
APRIL ROUND TABLE 2021: INCORPORATING STEM INTO YOUR PROGRAM

Collaboration with
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NATIONAL ANTHEM AND SCOUT OATH

National Anthem



On my honor
I will do my best
to do my duty
to God and my Country
And to obey the Scout law;
to help other people at all times;
To keep myself physically strong
mentally awake
and morally straight

ANNOUNCEMENTS AND REMINDERS

Day Camp Registration is open! Hans Jensen Day Camp will be held the week of July 13-16

-Contact Patty Spear – Patty@thehouseofspear.com

Resident Camp Registration is open!

-Reserve your Pack's weekend now

Friends of Scouting –

- Are Campaigns done

-Ask at your big spring campout if having one virtually or in person

Next District Meeting – May 6, 2021

Next Round Table – May 13, 2021



Looking for updates on policies or advice about Scouting and Covid 19? National has put out this website as a tool. Please utilize it as phases change:

- <https://www.scouting.org/commissioners/covid-19-resources/?fbclid=IwAR0dP15-URVjh8qj3Wu7FPFZgWwL2iGv3pvtOOYrMNDadwTOV4AFL6UHS5c>
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APRIL'S SAFETY MOMENT: SWIMMING!

Swimming is a key to the BSA programs we offer - More than 1.5 million aquatics-related merit badges have been earned by Scouts BSA since 2009.

The BSA has also been a leader in promoting and providing training in aquatics safety. For at least 80 years, checklists have been in place to make sure those aquatic experiences are positive ones. Back in the 1940s there was the seven-defense method, a precursor to today's Safe Swim Defense

Age appropriate swimming often depends on communication with the parents, paying attention to safety guidelines, and respecting boundaries.

Tigers: Floats and Boats

Wolves: Spirit of the Water

Bears: Salmon Run

WEBELOS: Aquanaut

More advanced training, such as Safety Afloat and Safe Swim Defense, can be found at [Scouting.org](https://www.scouting.org).

RESOURCES

-Aquatics Resources

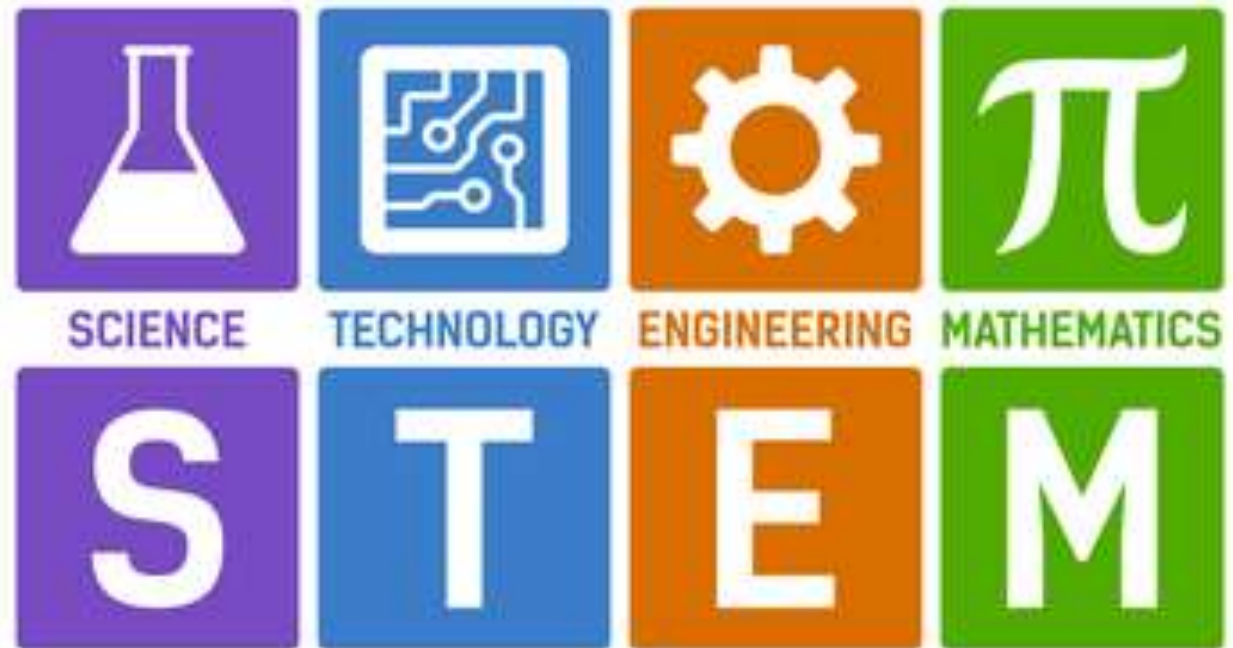
-Aquatics Supervision: A leader's guide to youth swimming and boating activities

- Canoeing, Kayaking, Lifesaving, Motorboating, Rowing, Scuba Diving, Small-Boat Sailing, Swimming, Water Sports, and Whitewater merit badge pamphlets

WHAT IS STEM AND WHY IS IT IMPORTANT?

