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Please submit errors, omissions, comments or suggestions about this **workbook** to: [**Workbooks@USScouts.Org**](mailto:Workbooks@usscouts.org?subject=Merit%20Badge%20Workbooks)

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

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

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.

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| What was watched? | Date | Start Time | Duration |
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Then do the following:

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.

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

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

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⬜ B. Read (about one hour total) about anything related to science.

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Then do the following:

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](http://owlkids.com/).

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

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

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⬜ C Do a combination of reading and watching (about one hour total) about anything related to science.

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| What was watched or read? | Date | Start Time | | Duration | |
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Then do the following:

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

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

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2. Complete ONE belt loop or pin from the following list. (Choose one that you have not already earned.)

⬜ Astronomy ⬜ Nutrition

⬜ Collecting ⬜ Pet Care

⬜ Geography ⬜ Photography

⬜ Geology ⬜ Science

⬜ Map and Compass ⬜ Weather

3. Act like a scientist! Do EACH of the following:

A. With your counselor, choose a question you would like to investigate.

With your parent's or guardian's permission and assistance, you may want to use an online mapping application to follow the streams and rivers to the ocean. Keep track of the names of the streams, lakes, and rivers connecting your stream to the ocean. Is it possible for you to find out the name of your watershed? ***Paddle-to-the-Sea*** by Holling C. Holling is a fun book on this topic. You can do a stream sample to find out what kinds of things are living in the water and under the rocks. Some things can survive polluted water; others can live only in clean water. You can discover if a stream is polluted by finding out what lives there.

Here are some examples only (you may get other ideas from your belt loop or pin 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 question would you like to investigate?

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B. With a parent or 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.

You may do 3B with another Cub Scout if you would like, but you need to do and record your own work.

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C. Discuss your investigation and findings with your counselor.

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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.

⬜ Zoo ⬜ Aquarium

⬜ Water Treatment Plant ⬜ Observatory

⬜ Science Museum ⬜ Weather Station

⬜ Fish Hatchery ⬜ Other Location:

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

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

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

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**Important excerpts from the** [***‘Guide To Advancement’***](http://www.scouting.org/filestore/pdf/33088.pdf)**, 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’***](http://www.scouting.org/scoutsource/HealthandSafety/GSS/toc.aspx) **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.