

# Becoming a STEM Nova Counselor – The Basics

## Overview of BSA’s STEM Initiative

In summer of 2012, BSA rolled out a new and exciting program of awards that focus on **S**cience, **T**echnology, **E**ngineering, and **M**athematics. Through these awards, BSA hopes to spotlight its historical connection to these fields and bring a new set of fun activities to its youth programs.



The purpose of the BSA STEM Initiative is to provide opportunities for youth at all levels of Scouting to develop an enhanced interest in STEM fields and to earn recognition for STEM achievement. By bringing a Scouting focus to STEM activities, BSA hopes to increase the value of Scouting to families and communities as it supports the development of STEM knowledge and skills. Ultimately, the goal is to make it “cool” and rewarding to engage in STEM activities.

There are STEM awards available in each of the three traditional Scouting programs. These are optional awards. Within each program there are two tiers of awards.

### Tier 1: The Nova Awards

In each program, there are 4 parallel Nova awards, one for each STEM area, all of which can be earned by any youth. These awards are designed to be fun and build on existing STEM-related elements of BSA’s traditional programs. They are recognized by a patch (for the first award earned) and a  $\pi$  pin (for each subsequent award earned).

Cub Scouts	Boy Scouts	Venturers
<b>S:</b> Science Everywhere	<b>S:</b> Shoot!	<b>S:</b> Launch!
<b>T:</b> Tech Talk	<b>T:</b> Start Your Engines	<b>T:</b> Power Up
<b>E:</b> Swing!	<b>E:</b> Whoosh!	<b>E:</b> Hang On!
<b>M:</b> 1-2-3 Go!	<b>M:</b> Designed to Crunch	<b>M:</b> Numbers Don’t Lie
(More in development)	(More in development)	(More in development)
Each includes a STEM Belt Loop or Pin	Each includes a STEM Merit Badge	Each includes a STEM Exploration

Turn these in!

## General Characteristics of the Nova Awards

### Build on

- Existing badges (for CS and BS)

### Involve

- Familiarization (STEM Entertainment)
- Exploration and application (STEM Badges, Activities)
- Relevance (STEM in Everyday Life)
- Communication (STEM Discussions)

## General Characteristics of a Nova Counselor

- Willing to teach and coach youth working towards Nova awards
- STEM experience not required (high school suffices)
- Comfortable with short commitment (weeks)
- Approved by unit
- May be a Scout’s parent/leader (but it’s recommended that youth work with other adults when possible)

## How to Become a Nova Counselor

### Things to Think About

What level(s) would you like counsel?

- |   |                                     |
|---|-------------------------------------|
| <input type="checkbox"/> Cub Scouts     | <input type="checkbox"/> Boy Scouts |
| <input type="checkbox"/> Webelos Scouts | <input type="checkbox"/> Venturers  |

### Qualifications Checklist

- Be at least 21 years old
- Be of good character
- Be able and willing to work with Scout age youth
- Be comfortable with high school math and science
- Be willing to research STEM topics unfamiliar to you
- Provide current certification in Youth Protection Training
- Complete BSA adult registration form (no charge, position code 58)
- Submit Nova Counselor Information Page to council
- Be approved by council
- Complete Nova Counselor Training (highly recommended)

## Bringing Nova Awards to Your Unit

- Form a STEM Nova team in your unit.
- Decide on unit-wide plans or individualized plans.
- Formulate a roadmap for meeting all the requirements.
- Seek school resources (people, equipment, facilities).
- Find community resources (professionals, businesses, destinations).
- Make STEM trips and events happen.
- Check out summer camp program offerings.
- Look online for more choices (future program feature).

### Tier 2: The Supernova Awards

These awards are for highly dedicated youth. They involve challenging activities with significant independent effort. Each program has a different number of these awards available. For Boy Scouts and Venturers, the Supernova awards are structured in progressive levels. They are recognized by a medal on a neck ribbon.

## Elements of Guiding Youth in the Nova Awards

### *Sequence of Events in One Counseling Assignment*

1. First contact about a new counseling assignment.
2. Schedule the first meeting with the Scout and a buddy.
3. Together, look at the requirements in the Nova Guidebook.
4. Did the youth complete any requirements *before* the first meeting? (STEM badge? STEM destination visit?) If so, assess and sign off.
5. Go over requirements left to complete.
6. Ensure the youth understands the requirements.
7. Decide on a schedule and plan for completing requirements.
8. Meet periodically (following YPP) to assess completion of requirements, reassess the plan, regroup, and/or retest as needed.
9. Certify that the youth has completed the award.
10. Record the Nova Award on a unit advancement report.
11. Buy and bestow the award.

