUTO. They needed to load their SPACESHIP with lots of FOOD for their journey would be long. The ASTRONAUTS knew that PLUTO was very far away and they would need lots of FOOD to eat. But their SPACESHIP was quite small and the FOOD would take lots of room. The ASTRONAUTS decided their FOOD should be smaller and so the scientists shrunk it for their trip to PLUTO. They all agreed that TURKEY was their favorite dinner and so it was decided to have a fabulous TURKEY dinner when the ASTRONAUTS took their SPACESHIP to PLUTO. They rode for many months in their SPACESHIP until finally they reached PLUTO. The ASTRONAUTS gave a big cheer for now it was time for their favorite FOOD which they had been saving. And now, we can have a yummy TURKEY dinner, too, just like the ASTRONAUTS.

Each Cub Scout is then given their “rations” of M & M’s in a small cup. M & M’s represent the following:

Green = salad  
 Yellow = corn  
 Orange = oranges  
 Light brown = turkey  
 Red = cranberries  
 Dark brown = chocolate cake  
 Blue = blueberries

(Please note that if you use film canisters, wash them well before you put any food in them.)

**APPLAUSES**

**SKY ROCKET:** Make a motion of striking a match on your pants, lean over to light your rocket. Make a “SH, SH, SH” sound, point from the floor to the sky as if you were following it in flight with your finger. Clap hands and say, “BOOM,” spread arms wide and say, “AH, AH.” Flutter fingers to represent falling debris. Then place right hand over eyes and peer out, exclaiming, “Isn’t it lovely?”

**STAR APPLAUSE:** “Twinkle, twinkle, twinkle.”

**SATELLITE:** Put your right hand over your head, making a circular motion with the right hand, opening and closing the right fist, while saying, “Gleep, gleep.”

## STAR LIGHT, STAR BRIGHT

The costumes are large stars cut from cardboard or poster board and hung sandwich-board fashion for front and back views, painted silver.

Lights dimmed and voice recites:

Star light, star bright,  
First star I see tonight.  
I wish I may, I wish I might,  
Have the wish I wish tonight.

Narrator: (as lights are brightened) Each night, thousands of people make that wish. Have you ever wondered why it takes so long some evenings for the first star to appear?

(Offstage, voices are heard, loudly)  
I did it last night.  
It's hard work granting those wishes.  
Why do I have to be first?  
I always get stuck.  
Why don't you do it for once?  
(And so on....)

Blackout (or use a rolling blackboard to set up changes of scenes)

Scene 1: Stars getting ready to draw straws.

Scene 2: Stars pushing one reluctant star to the front.

Scene 3: Narrator: I need a volunteer. Please take one step forward.

(All stars but one take one step backward!)

Scene 4: Stars getting ready to draw from a hat.

(And so on....)

Close curtains or indicate in some way end of skit.

## THE ROCKET

The rocket crew sits in two rows of chairs behind each other. All are very serious, as if they were in a real spaceship.

Commander: (holding imaginary steering wheel) Wow! This is the best! Look at those stars!

First Crewman: Look at the Milky Way! Awesome!

Second Crewman: Watch it! We're tipping to the right! (All boys lean left.)

Third Crewman: Look out, we're heading toward earth! We're going to crash! (All lean far forward.)

Fourth Crewman: Whew! We didn't crash--we made it down safely! (All straighten up in seats.)

All: Thank heavens!

Fifth Crewman: Anybody got another quarter?

**STAR GAZERS**

Cast: 5 Cub Scouts on a field trip to see the stars. Professor dressed in a cap and gown.  
Professor's assistant, hidden behind the curtain.

Prop: Two old blankets to make curtain. Toy car. Teddy bear. Kitchen dipper. Toy snake.  
Stuffed dog. Telescope is fixed so audience can see the assistant on the other side do his  
thing with the toys.

As the skit opens, have someone introduce the great astronomer, Professor Leo. The boys are all  
in line awaiting their turn, to see their favorite star.

Prof: Now, my young man, what planet would you like to see?

Boy 1: Saturn, please. (putting his eye up to the telescope)  
(The assistant holds up a toy car in front of the telescope.)

Boy 1: Wonderful. Nice and shiny.

Prof: Perhaps you would like to see a constellation, now.

Boy 2: Yes, please. May I see the Little Bear?

Prof: Ah, you mean Ursa Minor? Yes, you may.  
(Assistant holds up a teddy bear.)

Prof: Next (as he helps the 3rd boy).

Boy 3: May I see the Big Dipper, please?

Prof: Most certainly.  
(Assistant holds up the kitchen dipper)

Prof: And now who's next?

Boy 4: The dragon, please.

Prof: No doubt you mean Draco, the dragon?  
(Assistant holds up a toy snake.)

Boy 4: Interesting. Looks more like a snake.

Boy 5: (Pushes his way to the seat and gives orders) Show me the Little Dog.

Prof: One usually says please. But, you may see Canis Minor, just the same.  
(Assistant holds up a stuffed dog.)

Boy 5: I don't believe that was a real star.

Prof: Well, my little man, why do you not ask for something really real?

Boy 5: Show me the Milky Way, then. There can be no deception there.  
(Nothing happens.)

Boy 5: Well, where is the Milky Way?  
(Assistant comes out grinning and rubbing his stomach.)


**RIDDLES**


What holds the sun up?

