



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.

The work space provided for each requirement should be used by the Scout to make notes for discussing the item with his counselor, not for providing the full and complete answers. Each Scout must do each requirement.

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 issued in 2012 • This workbook was updated in April 2014.

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
Send comments or suggestions for changes to the **requirements** for the **Nova Award** to: 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.

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.	
2.	

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

1.	
2.	

B. Read (about one hour total) about anything that involves math or physics.

What was read?	Date	Start Time	Duration

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.

Then do the following:

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

1.	
2.	

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 the Mathematics OR Computers pin

Mathematics

Computers

3. Choose 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 a parent or your counselor on these calculations.

A. Choose TWO of the following places and calculate how much you would weigh there.

- 1. On the sun or the moon
- 2. On Jupiter or Pluto
- 3. On a planet that you choose

B. Choose ONE of the following and calculate its height:

- 1. A tree
- 2. Your house
- 3. A building of your choice

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.

$\text{Volume} = \text{Length} \times \text{Width} \times \text{Height}$
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Helpful Links

You may choose other links if preferred.

"Your Weight On Other Planets": Essortment Website:

www.essortment.com/all/weightonlanivrp.htm

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

www.intrepidmuseum.org/EducaonTteacher-Resources/documents/Space%209-12Postatispx

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

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

www.ehow.com/how%202266390_calculate-volume-room%20html

"CryptoKids": National Security Agency Website:

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

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

rich.maths.org/2197

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

www.wkikhow.com/Create-Secret-Code-and-ciphers

Important excerpts from the [‘Guide To Advancement’](#), No. 33088:

Effective January 1, 2012, the ‘Guide to Advancement’ (which replaced the publication ‘Advancement Committee Policies and Procedures’) is now the official Boy Scouts of America source on advancement policies and procedures.

- [Inside front cover, and 5.0.1.4] — **Unauthorized Changes to Advancement Program**
No council, committee, district, unit, or individual has the authority to add to, or subtract from, advancement requirements. (There are limited exceptions relating only to youth members with disabilities. For details see section 10, “Advancement for Members With Special Needs”.)
- [Inside front cover, and 7.0.1.1] — The [‘Guide to Safe Scouting’](#) Applies
Policies and procedures outlined in the ‘Guide to Safe Scouting’, No. 34416, apply to all BSA activities, including those related to advancement and Eagle Scout service projects. [Note: Always reference the online version, which is updated quarterly.]
- [7.0.3.1] — **The Buddy System and Certifying Completion**
Youth members must not meet one-on-one with adults. Sessions with counselors must take place where others can view the interaction, or the Scout must have a buddy: a friend, parent, guardian, brother, sister, or other relative—or better yet, another Scout working on the same badge—along with him attending the session. When the Scout meets with the counselor, he should bring any required projects. If these cannot be transported, he should present evidence, such as photographs or adult certification. His unit leader, for example, might state that a satisfactory bridge or tower has been built for the Pioneering merit badge, or that meals were prepared for Cooking. If there are questions that requirements were met, a counselor may confirm with adults involved. Once satisfied, the counselor signs the blue card using the date upon which the Scout completed the requirements, or in the case of partials, initials the individual requirements passed.
- [7.0.3.2] — **Group Instruction**
It is acceptable—and sometimes desirable—for merit badges to be taught in group settings. This often occurs at camp and merit badge midways or similar events. Interactive group discussions can support learning. The method can also be attractive to “guest experts” assisting registered and approved counselors. Slide shows, skits, demonstrations, panels, and various other techniques can also be employed, but as any teacher can attest, not everyone will learn all the material.

There must be attention to each individual’s projects and his fulfillment of *all* requirements. We must know that every Scout—actually and *personally*—completed them. If, for example, a requirement uses words like “show,” “demonstrate,” or “discuss,” then every Scout must do that. It is unacceptable to award badges on the basis of sitting in classrooms *watching* demonstrations, or remaining silent during discussions. Because of the importance of individual attention in the merit badge plan, group instruction should be limited to those scenarios where the benefits are compelling.