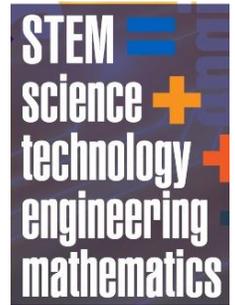




# Focus on STEM

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.



## Boy Scouts: Start Your Engines

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 scout watch videos on PBS, Discovery Channel or the Science Channel or read books about engineering, motion or motion-inspired technology.*
2. Complete one merit badge from the following list: Automotive Maintenance, Aviation, Canoeing, Cycling, Drafting, Electricity, Energy, Farm Mechanics, Motorboating, Nuclear Science, Railroad, Small-Boat Sailing, Space Exploration, and Thick Transportation. After completion, discuss with your counselor how the merit badge you earned uses science. *Scouts should complete this requirement on their own.*
3. Do ALL of the following: (A) Using the requirements from the above list of merit badges (1) tell your counselor the energy source(s) used in these merit badges 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 scouts 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

Scouts should watch or read 3 hours of transportation or transportation technology. Scouts should make a list of at least 2 questions or ideas from each article or show.

### Counselor Meeting 1

Discuss two questions or ideas with your counselor from the shows you watched or the information you read.

Discuss with your counselor how technology affects your everyday life.

### Go-See-It/Counselor Meeting 2

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.

### At Home Work

Create drawings and specifications of a model vehicle. Build your model vehicle using your drawings and specifications.

Complete one of the merit badges listed above on your own.

### Meeting

Race your car.  
Take some time to assess how well your vehicle did using the questions in 4C.

### Counselor Meeting 3

Discuss with your counselor how your vehicle performed using the questions in 4D as a guide.

Discuss with your counselor how your merit badge used a source of energy.