

Venturing and Sea Scouting STEM Exploration Requirements

The following requirements apply to any specific STEM field of interest chosen by a Venturer or Sea Scout while completing a Nova or Supernova award. Scouts BSA Merit Badge content is encouraged.

These STEM exploration topics are approved for earning the Venturing & Sea Scout Supernova awards:

Animal Science, Archaeology, Architecture, Astronomy, Automotive Maintenance, Aviation, Bird Study, Chemistry, Composite Materials, Computers, Dentistry, Drafting, Electricity, Electronics, Energy, Engineering, Environmental Science, Farm Mechanics, Fish and Wildlife Management, Forestry, Gardening, Geocaching, Geology, Insect Study, Inventing, Mammal Study, Medicine, Nature, Nuclear Science, Oceanography, Plant Science, Pulp and Paper, Radio, Reptile and Amphibian Study, Robotics, Scuba Diving, Soil and Water Conservation, Space Exploration, Surveying, Veterinary Medicine, Weather, Welding.

1. Safety Considerations

Discuss with your mentor the following safety issues in the field of interest you have chosen.

- The kinds of hazards (to humans, to the environment, to animals) that might occur while engaged in activities in this field
- Appropriate safety precautions to help minimize these risks
- Whether it is necessary to obtain training in safety protocols in this field
- The agencies or organizations that can provide such training
- What it would take to be a certified safety specialist or safety trainer in this field

2. Developing Knowledge

Do ONE of the following.

1. Visit a workplace in this field. Ask to see an example of the work that is done there, the different facilities, and the tools used. After your visit, discuss the following with your mentor:
 - How much work is done manually and how much work is done with the aid of technology
 - How much work is done by individuals and how much is done in cooperation with others
 - The ways in which the fields of science, technology, engineering, and/or mathematics are important to the work done in this business
2. Using resources you find on your own such as at the library, on the Internet, or through visits to relevant places of learning, such as museums, learn more about this field. Then discuss the following with your counselor:
 - The historical development of this field
 - How tools and techniques have evolved over time
 - How modern tools and techniques have changed over time in this field and how its capacity for accomplishment has been affected
 - The ways in which science, technology, engineering, and/or mathematics are important to this field

3. Hands-On Experiences

In consultation with your counselor and, if necessary, a consultant who is a specialist in this field, identify four hands-on activities that are examples of work done in this field that you could carry out yourself. Each activity should engage your attention and efforts for approximately three hours. Under the supervision of appropriate specialists and observing the highest standards of safety, carry out all four activities. Discuss with your counselor what you learned during each activity. Examples include—but are not limited to—conducting experiments, building models, designing tools, drawing plans, learning how to use tools, and serving as an assistant/apprentice to a specialist.

4. Career Exploration

Find out about three career opportunities in this field. Communicate to your counselor the training, education, and experience that are needed for each career.

5. Value and Impact

Using a combination of library research, Internet research (with your parent's or guardian's permission), and interviews with experts, find out how important the role of this field is in addressing the problems facing our modern world: a burgeoning worldwide population, stresses on the environment, ongoing issues of basic health and sustenance, or other concerns. How might knowledge, abilities, and capacity in this field bring about positive change on a significant scale? Create an oral or written report and present it to your counselor.