



Cub Scout Pack 295
Year 1 NOVA Program
Workbook

Scout Name: _____

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.

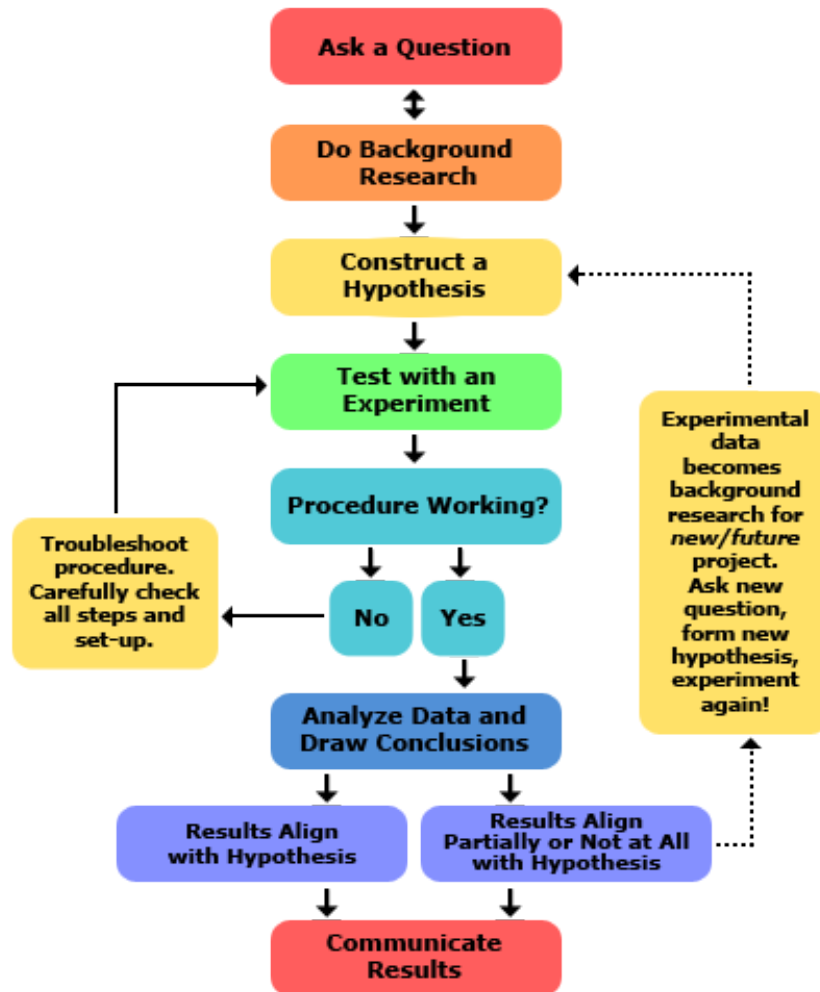
Predictions must be easy to measure.

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

Science Everywhere

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

Requirements being completed in Den Meetings: 2B, 3



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

Den Requirements Completed

Requirement 2B

Counselor's OK

Date

Requirement 3

Counselor's OK

Date

Science Everywhere Complete

Counselor's OK

Date

Down and Dirty

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

Requirements being completed in Den Meetings: 2B(a or b), 3A, 3C1, 5



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

Den Requirements Completed

Requirement 2B

Counselor's OK

Date

Requirement 3A

Counselor's OK

Date

Requirement 3C1

Counselor's OK

Date

Requirement 5

Counselor's OK

Date

Down and Dirty Complete

Counselor's OK

Date

Wild!

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

Requirements being completed in Den Meetings: 2B, 3A, 3B, 4A1, 4A3, 4D, 6



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 3

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?

Requirement 3 Completed:

Counselor's OK

Date

Requirement 4

A. 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.)

Requirement 4 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

Den Requirements Completed

Requirement 2B

Counselor's OK

Date

Requirement 3A

Counselor's OK

Date

Requirement 3B

Counselor's OK

Date

Requirement 4A1

Counselor's OK

Date

Requirement 4A3

Counselor's OK

Date

Requirement 4D

Counselor's OK

Date

Requirement 6

Counselor's OK

Date

Wild Complete

Counselor's OK

Date



Tech Talk

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

Requirements being completed in Den Meetings:

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

Den Requirements Completed

Requirement 2B

Counselor's OK

Date

Requirement 3

Counselor's OK

Date

Requirement 5

Counselor's OK

Date

Tech Talk Complete

Counselor's OK

Date