Sun beams!

Which is heavier, a half moon or a full moon?

A half moon because a full moon is lighter.

What kind of songs do planets like to sing?

Nep-tunes!

### **ASTRONAUT RELAY**

This game can be played at a pack meeting. Group Cub Scouts of each den into threes. In each group 2 Cubs stand with their backs to the starting line and the third is between them facing forward. Elbows of the three are interlocked. The middle boy runs forward, the other two run backwards. On signal, they race to the turning point, then back, this time the middle boy is running backwards and the other two forward. When they get back to the starting point, the next group of three races. First den finished is the winner.

### **ROUND THE MOON**

This game can be played inside or outside. All the dens line up at the end of the room. Each Cub Scout places his hands on the waist of the Cub in front so a den forms a “rocket.” One chair is placed at the far end of the room opposite each den; these are the “moons.” When the leader calls “Go,” the dens run the length of the room, round their “moon” and back into orbit. As they pass base, the “rockets” drop a section each time and the Cubs sit down there one by one, until finally the “nose cone,” the last boy, returns home. The first team to be sitting down is the winner.

### **ROCKET RELAY**

You will need one chair per den. The dens line up with a chair at the head of each, facing away from the den. The chairs are “launching pads” and the first Cub or “rocket” stands on the chair awaiting the countdown. The den leader starts the countdown. When the countdown reaches zero, the “rocket” blasts off round the room, touching all four walls, and returns to the “launching pad” where the next “rocket” is waiting to be launched. The first “rocket” lights off the second and returns to his den.

### **MOON WALK**

Divide Cub Scouts into two teams. Each team receives two “space shoes” (cardboard boxes large enough to put one foot in each box). The first Cub puts on the “space shoes” and uses the “shoes” to maneuver a “moon rock” (blown up balloon) to a designated line and returns. He removes the “space shoes” and the next boy puts them on. Repeat until everyone has a turn. First team to have all members take a “moon walk” wins. (No fair to touch the balloons with your hands.) Have extra “moon rocks” handy in case they accidentally get crushed.

### **SNACKING IN WEIGHTLESSNESS**

This is an outside game. String a rope between trees. Hang donuts and paper cups from the rope. Partially fill the cups with water. These items would be at the height of the boys’ mouths. At the signal boys try to eat and drink without using their hands. Involve parents in this game too.



### **STAR MAKERS**

Give everyone a piece of paper, about 5 inches square. At the signal, each player rips the paper, trying to make a five-pointed star. When 30 seconds are up, the judge calls time and everyone has to stop whether he is finished or not. The judge then inspects the stars for the best one.

### **BLAST OFF**

Cub Scouts sit in chairs scattered around the room. Each is given the name of a planet--Venus, Saturn, Jupiter, Earth, etc. One boy is picked to be Mission Control. He stands and says "Countdown" and starts walking around the room. He calls out the names of planets in a random order. When a Cub Scout hears the name of his planet, he gets up and walks behind Mission Control. When most of the Cub Scouts are out of their seats, Mission Control shouts, "Blast Off!" At this all Cub Scouts, those sitting and those following Mission Control, must find new seats. Last Cub Scout to find a seat is the new Mission Control.

### **FLYING SAUCERS AND SPACE PILOT RELAY**

You will need two paper plates per boy, markers and staplers. Each boy makes a flying saucer by stapling together two paper plates face to face. Decorate as desired. Divide den into two groups, lining up in single file about 15 feet from the target (cardboard boxes with 3 foot diameter circle). First boy tosses flying saucer at the target; if he misses, he must retrieve it and run back to the blast off line before tossing it again. First group to successfully launch all flying saucers is the winner, or set a time limit.

### **METEORITES**

Four Cub Scouts armed with tin plates stand in the center of a large circle of boys. The four in the center are the spaceship. Those in the surrounding circle are meteorites. The meteorites, using four rubber balls, throw at the legs of the spaceship whose defense is a force fields (tin plates). Any successful meteorite changes places with the damaged part (boy who is hit) of the spaceship.

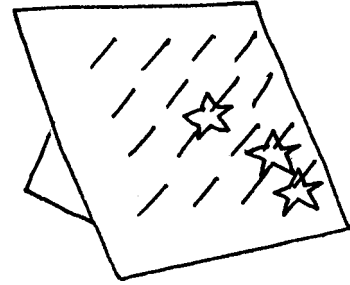
### **ENERGY RELAY**

Each relay team needs a pair of large canvas work gloves, a fruit jar with a lid and five very small finish nails. These are placed at the goal line. First player on each team rushes to the goal, puts on the gloves, empties the jar of nails, picks up the nails, puts them back in the jar again, puts the lid on, lays the gloves aside and hurries back to touch the next player.

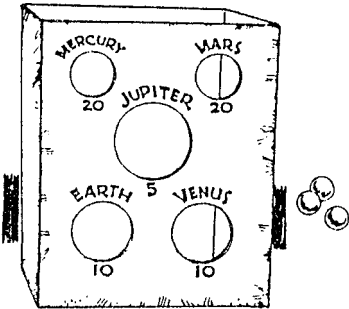
***BE ONE OF THE STARS AT THE DISTRICT ROUNDTABLE!***

## MAKE A CONSTELLATION

Toss wire stars onto hooks on a peg-board to form at least a five-starred constellation shape. Each person then chalks a connecting line to form an original constellation which he must name. Later the boys can make up stories for their “constellations.”



