WHAT A LIFE! NOVA AWARD FOR VENTURERS

Additional checkoff sheets and helps are available from <u>ScouterMom.com</u>.

This module is designed to encourage you to explore different facets of the biological life and living systems around you,including macrobiotic and microbiotic life, ecology, genetics,and advances in medicine.					
1.Choose A or B or C and complete ALL the requirements.					
1A.Watch not less than three hours total of shows or documentaries related to areas of biology: botany, zoology, genetics, medicine, ecology, veterinary medicine or microbiology. Then do the following:					
1A-1. Make a list of at least five questions or ideas from the show(s) you watched.					
1A-2. Discuss two of the questions or ideas with your counselor.					
1B. Read (not less than three hours total) about anything related to a biological topic and do the following:					
1B-1. Make a list of at least five questions or ideas from each article.					
1B-2. Discuss two of the questions or ideas with your counselor.					
1C. Combined Reading and watching activities (not less than three hours total),and do the following:					
1C-1. Make a list of at least five questions or ideas from each article or show.					
1C-2. Discuss two of the questions or ideas with your counselor.					
2. Choose ONE subject from the following list. Complete ALL the requirements from among the Venturing STEM exploration topics. If you have already completed a Venturing STEM exploration in one of these fields, please choose a different field for this award. Discuss with your counselor THREE salient points you learned from each activity.					
Animal Science					
Environmental science					
Fishing					
Fish and Wildlife Management					
Forestry					
Gardening					
Insect Study					
Mammal Study					
Medicine					
Nature					
Oceanography					
Plant Science					
Soil and water conservation					
Veterinary science					
Wildlife conservation					

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3D-1. Experiment: With permission of your parents or guardians, find a recipe on the internet to create your own DNA extraction kit using household materials, and use it to purify DNA from strawberries.							
3D-1a. Perform the DNA extraction, recording your materials and observations at each step.							
3D-1b. Present a report of your experiment to your counselor.							
3D-2. Discuss with your counselor the following							
3D-2:a.What is DNA, its composition and structure, and where is it found in a cell?							
3D-2b. What is the purpose of each of the components of your DNA extraction liquid?							
3D-2c. Why are strawberries a good choice for DNA extraction?What else could you use?							
3D-2d. Why do you think you are able to see the DNA without using a microscope							
3D-3. Explain to your counselor TWO of the following questions:							
3D-3a.What is the science of genetics?The fields of genetics and genomics offer dozens of career possibilities. Which are the three most interesting to you?							
3D-3b.What are some diseases or disabilities that result from genetic mutations or alterations in human DNA?What possible environmental factors cause genetic mutations in humans?							
3D-3c.Do you think that genomic medicine and personalized medicine will improve our health? Are there any ethical or moral issues that need to be considered as these technologies are developed?							
3E. Ecology							
3E-1. Study at least four diverse environmental areas near where you live. Plan and execute a field trip to each of these areas, with the permission of your parents and your counselor.							
3E-1a. Describe the reasons for selecting these areas, their boundaries, user groups, any outside forces that interact with them, and a list of what plants, animals, and other life you expect to find at each of them.							
3E-1b. Explain the basic natural systems, cycles, and changes that occur over time. Include the four basic elements(what are these?), land-use patterns, and at least six different species in your analysis and how they have changed over time. Discuss both biological and physical components.							
3E-1c. Under the guidance of a natural resources professional, carry out an investigation of an ecological subject approved by your counselor in one of the four identified environmental areas. Make sure to inventory and map the area, and to observe the living and nonliving parts of the ecosystem.							

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3E-2. Discuss with your counselor the following:					
3E-2a. How living things respond to changes in their environments.					
3E-2b. What are the environmental concerns for that area? Explain them using photographs, graphs, or available data.					
3E-2c. What project has been or could be done to improve the natural habitat threatened in that area?					
4. Discover: Research and discuss with your counselor THREE of the current environmental issues listed below and their effect on microbiotic and macrobiotic life.					
4a. Pollution					
4b. Global warming					
4c. Overpopulation					
4d. Natural resource depletion					
4e. Waste disposal					
4f. Climate change					
4g. Loss of biodiversity					
4h. Deforestation					
4i. Ocean acidification					
4j. Ozone layer depletion					
4k. Acid rain					
4l. Water pollution					
4m. Urban sprawl					
4n. Public health					
5. Discuss with your counselor how macrobiotic and microbiotic life affects your everyday life					
Completed					
Presented					