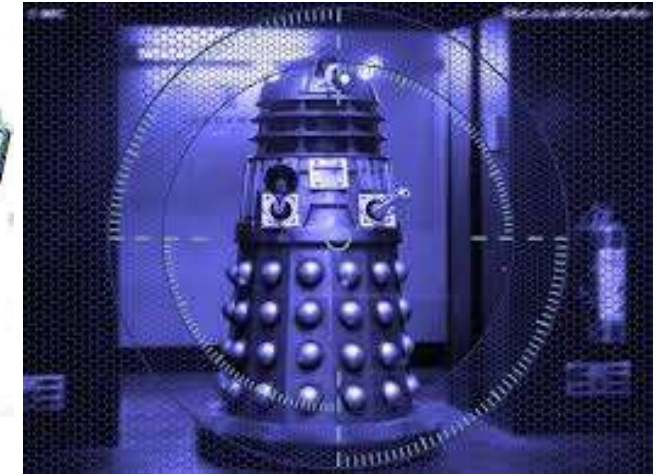
A necessary part of our program!
Interests vary – some love the outdoor program, others live to earn NOVA awards

The principles behind STEM directly relate to the Aims of Scouting:
Character Development (becoming self-sufficient and capable),
Citizenship (understanding the world around us and how it works),
Mental and Physical Fitness (developing critical thinking and reasoning skills).

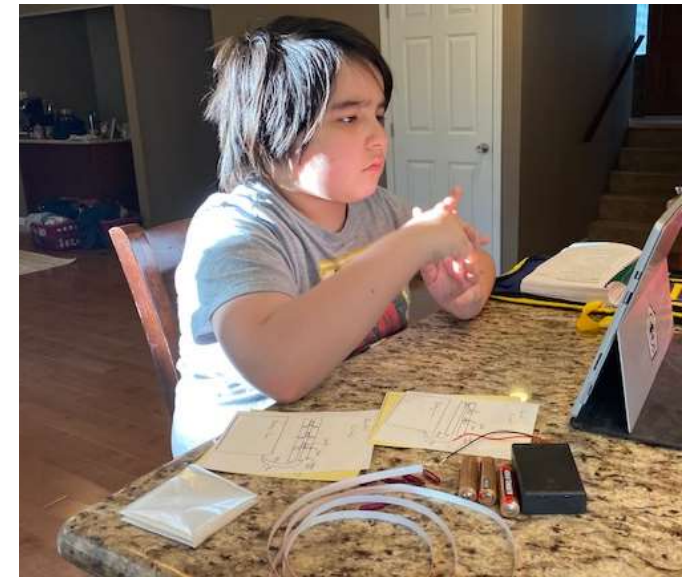




SCIENCE



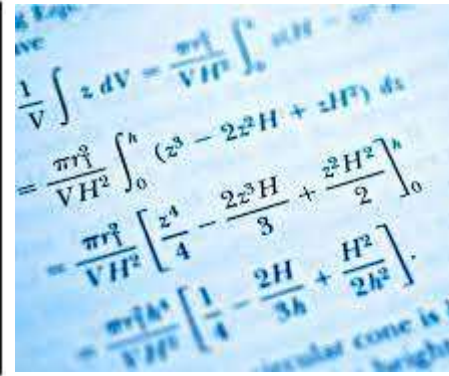
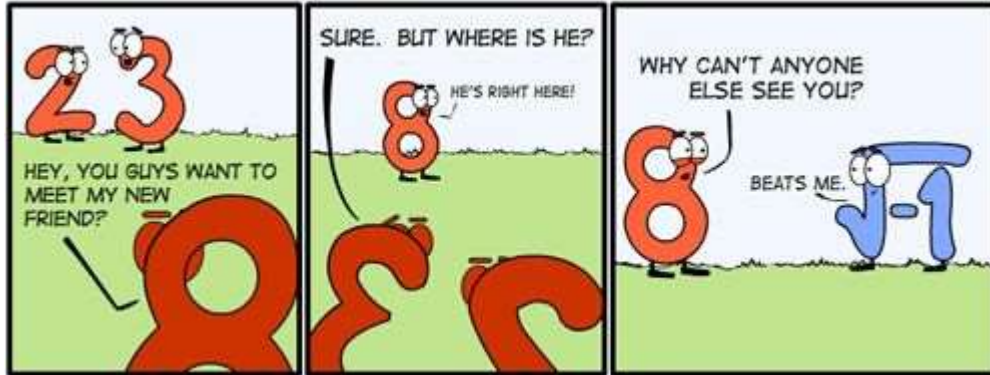
TECHNOLOGY