## PLANET TOSS

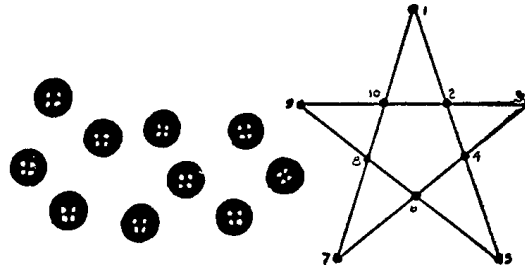


You will need a large cardboard box with 5 holes cut into it representing 5 planets and scores written beside each planet hole, and beanbags or small balls to use for tossing.

Players take turns tossing balls or beanbags and score their success as illustrated on the target box; Jupiter earns 5 points (it's a big hole); Mercury and Mars each earn 20 points because they are small; and Earth and Venus each earn 10 points.

## STAR PUZZLE

The player has ten buttons representing the planets and the sun. The object of the game is to see how many points and junctions you can cover with the buttons. To start, place a button on any point or junction, then move it in a straight line past one point or junction to the next. Take the next button and, starting at any empty point, move it in a straight line past one point or junction (either occupied or unoccupied) to the next vacant junction. Continue with the other buttons, following the same procedure. The last space may be filled without jumping.



## I PACKED MY SPACESHIP

The first player initiates the game by choosing an item to complete the phrase, “I packed my spaceship and in it I put a(n) \_\_\_\_\_.” For example, “I packed my spaceship and in it I put a water bottle.” The next Cub Scout continues the game by repeating what the first Cub Scout packed in the spaceship and adding something of his own: “I packed my spaceship and in it I put a water bottle and a tape recorder.” Each Cub Scout in turn repeats all the preceding items in order and then adds something of his own until it sounds something like, “I packed my spaceship and in it I put a water bottle, a tape recorder, a log book, a weighted pen (and so on).” Any Cub Scout who forgets an item or recites the list out of order is dropped from the game. The one who remembers the longest string of objects wins. (Those who drop out should be encouraged to cheer the survivors on.)

**THE FAMILY OF THE SUN**

(Tune: Farmer in the Dell)

The family of the Sun,  
The family of the Sun,  
Here are nine planets in  
The family of the Sun.

Mercury is hot,  
And Mercury is small.  
Mercury has no atmosphere  
It's just a rocky ball.

Venus has thick clouds,  
That hide what is below  
The air is foul, the ground is hot,  
It rotates very slow.

We love the Earth, our home,  
Its oceans and its trees  
We eat its food, we breathe its air,  
So no pollution, please.

Mars is very red  
It's also dry and cold  
Someday you might visit Mars  
If you are really bold.

Great Jupiter is big,  
We've studied it a lot.  
We found that it has 16 moons  
And a bit red spot.

Saturn has great rings  
We wondered what they were  
Now we know they're icy rocks  
Which we saw as a blur.

Uranus and Neptune  
We don't know much about  
Maybe you will study them  
And then we'll all find out.

Pluto's last in line  
It's farthest from the Sun  
It's small and cold and icy too  
To land there won't be fun

**THE FAMILY OF THE SUN (cont.)**

The family of the Sun  
The family of the Sun  
There are nine planets and  
Now our journey's done.

**THE PLANETS GO SPINNING**

(Tune: Ants Go Marching...)

The planets revolve around the sun, Hurrah,  
Hurrah!

The planets revolve around the sun, Hurrah,  
Hurrah!

The planets revolve around the sun,  
And spin on their axis everyone,  
And they all go spinning  
Around and around they go.

Mercury, Venus, Earth & Mars, Hurrah,  
Hurrah!

Mercury, Venus, Earth & Mars, Hurrah,  
Hurrah!

Mercury, Venus, Earth & Mars,  
All whirling and twirling among the stars,  
And they all go spinning,  
Around and around they go.

Jupiter, Saturn are next in line, Hurrah,  
Hurrah!

Jupiter, Saturn are next in line, Hurrah,  
Hurrah!

Jupiter, Saturn are next in line  
Uranus, Neptune and Pluto make nine,  
And they all go spinning,  
Around and around they go.

**TWINKLE, TWINKLE, LITTLE STAR  
(PARODY)**

Starkle, starkle little twink  
How I wonder what you think!  
Up above the world so high,  
Think you own the whole darn sky?  
Starkle, starkle little twink.  
You're not so great  
That's what I think!

## SOLAR SYSTEM "SALAD"

Well, this "salad" isn't quite for eating. Neither is it a game nor a craft project. Its purpose is to show the relative sizes of the planets in our solar system.

For the lack of categories, we decided to put this in the craft section. The boys will enjoy creating their solar system outside. (Be careful in a grassy area. You don't want to lose your "planets" in the grass!) Have the boys bring the ingredients to the den meeting.

- Mercury: A green pea
- Venus: A round unshelled walnut
- Earth: A small onion, close to the size of the walnut. (For the moon, half of a dry lentil bean)
- Mars: A plump, red cherry.
- Jupiter: A 9" head of lettuce
- Saturn: A grapefruit
- Uranus: A 8" cabbage
- Neptune: A big orange
- Pluto: A peppercorn

The Sun is too big to put into this salad! If you put it in this equation, it would be as big as an apartment building!

