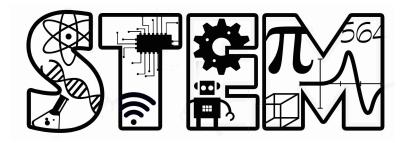
Participant Guide to **STEM ADVENTURE WEEKEND 2020**

Online Classes: September 25-26, 2020 Some in-person requirements at camp: Spring 2021 (date TBD)



Science, Technology, Engineering & Math Merit badges and Nova awards for Scouts BSA, Venturers, and Sea Scouts Capitol Area Council, Austin, TX https://bsastemnova.org

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WELCOME TO STEM ADVENTURE WEEKEND 2020

STEM Adventure Weekend is hosted by the volunteer STEM Nova Committee of the Capitol Area Council, Austin, TX.

For 2020, the committee pledges to continue scouting under these extraordinary circumstances and to offer scouting opportunities as best we can. All online classes will be taught via the Zoom video conference application by the same expert instructors as in the past.

The purpose of this weekend is to provide Scouts opportunities to explore scouting in a STEM-focused camp environment. Plan to have fun and work hard.

"STEM is part of an initiative the Boy Scouts of America has taken on to encourage the natural curiosity of youth members and their sense of wonder about these fields through existing programs."

http://www.scouting.org/stem/AboutSTEM.aspx

BSA NOVA Awards

Classes at STEM Adventure Weekend are a part of the Nova award program.

"The Boy Scouts of America developed the Nova Awards program to excite and expand a sense of wonder in our Scouts. By working with an adult counselor or mentor, the various modules allow them to explore the basic principles of STEM and discover how fun and fascinating STEM can be. The Supernova awards are offered for those who enjoy a super challenge. For more information about STEM and the Nova Awards program, visit www.scouting.org/stem. Discover how the Nova Awards program helps youth be "Prepared. For Life.""

http://www.scouting.org/stem/AboutSTEM.aspx



<u>Online Classes</u>

Register here: https://bsacac.doubleknot.com/event/stem-adventure-weekend/2721265

Scouts may choose up to 4 online classes for the 2020 STEM Adventure Weekend from a choice of seventeen. Classes are \$18 each.

All instructors are registered merit badge counselors and professionals or serious hobbyists in the field they are teaching.

Classes are hosted on the council's Zoom video conference platform. Each class period is allocated up to 4 hours, however most classes are expected to finish within 3 hours.

Location	class 1	class 2	class 3	class 4
Zoom	Friday 9/25 6-10p	Saturday 9/26 8a-12p	Saturday 9/26 1p-5p	Saturday 9/26 6-10p
Room 1	Digital Technology	-	Programming	Electricity
Room 2	-	Electronics	Composite Materials-cancelled	-
Room 3	Nova Shoot	Space Exploration cancelled	Model Design & Building	Radio cancelled
Room 4	Nova Mendel's Minions	Nova Splash	Insect Study	Nova Grow
Room 5	Nuclear Science	Oceanography cancelled	Nova Whoosh	Astronomy

Please contact staff if you have questions.

Possible Camp Classes

The STEM Nova committee has reserved Sunday, September 27 for potentially holding a few in-person classes at camp (Lost Pines Scout Reservation, Bastrop, TX) to finish up merit badge requirements. These classes are noted in the "Class Requirements" table below.

In-person classes will be scheduled for spring 2021, subject to council and county approvals which may change before then.

The committee will announce a separate in-person registration and guidelines for this opportunity as soon as possible.

Class Requirements

Given the nature of many STEM merit badge and Nova classes, not all requirements may be covered in a single class period. Requirements listed in the homework column may be completed beforehand and discussed with your counselor if they have time. Most counselors have agreed to continue working with scouts to complete requirements after camp.

Please see Appendix A for additional details about each class.

All Nova awards include 3 hours of reading/watching about the topic (requirement 1) and the completion of a topic-specific merit badge (requirement 2).

Requirements for classes that will be covered at an in-person event in spring 2021 at camp, if allowed, are marked in red.

