



An Adventure Underground

Beneath the earth's surface lies a magnificent realm darker than a moonless night. No rain falls. No storms rage. The seasons never change. Other than the ripple of hidden streams and the occasional splash of dripping water, this underground world is silent. Yet it is not without life. Bats fly with sure reckoning through mazes of tunnels, and otherworldly fish swim through unseen rivers. This is the world of the cave—as beautiful, alien, and remote as the glaciated crests of lofty mountains. Just as climbers are tempted by summits that rise far above familiar ground, cavers are drawn into a subterranean wilderness every bit as exciting and remarkable as any place warmed by the rays of the sun.

This month's meetings and activities will take you into this hidden world. Whether you tour a show cave or explore a wild cave, you will come to appreciate a part of the earth that most people will never experience.

Objectives

This month's activities should:

- Teach Scouts the safety rules for caving.
- Help Scouts understand white nose fungus and how to avoid spreading it.
- Demonstrate proper clothing for caving.
- Help Scouts understand the importance of a caving expert.
- Teach Scouts proper caving techniques.
- Enable Scouts to practice good caving ethics.

RELATED ADVANCEMENT AND AWARDS

- Exploration and Geology merit badges
- Ranger: Cave Exploration elective



Leadership Planning

As a leadership team, you may want to discuss the following items during your planning meetings when choosing caving as your program feature.

1. How do we locate a caving expert?
2. What is our group's previous experience and skill level?
3. Which nearby caves are appropriate destinations based on our skill level?
4. How are we going to practice outdoor ethics?
5. How will we acquire needed equipment?
6. What advancement opportunities are available with this activity?
7. Will there be a cost for cave access?
8. Can we do a service project in conjunction with the activity?
9. To meet our needs, what should we change in the sample meeting plans?

PARENTS CAN HELP WITH THE CAVING PROGRAM FEATURE BY:

1. Helping to locate a caving expert
2. Assisting with transportation
3. Providing funding for the main event
4. Assisting with gear procurement and preparation
5. Chaperoning the main event
6. Maintaining current Youth Protection certification, which is required of all adults providing transportation for or participating in outings



WHAT IS A CAVE?

A cave is a naturally formed void located beneath the surface of the earth. By definition, it must have passages or rooms large enough to admit a human. By popular definition, it must be long enough for a caver to get out of the twilight and enter total darkness.

Most states have some “show caves”—caves with paid tours and knowledgeable guides, complete with lights and easy paths and stairways. If Scouts have no idea what a cave environment is like, the show cave is a good place to start. Some of them offer special “wild” tours for groups that want more of a muddy, crawling adventure. These commercial caves may have a different set of rules and standards that they have developed, and probably will charge modest fees.

SELECTING A CAVE GUIDE

The selection of an experienced cave guide is critical to a team's success and safety in cave exploration. The cave guide should have at least four of the following qualifications:

- Three years of continuous membership in the National Speleological Society (NSS)
- Three years of continuous membership in a grotto (the proper name for a cave club) sanctioned by the NSS
- Three years of experience in cave exploration, verifiable by trip log or grotto attestation
- Current certification in first aid and CPR
- Access to suitable caves
- Instruction in or exposure to cave rescue techniques

If you have trouble finding a cave guide, visit the NSS website for links to local grottos. You can also send a self-addressed, stamped envelope to the NSS at 6001 Pulaski Pike, Huntsville, AL 35810-1122, to request assistance in locating qualified cavers in your area.



Caving Techniques

The goals of every caving expedition are to get in and out of the cave safely, to enjoy yourself while you are underground, and to leave no trace of your visit. Meeting those objectives requires planning. Familiarize yourself with any rules or caving guidelines by contacting the agency responsible for managing that area. For example, there might be limitations on the size of groups allowed to go into a cave, and permits could be required. In addition, agency officials might be able to provide you with maps and suggestions for ways to enhance your experience.

