



# Splash!

## Water



### Boy Scout Nova Award Workbook

This workbook can help you but you still need to read the Boy 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 Boy Scout Nova Awards Guidebook (Pub. 34033 – SKU 614936).

The requirements were issued in 2018 • This workbook was updated in August 2018.

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 water affects your life every day.  
Splash! is part of the Science category.**

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

- c A. Watch about three hours total of science-related shows or documentaries that discuss water as it relates to the hydrologic cycle, primary sources, primary users (including wildlife), health, sources of pollution, waste treatment, and related sciences and technologies.

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), History Channel, the National Academy of Sciences YouTube Channel, and [www.waterblues.org](http://www.waterblues.org). You may choose to watch a live performance or movie developed by a local museum or state or federal agency. You may watch online productions with your counselor, s approval and under your parent's supervision.

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Splash!

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

- c B. Read (about three hours total) about water as it relates to the hydrologic cycle, primary sources, primary users, health, sources of pollution, waste treatment, and related sciences and technologies.

What was read?	Date	Start Time	Duration

Examples of magazines include - but are not limited to - [Odyssey, Popular Science, Science Illustrated, Natural History, Scientific American, Nature Conservancy, Sage Magazine, Smithsonian, National Geographic, LakeLine, and WaterWorld,

Then do the following:

1. Make a list of at least five questions or ideas from each article.

1.	
2.	
3.	
4.	
5.	
6.	
7.	

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

1.	
2.	

C Do a combination of reading and watching (about three hours total).

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 each article or show.

1.	
2.	
3.	
4.	

5. 


6. 


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

1. 


2. 


2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.)

- |  |                                   |   |
|--|-----------------------------------|---|
| <input type="radio"/> Chemistry                    | <input type="radio"/> Fishing     | <input type="radio"/> Oceanography                |
| <input type="radio"/> Energy                       | <input type="radio"/> Fly Fishing | <input type="radio"/> Public Health               |
| <input type="radio"/> Engineering                  | <input type="radio"/> Forestry    | <input type="radio"/> Soil and Water Conservation |
| <input type="radio"/> Environmental Science        | <input type="radio"/> Geology     | <input type="radio"/> Sustainability              |
| <input type="radio"/> Fish and Wildlife Management | <input type="radio"/> Nature      | <input type="radio"/> Weather                     |

After completion, discuss with your counselor how the merit badge you earned pertains to water, e.g., wastewater treatment and pollution, and the science you used..




Helpful Links

Information and Tools to Examine Properties of Water— "A gentle to water and its structure":  
[www.chem1.com/acad/sci/aboutwater.html](http://www.chem1.com/acad/sci/aboutwater.html)

Steven Dutch - "Ice Structure"  
[www.uwgb.edu/dutchs/Petrology/Ice%20Structure.HTM](http://www.uwgb.edu/dutchs/Petrology/Ice%20Structure.HTM)

The Interactive Library - Explain It With Molecules:  
[http://www.edinformatics.com/interactive\\_molecules/](http://www.edinformatics.com/interactive_molecules/)

University of Alcallá - "Intermolecular hydrogen bonds in liquid water and in ice":  
<http://biomodel.uah.es/en/water/p1.htm>

Some Sources of Materials:

Hydrophobic materials - Naturesorb (dried sphagnum peat moss);  
 Scotchgard (for coating sand grains)

Tulle fabric - From fabric store (use instead of screen)

Dialysis tubing - Carolina Biological Supply

Some Experiments

"Surface tension": [www.youtube.com/watch?v=u5AxJJSiEEs](http://www.youtube.com/watch?v=u5AxJJSiEEs)

Massachusetts Institute of Technology - "Surface Tension":  
<http://video.mit.edu/watch/surface-tension-8413/>

WonderHowTo - "How to do a science trick demonstrating surface tension with pepper, soap, and water":  
<http://science.wonderhowto.com/how-to/do-science-trick-demonstrating-surface-tension-with-pepper-soap-and-water-396289/>

SteveSpangler.com - "Magic Sand - Sand That Is Always Dry":  
[www.youtube.com/watch?v=10EnRI80zvk](http://www.youtube.com/watch?v=10EnRI80zvk) (hydrophobic material)

SteveSpangler.com - "Mysterious Water Suspension":  
[www.youtube.com/watch?v=y2fZYx3K6jl](http://www.youtube.com/watch?v=y2fZYx3K6jl) (water cohesion forces)

Michigan Tech MindTrekks - 8211; Surface Tension Trap  
<https://docs.google.com/document/d/1B3-xNizlBkfrvY492P0qf3XP6JfUzyhAOghmYn5bpdo/edit>

- C. Use the Internet (with your parent's or guardian's permission) to determine the annual water use for your state in gallons and acre-feet.
  - 1. What are the main sources (provide percentages)?.


- c 2. Who are the main users (provide percentages)?


- c 3. What are the trends in total and per capita water use over time?


- c 4. Discuss what you learned with your counselor.


Helpful Link:  
USGS Water Use in the United States  
<https://water.usgs.gov/watuse/>







- 4. Visit a place where water is being processed either by humans or by nature (wastewater treatment plant, naturalist center, conservation department, etc.), take a tour, and speak with a professional about the processing of the water.

Location visited

Discuss with your counselor the STEM being used.


- 5. Discuss with your counselor what you have learned about how water affects your everyday life.


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>.