

Cub Scout STEM Nova Award Changes



Spring 2017



“Current” award requirements can be used through 12/31/2017 ONLY. “Revised” requirements are effective immediately.





Science Everywhere



Current

2. Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts

Adventures in Coins
Collections and Hobbies
Digging in the Past
Germs Alive!
Grow Something

Bear Cub Scouts

A Bear Goes Fishing
Bear Picnic
Critter Care

Webelos Scouts

Camper
Earth Rocks!
Maestro!

Revised

2. Complete ONE adventure from the following list for your current rank or complete option A or B. (If you choose an Adventure, choose one you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.

Wolf Cub Scouts

Collections and Hobbies
Digging in the Past
Germs Alive!
Grow Something

Bear Cub Scouts

A Bear Goes Fishing
Bear Picnic
Critter Care

Webelos Scouts

Earth Rocks!
Maestro!

Option A: Complete all of the following: (a) Explain the scientific method to your adult partner. (b) Use the scientific method in a simple science project. Explain the results to an adult. (c) Talk to a scientist about why he or she became a scientist.

Option B: Complete all of the following: (a) Show how to orient a map. Find three landmarks on the map. (b) Make a simple compass with a magnet and pin. (c) Show how a compass works. (d) Use a compass on an orienteering activity with at least 3 stops.





Current

2. Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts

Finding your way
Motor Away

Bear Cub Scouts

Make it Move
A World of Sound

Webelos Scouts

Build It
Fix It
Movie Making

Tech Talk

Revised



2. Complete ONE adventure from the following list for your current rank or complete option A or B. (If you choose an Adventure, choose one you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.

Wolf Cub Scouts

Finding your way
Motor Away

Bear Cub Scouts

Make it Move
Forensics

Webelos Scouts

Build It
Fix It
Movie Making

Option A: Complete all of the following: (a) Explain these parts of a personal computer: central processing unit (CPU), monitor, keyboard, mouse, modem, and printer. (b) Make a list of ten devices that can be found in a home that use a computer chip to function. (c) Use a spreadsheet program to organize some information.

Option B: Complete all of the following: (a) Point out the major features of a camera to your den or family and explain the function of each part. Parts **COULD** include memory card, lens, shutter, power on and off, zoom, battery, flash, display panel, case, settings, etc. (b) Discuss with your leader or adult partner the benefits and contributions photography makes to modern life. (c) Use a camera to take at least 10 pictures of your family, pet, scenery; show these to your den.





Swing

Revised

Current

2. Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts

Motor Away
Paws of Skills

Bear Cub Scouts

Baloo the Builder
A Bear Goes Fishing

Webelos Scouts

Adventures in Science
Engineer
Sportsman

2. Complete ONE adventure from the following list for your current rank or complete option A or B. (If you choose an Adventure, choose one you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.

Wolf Cub Scouts

Motor Away
Paws of Skill

Bear Cub Scouts

Baloo the Builder
A Bear Goes Fishing

Webelos Scouts

Adventures in Science
Engineer

Option A: With your parent's permission, take an old or broken household or mechanical item, break it down into its component pieces, and identify the purpose of five parts. Suggested items include a keyboard, floppy disk, telephone, VCR, tape deck, bicycle, people counter, printer or similar item. Make sure to use appropriate safety precautions.

Option B: Participate in two sports, either as an individual or part of a team, and identify the levers used in each sport.





Current

2. Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts
Code of the Wolf

Bear Cub Scouts
Robotics

Webelos Scouts
Game Design

123 Go

Revised



2. Complete ONE adventure from the following list for your current rank or complete option A or B. (If you choose an Adventure, choose one you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.

Wolf Cub Scouts
Code of the Wolf

Bear Cub Scouts
Robotics

Webelos Scouts
Game Design

Option A: Complete both of the following: (a) Conduct an opinion survey through which you collect data to answer a question and then show your results with a chart or graph. For example, what is the favorite food of the scouts in your den (chart how many like pizza, how many like cookies, etc.). (b). Conduct and keep a record of a coin toss probability experiment. Keep track of at least 25 tosses.

Option B: Complete both of the following: (a) Interview four adults in different occupations and see how they use measurement in their job. (b) Measure how tall someone is. Have them measure you. Complete in both inches and centimeters.





Current

2. Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts

Collections and Hobbies

Digging in the Past

Grow Something

Bear Cub Scouts

Critter Care

Super Science

Webelos Scouts

Adventures in Science

Earth Rocks!

Down and Dirty

Revised



2. Complete ONE adventure from the following list for your current rank or complete option A or B. (If you choose an Adventure, choose one you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.

