



**Cub Scout Pack \_\_\_\_\_**  
**\_\_\_\_\_ NOVA Program**  
**Workbook**

**Cub Name: \_\_\_\_\_**

**Cub Den: \_\_\_\_\_**

## Helpful Information

### Requirements

For video or TV watching requirements, some examples include—but are not limited to—shows found on PBS ("NOVA"), Discovery Channel, Science Channel, National Geographic Channel, TED Talks (online videos), and the History Channel. You may choose to watch a live performance or movie at a planetarium or science museum instead of watching a media production. You may watch online productions with your counselor's approval and under your parent's supervision.

For article reading, books on many topics may be found at your local library. Examples of magazines include but are not limited to Odyssey, KIDS DISCOVER, National Geographic Kids, Highlights, and OWL or owlkids.com.

### Scientific Method

The scientific method is a process for experimentation that is used to explore observations and answer questions. This method may be needed for some requirements throughout the NOVA program.

#### Steps of the Scientific Method

**Ask a Question:** The scientific method starts when you ask a question about something that you observe: How, What, When, Who, Which, Why, or Where?

**Do Background Research:** Rather than starting from scratch in putting together a plan for answering your question, you want to be a savvy scientist using library and Internet research to help you find the best way to do things and insure that you don't repeat mistakes from the past.

**Construct a Hypothesis:** A hypothesis is an educated guess about how things work. It is an attempt to answer your question with an explanation that can be tested. A good hypothesis allows you to then make a prediction:

"If \_\_\_[I do this] \_\_\_, then \_\_\_[this]\_\_\_ will happen."

State both your hypothesis and the resulting prediction you will be testing.

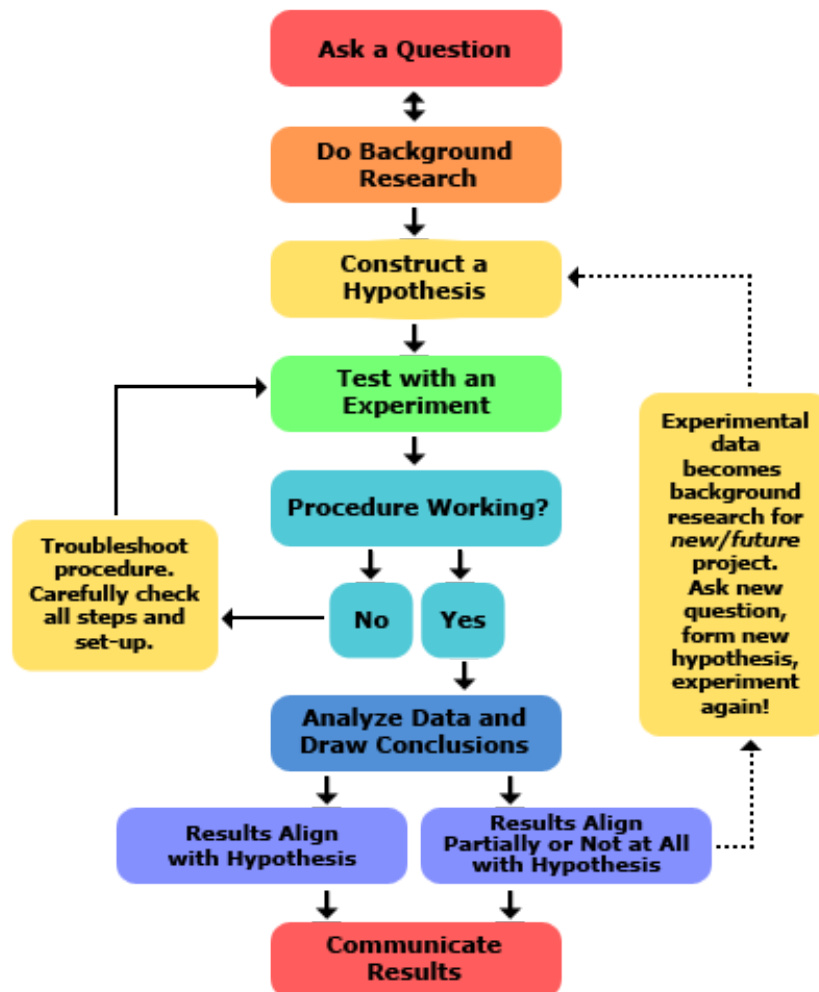
Predictions must be easy to measure.