Risks and Safety

Caves are the last place in the world to get hurt. There are often very difficult obstacles to get an immobilized person through. Cavers often say the strictest rule in caving is DON'T GET HURT. There are two types of rescues if someone does get hurt: 1) Self-rescue and 2) Rescue by rescuers. Type 1 is by far preferred. If you are hurt, getting yourself out of the cave is the best thing to do.

Before going into a cave, discuss what dangers there may be, how to avoid them, and what will be done if someone is injured. Order a copy of *American Caving Accidents* from the NSS and take turns reading some of the stories at a Scout meeting.

Caving safety concerns:

- Loose rocks can be knocked off on a person below. Care should always be taken not to do this. It has been said by cavers that the most dangerous thing in a cave is the other person, because of the possibility that he or she may knock a rock on another caver.
- Don't jump in a cave. Climb down slowly. Shadows can throw off your depth perception.
- Be certain of where you are in a cave and how to get back out. Sometimes it's necessary to leave a piece of flagging tape or some other indicator at a confusing junction for the trip out. Be sure to take it with you when you leave.
- Watch the weather. Some caves can flood to the ceiling. Err on the side of caution.
- Tell someone where you will be, what time to expect to hear from you, and how long they should wait if you are late calling before they should get concerned and call someone to check on you. (This is good practice for any backcountry trip.)
- Usually the only place a poisonous snake will be in a cave is at the entrance. Be extra cautious there. The first person in should poke a stick around in leaves and rocks and look for a snake.





Ethics

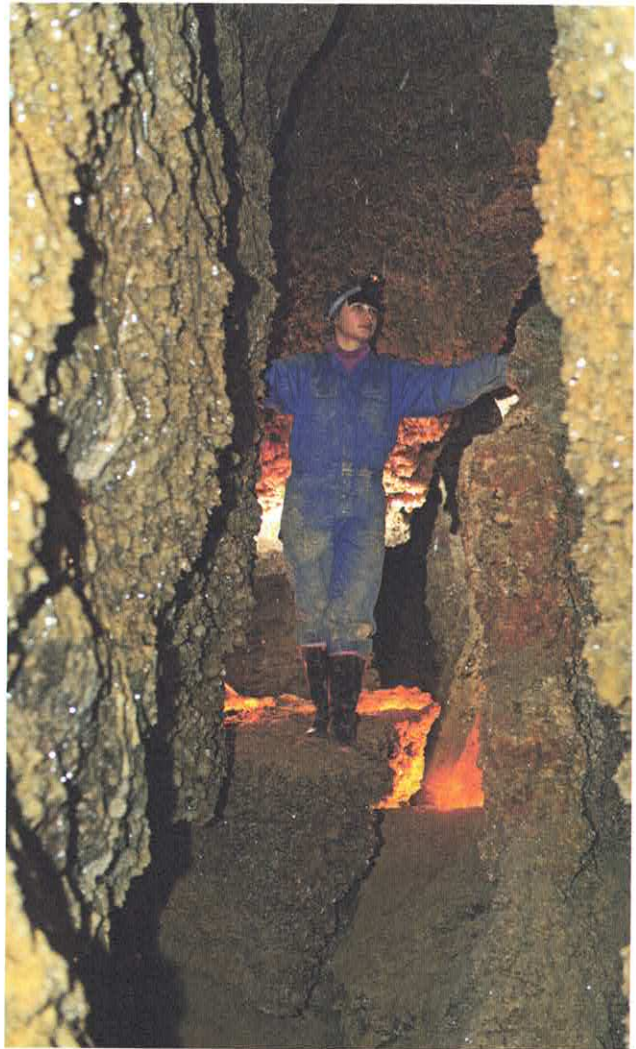
Cavers take very seriously their creed to take nothing but pictures, leave nothing but footprints, and kill nothing but time. Leave caves cleaner than you found them. Pick up other cavers' litter. Do no harm. Marvel at living organisms in caves, and take photos of them—but don't touch them.

Don't even leave crumbs or food scraps in a cave. Go to the bathroom before you go underground and do your best not to even urinate in the cave.

