



# Start Your Engines!

This module is designed to help you explore how technology affects your life each day.

1. Choose A or B or C and complete ALL the requirements.
  - a. Watch about three hours total of technology-related shows or documentaries that involves transportation or transportation technology. Then do the following:
    - i. Make a list of at least two questions or ideas from each show.
    - ii. Discuss two of the questions or ideas with your counselor.

*Some examples include—but are not limited to—shows found on PBS ("NOVA"), Discovery Channel, Science Channel, National Geographic Channel, TED Talks (online videos), and the History Channel. You may choose to watch a live performance or movie at a planetarium or science museum instead of watching a media production. You may watch online productions with your counselor's approval and under your parent's supervision.*

- b. Read (about three hours total) about transportation or transportation technology. Then do the following:
  - i. Make a list of at least two questions or ideas from each article.
  - ii. Discuss two of the questions or ideas with your counselor.

*Examples of magazines include—but are not limited to—Odyssey, Popular Mechanics, Popular Science, Science Illustrated, Discover, Air & Space, Popular Astronomy, Astronomy, Science News, Sky & Telescope, Natural History, Robot, Servo, Nuts and Volts, and Scientific American.*

- c. Do a combination of reading and watching (about three hours total). Then do the following:
    - i. Make a list of at least two questions or ideas from each article or show.
    - ii. Discuss two of the questions or ideas with your counselor.
2. Complete ONE merit badge from the following list. (Choose one that you have not already used toward another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses technology.

Automotive Maintenance	Farm Mechanics	Farm Mechanics
Aviation	Motor boating	Kayaking
Canoeing	Nuclear Science	Programing
Cycling	Railroading	
Drafting	Small - Boat Sailing	
Electricity	Space Exploration	
Energy	Truck Transportation	

3. Do ALL of the following.
  - a. Using the requirements from the above list of merit badges:
    - i. Tell your counselor the energy source(s) used in these merit badges.
    - ii. 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:
    - i. Discuss alternative sources of energy.
    - ii. Discuss the pros and cons of using alternative energy sources.
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.
  - 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. Then answer the following questions:
    - i. How well did it perform?
    - ii. Did it move as well as you thought it would?
    - iii. Did you encounter problems? How can these problems be corrected?
  - d. Discuss with your counselor:
    - i. Any difficulties you encountered in designing and building your model
    - ii. Why you chose a particular energy source
    - iii. Whether your model met your specifications
    - iv. How you would modify your design to make it better
5. Discuss with your counselor how technology affects your everyday life.

Check off List:

1 Choose one:

\_\_ a \_\_ b \_\_ c

Date Completed:

Counselor:

2 Merit Badge

Date Completed:

Counselor:

3 Do All:

Date Completed:

Counselor:

4 Design & Build

Date completed:

Counselor:

5 Discussion:

Date Completed:

Counselor: