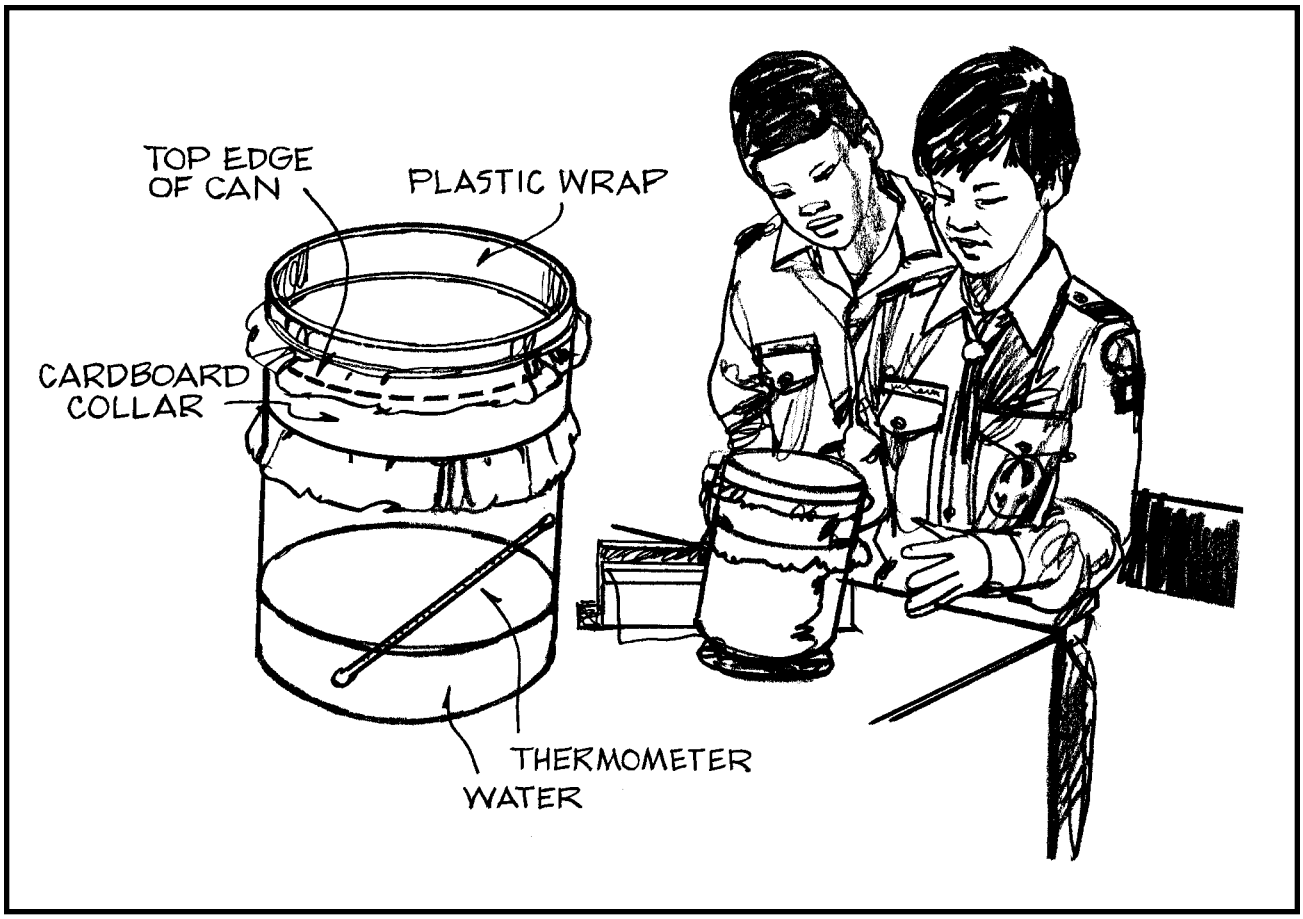
SCIENCE



Science is a method of learning about the world by observation, study, and experimentation. We might say that Scouting is a science because that's the way Scouts learn.

In this program feature we will explore two scientific subjects, weather and energy. During troop meetings, Scouts will discover how to use weather signs. They will also learn about the importance of conserving energy sources.

Keep records of the weather this month and make periodic weather predictions. Also try some solar energy experiments or projects that might be used on a campout.