Class	Covered	Not covered / Homework
Astronomy	1, 2, 3, 4cd, 5, 6acd, 7, 9	4ab, 6b, 8
Composite Materials	1, 2, 3, 4, 6	5abc
Digital Technology	All*	*Cyber chip pre-requisite
Electronics	1, 2, 3c, 4, 5, 6	3ab
Electricity	All	-
Insect Study	1,2,3,4,6b,7,8,10,11,12,13	5,6a,9
Model Design & Building	1, 2, 3, 6	4, 5
NOVA Let it Grow!	3, 4, 5, 6	1, 2
NOVA Mendel's Minions	3, 5, 6	1, 2, 4
NOVA Shoot!	3b, 4b1, 5a, 6	1, 2, 4b2
NOVA Splash!	3, 4, 5, 6	1, 2
NOVA Whoosh!	3, 4, 5, 6	1, 2
Nuclear Science	All	-
Oceanography	1, 2, 3, 4, 5, 6, 9	7a, 8
Programming	All except 5*	5 *Cyber chip pre-requisite
Radio	All	-
Space Exploration	1, 4, 5a, 6, 8	2, 3, 5bc, 7

A few classes will have optional materials kits available for purchase if/when registration for in-person classes is allowed. These kits will help scouts complete some of the homework requirements.

Note for Venturers and Sea Scouts: The Nova classes listed above are the names for Scouts BSA. See the last page of the class descriptions (Appendix A) for the equivalent Nova awards for your level.

Additional Requirements

Scouts and units from other councils are welcome to participate in the Capitol Area Council online STEM Adventure Weekend.

Scouts do not need to be First Class or 14 years old to attend, but it is imperative that all attendees have the maturity to be attentive and engaged in the interactive environment that is created by the merit badge counselors for the length of the class. It is essential that the Scouts themselves are capable of performing all requirements without parental assistance.

Youth Protection

All online classes will be conducted with at least two adult volunteers (instructor and monitor). Adults will monitor scout activity and will call parents if there is no participation or non-scout-like behavior. No credit will be given to a scout who does not participate. No refunds will be issued if a scout does not participate or is removed for inappropriate behavior.

Follow the Guide to Safe Scouting: <u>https://www.scouting.org/health-and-safety/gss</u>

<u>STEM Gear</u>

Purchase STEM Nova t-shirts for \$15 during online registration. The design is shown below. The color of the shirts is Blue-Grey as shown in the left photo.





<u>Uniform</u>

While wearing the field uniform is always appropriate, it is not required for STEM Adventure Weekend. STEM t-shirts (activity uniform) are available while supplies last. Any Scout-appropriate clothing is acceptable.

Electronic Completion Report

Blue cards will not be provided or signed for STEM Adventure Weekend. Each <u>S</u>cout will receive an Electronic Completion Report generated by the Doubleknot registration system.

This report is a record of a Scout's progress in the pursuit of completing merit badges and Nova awards. The instructor will call roll at the beginning of each class. After the class, the instructor will turn in the class list and requirements completed. A printed copy of the report will be provided at checkout. The electronic completion report should be turned in to your unit leader for proper recording of your achievements during the STEM Adventure Weekend.

Instructions on how to access these reports is:

- 1. Log into Doubleknot (<u>https://bsacac.doubleknot.com/Rosters/logon.aspx</u>?)
- 2. Click on My Account (top right corner below Capitol Area Council logo).
- 3. Click on the Registrations tab
- 4. Here you will see all your registrations. On the bar with NOVA/STEM Adventure Weekend 2020, you can click on Reports under the Action column.
- 5. Click on the Class/Activity Completion Award link
- 6. Click on print and select print as a pdf. Now you can save the file and email it to the Scoutmaster, Advancement Chair and/or anyone who needs it for a record.

The Electronic Completion Report may not track all of the newer Nova requirements. If you encounter issues with official recording at your unit, please contact staff.

<u>Additional</u>

Participants will be notified as soon as possible of any class changes.

During STEM Adventure Weekend we will:

- Follow Scouting methods, skills, procedures, and values
- Demonstrate youth-led program segments
- Introduce people to a wider variety of Scouting topics
- Provide Scouts and Scouters an opportunity to engage with each other
- Deliver a fun camping experience
- Foster enthusiasm in STEM

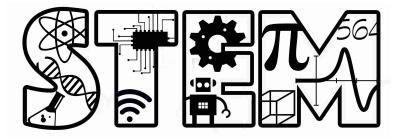
Capitol Area Council contact information:

Primary Staff Contact: Jessica Snider, Director of STEM, Conservation and Sustainability office: 512-617-8651, cell: 512-632-9395 jessica.snider@scouting.org

Main reception desk 512-617-8611

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<u> Appendix A – Class Details</u>

MERIT BADGES

https://www.scouting.org/programs/scouts-bsa/advancement-and-awards/merit-badges/

Astronomy

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Astronomy.pdf http://usscouts.org/mb/worksheets/astronomy.pdf Homework:

Homework:

4ab - identify constellations and stars in the night sky

6b - sketch the Moon for four nights

8 -observation options

Class materials:

paper and pen or pencil Optional: binoculars or telescope

Composite Materials - cancelled

https://filestore.scouting.org/filestore/Merit Badge ReqandRes/Composite Materials.pdf http://usscouts.org/mb/worksheets/Composite-Materials.pdf

Homework:

5abc – do two projects

Class materials:

paper and pen or pencil

For requirements **5abc**, a composites kit will be available for purchase if/when an in-person event is possible.