**Test Your Hypothesis by Doing an Experiment:** Your experiment tests whether your prediction is accurate and thus your hypothesis is supported or not. It is important for your experiment to be a fair test. You conduct a fair test by making sure that you change only one factor at a time while keeping all other conditions the same.

You should also repeat your experiments several times to make sure that the first results weren't just an accident.

**Analyze Your Data and Draw a Conclusion:** Once your experiment is complete, you collect your measurements and analyze them to see if they support your hypothesis or not. Scientists often find that their predictions were not accurate and their hypothesis was not supported, and in such cases they will communicate the results of their experiment and then go back and construct a new hypothesis and prediction based on the information they learned during their experiment. This starts much of the process of the scientific method over again. Even if they find that their hypothesis was supported, they may want to test it again in a new way.

**Communicate Your Results:** To complete your science fair project you will communicate your results to others in a final report and/or a display board. Professional scientists do almost exactly the same thing by publishing their final report in a scientific journal or by presenting their results on a poster or during a talk at a scientific meeting. In a science fair, judges are interested in your findings regardless of whether or not they support your original hypothesis.



Source: [http://www.sciencebuddies.org/science-fair-projects/project\\_scientific\\_method.shtml](http://www.sciencebuddies.org/science-fair-projects/project_scientific_method.shtml)

# Science Everywhere

This module is designed to help you explore how science affects your life each day.



Target Completion Date: \_\_\_\_\_

## Requirement 1

Choose A or B or C and complete ALL the requirements.

- A. Watch an episode or episodes (about one hour total) of a show about anything related to science.
- B. Read (about one hour total) about anything related to science.
- C. Do a combination of reading and watching (about one hour total) about anything related to science.

1. Make a list of at least two questions or ideas from what you watched.
2. Discuss two of the questions or ideas with your counselor.

Title(s) Watched or Read: \_\_\_\_\_

Question 1: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Question 2: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Requirement 1 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 2**

Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts: Adventures in Coins, Collections and Hobbies, Digging in the Past, Germs Alive!, Grow Something

Bear Cub Scouts: A Bear Goes Fishing, Bear Picnic, Critter Care

Webelos: Camper, Earth Rocks!, Maestro!

Adventure you chose: \_\_\_\_\_

What kind of science, technology, engineering, or math was used in the adventure?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Requirement 2 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

**Requirement 3**

Act like a scientist! Explore EACH of the following:

A. With your counselor, choose a question you would like to investigate. Here are some examples only (you may get other ideas from your adventure activities):

1. Why do rockets have fins? Is there any connection between the feathers on arrows and fins on rockets?
2. Why do some cars have spoilers? How do spoilers work?
3. If there is a creek or stream in your neighborhood, where does it go? Does your stream flow to the Atlantic or the Pacific ocean?
4. Is the creek or stream in your neighborhood or park polluted?
5. What other activity can you think of that involves some kind of scientific questions or investigation?

What is your question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

B. With your counselor, use the scientific method/process to investigate your question. Keep records of your question, the information you found, how you investigated, and what you found out about your question.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Requirement 4**

Visit a place where science is being done, used, or explained, such as one of the following: zoo, aquarium, water treatment plant, observatory, science museum, weather station, fish hatchery, or any other location where science is being done, used, or explained.

A. During your visit, talk to someone in charge about science.

Location visited: \_\_\_\_\_

Date Visited: \_\_\_\_\_

What did you learn, what science was done?

---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---

B. Discuss with your counselor the science done, used, or explained at the place you visited.

Requirement 4 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date



**Requirement 5**

Discuss with your counselor how science affects your everyday life:

---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---

Requirement 5 Completed:

\_\_\_\_\_

\_\_\_\_\_

Counselor's OK

Date

# Down and Dirty

This module is designed to help you explore how earth science affects your life each day.



Target Completion Date: \_\_\_\_\_

## Requirement 1

Choose A or B or C and complete ALL the requirements.