The big event will be a weather bivouac. Ask patrols to predict the weather for the bivouac as the date draws near. The highlight of the bivouac will be an adventure obstacle trail with problems patrols might have to solve during a hurricane.

SCOUTING OUTCOMES

This month's patrol and troop activities should give your Scouts

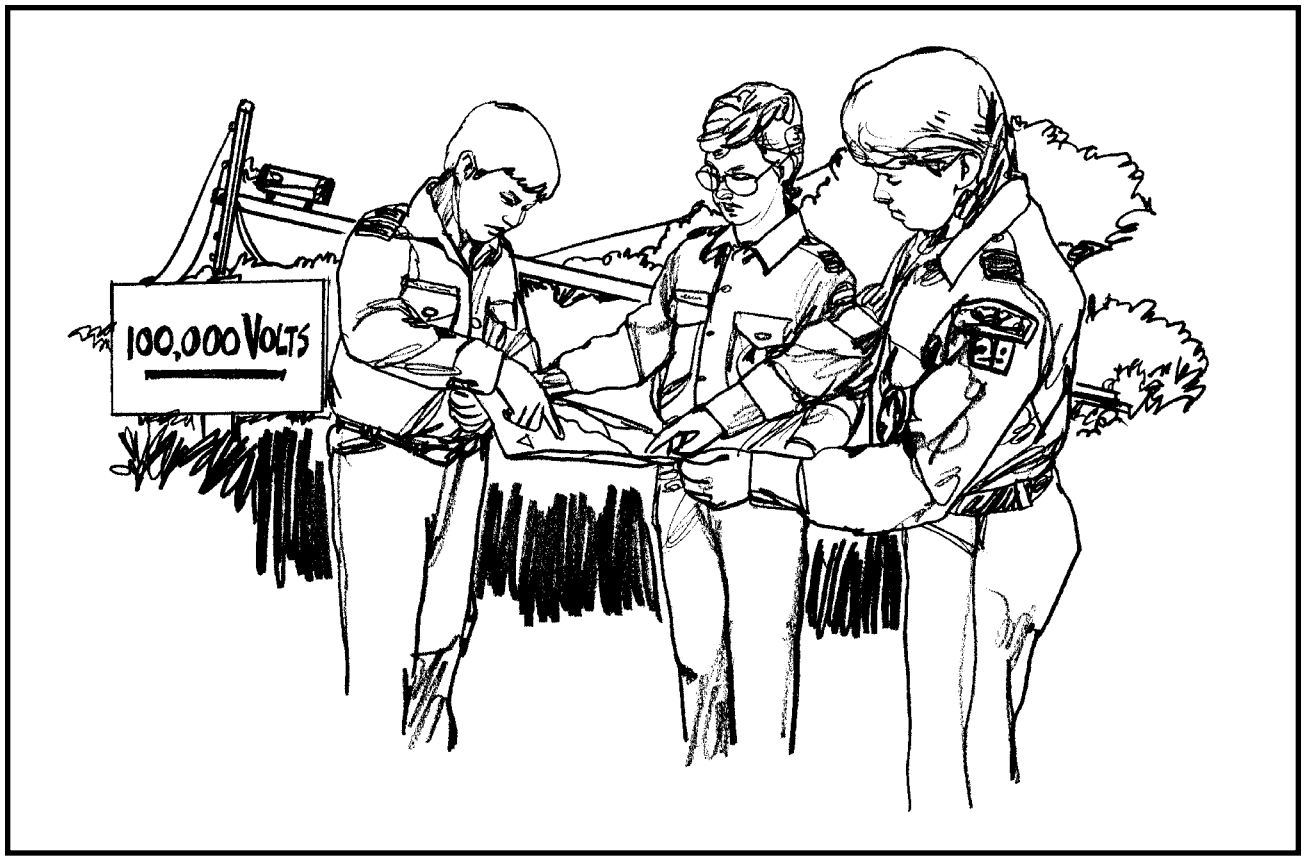
- An appreciation of the wonders of nature and possibly a greater feeling of closeness to God
- A better understanding of how pollution affects the natural world and how Scouts can help to stop it
- A strengthened resolve to do their "duty to country" through good conservation practices
- Increased self-confidence
- Basic knowledge for predicting weather

ADVANCEMENT OPPORTUNITIES

By month's end, all Scouts should meet many of their basic camping and cooking requirements through First Class rank. Depending on the campout activities, they may also complete all or part of the following rank requirements:

