
Integrating STEM into Troop Programs

Time Available

10-30 minutes depending on the agenda format being used

Learning Objectives

At the conclusion of this session, participants will be able to:

1. Explain what STEM means (science, technology, engineering, and mathematics).
2. Understand the diverse activities that can be STEM events.
3. Discover ways to incorporate the BSA's STEM and Nova Awards programs into troop activities and outings.
4. Encourage discussion on leveraging local STEM resources for the benefit of Scouts.

Suggested Presenter(s)

The ideal presenter will be a local STEM professional involved in the STEM and Nova Awards programs or a Scouter whose experience includes STEM activities in their troop.

Presentation Method

Because many Scouters may not be familiar with the variety of activities related to STEM, a brief introduction is appropriate. Provide resources for further exploration and encourage discussion among the leaders present.

BSA Reference Materials

- STEM in Scouting, www.scouting.org/stem/AboutSTEM.aspx
- STEM-related merit badge pamphlets
- *Cub Scout Nova Awards Guidebook*, No. 34032
- *Boy Scout Nova Awards Guidebook*, No. 34033
- *Venturing Nova Awards Guidebook*, No. 34031

Community Resources

Local STEM-related enterprises, including museums, schools, community programs, and corporations

Presentation Content

- STEM stands for science, technology, engineering, and mathematics. While it has become a popular topic in recent years, the BSA has been engaged in STEM activities for more than 100 years. Many of Scouting's core outdoor, conservation, and merit badge activities relate to STEM topics.
- For example:
 - The BSA's many outdoor nature and conservation programs clearly relate to environmental, geological, or life science, among other categories.

- Pioneering uses many engineering concepts. Math is also used to calculate heights, lengths and construction strengths.
- Scouting's many vocational and career activities expose Scouts to a variety of STEM opportunities, from firefighting to aerospace to medical science.

- A quick review of the merit badge program shows that many of the subjects are STEM-related:

Archery	Nature
Astronomy	Oceanography
Athletics	Orienteering
Bird Study	Plant Science
Canoeing	Pulp and Paper
Environmental Science	Reptile and Amphibian Study
Farm Mechanics	Rifle Shooting
Fish and Wildlife Management	Robotics
Forestry	Scuba Diving
Gardening	Shotgun Shooting
Geocaching	Small-Boat Sailing
Geology	Soil and Water Conservation
Insect Study	Space Exploration
Mammal Study	Weather
Motorboating	Welding

- The BSA has developed the Nova Awards program to encourage youth with particular interests in STEM pursuits to further explore these subjects.
 - The award offers four parts, one for each element of STEM.
 - Recognition includes the Nova Award patch and separate pi (π) devices that attach to the patch.
 - Scouts can also pursue the Supernova Award, which has more rigorous requirements, designed to motivate youth and recognize more in-depth, advanced achievement in STEM-related activities.
- The wide variety of STEM-related activities makes this an easy program element to incorporate into a unit plan.
 - Look for naturally occurring STEM opportunities in your current program calendar. (Ask participants to share examples.)

- Troops may also want to suggest STEM opportunities when the patrol leaders' council plans the program calendar.
- Local community and online resources can make STEM activities more accessible. These include science centers, museums, school resources, STEM corporations, NASA online, TV shows such as "MythBusters," and many other resources readily available to Scouts.
- The most important aspect of the STEM program is having fun while exploring topics that interest the Scouts.
- Guide a group discussion about various program options or resources that could offer STEM exploration to Scouts, whether as part of a general Scouting activity or specifically as a STEM opportunity.
- Alternatively, divide the participants into small groups, and give each group the requirements for one of the Nova awards. Each group creates a troop program plan for one month, including meetings and an outing, that can leverage the STEM concepts. Ideas will be shared at the end of the meeting.

International Scouting Activities

Time Available

10-30 minutes depending on the agenda format being used

Learning Objectives

At the conclusion of this session, participants will be able to:

1. Explain what the acronyms JOTA, JOTI, and JOTT represent.
2. Understand the importance of these international Scouting jamborees to Scouts in their units.
3. Know when JOTA/JOTI and JOTT are held and where to find local information.
4. Help set up a JOTA/JOTI and JOTT activity for the Scouts in their district and/or council.
5. Share what they have learned about the BSA International Spirit Award.

Suggested Presenter(s)

A local amateur radio operator who is a Scouter, and/or a Scouter who has participated in JOTA or JOTI should be invited to present.

Presentation Method

A guided discussion is an ideal way to present this topic. Because many Scouters may not be familiar with JOTA/JOTI or JOTT, prepare a brief introduction to provide the basics. Have copies of the International Spirit Award application to distribute to units.

BSA Reference Materials

- Jamboree-on-the-Air, www.scouting.org/jota.aspx
- Guidelines for Amateur Radio Operators, www.scouting.org/jota/operators_guides.aspx
- Jamboree on the Air and Jamboree on the Internet, <http://jotajoti.info/>

- *Radio merit badge pamphlet*
- JOTT: Jamboree on the Trail, <http://jott.org>
- International Spirit Award application, www.scouting.org/filestore/international/pdf/130-044_WB.pdf

Community Resources

- Amateur Radio and Scouting, www.arrl.org/amateur-radio-and-scouting
- Local amateur radio operator clubs

Presentation Content

- Not every Scout or Scouter can attend a national or world jamboree, but they can participate with Scouts around the world through JOTA/JOTI and JOTT.
- Jamboree-on-the-Air (JOTA):
 - This is an official event of the World Organization of the Scout Movement. It began in 1967 and takes place every year.
 - Scouts talk to Scouts worldwide via shortwave "ham" radio.
 - Almost 700,000 Scouts in more than 140 countries participated in a recent JOTA.
- Jamboree-on-the-Internet (JOTI):
 - This is also an official event of the World Organization of the Scout Movement. It began in 1996 and takes place every year.
 - Most of the communication takes place via email and in a chat network called IRC, Internet Relay Chat.
 - Almost 16,000 Scouts in more than 140 countries participated in a recent JOTI.