- A. Watch an episode or episodes (about one hour total) of a show about Earth, the weather, geology, volcanoes, or oceanography.
- B. Read (about one hour total) about Earth, the weather, geology, volcanoes, or oceanography.
- C. Do a combination of reading and watching (about one hour total) about Earth, the weather, geology, volcanoes, or oceanography.

1. Make a list of at least two questions or ideas from what you watched.
2. Discuss two of the questions or ideas with your counselor.

Title(s) Watched or Read: \_\_\_\_\_

Question 1: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Question 2: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Requirement 1 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 2**

Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts: Collections and Hobbies, Digging in the Past, Grow Something

Bear Cub Scouts: Critter Care, Super Science

Webelos Scouts: Adventures in Science, Earth Rocks

Adventure you chose: \_\_\_\_\_

What kind of science, technology, engineering, or math was used in the adventure?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Requirement 2 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

**Requirement 3**

Investigate: Choose A or B or C or D and complete ALL the requirements:

**A. Volcanoes erupt**

1. How are volcanoes formed?
2. What is the difference between lava and magma?
3. How does a volcano both build and destroy land?
4. Build or draw a volcano model. If you build a working model, make sure you follow all safety precautions including wearing protective glasses for your volcano's eruption. If you draw a volcano, be sure to draw a cross section and explain the characteristics of different types of volcanoes.
5. Share your model and what you have learned with your counselor.

**B. Rock on**

1. What minerals are common in your state? Make a collection of three to five common minerals and explain how they are used.
2. Are these minerals found in sedimentary, igneous, or metamorphic rocks?
3. Explain or demonstrate the difference in formation of the three major types of rocks. Which types of rocks are common in your area?
4. Share your collection and what you have learned with your counselor.

**C. Weather changes our world**

1. Make three weather instruments out of materials around your home. (Examples include a rain gauge, weather vane, barometer, anemometer, and weather journal.) Use these and another method that is readily available (i.e., thermometer, eyes, older person's joints, etc.) for a total of four methods to monitor and predict the weather for one week. Keep a log of your findings. Which instrument provided the most accurate information?
2. Keep a weather journal for a week. Include your predictions and the predictions of a local meteorologist. Do your predictions match those of the local meteorologist? Do your predictions match the weather that occurred? How can the predictions become more accurate?
3. Discuss your work with your counselor.

**D. Animal habitats:** Choose TWO of the following animal habitats and complete the activity and questions. At least one habitat should be close to your home (within 50 miles). Visit at least one of the habitats. Once you have completed the activity and questions, discuss the habitats and the activities with your counselor:

1. **Prairie:** Draw or model a food web with at least five consumers and two producers that live in the prairie habitat. What is the difference between

- consumers and producers? Predators and prey? What would happen if one of the animals in the food web disappeared?
2. Temperate forest: Research the two main categories of trees in the temperate forest (coniferous and deciduous). Why are their leaves different? How are their seeds different? Put a twig from a coniferous tree (cone-bearing tree with needles) in a cup of water and tightly fasten a clear plastic bag around the needles. Put a twig from a deciduous tree (leafy tree that loses its leaves in the fall) in a cup of water and tightly fasten a clear plastic bag around the leaves. Observe what happens and draw pictures of your observations. Think of an explanation for what occurred and discuss your explanation with your counselor.
  3. Aquatic ecosystem: With a parent's permission and guidance, visit an aquatic habitat near your home. Examples include a stream, river, lake, pond, ocean, and wetland (a marsh or swamp). Draw or photograph the area. What are the most common types of plants growing there? What animals did you see? Did you see, hear, or smell any evidence of other animals? (Your evidence might include things like bird calls, splashes of fish or frogs jumping, tracks, feathers, or bones.) How do aquatic ecosystems affect your life? How have humans affected the ecosystem? (Look for signs of humans such as trash and bridges or walkways.) How do you think humans have affected the ecosystem in ways you cannot see? (Think about fertilizer and pesticides washing off your lawn and flowing into a stream. How would this affect creatures that live in the water?) What can you do to improve the quality of the ecosystem?
  4. Temperate or subtropical rain forest: Describe the three main levels of the rain forest (canopy, understory, and forest floor). Make a drawing or model showing examples of animals and plants that live at each level. Choose an animal or plant from each level and explain how it is adapted to its particular place in the rain forest.
  5. Desert: Choose a desert animal or plant. Make a model of it, draw it, or describe it. Explain how it is particularly well adapted to survive in a place where there is very little water. How would the desert be different if this plant or animal were not there?
  6. Polar ice: Research an animal that can be found in the polar ice habitat. Draw or make a model of the animal and name three characteristics that make it well adapted for life in the very cold and snowy environment.
  7. Tide pools: Explain how a tide pool is formed and describe several animals that are found in tide pools. Make a model or draw a diagram of a tide pool at a high intertidal zone and a low intertidal zone. Include animals found in tide pools and explain how they adapt to their constantly changing environment.