Some cavers have gone into caves that no one has entered since ancient people did. On some occasions ancient footprints are found. This attests to how timeless they are. The wind doesn't blow, the rain doesn't fall, and things stay the same for many, many years. Respect that and pride yourselves on treading gently in this marvelous world.

Caving ethical concerns:

- Never add to litter in a cave. Always remove some.
- Be gentle. Don't disturb anything. Leave it like you found it or better.
- Do your best to not leave human bodily waste in a cave. Go before you go.
- Never write on the walls. It's illegal to do so in most states.
- Leave cave wildlife alone. Take photos only.
- Never touch or break a cave formation (stalactite, stalagmite, drapery, bacon rind, helictite, etc.). They are ancient and should be left for others to enjoy. Damaging cave formations is illegal in most states.





CAVING GAMES

Stalactite and Stalagmite Contest

Equipment: For each group, a tray, two glass jars, a saucer, woolen thread, and baking soda

How to play: Place both jars on the tray. Fill the jars with hot water and dissolve as much baking soda as you can into each one. Place the jars in a warm place and put the saucer between them. Twist several strands of thread together before dipping the ends into the jars and letting the middle of the thread hang down above the saucer. (The ends can be weighed down with various small, heavy objects to keep them in the jars.) The two solutions should creep along the thread until they reach the middle and then drip down onto the saucer. Place the experiments in a place that can be undisturbed for the next week.

Scoring: Wait until the next week's preopening; then judge each entry on shape, size, and awesomeness. The best entry wins.

Notes: Discuss how stalactites and stalagmites are formed in caves. How long would that take?

Blindfold Battery Exchange

Equipment: For each player, a flashlight with extra batteries and a blindfold

How to play: The goal is to be able to replace batteries completely by touch in case of power failure. The flashlight and extra batteries are placed on a table in front of the blindfolded player. When directed to do so, each player races to be the first one to replace the batteries in his or her flashlight.

Scoring: The first player to finish wins.

Variations: This game can be played by groups or pairs. Players can also trade out lightbulbs instead of batteries.

Notes: If a completely dark room is available, the activity can be done without blindfolds.



Blindfold Maze

Equipment: Blindfolds

How to play: Divide into two or more groups, and have each group form a circle. Next, each member reaches across with their right hand and takes someone else's right hand. Then each group member does the same with their left hand, but they must take the left hand of a different person. On signal, two players (appointed beforehand) let go of their right hands only. No one else may let go. These two "loose ends" will attempt to straighten out the maze of hands into a straight line. Next, put on blindfolds and attempt to do the same thing.

Scoring: The group that makes a straight line first wins.

Notes: Discuss the difference between being blindfolded and not being blindfolded. Relate this to attempting tasks in a cave without light.

Crowded Circle

Equipment: A piece of chalk

How to play: Draw a circle on the floor about 6 feet in diameter. Have the players walk freely around the room. Turn the lights off for 10 seconds. In the darkness, all players must get inside the circle. When the lights come back on, everyone must freeze on the spot. All players found outside the circle are out of the game. The game resumes with shorter darkness periods, if necessary, until only one player remains in the circle.

Scoring: The last player in the circle wins.

Variations: 1) Instead of one circle, draw three circles on the floor and number them. When the lights go out, announce which circle should be used. 2) Make as many circles as there are teams. Assign each team a circle. In the darkness, members must find their team's circle.

Notes: If complete darkness is not available with the lights out, consider blindfolds. Follow up with a review about the experience of moving in the dark. Relate how that might apply in caves and why backup lights are important.



E.D.G.E. Ideas

Explain how it is done—Tell them.

Demonstrate the steps—Show them.

Guide learners as they practice—Watch them do it.

Enable them to succeed on their own—Have them practice/teach it.

EXPLAIN

- Define what a cave is.
- Explain the difference between developed and wild caves.
- Introduce the importance of using a caving expert.
- Discuss the issue of white nose fungus.
- Explain the dangers of vertical caving.