You can lay the salad out in the same relationship that the real planets are in, too. But you will need some room to do it! The universe is a pretty big place, even when you scale it way, way down!

### How it's done

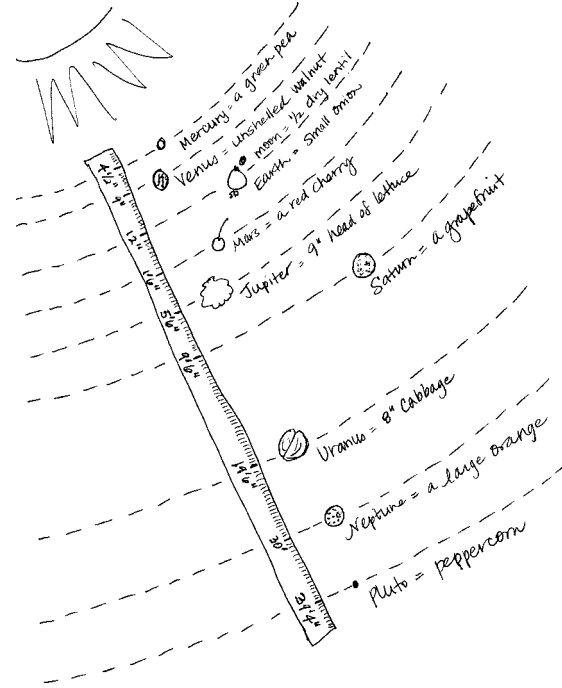
In the real solar system, Earth is over 92 million miles from the sun. (Whew! Quite a trip!) Let's call that distance our basic unit of measurement, and represent it by one foot. Then, put the other planets in relation to the sun and Earth.

If the distance from the Earth to the Sun is one foot, then:

- Mercury would be about 4 1/2 inches from the sun.
- Venus would be 9 inches.
- Earth would be 1 foot.
- Mars would be a foot and a half.
- Jupiter would be 5' 6".
- Saturn would be 9' 6".
- Uranus would be 19' 6".
- Neptune would be 30'.
- Pluto would be 39' 4"!

Now that you know the locations of the planets, have the boys stand there, holding up the planets. It's a bit crowded near the sun so stagger the boys. If you are doing this in a large enough area, have the boys walk in the orbits of their planets.

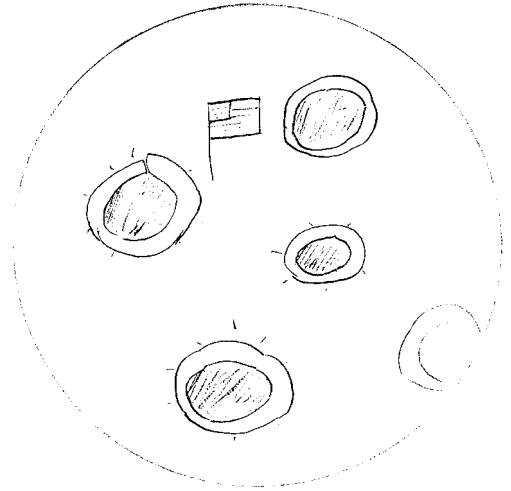
If you don't have a big enough area, convert the measurements to a one-inch scale.



## MOON WITH CRATERS

You will need: Thick paper plate. Heavy-duty aluminum foil. Various sizes of macaroni noodles. Black permanent marker. U.S. flag on toothpick (optional).

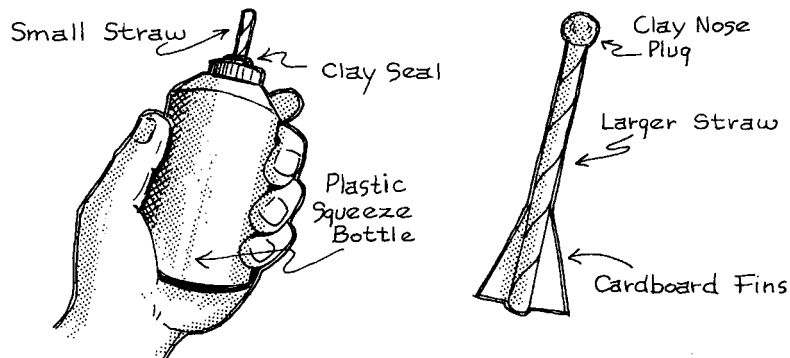
1. On the back side of the paper plate, glue macaronis in circles. Vary the size of the circles. They are craters.
2. When you finish “designing” the surface of the moon, cover it with the foil. Press around and inside the craters.
4. Color bottom of the craters with a black marker. You can draw other moon landscape too. Plant a U.S. flag, if you want.
5. Attach a loop of string to the back of the moon and hang it on the wall.



## BOTTLE ROCKET

You will need: Small plastic straw. Larger plastic straw. Soft plastic squeeze bottle with a screw cap (e.g. water bottle, dishwashing liquid bottle). Thin cardboard. Modeling clay. Glue. Scissors.