Option(s) Chosen: \_\_\_\_\_

---

---



---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

C. Discuss your investigation and findings with your counselor.

Requirement 3 Completed:

\_\_\_\_\_ Counselor's OK

\_\_\_\_\_ Date

**Requirement 4**

Choose A or B and complete ALL the requirements.

A. Visit a place where earth science is being done, used, explained, or investigated, such as one of the following: cave, quarry or mine, geology museum or the gem or geology section of a museum, gem and mineral show, university geology department, TV or radio station meteorology department, weather station, volcano or volcano research station, or any other location where earth science is being done, used, explained, or investigated.

1. During your visit, talk to someone in charge about how people at the site use or investigate a particular area of science. How could this investigation make the world better?

Location visited: \_\_\_\_\_

Date Visited: \_\_\_\_\_

What did you learn?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Discuss with your counselor the science being done, used, explained, or investigated at the place you visited.



B. Explore a career associated with earth science. Find out what subjects you would need to study as you get older. What kind of education would you need in the future to help explore Earth? What types of people other than geologists explore Earth? Discuss with your counselor what is needed to have a career in earth science.

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Requirement 4 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

# Wild!

This module is designed to help you learn about wildlife and the natural world around you.

Target Completion Date: \_\_\_\_\_



## Requirement 1

Choose A or B or C and complete ALL the requirements.

- A. Watch an episode or episodes (about one hour total) of a show about wildlife, endangered species, invasive species, food chains, biodiversity, ecosystems, or wildlife habitats.
- B. Read (about one hour total) about wildlife, endangered species, invasive species, food chains, biodiversity, ecosystems, or wildlife habitats.
- C. Do a combination of reading and watching (about one hour total) about wildlife, endangered species, invasive species, food chains, biodiversity, ecosystems, or wildlife habitats.

1. Make a list of at least two questions or ideas from what you watched.
2. Discuss two of the questions or ideas with your counselor.

Title(s) Watched or Read: \_\_\_\_\_

Question 1: \_\_\_\_\_  
\_\_\_\_\_

Question 2: \_\_\_\_\_  
\_\_\_\_\_

Requirement 1 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 2**

Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts: Digging in the Past, Grow Something, Spirit of the Water

Bear Cub Scouts: A Bear Goes Fishing, Critter Care

Webelos Scouts: Into the Wild, Into the Woods

Adventure you chose: \_\_\_\_\_

What kind of science, technology, engineering, or math was used in the adventure?

---



---



---



---



---



---



---



---



---



---

Requirement 2 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 3**

Explore all of the following:

A. What is wildlife? Wildlife refers to animals that are not normally domesticated (raised by humans). Name a few.

---

---

---

---

B. Explain the relationships among producer, prey, predator, and food chain. (You may draw and label a food chain to help you answer this question.)

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

C. Draw (or find) pictures of your favorite native plant, native reptile or fish, native bird, and native mammal that live in an ecosystem near you.

Why do you like these? How do they fit into the ecosystem?

---

---

---

---

---

---

---

---

---

---

D. Discuss what you have learned with your counselor.

Requirement 3 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 4**

Act like a naturalist. Choose TWO from A or B or C or D or E or F, and complete ALL the requirements for those options.

A. Investigate the endangered species in your state.

1. Make a list, drawing, or photo collection of three to five animals and plants that are endangered.
2. Design a display (a poster, PowerPoint presentation, or other type of display) to show at least 10 of the threatened, endangered, or extinct species in your state. (You may use your drawings or photo collection in your display.)
3. Discuss with your counselor the differences between threatened, endangered, and extinct species. Discuss how threatened animals or plants could become endangered or extinct. How might the loss of these animals or plants affect the ecosystem and food chain? What can be done to preserve these species?