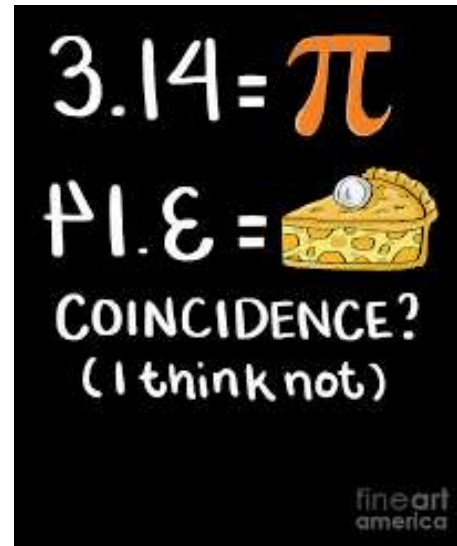


ENGINEERING

MATH



MATHEMATICS



WHAT ARE STEM AWARDS?

NOVA awards are the introductory STEM awards and specialize in particular Science, Technology, Engineering or Mathematics disciplines. The first NOVA award is the patch shown below. Subsequent NOVA awards are Pi pins that can be pinned onto the NOVA patch.



Cub Scout Nova



Boy Scout Nova



Venturer Nova



Pi Pin



Dr. Luis W.
Alvarez
Cub Scouts



Dr. Charles H.
Townes
Webelos



Dr. Bernard
Harris
Boy Scouts

SUPERNOVA awards are more in depth and require the completion of one or more NOVA awards before beginning.

- require more detailed independent study including a project of some sort.
- one step below rank advancement in complexity.

Do boys have to finish each award in one year? Awards are multiyear unlike the rank advancements (Cub Scouts). However,

How difficult is the STEM program? The STEM program is not intended to be a difficult, but instead it is a method to expose boys to STEM. NOVA and SUPERNOVA awards range in difficulty and complexity and the challenges are also different for Scouts with different ranks. Any Scout is capable of earning any of the NOVA or SUPERNOVA awards for their program (i.e. Cubs, Boy Scouts, Venturers) with the appropriate requirements. If Scouts earn NOVA and SUPERNOVA awards, that is awesome, but if they don't they are still likely to have fun participating.

Where do I find the NOVA and SUPERNOVA requirements? <https://www.scouting.org/stem/Awards.aspx>

HOW TO HELP

- **Why should parents participate?** For Scouts to be successful, parents have to lend them a helping hand. From a purely rewarding point of view, there are few things a parent can do that is more rewarding than helping a child figure something out. The “aha” moment is really cool to see.
 - **How can I get involved?** All it takes to get involved is a desire to help. Being a counselor or mentor has no fixed duties other than to meet with and encourage Scouts in STEM activities. All it takes is a simple application (position code 52 for Supernova Counselors and position code 58 for Nova Mentors) and completion of Youth Protection training
 - **Who can be mentors and counselors?** Counselors can be any adult interested in supporting scouts through NOVA activities. Primarily, the role of Counselor is to listen to the Scout and discuss what the Scout has learned working on the NOVA award. This includes asking questions and verifying that the work has been completed. Mentors on the other hand should serve as guides to completing SUPERNOVAs and should have some training in one of the STEM areas as well as experience. Guiding Scouts includes evaluating independent activities, providing suggestions and overall helping the Scout learn something useful from their efforts. ***Under all circumstances, 2 deep leadership MUST be observed. NEVER meet one on one with a Scout. All counselors and mentors MUST be registered Scouters with the District (not the unit) with Youth Protection Training (~30 minutes on line). There is no registration fee.***
 - **How much time does it take?** Including STEM in a unit requires some time by Mentors and Counselors. Most of it is in the actual planning of an activity, gathering supplies and conducting the experiments. Usually, this is rather limited to one or maybe two activities a year. Additionally, Mentors and Counselors have to spend some time talking to the Scouts to ensure Scouts have an opportunity to earn the awards. District level support in the form of participation on the District STEM committee or support of the District STEM events would be much appreciated.
 - **How do I know if something is too dangerous?** NEVER let it be dangerous! The primary responsibility of STEM Counselors and Mentors is to ensure safety of the Scouts. Use the Guide to Safe Scouting to help determine safe activities. Always practice demonstrations/activities prior to sharing them with the Scouts. Consult with other Counselors, Mentors, the District STEM Committee or District STEM Chair if necessary. If there is any doubt or hesitation, be safe and table the activity until it can be conducted safely.
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INCORPORATING STEM INTO YOUR PROGRAM