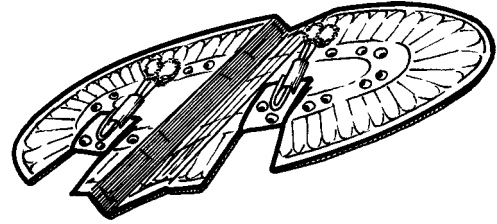
1. Make a hole in the bottle cap just wide enough to slide the small straw through. (Use a hammer and nail.)
2. Fit the smaller straw through the hole, leaving about 4 inches sticking out of the cap. Seal with clay.
3. Cut the larger straw to about 4 inches in length. Seal one end with a clay “nose cone.” (You can use an eraser that fits on the end of a pencil.)
4. Use the cardboard to cut fins for your straw rocket.
5. Glue the fins to the unplugged end.
6. Slide the straw “rocket” over the smaller straw “launcher.” Give the plastic bottle a quick, strong squeeze.



See Cub Scout Leader How-to Book for “Make a Star Umbrella” (pages 8-21 to 22)

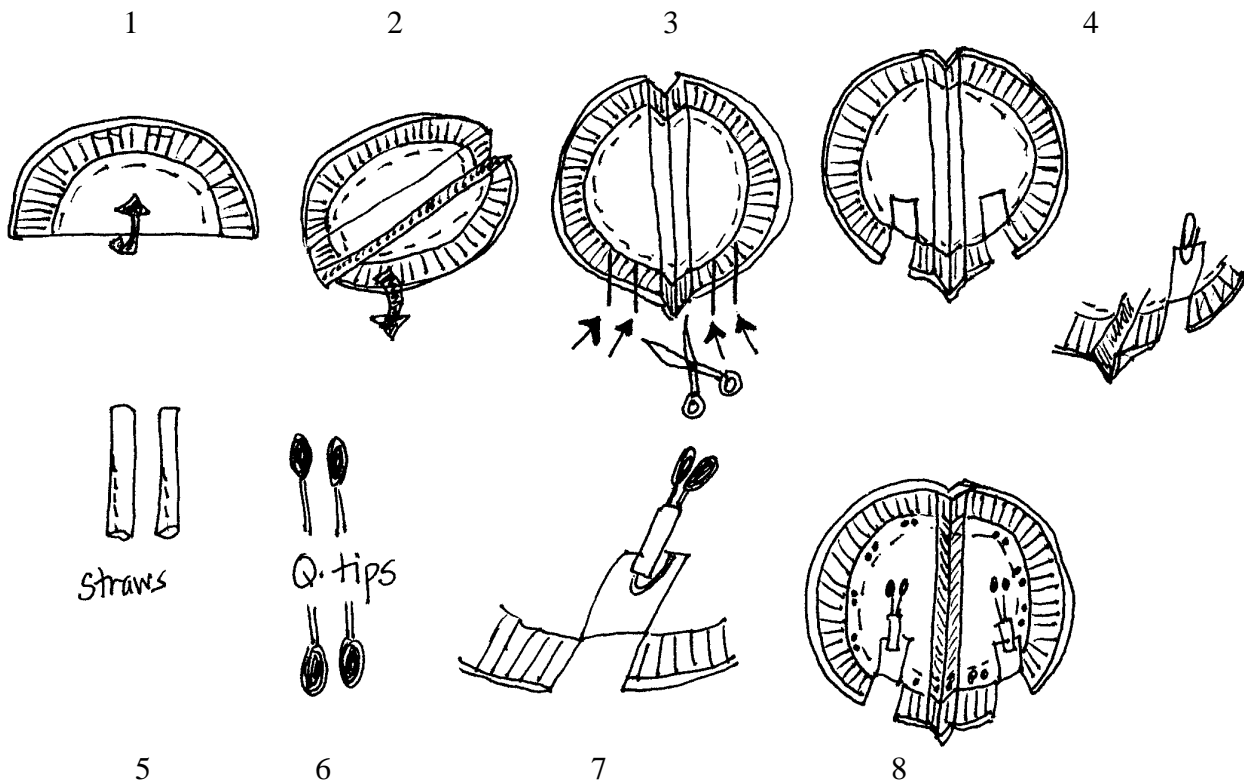
**PAPER PLATE ALIEN SPACESHIP**

You will need: Thin paper plate. Two jumbo paper clips.  
Two 1 1/2" drinking straw pieces. Two cotton swabs.  
Black marker. Ruler. Pencil. Scissors. Tape.



1. Fold the paper plate in half. The ridges or design should be on the inside.
2. On each side, measure out 1/2" from the fold, then lightly draw a line along this mark. Fold each side down along these sketched lines to create wings.
3. At one edge (it will be the front edge), measure 1 1/2" from each side of the center crease. Starting there, cut two 1"-long lines on each side as shown. Lines should be 1" apart from each other.
4. Lift up the front flaps and attach a jumbo paper clip to the top of each flap. Place a 2" piece of tape on the back of each flap, securing it to the base.
5. Taking the two straw pieces, cut a slit halfway into each straw through both sides. Slide each straw (cut-side first) onto the paper clip and push it down until it fits snugly. Use a small piece of tape to secure the straw.
6. Cut two cotton swabs in half. Using a black marker, color big round eyeballs on all four cotton tips.
7. Slide two cotton swabs into each straw at the top and push down until they fit snugly. Position one slightly higher than the other.
8. Using your black marker, decorate your spaceship with more eyes looking in different directions.

To fly: Grasp the underside of the craft in the middle. Hold above your shoulder and toss out gently in a straight pitch launch for a smooth glide.