B. Investigate invasive species.

1. Make a list, drawing, or photo collection of at least five mammals, plants, fish, birds, insects, or any other organisms that are invasive in your state or region of the country.
2. Design a presentation (a poster, PowerPoint presentation, or other display) including at least one of the invasive species from your list. Explain where they came from, how they got to your area, what damage they are causing, and what is being done to get rid of them. Share your presentation with your counselor and your family or your den.
3. Discuss with your counselor what an invasive species is, how invasive animals or plants cause problems for native species, and how these invasive species could affect an ecosystem and food chain.

C. Visit an ecosystem near where you live.

1. Investigate the types of animals and plants that live in that ecosystem.
2. Draw a food web of the animals and plants that live in this ecosystem. Mark the herbivores, omnivores, and carnivores. Include at least one decomposer or scavenger.
3. Discuss with your counselor (using your food web drawing) how the animals or plants in the food web fit into a food chain. Which animals are predators and which can be prey? How does each plant and animal obtain its energy? Describe the energy source for all the plants and animals.

D. Investigate one wild mammal, bird, fish, or reptile that lives near you.

1. Create a diorama representing the habitat of this creature. Include representations of everything it needs to survive; its home, nest, or den; and possible threats. You may use a variety of different materials within your diorama (usually constructed in a shoebox or similar container).
2. Explain to your counselor what your animal must have in its habitat in order to survive.

E. Investigate your wild neighbors.

1. Make a bird feeder and set it up in a place where you may observe visitors. The feeder could be complex or as simple as a pinecone covered with peanut butter and rolled in birdseed and then tied with a string to an appropriate location, like a tree branch.
2. Fill the feeder with birdseed. (Make sure that your feeder does not remain empty once you have started feeding birds.)
3. Provide a source of water.
4. Watch and record the visitors to your feeder for two or three weeks. (It may take a while for visitors to discover your food source.)
5. Identify your visitors using a field guide, and keep a list of what visits your feeder. (Visitors are not always birds! Sometimes deer, rabbits, chipmunks, squirrels, and raccoons visit bird feeders—or the area under the feeder! The kinds of nonbird visitors will depend on where you live. You may want to investigate how to collect the tracks of any nighttime visitors.)
6. Discuss with your counselor what you learned about your wild neighbors.

F. Earn the Cub Scout World Conservation Award (if you have not already earned them for another Nova award).

First Requirement (circle 1): A | B | C | D | E | F

Investigations and Discoveries:

---



---



---



---



---



---







---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Requirement 4 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 5**

Visit a place where you can observe wildlife. Examples include parks (national, state, and local), zoos, wetlands, nature preserves, and national forests.

Location visited: \_\_\_\_\_

Date Visited: \_\_\_\_\_

A. During or after your visit, talk to someone about:

1. The native species, invasive species, and endangered or threatened species that live there. If you visit a zoo, talk to someone about the ecosystems for different zoo animals and whether any of the zoo animals are invasive in different areas of the world. (For example, pythons are often found in zoos, but they are an invasive species in Florida.)

---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---

2. The subjects studied in school that enabled him or her to work with wildlife.  
Examples of experts to talk to include forest ranger, wildlife biologist, botanist, park ranger, naturalist, game warden, zookeeper, docent, or another adult whose career involves wildlife.

Person you talked to: \_\_\_\_\_

Their job or position: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

B. Discuss with your counselor what you learned during your visit.

Requirement 5 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

**Requirement 6**

Discuss with your counselor:

A. Why wildlife is important.

---

---

---

---

---

B. Why biodiversity is important.

---

---

---

---

---

C. The problems with invasive species and habitat destruction.

---

---

---

---

---

Requirement 6 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

# Tech Talk

This module is designed to help you explore how technology affects your life each day.

Target Completion Date: \_\_\_\_\_



## Requirement 1

Choose A or B or C and complete ALL the requirements.