- **How do we support Scout STEM activities with everything else Scouts work on?** Because STEM is already integrated into Scouting, most of the activity will not be extra effort. However, earning the NOVA and SUPERNOVA awards requires some activity outside of the traditional programs. For Cub Scouts, Den and Pack leaders need to evaluate the overall interests of their Scouts to determine if they want to include the extra efforts needed to complete NOVAs and SUPERNOVAs. Under most conditions, most of the NOVA and SUPERNOVA awards will be given to individual Scouts wanting to pursue them outside of organized Den, Pack activities. This is where Counsellors and Mentors come in. It does take time to support individual activities.
 - **How do we promote STEM activities?** STEM is relatively easy to promote in Cub Scouts as parents are generally in favor of STEM activities and Cub Scouts will enjoy it as long as it isn't someone just talking. Usually, there will be one Pack meeting a year where no one is quite sure of what to do. Although, Cub Scout programs are usually planned out for the Pack meetings for the year, so it is best to promote Pack level STEM activities at the annual planning meeting. Den meetings after the Blue and Gold are great opportunities for the Scouts. Den leaders will also appreciate added ideas for them in this time frame. For troops, the STEM topic needs to be presented to the PLC during their planning sessions. Typically, suggesting an idea for one of the troop meetings is welcome by the Scouts looking for ideas for their troop activities.
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BUDGET CONSIDERATIONS

- **How much does it cost to have a good STEM program?** Cost is always a concern for Scout Units. An effective STEM activity can be run for only a few dollars (i.e. marshmallow catapults, chemistry, levers, water rockets, etc.) to tens of dollars (large catapults, electromagnets/electricity, air rockets, etc.) to hundreds of dollars (i.e. museum trips, museum overnights, speaker fees, etc.). The STEM Committee and Chair can help with low cost ideas.
 - **What do you have to buy?** Nothing is explicitly required, but eye protection and gloves can be good ideas depending on what is done. Pack assets such as water rocket launchers, ESTES rocket launchers, pinewood derby tracks, rain gutter regatta tracks, space derby tracks, candles, cups, napkins and plates can be helpful. Beyond that, each activity will have its own equipment requirements. Of course, buying the NOVA patches and pins and SUPERNOVA medallions.
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IDEAS FOR YOUR PACK

	Category	Type of Activity	Ages	Comments
Paper Airplane or helicopter launchers	SEM	Participation	Cubs	https://www.youtube.com/watch?v=jmK6tsAedUo
Musical instruments (air movement /percussion, vibration /strings, air vibration /wind instruments, etc., tin can telephones)	S	Participation	Cubs	This is a wide open area and there are endless illustrations of how soundwaves are created and propagate
Density gradients (different fluids/diff colors, stack the fluids and then “float” different seeds on different layers)	S	Demo Participation	Cubs	
Oobleck – 1 part water, 2 parts corn starch, food coloring. – Non-Newtonian fluid	S	Participation	Cubs	There are lots of cool ways to use this simple non-Newtonian fluid. Just do research so you can answer “Why?”
Da Vinci bridge – small scale for cubs, life size for boy scouts	E	Participation	Cubs Boys	https://www.youtube.com/watch?v=ksTe0dhvGdg
Simple Electric Motors – Lots of creative potential, but be careful of heating	STE	Demo Participation	All	https://www.youtube.com/watch?v=eIFUJNodXps