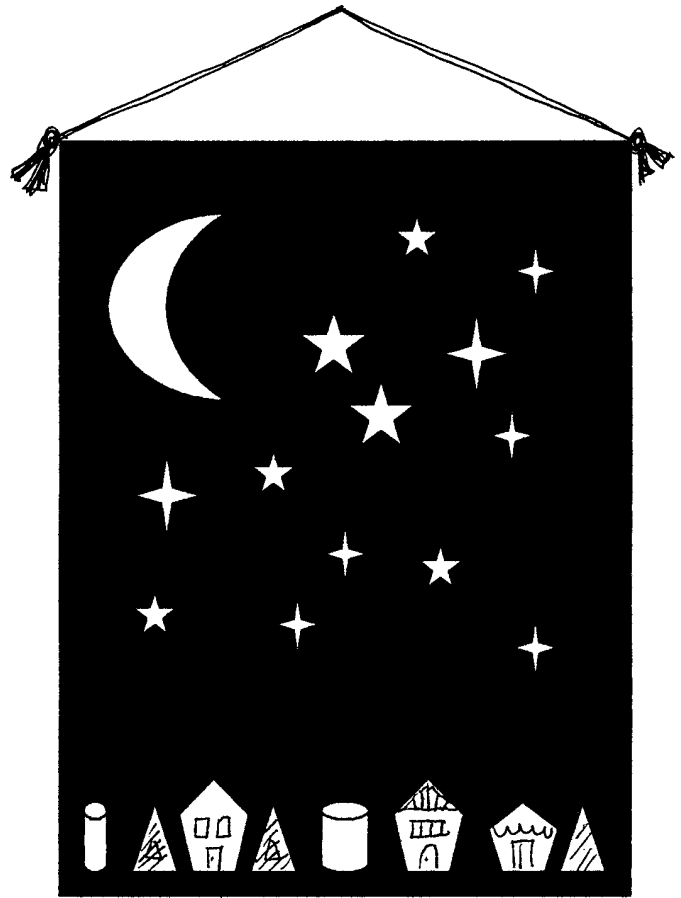


## GLOW-IN-THE-DARK SPACE-SCENE BANNERS

You will need: Black paper. Chalk.  
 Black fabric the size of your liking.  
 Fluorescent fabric paints. Newspaper.  
 Fabric Glue. String. Two small  
 dowels, longer than the width of the  
 banner.

Note: Ask your den parents for fabric  
 paints. Many parents have left-over  
 fabric paints.

1. Cover the work surface with newspaper. Have paper towels and rags handy. Boys should be wearing old shirts.
2. Draw your design on black paper, using chalk. Copy the design onto the fabric with chalk.
3. Go over the outline of the design with fluorescent paints. Fill in any details. Squeeze the tubes very gently so that the paint comes out slowly. Start from the center and work towards the edges. Let the paint dry.
4. If you want, add wiggle eyes, sequins, or sparkles. To stick eyes on, put blobs of paint on the fabric and press the eyes into the paint.
5. When the paint is dry (at the following den meeting), brush the chalk marks off the fabric.
6. To make the banner, turn the sides of the fabric under by about 1/2". Stick them down with fabric glue. Lay the fabric face down and put one dowel near the top edge.
5. Roll the fabric around the dowel, and glue it down firmly with fabric glue. Optionally, glue the second dowel to the bottom edge of the banner.
6. When the glue is dry, cut a piece of string a little longer than the width of the banner. Tie the ends to the top dowel. Hang the banner up, turn out the lights and watch it glow. The paints will glow for up to twenty minutes in the dark. To make them glow again just turn on the light for a few seconds.



Take the banner to the pack meeting for display. Turn off the room light briefly so the audience can see the designs glow.

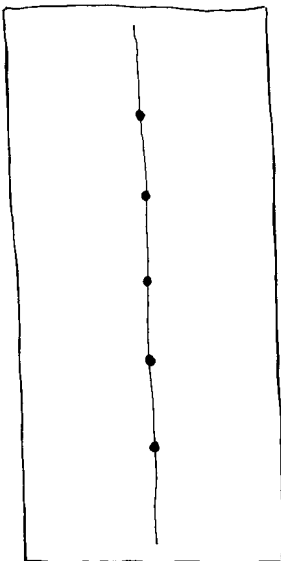
## STAR MAGNITUDE GAUGE

The brightness of stars is measured by magnitude. The lower the magnitude, the brighter the star. This device will tell you the magnitude of a star.

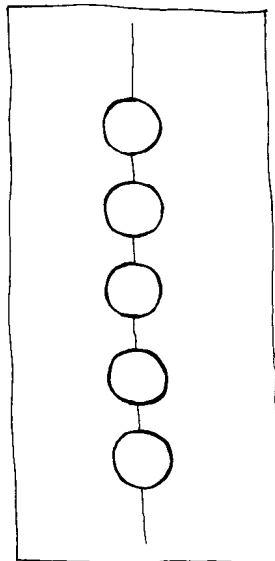
You will need: A piece of cardboard or poster board about 10 by 4 inches. Clear cellophane (Save from outside wrapping of packages). Sequins, puffy paint, small buttons or other small flat objects to make dots.

