



# 1-2-3-Go!



## Cub Scout Nova Award Workbook

This workbook can help you but you still need to read the Cub Scout Nova Awards Guidebook.

This Workbook can help you organize your thoughts as you prepare to meet with your counselor.

You still must satisfy your counselor that you can demonstrate each skill and have learned the information.

You should use the work space provided for each requirement to keep track of which requirements have been completed, and to make notes for discussing the item with your counselor, not for providing full and complete answers.

If a requirement says that you must take an action using words such as "discuss", "show", "tell", "explain", "demonstrate", "identify", etc, that is what you must do.

Counselors may not require the use of this or any similar workbooks.

No one may add or subtract from the official requirements found in the Cub Scout Nova Awards Guidebook (Pub. 34032 – SKU 614935).

The requirements were revised in 2017 • This workbook was updated in May 2020.

Scout's Name: \_\_\_\_\_ Unit: \_\_\_\_\_

Counselor's Name: \_\_\_\_\_ Counselor's Phone No.: \_\_\_\_\_



<http://www.USScouts.Org> • <http://www.MeritBadge.Org>

Please submit errors, omissions, comments or suggestions about this workbook to: [Workbooks@USScouts.Org](mailto:Workbooks@USScouts.Org)

Send comments or suggestions for changes to the requirements for the Nova Award to: [Program.Content@Scouting.Org](mailto:Program.Content@Scouting.Org)

**This module is designed to help you explore how math affects your life each day**

Math and physics are used in almost every kind of invention, including cars, airplanes, and telescopes.  
Math also includes cryptography, the use of secret codes.

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

c A. Watch an episode or episodes (about one hour total) of a show that involves math or physics.

What was watched?	Date	Start Time	Duration

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.

Then do the following:

1. Make a list of at least two questions or ideas from what you watched.

1. 


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2. Discuss two of the questions or ideas with your counselor.

1.


2.


C Do a combination of reading and watching (about one hour total) about anything that involves math or physics.

What was watched or read?	Date	Start Time	Duration

Then do the following:

1. Make a list of at least two questions or ideas from what you read and watched.

1.


2.


2. Discuss two of the questions or ideas with your counselor.

1. 


2. 


2. Complete ONE adventure from the following list for your current rank or complete option A or B. (If you choose an Adventure, choose one you have not already earned.)

Wolf Cub Scouts

Code of the Wolf

Bear Cub Scouts

Robotics

Webelos Scouts

Game Design

Option A: Complete both of the following:

- a. Conduct an opinion survey through which you collect data to answer a question and then show your results with a chart or graph. For example, what is the favorite food of the scouts in your den (chart how many like pizza, how many like cookies, etc.).
- b. Conduct and keep a record of a coin toss probability experiment. Keep track of at least 25 tosses.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Heads \_\_\_\_\_ Tails \_\_\_\_\_

Option B: Complete both of the following:

- a. Interview four adults in different occupations and see how they use measurement in their job.
- b. Measure how tall someone is. Have them measure you. Complete in both inches and centimeters.

Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.


3. Explore TWO options from A or B or C and complete ALL the requirements for those options. Keep your work to share with your counselor. The necessary information to make your calculations can be found in a book or on the Internet. (See the Helpful Links box for ideas.) You may work with your counselor on these calculations.

- c A. Choose TWO of the following places and calculate how much you would weigh there.
  - c 1. On the sun or the moon
  - c 2. On Jupiter or Pluto
  - c 3. On a planet that you choose


- c B. Choose ONE of the following and calculate its height:
  - c 1. A tree
  - c 2. Your house
  - c 3. A building of your choice


- c C. Calculate the volume of air in your bedroom.  
Make sure your measurements have the same units—all feet or all inches—and show your work.

$Volume = Length \times Width \times Height$
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4. Secret Codes

A. Look up, then discuss with your counselor each of the following:

1. Cryptography


2. At least three ways secret codes or ciphers are made

1.	
2.	
3.	

3. How secret codes and ciphers relate to mathematics


**B. Design a secret code or cipher.**


Then do the following:

1. Write a message in your code or cipher.


2. Share your code or cipher with your counselor.


5. Discuss with your counselor how math affects your everyday life.


### Helpful Links

You may choose other links if preferred.

"Your Weight On Other Planets": Essortment Website:

[www.essortment.com/all/weightonlanivrp.htm](http://www.essortment.com/all/weightonlanivrp.htm)

"Your Weight in Space": Intrepid Sea, Air & Space Museum Website:

[www.intrepidmuseum.org/EducaonTteacher-Resources/documents/Space%20\\_9-12Postatispx](http://www.intrepidmuseum.org/EducaonTteacher-Resources/documents/Space%20_9-12Postatispx)

"How to Calculate the Height of a Tree with a Shadow": Yahoo! Voices Website: [voices.yahoo.com/how-calculate-height-tree-shadow-6407960.html](http://voices.yahoo.com/how-calculate-height-tree-shadow-6407960.html)

"How to Calculate Volume of a Room": eHow Website:

[www.ehow.com/how%202266390\\_calculate-volume-room%20html](http://www.ehow.com/how%202266390_calculate-volume-room%20html)

"CryptoKids": National Security Agency Website:

[www.nsa.gov/kids](http://www.nsa.gov/kids)

"Cryptology for Kids": Purdue University Center for Education and Research in Information Assurance and Security Website:

[www.cerias.purdue.edu/education/k-12/teaching\\_resources/lessons\\_presentations/cryptology.html](http://www.cerias.purdue.edu/education/k-12/teaching_resources/lessons_presentations/cryptology.html)

"The Secret World of Codes and Code Breaking": University of Cambridge NRICH Website.

[rich.maths.org/2197](http://rich.maths.org/2197)

"How to Create Secret Codes and Ciphers": wikiHow Website:

[www.wkikhow.com/Create-Secret-Code-and-ciphers](http://www.wkikhow.com/Create-Secret-Code-and-ciphers)

When working on Nova and Supernova awards, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088). Important excerpts from that publication can be downloaded from <http://usscouts.org/advance/docs/GTA-Excerpts-nova.pdf>.

You can download a complete copy of the *Guide to Advancement* from <http://www.scouting.org/filestore/pdf/33088.pdf>.