

Mendel's Minions





This workbook can help you but you still need to read the Scouts BSA Nova Awards Guidebook.

This Workbook can help you organize your thoughts as you prepare to meet with your counselor.

You still must satisfy your counselor that you can demonstrate each skill and have learned the information.

You should use the work space provided for each requirement to keep track of which requirements have been completed, and to make notes for discussing the item with your counselor, not for providing full and complete answers.

If a requirement says that you must take an action using words such as "discuss", "show",

"tell", "explain", "demonstrate", "identify", etc, that is what you must do.

Counselors may not require the use of this or any similar workbooks.

No one may add or subtract from the official requirements found in the Scouts BSA Nova Awards Guidebook (Pub. 34033 – SKU 614936).

The requirements were issued in 2019 • This workbook was updated in June 2019.

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nplete one merit badge from the fo	llowing list. (Choose one that you ha	ve not already used toward another Nova Awa
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npletion, discuss with your counsel Animal Science	or the genetic component of the mer Insect Study	t badge you selected. Public Health
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Court's Name

3. Complete two of the following activities:

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- A. Teach the basics of genetic inheritance to your patrol (or similar group), using gummy bear genetics or a similar method.
- B Helpful Link—Making Mendel's Model Manageable: www.nsta.org/publications/news/story.aspx?id=51651
- C. Extract DNA from saliva, strawberries, or a banana.
- D. Grow at least three generations of pea plants and explain the inheritance patterns. Helpful Link: http://science.lovetoknow.com/life-sciences/gregor-mendels-pea-plant-experiment
- E. Create a three-dimensional model of DNA and explain how it leads to the production of proteins.
- 4. Present a report of at least 800 words or 10 minutes (with visual aids) on one of the following opics. Make sure to include the ethical issues involved in your topic. If possible, present our report to your unit or another group in addition to presenting to your counselor.
 - A. Mendelian inheritance, DNA, RNA, genetics, genomics, sequencing, and Punnett squares
 - B. Genetic diseases, personalized medicine, and genetic counseling

	(ExAC), 100,000 Genomes Project, mitochondria! DNA, etc.)	
	E. Pharmacogenetics and oncogenomics	
	F. Human Genome Project	
	G. CRISPR (Clustered Regularly-Interspaced Short Palindromic Repeats)	
	H. Biotechnology, biologics, and biosimilar drugs	
	I.Another related topic approved by your counselor in advance	
5.	/isit a place where genetic and genomic information is being used, e.g., a biotechnology company or research lab, generounselor, a physician's office, crime lab, zoo, natural history museum, farm, hatchery, nursery/greenhouse, etc. Discustione there with one (or more) of the employees. Find out how they are using genetic information, how it has changed the what they look forward to in the future.	ss the wor
5 .	Discuss with your counselor how genetics and genomics affect your everyday life and how you think it will affect your life uture.	e in the

When working on Nova and Supernova awards, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088).Important excerpts from that publication can be downloaded from http://usscouts.org/advance/docs/GTA-Excerpts-nova.pdf.
You can download a complete copy of the *Guide to Advancement* .from http://www.scouting.org/filestore/pdf/33088.pdf.

D. Use of large genetics databases for forensic analysis/solving crimes, genealogical research, or medical studies (The

Cancer Genome Atlas (TCGA), Catalogue of Somatic Mutations in Cancer (COSMIC), Exome Aggregation Consortioum

Scout's Name: __

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C. Genetically modified food, transgenic animals, and hybrid foods