Wade!

Venturer Nova Award Workbook

This workbook can help you but you still need to read the Venturer 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 Venturer Nova Awards Guidebook (Pub. 34031).
The requirements were issued in 2018 • This workbook was updated in August 2018.

Venturer'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 water affects your life every day.
Wade 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 programming that discusses 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. 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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Then do the following:

1. Make a list of at least five questions or ideas from the show(s) you watched.

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

   1.

   2.

c **B. Read (for 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.**

Date	Start Time	End 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.

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

1.

2.

c **C** Do a combination of reading, watching, and researching (about three hours total).

What was watched or read?	Date	Start Time	Duration

Then do the following:

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

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

1.

2.

2. Choose ONE STEM field of interest from the following list. Complete ALL the requirements for a Venturing STEM exploration in that field. You should be prepared to discuss the role of water in the area or field you've chosen. (If you have already completed a Venturing STEM exploration in one of these fields, please choose a different field for this award.)

- c Chemistry
- c Environmental Science
- c Fish and Wildlife Management
- c Fishing
- c Fly-Fishing
- c Forestry
- c Geology
- c Nature
- c Oceanography
- c Public Health
- c Public Health
- c Sustainability
- c Weather

3. Learn how the volume of water changes as it moves from phase to phase. Do all of the following.

c A. Describe how you would measure the change in volume for the transition of water from liquid to ice.

c **B. Discuss with your counselor the effects that floating sea ice and land-based ice have on sea levels when they melt..**

c **C. Discuss with your counselor the effects that floating sea ice and land-based ice have on water tables when they melt.**

4. Prepare two demonstrations of surfactants and present them to a group of Cub Scouts or other youth. Make sure to explain the science involved and how surfactants can be used in oil spill cleanup and recovery. Explain to your counselor the physical concept(s) involved.

5. **Water, wetlands, and wildlife. Do ONE of the following options (A or B).**

   c **A. Identify and locate on a map the five largest bodies of water near where you live, and indicate the water flow for each. These could be creeks, streams, rivers, bayous, lakes, bays, estuaries, or oceans. The flow should culminate in the largest water body in your area.**

      1. **Identify 10 of the common invertebrates and vertebrates that are probably present in these different bodies of water.**

Learn what a bioindicator is, and identify any in your system. You may choose to contact a local biology teacher, college professor, nature center naturalist, or state fish and wildlife expert, or you can use resources from your local conservation department..

2. **Research the services that wetlands perform for water quality, flood control, and wildlife habitat. How can wetlands be used to complement sewage treatment plants? Discuss your findings with your counselor.**

c **B. Surface water**

1. **Discuss with your counselor the following concepts: a watershed and how it relates to a river basin, runoff, runoff coefficient, infiltration, point source pollution, non-point source pollution, and oceanic dead zones near the mouth of rivers.**

2. **Determine which river basin you live in and research (or estimate) its size. Estimate the total volume of water that falls on this watershed every minute during a 1-inch per hour rainfall..**

3. **Construct a chart that shows the volume of water that runs into the river as a fraction of the total rain falling on the watershed (using composite runoff coefficients). Estimate the rate of runoff in cubic feet per minute for a 1-inch per hour rainfall from your home's lot or a nearby property.**

4. Discuss with your counselor the implications of these calculations as they relate to the effect of changes in land use on flooding, soil moisture, erosion, and point and non-point source pollution. What are the most common types of water pollution in your area, and how are these being impacted by land use? How might these be reduced?.

Helpful Resources:
The USGS Water Science School – https://water.usgs.gov/edu/
may be helpful in researching these topics.

5. Choose ONE of the following options:.

c A. Research a disaster involving water, such as the receding Sarichef Island in Alaska, the 2011 Tōhoku tsunami, a hurricane, coral reef bleaching, sea level rise, etc. Determine the causes of the event, the damage caused, and how the area has recovered. Find out about any remediation that has occurred to restore the area to its pre-disaster state or efforts to prevent future damage from similar events. Share the results of your research with your crew and with your counselor.

c **B. Research the major functions of a sewage treatment plant. Describe to your counselor how it reduces the impact of sewage on aquatic life. List any pollutants that remain in the water after processing and their potential impact on aquatic life..**

c **C. Visit a place where water is being processed either by man or by nature (wastewater treatment plant, naturalist center, conservation department, etc.) and discuss the processing with a professional. Discuss with your counselor what you learned, including the aspect(s) of "STEM" that are being used.**

7. Discuss with your counselor what you have learned while working on this award, and how water and the science of water affect 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.