### *STEM Entertainment*

One requirement in each Nova award involves watching and/or reading materials related to the Nova topic. Note:

- This requirement is *not* about doing research. It is supposed to be *entertainment* with a purpose.
- Youth are allowed to view live performances to meet this requirement.
- Live performances can happen in your unit, at a library, or at a STEM destination such as a planetarium or museum.
- You may choose to have a STEM movie night or a pre-unit-meeting viewing of audiovisual materials to help all youth meet this requirement.

### *STEM Badges*

One requirement in each Nova award involves earning a STEM-related badge (belt loop/pin for Cub Scouts, merit badge for Boy Scouts, exploration for Venturers, although Venturers do not actually receive a recognition device).

Note that there are many ways for youth to earn these STEM badges.

- There may be local museums and organizations that offer BSA badge programs.
- Your district or council might offer badge workshops.
- Check out which badges are offered at summer camp.

### *STEM Activities*

The main substance of each Nova award lies in the STEM activities that allow youth to explore and apply the ideas in that award. These activities should be fun with a purpose! To achieve this, be resourceful in finding ideas that will amplify the fun factor. Some good sources:

- Resource Area for Teaching [www.raft.net](http://www.raft.net)
- Engineering – Go For It! [www.egfi-k12.org](http://www.egfi-k12.org)
- The Exploratorium [www.exploratorium.edu](http://www.exploratorium.edu)
- The Tech Museum of Innovation [www.thetech.org](http://www.thetech.org)
- Steve Spangler Science [www.stevespanglerscience.com](http://www.stevespanglerscience.com)
- Science Buddies [www.sciencebuddies.org](http://www.sciencebuddies.org)
- BSA STEM Resources [www.bsastemresources.org](http://www.bsastemresources.org)

### *STEM Activities (cont.)*

Other ways to amplify the fun factor during the activity:

- Provide hands-on engagement.
- Facilitate teamwork.
- Encourage creativity.
- Allow the freedom to fail.
- Make it a game or a challenge.

### *STEM in Everyday Life*

One requirement in each Nova award involves discussing how the Nova topic is connected to everyday life. A very simple strategy to use here is to focus on how our everyday lives today are different than they were in the past and how they might be different in the future. These changes are often due to advances in STEM knowledge and capabilities. For example:

- What did people do before \_\_\_\_\_ was invented or discovered?
- What kinds of knowledge and capabilities do we have today that make it possible for us to use \_\_\_\_\_?
- How might this \_\_\_\_\_ be improved in the future? Would it be cheaper? More environmentally friendly?

### *STEM Discussions*

Nearly every requirement in the Nova awards requires some discussion between the youth and the counselor. Here are some strategies to help this process along.

- Aim for a *dialog* that is *collaborative* and serves as a *starting point* for further thought on the part of the youth.
- Spread your conversation across three different domains of learning: *doing, feeling, and thinking*.
- Emphasize *high-gain questions* (open-ended calls for explanation, description, reflection, speculation) and de-emphasize *low-gain questions* (closed-form calls for brief answers like true/false, yes/no, A or B).
- Switch out wide-open questions like, “What did you learn?” for more specific questions like, “What did you learn about safety protocols on the archery range?”
- Find ways to incorporate the following great options.
  - Is there another way to do or think of this?
  - What if we try to do it a wrong way? What could we learn?
  - Oooh, I don’t know the answer to that question! Let’s find out.

### *Safety and Risk Mitigation*

- Start with BSA’s Guide to Safe Scouting.
- Follow BSA’s Youth Protection Policies.
- Ensure internet safety. (Use Cyberchip recognition.)
- Use safety gear and practices. (Get training, if needed!)
- Bring in a safety consultant, if necessary.
- Respect academic differences. (Offer activity options.)
- Don’t be afraid to just say STOP!

## Resources

**National STEM website:** [www.scouting.org/stem](http://www.scouting.org/stem)

**SVMB Council STEM website:** [www.svmbc.org/stem](http://www.svmbc.org/stem)

**STEM Resources (unofficial):** [www.bsastemresources.com](http://www.bsastemresources.com)