Digital Technology

https://filestore.scouting.org/filestore/Merit Badge ReqandRes/Digital Technology.pdf http://usscouts.org/mb/worksheets/Digital-Technology.pdf

Pre-requisite:

Scouts must have completed Cyber Chip prior to class.

Homework:

None.

Class materials:

paper and pen or pencil access to a computer (not just a smart phone or tablet)

Electronics

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Electronics.pdf http://usscouts.org/mb/worksheets/Electronics.pdf Homework:

3ab - soldering project

Class materials:

paper and pen or pencil

For requirements 3ab, an electronics kit will be available for purchase if/when an in-person event is possible.

Electricity

http://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Electricity.pdf http://usscouts.org/mb/worksheets/Electricity.pdf Homework: None Class materials: paper and pen or pencil

Insect Study

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Insect_Study.pdf http://usscouts.org/mb/worksheets/Insect-Study.pdf

Pre-requisite:

Watch an ant colony video. Specific link will be sent after registration. Homework:

5 – observe insects and make scrapbook

6a – identification from scrapbook

9 – raise an insect

Class materials:

paper and pen or pencil

Model Design and Building

https://filestore.scouting.org/filestore/Merit Badge ReqandRes/ModelDesign and Building.pdf http://usscouts.org/mb/worksheets/Model-Design-and-Building.pdf

Homework:

4 & 5 – build models

Class materials:

paper and pen or pencil

For requirements 4 & 5, any materials such as recycled cardboard may be used. These requirements may be completed if/when an in-person event is possible.

Nuclear Science

http://filestore.scouting.org/filestore/Merit Badge_ReqandRes/Nuclear_Science.pdf http://www.usscouts.org/mb/worksheets/Nuclear-Science.pdf Homework: None. Class materials: paper and pen or pencil

Oceanography - cancelled

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Oceanography.pdf http://usscouts.org/mb/worksheets/Oceanography.pdf

Homework:

7 – do one (many options)

8 - report or speech

Class materials:

paper and pen or pencil

Requirements 7a (plankton net) and 8 may be completed if/when an inperson event is possible.

Programming

https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Programming.pdf http://usscouts.org/mb/worksheets/Programming.pdf

Pre-requisite:

Scouts must have completed Cyber Chip prior to class.

Homework:

5 – three programs and discussion. Class will introduce this requirement, but Scouts may not be able to finish it within the class timeframe. This may be completed before or after the class.

Class materials:

paper and pen or pencil access to a computer (not just a smart phone or tablet)

Radio - cancelled

http://filestore.scouting.org/filestore/Merit Badge ReqandRes/Radio.pdf http://usscouts.org/mb/worksheets/Radio.pdf Homework: None. Class materials: paper and pen or pencil

Space Exploration - cancelled

https://filestore.scouting.org/filestore/Merit Badge ReqandRes/Space Exploration.pdf http://usscouts.org/mb/worksheets/Space-Exploration.pdf Homework:

2 - design a collector's card

3 – build, launch, and recover a model rocket

5b – make a scrapbook or 5c – design a robotic mission

7 – design an inhabited base

Class materials:

paper and pen or pencil

For requirement 3, a model rocket kit will be available for purchase if/when an in-person event is possible.

Requirements 2, 3, 5c, and 7 may be completed if/when an in-person event is possible.

Optional: you may purchase a model rocket kit from scoutshop.org Estes Hi Flier <u>https://www.scoutshop.org/estes-hi-flier-rocket-kit-619030.html</u> Estes Alpha III <u>https://www.scoutshop.org/estes-alpha-iii-model-rocket-launch-set-619025.html</u> Rocket multi-packs, rocket engines, and a launch set are also available.

NOVA AWARDS

https://www.scouting.org/stem-nova-awards/awards/

All of the NOVA Awards require parts 1 and 2 be completed outside of class time.