Tenderfoot

- Outdoor—cooking, camping, hiking, nature
- Citizenship—flag ceremonies
- Patrol/troop participation—patrol identification
- Personal development—Scout Oath and Law



Second Class

- Outdoor—cooking, camping, hiking, nature
- Citizenship—flag ceremonies, Good Turn
- Patrol/troop participation—patrol identification
- Personal development—Scout Oath and Law

First Class

- Outdoor—cooking, camping, hiking, nature
- Citizenship—flag ceremonies
- Patrol/troop participation—patrol identification
- Personal development—Scout Oath and Law

Merit Badges. Older Scouts can concentrate on the Camping, Cooking, and Weather merit badges this month. Depending on activities during the campout, they may also cover requirements for the Hiking, Backpacking, and Wilderness Survival merit badges.

PARENT/GUARDIAN PARTICIPATION

The patrol leaders' council can involve parents in the program feature this month by

- Asking qualified people to assist with instruction for energy/weather skills
- Inviting parents on the campout
- Asking parents to provide transportation to the campout
- Having a family potluck dinner

PATROL LEADERS' COUNCIL

The patrol leaders' council should meet during the early part of the previous month to plan troop activities for this program feature. If you don't complete all items on the following agenda, continue planning at patrol leaders' council meetings after each troop meeting.

- Decide on the campsite for the weather bivouac campout. If permissions will be needed, assign someone to secure them.
- Plan the special activities for the campout. See the ideas on these pages. If special gear or tools will be needed, assign someone to obtain them. Seek help from the troop committee, if necessary.
- Review Leave No Trace camping skills in the *Fieldbook*.
- Plan details of troop meetings for the month. Assign patrol demonstrations, covering skills that will be needed for the campout activities.
- Plan activities for the campout.

FEATURE EVENT

Weather Bivouac

This weather-wise program feature should help you to answer the age-old question, "What's the weather going to be like?" When your Scouts become interested in weather forecasting, apprehension about thunderstorms gives way to understanding and a pleasant thrill of anticipation. You'll probably see a reluctance to postpone or cancel a hike or camping trip when the Scouts themselves have forecasted an approaching storm.

The Scouts will gain an understanding of weather and become more familiar with prevailing winds, cloud formations, rain, snow, sleet, frost, and other phenomena that determine the weather.

Make the bivouac a real demonstration of preparedness and a good camping experience for the Scouts by using only equipment that you can carry on your back. New Scouts will have an opportunity to work on basic camping and cooking skills, plus some nature-related skills. The other Scouts will be able to expand their skills in many areas.

Building a Solar Energy Box

Begin with a clean, empty tin can. A 1-pound coffee can works well. Pour about a cup of water in the can, place a thermometer in the water, and let the water absorb solar energy.

You will need two transparent windows about ½ inch apart on the can. One window can be made by covering the top of the can with clear plastic wrap. Hold the plastic in place with a rubber band.

For the second window, make a cardboard collar for the can by bending a 2-inch-wide cardboard strip into a ring the same diameter as the can. Let the ends of the strip overlap and glue or staple them together. Cover the top of this collar with a second piece of clear plastic held by a rubber band. Slip the collar down over the top of the covered can so that the two plastic surfaces are about ½ inch apart.

Insulate the can so that the energy it collects will not be lost during the experiments. Wrap the can in some sort of insulation material, such as house insulation, plastic foam, or even newspaper pieces crumpled into small balls. For some suggested experiments, see the *Energy* merit badge pamphlet.

Adventure Obstacle Trail

THE HURRICANE. The object is for patrols to get a report through to a headquarters point after encountering the kinds of obstacles that Scouts might meet during a hurricane. Sealed envelopes are given to each patrol leader, to be opened at a specific spot and time (a different place for each patrol). Each patrol should be advised beforehand to bring the equipment it thinks it will need in the event of emergency situations.

The sealed envelope contains the following message:

"All means of communication have been severed between this point and the central relief headquarters. Personnel is limited, and it is extremely urgent that they know the extent of the damage in this area. They need your help in rendering service to the homeless and injured.

This is not a race against time. Follow the marked trail on the map. Watch for special hazards and other conditions that should be noted and reported to headquarters. Watch especially for injured persons; give such aid as you can and be prepared to report on this. Certain situations will require answers that you will deliver to headquarters. Be alert, be prepared, and good luck!"