Wolf Cub Scouts

Collections and Hobbies

Digging in the Past

Grow Something

Bear Cub Scouts

Super Science

Webelos Scouts

Adventures in Science

Earth Rocks!

Option A: Complete two of the following. (a) Explain to your den or an adult what geology means. (b) Collect samples of igneous, sedimentary, and metamorphic rocks and explain how each was formed. (c) Collect samples of three minerals. Explain to your family or den what a mineral is and show and tell about the minerals you collected. (d) With your family or den, make a mineral test kit, and test minerals according to the Mohs scale of mineral hardness. Record the results.

Option B: Complete one of the following: (a) Make a fossil cast. (b) Make a dinosaur dig. Be a paleontologist, and dig through a dinosaur dig made by another member of your den. Show and explain the ways a paleontologist works carefully during a dig.





Current

2. Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts

Digging in the Past
Grow Something
Spirit of the Water

Bear Cub Scouts

A Bear Goes Fishing
Critter Care

Webelos Scouts

Into the Wild
Into the Woods

Nova Wild!

Revised



2. Complete ONE adventure from the following list for your current rank or complete option A or B. (If you choose an Adventure, choose one you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.

Wolf Cub Scouts

Digging in the Past
Grow Something Critter Care
Spirit of the Water

Bear Cub Scouts

A Bear Goes Fishing

Webelos Scouts

Into the Wild
Into the Woods

Option A: Do all of the following. (a) Make a poster that shows and explains the water cycle. (b) Set up a simple weather station to record rainfall, temperature, air pressure or evaporation for one week. (c) Find the local weather forecast. Discuss with a family member the weather forecast. Follow-up by discussing the accuracy of the forecast the following day.

Option B: Do all of the following. (a) Explain what natural resources are and why it's important to protect and conserve them. (b) Make a poster that shows and explains the food chain. Describe to your den or adult what happens when the food chain becomes broken or damaged. (c) Learn about an endangered species. Make a report to your den or adult that includes a picture, how the species became endangered, and what is being done to save it.





Out of This World!



Current

2. Complete ONE adventure from the following list. (Choose one that you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, or math was used in the adventure.

Wolf Cub Scouts

Air of the wolf

Collections and Hobbies

Germes Alive!

Motor Away

Bear Cub Scouts

A Bear Picnic Basket

Robotics

Super Science

Webelos Scouts

Adventures in Science

Engineering

Game Design

Revised

2. Complete ONE adventure from the following list for your current rank or complete option A or B. (Choose an Adventure you have not already earned.) Discuss with your counselor what kind of science, technology, engineering, and math was used in the adventure or option.

Wolf Cub Scouts Bear Cub Scouts

Collections and Hobbies

Germes Alive!

Motor Away

Robotics

Super Science

Webelos Scouts

Adventures in Science

Engineering

Game Design

Option A: Do all of the following: (a) Demonstrate how to focus a simple telescope or binoculars. (A local astronomy club may be a resource for this activity.) (b) Draw a diagram of our solar system. Identify the planets and other objects. (c) Draw and label five constellations. See if you can locate any of them in the sky using a star map.

Option B: Do both of the following. (a) Make a paper airplane and fly it five times. Try to make it fly farther by altering its shape. Fly it at least five more times to see if your changes were effective. (b) Make a balloon-powered sled or a balloon-powered boat. Test your sled or boat with larger and smaller balloons.





Dr. Luis Alvarez Supernova Award: Req 1



Current

1. Complete both of the adventures appropriate for your rank.

Wolf Cub Scouts

Air of the Wolf

Code of the Wolf

Bear Cub Scouts

Make It Move

Super Science

Revised

1. Complete the adventure appropriate for your rank and complete option A or option B.

Wolf Cub Scouts

Code of the Wolf

Bear Cub Scouts

Make It Move

Option A: Do all of the following: (a) Keep track of the money you earn and spend for three weeks. (b) Geometry: Select a simple shape or figure. Observe the world around you for at least a week and keep a record of where you see this shape or figure and how it is used. (c) Visit a bank and have someone explain how interest works. Use the current interest rate and calculate how much interest different sums of money will earn.

Option B: Do all of the following: (a) Measure how you use your time by keeping a diary or log of what you do for a week. Then make a chart or graph to display how you spend your time. (b) Measure, mix, and prepare at least two recipes. Share your snacks with family, friends, or your den. (c) Study geometry in architecture by exploring your neighborhood or community. Look at different types of buildings-houses, places of worship, businesses, etc.-and create a presentation (a set of photographs, a collage of pictures from newspapers and magazines, a model) that you can share with your den or pack to show what you have seen and learned about shapes in architecture.