1. Draw a line down the middle of the cardboard. Put a large dot halfway down the line. Put two other dots below and two above the center dot, all on the line and all about 1 1/2 inches from each other. (Figure 1)
2. Place the coin over one of the dots so that the dot is in the center of the coin. Trace around the coin to make a circle. Do this for each of the five dots.
3. Cut out the circles. You can do this by punching little holes with a nail along the outline of the circle. You should have five holes going down the center of the card. (Figure 2)
4. Decorate the card with paint or markers.
5. Tape a piece of cellophane over all five holes on the undecorated side.. Stretch it tight so there are no wrinkles.
6. Now, cover only the top four holes with cellophane (Figure 3). Next cover top three holes. Cover top two holes. Cover only the top hole. All five holes should now be covered with cellophane in layers going from one at the bottom to five at the top.
7. Glue sequins, buttons, beads or other counters next to the holes on the decorated side. The hole with one layer of cellophane should have five sequins next to it. The hole with two layers should have four, etc. The hole with five layers should have one dot next to it.
8. To use the star magnitude gauge: Go outside on a clear night. Look at a star through the one dot hole (magnitude 1). If you can't see the star, try to look at the star through the two dot hole (magnitude 2). Keep moving until you can see the star. Whichever hole lets you see the star will tell you roughly the magnitude or brightness of that star.

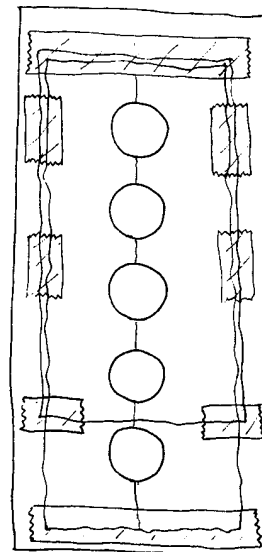
Take this gauge to the pack star gazing party. (NEVER look at the sun through this gauge.)



*Figure 1*



*Figure 2*



*Figure 3*



## SPACE SHUTTLE

The first space shuttle was launched on April 12, 1981, from Cape Canaveral, Florida. The four space shuttles were named for famous oceangoing ships: Columbia, Challenger, Discovery, and Atlantis. In 1991, the United States replaced the Challenger (which crashed in 1986) with the new Endeavor.

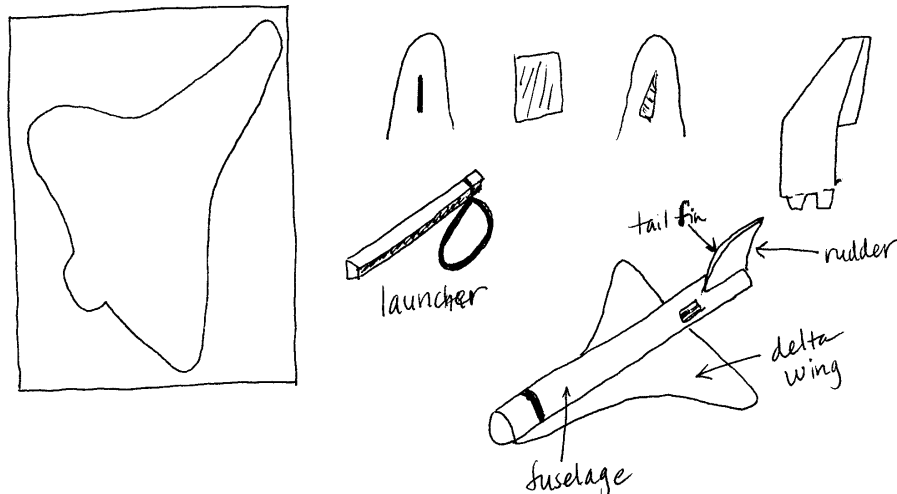
The space shuttle has a mass of 97.5 tons, is 121 feet long (its fuel tank is 154 feet) and must travel at 7 miles per second to get into orbit. It is designed for at least 100 space flights.

You will need: 1 paper towel tube. Meat tray as long as the tube (ask at the meat counter). 1 Ping-Pong ball. Wooden dowel. 1 large rubber band. Scrap balsa wood or thick cardboard. Thin cardboard.

1. Glue the ping-pong ball inside one end of the tube (fuselage) so that one half of it is visible.
2. Cover the fuselage with white paper.
3. Draw the delta wing shape onto the meat tray. The wings should be the same length as the shuttle fuselage. Smooth the edges of the wings with the sandpaper.
4. Glue the wings to the fuselage.
5. Cut out the tail fin shape from thin cardboard, as shown. Score and fold along the lines on the base of the fin and the rudder.
6. Make a 1 1/2" slit through the fuselage at the tail end and slot the tail fin gently into it. Glue the flaps at the base of the tail fin inside the fuselage.
7. Cut out the shape of the launching hook from balsa wood or thick cardboard, as shown. Carefully cut a slit in the underside of the fuselage, a short distance from the nose. Glue the hook, as shown.
8. Cut a length of wooden dowel and tie the rubber band to one end to form the launcher.
9. Decorate your model with markers and colored tape so that it looks like a space shuttle.

(Your shuttle may look slightly different from the pictures below because of some simplification of the instructions. This should not make any difference in launching the craft.)

Use the launcher to fly your space shuttle. Loop the rubber band over the hook under the nose. Hold the launcher in one hand and the shuttle firmly in the other. Stretch the rubber band and tilt the shuttle upward slightly, then release it. Always launch your shuttle outside and away from people.