Also in the envelope is a map with the central relief headquarters indicated on it, the patrol's starting point, and the route the patrol is to follow.

Problems are set up by troop leaders, parents, and troop committee members. Troop leaders and others who set up problems should serve as judges and scorers at the various stations. Have people at each problem site acting as victims.

- A downed tree is blocking the main road (dead limb laid across trail, cardboard sign on trail, "U.S. 1"). Project: Cut and clear using safe axmanship.
- Main power line down at Dow Crossing, marked with card, "100,000 volts." Project: Note location and rope off or barricade the immediate area.
- Bridge washed out at Moose Ford. Several projects possible: Lash together a raft; build a monkey bridge or other type of bridge.
- Jones family homeless, cold, hungry. Project: Build a fire and serve canned soup.
- You have broken or lost your compass. Determine due north from this point.

- Determine the height of the dangerous, tall "chimney" (tree) that has been left standing at the destroyed factory. If it should fall in this direction, will the top hit the Henderson house (carton)?

Near the end of this obstacle trail, give the Scouts a test of memory and powers of observation. List a number of questions such as:

Did Mr. Jones wear glasses? How many volts of electricity did the downed power line carry? What color was the Henderson boy's coat? How far do you think you have traveled since leaving point X? What was the number of the highway blocked by the big tree? What's the name of the lashings you used in making the bridge at Moose Ford?

SCIENCE

TROOP MEETING PLAN

Date _____ Week 1

ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening _____ minutes	Set up a weather station to start recording weather conditions for the next 30 days. If you can leave it at your meeting location, assign someone to make a record each day for the next 30 days. Show new Scouts how to find directions, day or night. (See the *Boy Scout Handbook* and *Weather* merit badge pamphlet.)		
Opening Ceremony _____ minutes	• Form the troop. • Repeat the Scout Law; have 12 Scouts each define one point in their own words. • Present colors. • Repeat the Pledge of Allegiance.		
Skills Instruction _____ minutes	• New Scouts work on identifying plants and animals in the area *(Boy Scout Handbook)*. • Experienced Scouts learn types of clouds and ways to predict weather. • Older Scouts work on the Venture program or plan to build a solar reflector that could be used in camp to prepare meals or heat water, or for some other use. Make a list of materials needed. See the *Energy* merit badge pamphlet.		
Patrol Meetings _____ minutes	Discuss plans for the outing this month and make sure everyone knows what his assignments are and what to bring for the outing. Any Scouts who have not been camping will need extra help. All other patrols plan activities for the campout that will help them with advancement. Plan meals for the outing. If it is going to be an overnighter, begin to make plans for equipment distribution and tent needs.		
Interpatrol Activity _____ minutes	Play Inchworm. (See the Games section of *Troop Program Resources.**)		
Closing _____ minutes Total 90 minutes of meeting	• Assemble the troop. • Have a First Class Scout explain the Boy Scout badge. • Scoutmaster's Minute. • Retire colors.	SM	
After the Meeting	Patrol leaders' council reviews the next meeting and plans for the weather bivouac. Begin work on next month's program feature.		

**Troop Program Resources for Scout Troops and Varsity Teams,* Supply No. 33588

SCIENCE

TROOP MEETING PLAN

Date _____ Week 2

ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening _____ minutes			
Opening Ceremony _____ minutes			
Skills Instruction _____ minutes	• New Scouts work on basic first aid that might be needed in a problem-solving exercise for the outing. • Experienced Scouts make arrangements to go to an auto mechanics shop or have an engine brought in to learn the basics of an internal combustion engine and how it uses energy. • Older Scouts work on the Venture program or continue work on a solar reflector. Arrange for a tour of a local power plant for the entire troop.		
Patrol Meetings _____ minutes	Review assignments for the campout. First-time campers continue working on basic camping procedures. All other patrols continue to plan activities for advancement at the outing. Practice interpatrol activities.		
Interpatrol Activity _____ minutes	Do Human Ladder. (See the Games section of *Troop Program Resources.**)		
Closing _____ minutes Total 90 minutes of meeting	• Scoutmaster's Minute. • Retire colors.	SM	
After the Meeting	Patrol leaders' council reviews the next meeting. Continue work on next month's program feature.		