Dr. Luis Alvarez Supernova Award: Req 2



Current

2. Complete the following adventure appropriate for your rank.

Wolf Cub Scouts

Call of the Wild

Bear Cub Scouts

Forensics

OR Marble Madness

Revised

2. Complete the adventure appropriate for your rank or complete option A or B.

Wolf Cub Scouts

Call of the Wild

Bear Cub Scouts

Forensics

Option A: Do all of the following: (a) Go shopping with an adult and use a calculator to add up how much the items you buy will cost. See whether your total equals the total at check out. (b) Explain the meaning of these statistical words and tools: data, averaging, tally marks, bar graph, line graph, pie chart, and percentage. (c) Study a newspaper or online news source, with your parent's or guardian's permission, to find as many examples as you can of statistical information.

Option B: Do both of the following: (a) Explain to your den or your Mentor how a meteorologist or insurance company (or someone else) might use the mathematics of probability to predict what might happen in the future (i.e., the chance that it might rain, or the chance that someone might be in a car accident). (b) Predict the probability of a plastic bottle landing on its bottom, top, and side. Then flip it 100 times and keep track of which way it lands. Identify any possible sources of experimental error. Discuss the differences if the bottle is empty or full.





Dr. Luis Alvarez Supernova Award: Req 2



Current

2. Complete the following adventure appropriate for your rank.

Wolf Cub Scouts

Call of the Wild

Bear Cub Scouts

Forensics

OR Marble Madness

Revised

2. Complete the adventure appropriate for your rank or complete option A or B.

Wolf Cub Scouts

Call of the Wild

Bear Cub Scouts

Forensics

Option A: Do all of the following: (a) Go shopping with an adult and use a calculator to add up how much the items you buy will cost. See whether your total equals the total at check out. (b) Explain the meaning of these statistical words and tools: data, averaging, tally marks, bar graph, line graph, pie chart, and percentage. (c) Study a newspaper or online news source, with your parent's or guardian's permission, to find as many examples as you can of statistical information.

Option B: Do both of the following: (a) Explain to your den or your Mentor how a meteorologist or insurance company (or someone else) might use the mathematics of probability to predict what might happen in the future (i.e., the chance that it might rain, or the chance that someone might be in a car accident). (b) Predict the probability of a plastic bottle landing on its bottom, top, and side. Then flip it 100 times and keep track of which way it lands. Identify any possible sources of experimental error. Discuss the differences if the bottle is empty or full.





Dr. Charles Townes Supernova Award: Req 1



Current

1. Complete the following Webelos adventures:
Adventures in Science, Engineer, and Scouting
Adventure.

Revised

1. Complete three of the following: Adventures in Science, Engineer, option A or option B.

Option A: Do all of the following: (a) Construct one of the following from wood, and one from another material: Book rack, Shelf, Bulletin board, Tie rack, Letter holder, Notepad holder, Toolbox, Towel rack, Recipe holder, Lamp stand, Kitchen knife rack, Kitchen utensil rack, Napkin holder, Garden tool rack, Lid holder, Mailbox, Birdhouse, Desk nameplate, Letter, bill, and pencil holder, Bread box, Key rack, Measuring cup rack, Measuring spoon rack (b) Keep an "insect zoo" with insects that you have collected. You might have crickets, ants, or grasshoppers. Study them for a while then release them. Share your experience with your den or your Mentor. (c) With adult supervision, show how to check the oil level and tire pressure on a car.

Option B: Do all of the following: (a) Take a field trip to a geological site, geological laboratory, or rock show. Discuss what you learned at an upcoming den meeting or with your mentor. (b) Construct a simple working electrical circuit using a flashlight battery, a switch, and a light. (c) Do five activities within your home or school that require the use of mathematics. Explain to your den or your Mentor how you use math every day.





Dr. Charles Townes Supernova Award: Req 2



Current

2. Complete three of the following adventures: Build It, Building a Better World, Castaway, First Responder, Into the Wild, and Into the Woods.

Revised

2. Complete three of the following: Build It, First Responder, Into the Wild, Into the Woods, option A or option B.

Option A: Do two of the following: (a) Go on a geocaching adventure with your den or family. Show how you used a GPS unit or a smartphone with a GPS application to locate a geocache. (b) Describe both the benefits and the harm wildfires can cause in a forest ecosystem. Tell how you can prevent wildfire. (c) Set up an aquarium or terrarium. Keep it for at least a month.

Option B: Do both of the following: (a) With adult supervision, build and launch a model rocket. Describe how Newton's third law of motion explains how the rocket is propelled into the sky. (b) While on a campout or night hike, identify five constellations or satellites in the night sky.