DEMONSTRATE

- Show videos of caving expeditions.
- Do a show-and-tell of caving equipment.
- Demonstrate how to use caving equipment.
- Show how to properly clean equipment.
- Demonstrate the process of mapping a cave.

GUIDE

- Do an activity to show how stalactites and stalagmites are formed.
- Play a game that involves changing flashlight batteries in the dark.
- Guide Scouts as they map their meeting place to simulate mapping a cave.
- Lead Scouts on a show cave tour to prepare them for a wild-cave excursion.

ENABLE

- Have experienced Scouts lead small groups during caving trips.
- During breaks on caving trips, have Scouts discuss how they are practicing outdoor ethics techniques.
- Gradually build up to more challenging caving excursions.
- Prepare Scouts for a lifetime of safely enjoying caves.

MAIN EVENT SUMMARIES

● ESSENTIAL	■ CHALLENGING	◆ ADVANCED
Day Activity	Overnight Activity	Overnight or Longer Activity
Commercial show cave visit—Visit a commercially operated show cave. These caves have developed pathways and lighting and are appropriate for youth under the age of 14.	Wild caving experience—Visit a wild cave—a cave in its natural state that has limited improvements or pathways. With an experienced, trained cave expert/guide, explore the cave. This type of caving experience is only appropriate for adults and youth 14 and older.	Vertical caving experience—Visit a cave that requires ropes, cables, ladders, or other climbing devices. Under the direction of a trained and experienced cave expert, choose a cave that matches the skill level of the group.



CAVING

Meeting Plan: How Caves Are Formed



Week 1 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Show caving videos or parts of a movie, such as <i>Cave of Forgotten Dreams</i> .		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law Uniform inspection		7 p.m.
Group Instruction 10 minutes	<ul style="list-style-type: none"> Learn about the National Speleological Society. Review BSA policies on caving from the <i>Guide to Safe Scouting</i>. Discuss courtesies dos and don'ts. 		7:10 p.m.
Skills Instruction 40 minutes	<ul style="list-style-type: none"> Discuss the different kinds of caves: solution, tectonic, lava, ice. Learn about stalactites and stalagmites and how they are formed. 		7:20 p.m.
	<ul style="list-style-type: none"> Review the above information. Learn about cave collapse and the difficulties in moving in wild caves. 		
	<ul style="list-style-type: none"> Review the above information. Discuss the dangers of vertical caves. Practice caving knots. 		
Breakout Groups 15 minutes	<ul style="list-style-type: none"> Work on individual skills. Begin planning for participation in the main event. 		8 p.m.
Game 10 minutes	Begin Stalactite and Stalagmite Contest (described earlier). Note that you need a place where you can leave the groups' setups to allow crystals to grow.		8:15 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.



CAVING

Meeting Plan: Caving Equipment



Week 2 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Judge the growth of the stalactites from the previous week, and determine which group has won.		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law		7 p.m.
Group Instruction 10 minutes	Discuss the importance of light sources in caves. Explain the importance of secondary light sources.		7:10 p.m.
Skills Instruction 40 minutes	Learn about light sources, helmets, proper clothing, and pads.		7:20 p.m.
	<ul style="list-style-type: none"> • Review the above information. • Discuss how to deal with food, water, and waste. • Discuss how to deal with water in underground lakes and rivers. 		
	<ul style="list-style-type: none"> • Review the above information. • Discuss vertical caving. • If available, compare the equipment used for rock climbing and caving. 		
Breakout Groups 15 minutes	<ul style="list-style-type: none"> • Review individual equipment needs for caving. • Continue planning for participation in the main event. 		8 p.m.
Game 10 minutes	Play Blindfold Battery Exchange (described earlier).		8:15 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.