**Troop Program Resources for Scout Troops and Varsity Teams,* Supply No. 33588

SCIENCE

TROOP MEETING PLAN

Date _____ Week 3

ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening _____ minutes			
Opening Ceremony _____ minutes			
Skills Instruction _____ minutes	• New Scouts work on using woods tools and learn fire preparation. Demonstrate cooking fire lays. If you can do so at your meeting site, build several types of cooking fires and light them. • Experienced Scouts review lashings and other skills that might be needed in problem-solving for the weather bivouac. • Older Scouts work on the Venture program or plan several other problem-solving activities.		
Patrol Meetings _____ minutes	Finalize the menu for the outing and make sure everyone knows what he will need to bring. Review clothing and equipment needs and collect any necessary fees.		
Interpatrol Activity _____ minutes	Play Sloppy Camp. (See the Games section of *Troop Program Resources.**)		
Closing _____ minutes Total 90 minutes of meeting	• Scoutmaster's Minute. • Retire colors.	SM	
After the Meeting	Patrol leaders' council reviews the next meeting. Continue work on next month's program feature.		

**Troop Program Resources for Scout Troops and Varsity Teams,* Supply No. 33588

SCIENCE

TROOP MEETING PLAN

Date _____ Week 4

ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening _____ minutes			
Opening Ceremony _____ minutes			
Skills Instruction _____ minutes	• New Scouts come to the meeting with backpack packed if the troop has planned a campout. Review items needed for the campout. • Experienced Scouts review first-aid skills, particularly bandaging for broken bones and sprains, plus severe bleeding control. Summarize weather record keeping for weather station; make long-range forecast for campout. • Older Scouts work on the Venture program or finalize plans for a problem-solving trail on the campout. If that has been done, get a map of the area and plan a 1-mile nature trail.		
Patrol Meetings _____ minutes	Review plans and assignments for the campout. Make sure everyone knows the travel plans and equipment needs. Go over the patrol duty roster. Practice any interpatrol activities that will take place.		
Interpatrol Activity _____ minutes	Do Four-Way Tug-of-War. (See the Games section of *Troop Program Resources.**)		
Closing _____ minutes Total 90 minutes of meeting	• Scoutmaster's Minute. • Retire colors.	SM	
After the Meeting	Patrol leaders' council reviews the next meeting and checks last-minute details for the campout. Finalize work on next month's program feature.		

**Troop Program Resources for Scout Troops and Varsity Teams,* Supply No. 33588

SCIENCE

TROOP OUTDOOR PROGRAM PLAN

Date _____

TIME	ACTIVITY	RUN BY
Friday evening	Load gear at meeting location and leave for camping area. Plan only a light meal en route.	SPL
	Arrive at campsite. Off-load equipment and set up patrol sites.	SPL/PL
Saturday 6:30 A.M.	Cooks and assistants up. Prepare breakfast. (Cooks should be working on First and Second Class requirements.)	Cooks, assistants
7:00 A.M.	Everyone else up. Take care of personal hygiene, air tents, hang out sleeping bags.	
7:30 A.M.	Breakfast	
8:00 A.M.	Clean up.	Cooks
	Patrols put up the gear for morning activities, clean up patrol site.	
8:30–11:30 A.M.	Begin problem-solving trail.	SPL
11:30 A.M.	Sack lunch	
Noon	Continue problem-solving trail.	SPL
4:30 P.M.	Start dinner preparation.	Cooks
5:30 P.M.	Dinner	SPL
6:00 P.M.	Clean up.	Cooks
8:00 P.M.	Campfire	SPL
9:00 P.M.	Cracker barrel	
10:00 P.M.	Lights out	
Sunday 6:30 A.M.	Cooks and assistants up. Prepare breakfast. (Cooks should be working on First and Second Class requirements.)	Cooks, assistants
7:00 A.M.	Everyone else up. Take care of personal hygiene, air tents, hang out sleeping bags.	
7:30 A.M.	Breakfast	
8:00 A.M.	Clean up.	Cooks
	Patrols put up the gear for morning activities, clean up patrol site.	
8:30 A.M.	Worship service	

TIME	ACTIVITY	RUN BY
9:00–11:00 A.M.	Patrol games—Use four games from the Games section of *Troop Program Resources.**	
11:00 A.M.	Break camp.	
Special equipment needed	Cameras, pens, gear needed for problem-solving trail, troop camping equipment	

**Troop Program Resources for Scout Troops and Varsity Teams,* Supply No. 33588