Focus on STEM

Each month, we will put together sample road maps for STEM related achievements or awards to make it easier to integrate STEM into your existing program.

Venturing: Power Up

1. Watch or read about 3 hours total about transportation or transportation technology. Then do the following: (1) make at least 2 questions or ideas from each article or show and (2) discuss two of the questions or ideas with your counselor. *Have the venturer watch videos on PBS, Discovery Channel or the Science Channel or read books about engineering, motion or motion-inspired technology.*
2. Complete all the requirements for a Venturing STEM exploration from one of the following: Automotive Maintenance, Aviation, Canoeing, Cycling, Drafting, Electricity, Energy, Farm Mechanics, Motorboating, Nuclear Science, Railroading, Small-Boat Sailing, Space Exploration, and Thick Transportation. After completion, discuss with your counselor how the merit badge you earned uses science. *Venturers should complete this requirement on their own.*
3. Do ALL of the following: (A) Using the requirements from the above list of explorations (1) tell your counselor the energy source(s) used in these explorations and (2) discuss the pros and cons of each energy source with your counselor. (B) Make a list of sources of energy that may be possible to use in transportation. (C) With your counselor, (1) discuss alternative sources of energy and (2) discuss the pros and cons of using alternative energy sources. *Visit the NC Transportation Museum (Spencer, NC) or the Harris Energy & Environmental Center (New Hill, NC) to explore different sources of energy. Alternatively, have a speaker from NC Green come and speak to your group.*
4. Design and build a working model vehicle (not from a kit). (A) Make drawings and specifications of your model vehicle before you begin to build and (B) Include one of the following energy sources to power your vehicle (do not use gasoline or other combustible fuel source): solar power, wind power, or battery power. (C) Test your model and then answer the following questions: (1) how well did it perform? (2) did it move as well as you thought it would? (3) did you encounter problems? how can these problems be corrected? (D) Discuss with your counselor: (1) any difficulties you encountered in designing and building your model, (2) why you chose a particular energy source, (3) whether your model met your specifications, and (4) how you would modify your design to make it better. *Hold a race. Have the venturers design and build a model. Race them and evaluate the performance.*
5. Discuss with your counselor how technology affects your everyday life.

Proposed Time Schedule

Prep Work	Counselor Meeting 1	Go-See-It/Counselor Meeting 2	At Home Work	Meeting	Counselor Meeting 3
Venturers should watch or read 3 hours of transportation or transportation technology. Venturers should make a list of at least 2 questions or ideas from each article or show.	Discuss two questions or ideas with your counselor from the shows you watched or the information your read. Discuss with your counselor how technology affects your everyday life.	Visit the NC Transportation Museum to explore different sources of energy. Discuss with your counselor the different sources of energy you saw and other sources of energy. Discuss the pros and cons of alternative energy sources.	Create drawings and specifications of a model vehicle. Build your model vehicle using your drawings and specifications. Complete one of the STEM explorations listed above on your own.	Race your car. Take some time to assess how well your vehicle did using the questions in 4C.	Discuss with your counselor how your vehicle performed using the questions in 4D as a guide. Discuss with your counselor how your STEM exploration used a source of energy.