CAVING

Meeting Plan: Caving Safety



Week 3 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Have early arrivers research caves within driving distance of your community. Have them research costs, difficulty, and other factors.		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law Uniform inspection		7 p.m.
Group Instruction 10 minutes	Have an experienced caver discuss the dangers of caving, emphasizing why it is important to avoid injury.		7:10 p.m.
Skills Instruction 40 minutes	Review cave maps. Learn terminology and symbols.		7:20 p.m.
	<ul style="list-style-type: none"> • Review the above information. • Examine advanced cave maps of famous caves. 		
	<ul style="list-style-type: none"> • Review the above information. • Learn how to map a cave. Practice by diagramming the building you meet in. 		
Breakout Groups 15 minutes	<ul style="list-style-type: none"> • Plan meals for the main event. • Work on individual advancement as needed. 		8 p.m.
Game 10 minutes	Play Blindfold Maze (described earlier).		8:15 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.



CAVING

Meeting Plan: Ethics and Caving Techniques



Week 4 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Play Last Piece of Trash: Place a pile of trash (roughly five pieces per Scout) in the middle of the room. Form two teams. Teams alternate sending one Scout forward to remove one, two, or three pieces of trash (whichever number the Scout chooses). The goal is for your team to remove the last piece of trash, so strategy is required.		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law		7 p.m.
Group Instruction 10 minutes	Discuss Leave No Trace principles as they relate to caves. Review cave ethics.		7:10 p.m.
Skills Instruction 40 minutes	<ul style="list-style-type: none"> • Discuss white nose fungus. • Learn how to decontaminate caving equipment to prevent the spread of the fungus. 		7:20 p.m.
	<ul style="list-style-type: none"> • Review the above information. • Review equipment for human waste management. 		
	<ul style="list-style-type: none"> • Review the above information. • Discuss how climbing protection can affect a cave. • Practice the placement of climbing protection that leaves no trace. 		
Breakout Groups 15 minutes	Finalize plans for participation in the main event.		8 p.m.
Game 10 minutes	Play Crowded Circle (described earlier).		8:15 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.



CAVING

Main Event: Commercial Show Cave Visit



Date _____

Logistics

Location: _____

Departure time: _____

Return time: _____

Duration of activity: Day

Budget: Completed _____ Approved _____

Camping: Duty roster _____ Menu _____

Transportation: Group _____ Self _____

Essential (Tier I)

Visit a commercially operated show cave. These caves have developed pathways and lighting and are appropriate for youth under the age of 14.

Equipment List

- Appropriate clothing for the temperature inside the cave
 - Helmets with chinstrap
 - Headlamps
 - Two additional light sources as backup
 - Lunch, either group or individual
 - Scout Basic Essentials (Review the list and take what you need.)
- Note:** Contact the cave you are going to visit for exact equipment needed.

Activity

- Find an appropriate commercial cave in your area.
- Contact a cave expert at that location to assist in your caving education.
- Meet and travel to the location.
- Follow the instructions of the cave operator.
- Enjoy the cave.
- If available, provide a service project for the cave owner.
- Practice outdoor ethics principles during your visit.
- Send a thank-you note to the cave expert and cave operator.

Safety

- Follow all instructions of the cave operator.
- Choose a cave that is well within the skill level of your group.
- Always use the buddy system.
- Two-deep adult leadership is required for all activities.

Notes

All caving, other than simple novice activities like excursions to commercially operated show caves, should be limited to adults and young people 14 and older.



CAVING

Main Event: Wild Caving Experience



Date _____

Logistics

Location: _____

Departure time: _____

Return time: _____

Duration of activity: Overnight

Budget: Completed _____ Approved _____

Camping: Duty roster _____ Menu _____

Transportation: Group _____ Self _____

Challenging (Tier II)

Visit a wild cave—a cave in its natural state that has limited improvements or pathways. With an experienced, trained cave expert/guide, explore the cave. This type of caving experience is only appropriate for adults and youth 14 and older.

Equipment List

- Appropriate clothing for the temperature inside the cave
 - Helmets with chinstrap
 - Headlamps
 - Two additional light sources as backup
 - Gloves, pads, and other appropriate protective gear
 - Camping gear, as appropriate
 - Food and menu for the outing
 - Scout Basic Essentials (Review the list and take what you need.)
- Note:** Follow the direction of your cave expert/guide for the exact needs of the cave you are going to visit.