- A. Watch an episode or episodes (about one hour total) of a show about anything related to technology.
- B. Read (about one hour total) about anything related to technology.
- C. Do a combination of reading and watching (about one hour total) about anything related to technology.

1. Make a list of at least two questions or ideas from what you watched.
2. Discuss two of the questions or ideas with your counselor.

Title(s) Watched or Read: \_\_\_\_\_

Question 1: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Question 2: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Requirement 1 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 2**

Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts: Finding Your Way, Motor Away

Bear Cub Scouts: Make it Move, A World of Sound

Webelos Scouts: Build It, Fix It, Movie Making

Adventure you chose: \_\_\_\_\_

What kind of science, technology, engineering, or math was used in the adventure?

---

---

---

---

---

---

---

---

---

---

Requirement 2 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 3**

Explore all of the following:

A. Look up a definition of the word technology and discuss the meaning with your counselor.

---

---

---

---

B. Find out how technology is used in EACH of the following fields:

Communication

---

---

---

---

---

Business

---

---

---

---

---



Construction

---

---

---

---

---

Sports

---

---

---

---

---

Entertainment

---

---

---

---

---

---

C. Discuss your findings with your counselor.

Requirement 3 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

**Requirement 4**

Visit a place where technology is being designed, used, or explained, such as one of the following: an amusement park, a police or fire station, a radio or television station, a newspaper office, a factory or store, or any other location where technology is being designed, used, or explained.

Location visited: \_\_\_\_\_

Date Visited: \_\_\_\_\_

A. During your visit, talk to someone in charge about the following:

1. The technologies used where you are visiting

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

2. Why the organization is using these technologies

---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---

B. Discuss with your counselor what you learned during your visit.

Requirement 4 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

**Requirement 5**

Discuss with your counselor how technology affects your everyday life.

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Requirement 5 Completed:

---

Counselor's OK

---

Date

# Supernova – Wolf and Bear

Designed for boys who want to go beyond the basics. Supernovas receive a medallion for their completed efforts. Requirements do not have to be done in order, but all must be completed to receive the Supernova award.



Target Completion Date: \_\_\_\_\_

## Requirement 1

Complete the following adventures:

### Wolf

Air of the Wolf      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Code of the Wolf      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

### Bear

Make It Move      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Super Science      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Requirement 1 Completed:

\_\_\_\_\_  
Counselor's OK      Date

## Requirement 2

Complete the following adventure appropriate for your rank.

### Wolf

Call of the Wild      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

### Bear

Forensics OR Marble Madness      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Requirement 2 Completed:

\_\_\_\_\_  
Counselor's OK      Date

**Requirement 3**

Find interesting facts about Dr. Luis W. Alvarez using resources in your school or local library or on the Internet (with your parent's or guardian's permission and guidance). Then discuss what you learn with your mentor, including answers to the following questions: What very important award did Dr. Alvarez earn? What was his famous theory about dinosaurs? (Attach an additional sheet with information to complete this requirement.)

Requirement 3 Completed:

---

 Counselor's OK

---

 Date
**Requirement 4**

Find out about three other famous scientists, technology innovators, engineers, or mathematicians approved by your mentor. Discuss what you learned with your mentor. (Attach an additional sheet with information to complete this requirement.)

Requirement 4 Completed:

---

 Counselor's OK

---

 Date
**Requirement 5**

Speak with your teacher(s) at school (or your parents if you are home-schooled) OR one of your Cub Scout leaders about your interest in earning the Cub Scout Supernova award. Ask them why they think math and science are important in your education. Discuss what you learn with your mentor.

---

 Teacher's signature of completion

---

 Date completed

Requirement 5 Completed:

---

 Counselor's OK

---

 Date

**Requirement 6**

Participate in a science project or experiment in your classroom or school OR do a special science project approved by your teacher. Discuss this activity with your mentor.

Description of project or experiment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Teacher's signature of completion

\_\_\_\_\_  
Date completed

Requirement 6 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 7**

Do ONE of the following:

- A. Visit with someone who works in a STEM-related career. Discuss what you learned with your mentor.
- B. Learn about a career that depends on knowledge about science, technology, engineering, or mathematics. Discuss what you learned with your mentor.