## ANOTHER SPACE SHUTTLE LAUNCHER

This is a Webelos project. Tie this with the Scientist activities. Be prepared to get WET

A space shuttle is helped into orbit by two powerful rocket engines, which separate from the shuttle at a height of about 30 miles and parachute back to Earth.

You will need: The space shuttle model made in the previous project. Paper clip. Plastic bottle. Two paper towel tubes. Cardboard. Small air valve. Rubber stopper. Bicycle pump.

1. Following the illustrations, decorate the tubes and bottle with cardboard and markers..
2. Bend the paper clip to form an L-shaped hook on which to hang the shuttle.
3. Position the tubes on either side of the bottle, then hold the hook about halfway up the bottle. Tape around the tubes, bottle, and hook.
4. Make a hole through the rubber stopper, using a bradawl. (Ask for an adult to help). Push the air valve through the hole until the tip is visible at the narrow end of the stopper. Hang the shuttle from the hook and stand the model outside.
5. Now, to fly: Half fill the bottle with water and push the stopper into the neck. Attach the bicycle pump to the valve. As you pump air into the bottle, the pressure will increase until it is great enough to push the stopper out of the neck. Air will rush out of the bottle, pushing the water out at high speed. This will produce an upward thrust that will launch the rocket high into the sky. The shuttle will come away from the hook as the bottle begins to fall. It should glide down separately from the rocket.

**BE VERY CAREFUL!** This rocket is very powerful. Always supervise the boys. Never stand over it as you pump it up.

### INSTANT "TELESCOPE"

The first reflecting telescope like this was made by Isaac Newton in the mid-17th century. You will need: A shaving mirror. A small, flat mirror. A magnifying glass.

1. Stand the shaving mirror by a window pointing toward the stars or the moon.
2. Hold the flat mirror so you can see a reflection of the shaving mirror in the middle.
3. Look at the reflection in the flat mirror using the magnifying glass. The stars or moon will look much nearer through the glass lens.

Warning: NEVER look directly at the sun (especially through lenses or telescopes). You will damage your eyes.

### STAR PHOTO EASEL

You will need: Heavy colored paper. Burnt wooden matches (two sizes). Glitter.

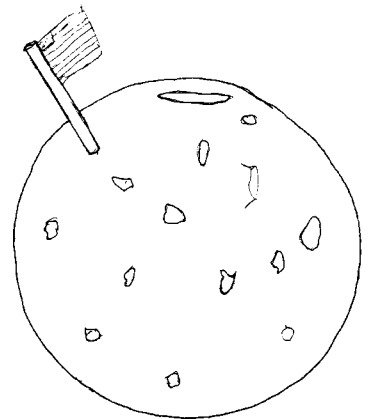
1. From heavy paper, cut out the shape, as shown. The star itself is 7" high.
2. Cut around the top point and then fold on dotted lines for easel.
3. Glue 5 matches on each pointed section - 2 large matches on the outside edges and 3 smaller matches between. Point the burnt ends toward the outside.
4. Glue glitter on the pointed section.
5. Glue picture in center of frame.



### MOON NECKERCHIEF SLIDE

You will need: One medium styrofoam ball. One American flag on a toothpick. Potato peeler. Ivory Flakes detergent. Gray tempera paint. Glue.

1. Cut a hole through the styrofoam ball, approximately 1/2" diameter, so that a neckerchief could slide through.
2. Mix the detergent, paint and glue together with water to form a paste. Cover the ball with the mixture to make it look like the moon. (Don't forget the craters.)
3. Put a little glue on the end of the toothpick and push it part way into the ball. Set aside to dry.



**MILKY WAY SHAKES**

1 cup cold milk  
2 tablespoons Jell-O Gelatin, any flavor except lemon

1. Pour milk into shaker (1-quart container with a tight lid).
2. Sprinkle gelatin over milk. Put lid on shaker very tightly.
3. Shake very hard for at least 1 minute. Be sure to hold the lid of the shaker tightly. Open shaker. Pour into glass. Drink right away.

Makes 1 serving.

**METEORITE**

(Known as Chocolate Popcorn in some galaxies)

1 1/2 cups sugar  
2 ounces unsweetened chocolate  
1/2 cup light corn syrup  
1 cup water  
4 quarts popped popcorn

1. Combine sugar, chocolate, corn syrup and water in large saucepan; mix well.
2. Cook to 300 to 310 degrees on candy thermometer, hard-crack stage.
3. Pour over popcorn in bowl, tossing to coat.

Makes 4 to 6 servings.

**TOMORROW BARS**

(Great for space travel)

1 cup butter	1 teaspoon vanilla extract
3 ounces unsweetened chocolate	2 to 2 1/2 cups finely grated coconut
2 cups flour	1 (8-ounce) milk chocolate candy bar with almonds
1 cup packed brown sugar	2 teaspoons margarine
1 (14-ounce) can sweetened condensed milk	

Melt butter and baking chocolate in saucepan over low heat. Mix flour and brown sugar in bowl. Add chocolate mixture; mix well. Pat into 10 x 15-inch baking pan. Bake at 350 degrees for 15 minutes. Spread mixture of condensed milk, vanilla and coconut over top. Bake for 18 minutes longer. Cool. Melt candy bar with margarine in saucepan over low heat. Spread over coconut layer. Cut into bars.

Makes 3 dozen bars.