Activity

- Find a cave expert.
- Learn and practice the appropriate caving skills.
- Under the direction of a guide, visit the cave.
- Always practice outdoor ethics, taking care not to damage cave formations.
- Never camp in a cave but rather find an appropriate location near the cave for multiday visits.
- Make a log of your visit to be used for future trips.
- Send a thank-you note to the cave expert and land owner.

Safety

- Follow all instructions of the cave expert and guide.
- Choose a cave that is well within the skill level of your group.
- Work in small groups.
- Always use the buddy system.
- Two-deep adult leadership is required for all activities.

Notes

Many commercial show caves offer wild cave experiences that take appropriately skilled participants into undeveloped parts of their caves. Contact the cave operator to learn what experiences are available. All caving, other than simple novice activities like excursions to commercially operated show caves, should be limited to adults and young people 14 and older.



CAVING

Main Event: Vertical Caving Experience



Date _____

Logistics

Location: _____

Departure time: _____

Return time: _____

Duration of activity: Overnight or longer

Budget: Completed _____ Approved _____

Camping: Duty roster _____ Menu _____

Transportation: Group _____ Self _____



Advanced (Tier III)

Visit a cave that requires ropes, cables, ladders, or other climbing devices. Under the direction of a trained and experienced cave expert, choose a cave that matches the skill level of the group. Only groups composed entirely of experienced cavers may visit caves requiring the use of ropes, cables, ladders, or other climbing devices.

Equipment List

- Appropriate clothing for the temperature inside the cave
 - Helmets with chinstrap
 - Headlamps
 - Two additional light sources as backup
 - Gloves, pads, and other appropriate protective gear
 - Camping gear, as appropriate
 - Food and menu for the outing
 - Scout Basic Essentials (Review the list and take what you need.)
- Note:** Follow the direction of your cave expert/guide for the exact needs of the cave you are going to visit, including climbing equipment.

Activity

- Find a cave expert.
- Learn and practice the appropriate caving skills.
- Under the direction of a guide, visit the cave.
- Always practice outdoor ethics, taking care not to damage cave formations.
- Never camp in a cave but rather find an appropriate location near the cave for multiday visits.
- Make a log of your visit to be used for future trips.
- Send a thank-you note to the cave expert and land owner.

Safety

- Follow all instructions of the cave expert and guide.
- Choose a cave that is well within the skill level of your group.
- Work in small groups.
- Always use the buddy system.
- Two-deep adult leadership is required for all activities.

Notes

Many commercial show caves offer wild cave experiences that take appropriately skilled participants into undeveloped parts of their caves. Contact the cave operator to learn what experiences are available. All caving, other than simple novice activities like excursions to commercially operated show caves, should be limited to adults and young people 14 and older.



RESOURCES AND REFERENCES

Books

Exploration and Geology merit badge pamphlets

Burger, Paul. *Cave Exploring: The Definitive Guide to Caving Technique, Safety, Gear, and Trip Leadership*. Falcon Guides, 2006.

Kosseff, Alex. *AMC Guide to Outdoor Leadership*, 2nd ed. Appalachian Mountain Club Books, 2010.

Rea, G. Thomas. *Caving Basics: A Comprehensive Guide for Beginning Cavers*, 3rd ed. National Speleological Society, 1992.

Sparrow, Andy. *Complete Caving Manual*. Crowood Press, 2010.

Websites

BSA Outdoor Ethics

Website: www.scouting.org/outdoor-programs/outdoor-ethics/

Cave Safely, Cave Softly

Website: https://filestore.scouting.org/filestore/pdf/Cave_Safely_Cave_Softly.pdf

Leave No Trace Center for Outdoor Ethics

Website: <http://lnt.org>

National Speleological Society

Website: https://caves.org/youth/bsa_caving.shtml

Related Program Features

Climbing and Rappelling, Nature and Environment, Outdoor Ethics, Sustainability

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