

# Dr. Bernard Harris Supernova Workbook

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Boy Scout's name

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Address

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Telephone No.

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E-mail (optional)

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Unit No.

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District

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Local council

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Unit leader's name

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Address

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Telephone No.

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Mentor's name

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Address

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Telephone No.

**Requirement 1**

Complete any three of the Boy Scout Nova Awards. (Note these may be done at any time after becoming a Boy Scout.)

Boy Scout Nova Award	Date Completed
Shoot!	
Start Your Engines	
Whoosh!	
Designed to Crunch	

**Requirement 2**

Earn the Scholarship merit badge.

Date Completed: \_\_\_\_\_

**Requirement 3**

Earn four of the Supernova approved merit badges from the list below. (Note these may be earned at any time after becoming a Boy Scout.)

Merit Badge	Date Earned	Merit Badge	Date Earned
Animal Science		Geocaching	
Archaeology		Geology	
Architecture		Insect Study	
Astronomy		Inventing	
Automotive Maintenance		Mammal Study	
Aviation		Medicine	
Bird Study		Nature	
Chemistry		Nuclear Science	
Composite Materials		Oceanography	
Computers		Plant Science	
Dentistry		Pulp and Paper	
Drafting		Radio	
Electricity		Reptile and Amphibian Study	
Electronics		Robotics	
Energy		Scuba Diving	
Engineering		Soil and Water Conservation	
Environmental Science		Space Exploration	
Farm Mechanics		Surveying	
Fish and Wildlife Management		Veterinary Medicine	
Forestry		Weather	
Gardening		Welding	

**Requirement 4**

Complete TWO Supernova Activity Topics, one each in two different STEM areas

STEM Areas	Supernova Activity Topics	Date Completed
Science	Environmental Science: New Things from Old	
	Movie “Science”: Misconception, Misunderstanding, and Mistakes	
	Household Chemistry: Diet Coke and Mentos Explosions	
Technology	Energy Technology	
	Communication Technology	
	Entertainment Technology	
Engineering	Deconstruct and Analyze: Mechanical Designs	
	Build and Test: High Performance Paper Gliders	
	Design and Redesign: Egg Drop Contest	
Mathematics	From Simulations to Real Life: Modeling Bungee Jumping	
	Linking the Past to the Future: Modeling Old Faithful’s Next Eruption	
	A Paradox of Counting: Voting Methods and Fair Decisions	

**Requirement 5**

Participate in a local, state, or national science fair or mathematics competition OR in any equally challenging STEM-oriented competition or workshop approved by your Mentor. An example of this would be an X-Prize type competition.

*STEM Competition or Workshop Description (nature of event, topics, date)*

*Approvals for STEM Competition or Workshop:*

I participated in the above described STEM Competition/Workshop.

Applicant’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Mentor’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Requirement 6**

Do ONE of the following:

- With your parent’s permission and your Mentor’s approval spend at least one day “shadowing” a local scientist or engineer and report on your experience and what you learned about STEM careers to your Mentor.

*Shadowing Activity Description (name of professional, date of activity, type of work)*

*Approvals for Shadowing Activity:*

I participated in the above described shadowing activity and reported on the experience to my Mentor.

Applicant’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Parent’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Mentor’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

- Learn about a career that is heavily involved with STEM. Make a presentation to your mentor about what you learned.

*Career Exploration Activity Description (name of career, sources of information)*

*Approvals for Career Exploration Activity:*

I participated in the above described career exploration activity and made a presentation to my Mentor about what I learned.

Applicant’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Mentor’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Requirement 7**

Working with your mentor, organize and present a Nova award or other STEM-related program to a Cub Scout den or pack meeting. Be sure to received approval from the appropriate unit leader and agree on a time and place for the presentation. If a Cub Scout den or pack is not available, your presentation may be given to another youth group, such as your troop or at your place of worship.

*Event Description (event name, date, time frame, audience, activity summary)*

*Approvals for Event Plans:*

I have completed the plans for the above event and they have been approved by the appropriate individuals.

Applicant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Pack Representative's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Mentor's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*Approvals for Completed Event:*

This event was carried out by myself and respectfully submitted.

Applicant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Pack Representative's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Mentor's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Requirement 8**

Review the *Scientific Method* (you may know this as *the Scientific Process*) and note how scientists establish hypotheses, theories, and laws. Compare how the establishment of “facts” or “rules” using *the scientific method* differs from the establishment of “facts” or “rules” in other environments, such as legal, cultural, religious, military, mathematical, or social environments. Then do the following.

- A. Choose a modern scientific subject with at least two competing theories on the subject and learn as much as possible about each theory.
- B. Analyze the competing theories, decide which one is most convincing to you, and explain why to your Mentor.
- C. Make a presentation to your Mentor that describes the controversy, the competing theories, and your conclusions about how the scientific method can or cannot contribute to the resolution of the controversy.

*Scientific Method Activity Description (choice of subject, description of theories, conclusion)*

*Approvals for Scientific Method Activity:*

I completed the above described scientific method activity and made a presentation to my Mentor.

Applicant’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Mentor’s Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Requirement 9**

Submit a Supernova award application to the district or council Nova or advancement committee for approval. See <http://www.scouting.org/filestore/STEM/pdf/SupernovaApplication.pdf>.