Requirement 7 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 8**

Learn about the scientific method (or scientific process). Discuss this with your mentor, and include a simple demonstration to show what you learned.  
(Attach an additional sheet with information to complete this requirement.)

Requirement 8 Completed:

\_\_\_\_\_  
Counselor's OK \_\_\_\_\_  
Date

**Requirement 9**

Participate in a Nova- or other STEM-related activity in your Webelos Scout den or pack meeting.

Activity Title or Description: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Den Leader's signature of completion \_\_\_\_\_  
Date completed

Requirement 9 Completed:

\_\_\_\_\_  
Counselor's OK \_\_\_\_\_  
Date

-----  
All requirements have been met for the awarding of the Dr. Luis W. Alvarez  
Supernova Award for Cub Scouts (Wolves and Bears).

\_\_\_\_\_  
Counselor's OK \_\_\_\_\_  
Date



# Supernova – Webelos



Designed for boys who want to go beyond the basics. Supernovas receive a medallion for their completed efforts. Requirements do not have to be done in order, but all must be completed to receive the Supernova award.

Target Completion Date: \_\_\_\_\_

## Requirement 1

Complete the following Webelos adventures:

Adventures in Science      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Engineer      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Scouting Adventure      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Requirement 1 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

## Requirement 2

Complete three of the following adventures:

Build It      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Building a Better World      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Castaway      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

First Responder      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Into the Wild      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Into the Woods      Date completed: \_\_\_\_\_ Initials: \_\_\_\_\_

Requirement 2 Completed:

\_\_\_\_\_

Counselor's OK

\_\_\_\_\_

Date

**Requirement 3**

Find interesting facts about Dr. Charles H. Townes using resources in your school or local library or on the Internet (with your parent's or guardian's permission and guidance). Then discuss what you learned with your mentor, including answers to the following questions: What very important award did Dr. Townes earn? What was Dr. Townes' most famous invention? (Attach an additional sheet with information to complete this requirement.)

Requirement 3 Completed:

---

 Counselor's OK

---

 Date
**Requirement 4**

Find out about five other famous scientists, technology innovators, engineers, or mathematicians approved by your mentor. Discuss what you learned with your mentor. (Attach an additional sheet with information to complete this requirement.)

Requirement 4 Completed:

---

 Counselor's OK

---

 Date
**Requirement 5**

Speak with your teacher(s) at school (or your parents if you are home-schooled) OR one of your Cub Scout leaders about your interest in earning the Webelos Scout Supernova award. Ask them why they think math and science are important in your education. Discuss what you learn with your mentor. (Attach an additional sheet with information to complete this requirement.)

---

 Teacher's signature of completion

---

 Date completed

Requirement 5 Completed:

---

 Counselor's OK

---

 Date

**Requirement 6**

Participate in a science project or experiment in your classroom or school. Discuss this activity with your mentor.

Description of project or experiment: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Teacher's signature of completion

\_\_\_\_\_  
Date completed

Requirement 6 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 7**

Do ONE of the following:

- A. Visit with someone who works in a STEM-related career. Discuss what you learned with your mentor.
- B. Learn about a career that depends on knowledge about science, technology, engineering, or mathematics. Discuss what you learned with your mentor.

(Attach an additional sheet with information to complete this requirement.)

Requirement 7 Completed:

\_\_\_\_\_  
Counselor's OK

\_\_\_\_\_  
Date

**Requirement 8**

Under the direct supervision of your mentor, do an experiment that shows how the scientific method (or scientific process) is used. Prepare a short report on the results of your experiment for your mentor. (Attach an additional sheet with information to complete this requirement.)

Requirement 8 Completed:

\_\_\_\_\_  
Counselor's OK \_\_\_\_\_  
Date

**Requirement 9**

Participate in a Nova- or other STEM-related activity in your Webelos Scout den or pack meeting.

Activity Title or Description: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Den Leader's signature of completion \_\_\_\_\_  
Date completed

Requirement 9 Completed:

\_\_\_\_\_  
Counselor's OK \_\_\_\_\_  
Date

-----  
All requirements have been met for the awarding of the Dr. Charles H. Townes Supernova Award for Webelos Scouts.

\_\_\_\_\_  
Counselor's OK \_\_\_\_\_  
Date