- Requirement 1 is to read, watch or in some combination total 3 hours of the STEM area covered, make a list of questions, and discuss with your counselor.
- Requirement 2 is to compete one of the merit badges that are listed for that award and discuss with your counselor.

The discussion portions of 1 and 2 may be possible to complete before, during, or after camp at the discretion of your instructor.

NOVA Let it Grow!

https://i9peu1ikn3a16vg4e45rqi17-wpengine.netdna-ssl.com/wp-content/uploads/2018/11/Let-It-Grow-Nova-2018Nov26.pdf

Pre-requisite:

Watch a farm tour video. Specific link will be sent after registration. Homework:

1 – read or watch 3 hours about agriculture or farming

2 – compete one of the following merit badges: Animal Science, Cooking, Farm Mechanics, Fish and Wildlife Management, Fishing, Forestry, Gardening, Insect Study, Mammal Study, Nature, Plant Science, Soil and Water Conservation

Class materials:

paper and pen or pencil

NOVA Mendel's Minions

https://i9peu1ikn3a16vg4e45rqi17-wpengine.netdna-ssl.com/wpcontent/uploads/2019/02/MendelsMinions2019.pdf

Homework:

1 – read or watch 3 hours about genetic or genomics

2 – compete one of the following merit badges: Animal Science, Bird Study, Forestry, Gardening, Insect Study, Mammal Study, Medicine, Nature, Public Health, Reptile and Amphibian Study, Veterinary Medicine

4 – present a report

Class materials:

paper and pen or pencil

NOVA Shoot!

https://i9peu1ikn3a16vg4e45rqi17-wpengine.netdna-ssl.com/wpcontent/uploads/2018/11/Shoot-Nova-2018Nov26.pdf

Homework:

1 – read or watch 3 hours about projectiles, aviation, weather, astronomy, or space technology

2 – compete one of the following merit badges: Archery, Astronomy, Athletics, Aviation, Game Design, Rifle Shooting, Robotics, Shotgun Shooting, Space Exploration, Sustainability, Weather

4b2 – watch a satellite

Class materials:

paper and pen or pencil

To complete requirement 5a, please have these materials or similar on hand: 7 wooden skewers/sticks/pencils, 5 marshmallows, a plastic spoon, masking tape, and a rubber band

NOVA Splash!

https://i9peu1ikn3a16vg4e45rqi17-wpengine.netdna-ssl.com/wpcontent/uploads/2018/11/Splash-Nova-2018Nov26.pdf

Pre-requisite:

Watch a water usage video. Specific link will be sent after registration. Homework:

1 – read or watch 3 hours about agriculture or farming

2 – compete one of the following merit badges: Chemistry, Energy,

Engineering, Environmental Science, Fish and Wildlife Management, Fishing, Fly-Fishing, Forestry, Geology, Nature, Oceanography, Public Health, Soil and Water Conservation, Sustainability, Weather

Class materials:

paper and pen or pencil

NOVA Whoosh!

https://i9peu1ikn3a16vg4e45rgi17-wpengine.netdna-ssl.com/wpcontent/uploads/2018/11/Whoosh-Nova-2018Nov26.pdf

Homework:

1 – read or watch 3 hours about agriculture or farming

2 – compete one of the following merit badges: Archery, Aviation, Composite Materials, Drafting, Electronics, Engineering, Inventing, Mining in Society, Model Design and Building, Railroading, Rifle Shooting, Robotics, Shotgun Shooting

Class materials:

paper and pen or pencil

NOVA Equivalencies between Scouts BSA and Venturing/Sea Scouting

The table below lists Scouts BSA Novas and their approximately equivalent Nova for Venturing and Sea Scouting. For the full list of Venturing/Sea Scouting requirements, see https://www.scouting.org/stem-nova-awards/venturer/

For STEM Adventure Weekend 2020, Shoot!, Splash!, and Whoosh! have equivalent classes: choose the appropriate match for the Nova you wish to start and make sure you register as a Venturer/Sea Scout. The instructor will help you with any additional requirements that may be different for your program level.

Class at SAW20	Scouts BSA Nova	Venturing/Sea Scouting Nova
YES	Shoot!	Launch!
YES	Let it Grow!	-
YES	Splash!	Wade!
YES	Mendel's Minions	-
-	-	What a Life
-	Start Your Engines!	Power Up
-	Hello World	Execute
-	-	Something from Nothing
YES	Whoosh!	Hang On!
-	Up and Away	Up and Away
-	Next Big Thing	-
-	Designed to Crunch	Numbers Don't Lie