RESOURCES TO CONSIDER

- [Online Nova Counselor/Supernova Mentor training](#)
 - [Supernova Mentor application](#)
 - Volume = Length × Width × Height
 - Other Scouting resources
 - Greater St. Louis Area Council: <http://www.stlbsa.org/programs/stem/Pages/STEM.aspx>
 - Northeastern Pennsylvania Council: <http://www.nepabsa.org/advancement/stem-nova>
 - Baltimore Area Council: <http://www.baltimorebsa.org/stem/47522>
 - Patriots' Path Council (summer/day camp): <http://www.camps.ppbsa.org/camps/wheeler/stem.htm> and http://www.camps.ppbsa.org/camps/somers/Backwoods_Engineering_Camp.htm
 - Boy Scouts of America: <http://www.scouting.org/stem.aspx>
 - US Scouting Service Project: <http://usscouts.org/usscouts/advance/nova/index.asp>
 - Television Programs and Videos
 - [PBS \("NOVA"\)](#)
 - [PBS Kids](#)
 - [Discovery Channel](#)
 - [Discovery Kids](#)
 - [Science Channel](#)
 - [National Geographic Channel](#)
 - [TED Talks \(online videos\)](#)
 - [History Channel](#)
 - [History Channel "Modern Marvels"](#)
 - Magazines
 - [Discover Magazine](#)
 - [Popular Mechanics Magazine](#)
 - [Popular Science Magazine](#)
 - [Science Illustrated Magazine](#)
 - [Air & Space Magazine](#)
 - [Popular Astronomy Magazine](#)
 - [Highlights for Kids Magazine](#)
 - [Astronomy Magazine](#)
 - [Science News](#)
 - [Science News for Kids](#)
 - [Sky & Telescope Magazine](#)
 - [Natural History Magazine](#)
 - [Robot Magazine](#)
 - [Servo Magazine](#)
 - [Nuts and Volts Magazine](#)
 - [Scientific American Magazine](#)
 - [National Geographic Magazine](#)
 - [National Geographic Kids](#)
 - [Kids Discover](#)
 - [OWL Kids](#)
 - [Odyssey Magazine](#)
 - Government Websites
 - [NASA](#)
 - [NASA's Space Place](#)
 - [Energy Kids \(US Dept of Energy\)](#)
 - [USGS Education](#)
 - [Earthquakes for Kids](#)
 - [EPA for Students](#)
 - Other Websites
 - [BBC Bitesize Science and Math for ages 8-11](#)
 - [BBC Bitesize Science and Math for ages 11-14](#)
 - [How to Calculate Your Horsepower](#)
 - [Six Simple Machines](#)
 - [Projectile Motion](#)
 - [Types of Levers](#)
 - 19 Super Cool Science Experiments for Kids – (5 minute crafts on YouTube)
 - Hoopla Kids Lab
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FAQS REGARDING STEM

Are there activities or just talk? The Scouting STEM program should follow the EDGE method where topics are Explained and Demonstrated followed by Guidance and Enabling. STEM activities should be geared toward holding Scouts' attention, which is best done through dynamic demonstrations and participation by ALL Scouts.

Should STEM be a Scout led activity? Each of the SUPERNOVAS requires running a STEM activity for other Scouts to participate in. This is very important because the Cub Scouts SUPERNOVA requires participation in Boy Scout or Venturer led STEM activities if possible.

What do the Scouts get out of STEM? Scouts learn about STEM careers and fields of study and well as develop an appreciation for the STEM fields. Additionally, Scouts learn to think for themselves and how to apply the scientific method and critical thinking skills to everyday problems and challenges that they face. Also, it is really cool to launch rockets, build catapults, conduct chemistry experiments and study secret codes, etc.

Who is it open to? The STEM program is open to any and all Scouts in BSA. The awards can only be earned by registered Scouts. However, including parents and siblings can make the activities more fun and inclusive.

How is STEM integrated with the Scouting programs? Each level of Scouting has its own NOVA and SUPERNOVA awards with requirements that are age appropriate. NOVA awards require completion of certain STEM related adventures/merit badges/activities

Will STEM count toward any other awards/advancements? There are elements of STEM within each rank advancement and other award. However, NOVA and SUPERNOVA awards are not required for any award outside of the STEM program.

What types of things do the Scouts do? Conduct experiments, design and/or build simple to complex machines, coding, make and decipher secret messages, investigate orbital mechanics/stars/planets, build rockets, boats and cars, study the environment and nature/animals/plants, make volcanoes, study weather and geology, collect rocks/fossils, design and build a marble roller coaster, learn about farming and the science of agriculture, science of sports, learn about STEM professions and famous people in STEM areas.

OPEN DISCUSSION TIME AND CLOSING



- Please speak with Kat or Wendy if you are interested in helping with RT 2021-2022!
- Concerns? Questions?
- Need advice from the hive mind?
- Any particular challenges being faced?
- Roses, buds, and thorns
- Success stories
- Best practices discovered

Thank you for your input and attending this evening. Please be sure that your name and pack number has been recorded for us.

Have a wonderful April! See you next month for membership updates, annual planning check in, and Planning Advancement for Scouts with special needs!
