

## **VENTURING NOVA AWARD - HANG ON! (ENGINEERING)**

Additional requirement sheets and helps are available from [ScouterMom.com](http://ScouterMom.com).

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

1. Choose A or B or C and complete ALL the requirements.

1A. Watch about three hours total of engineering-related shows or documentaries that involve motion or motion-inspired technology. Then do the following:

1A-1. Make a list of at least two questions or ideas from each show.

1A-2. Discuss two of the questions or ideas with your counselor.

1B. Read (about three hours total) about motion or motion-inspired technology. Then do the following:

1B-1. Make a list of at least two questions or ideas from each article.

1B-2. Discuss two of the questions or ideas with your counselor.

1C. Do a combination of reading and watching (about three hours total). Then do the following:

1C-1. Make a list of at least two questions or ideas from each article or show.

1C-2. Discuss two of the questions or ideas with your counselor.

2. Choose ONE STEM field of interest from the following list. Complete ALL the requirements for a Venturing STEM exploration in that field. Venturing exploration topics. (If you have already completed a Venturing STEM exploration in one of these fields, please choose a different field for this award.)

2A. Archery

2B. Aviation

2C. Composite Materials

2D. Drafting

2E. Electronics

2F. Engineering

2G. Inventing

2H. Model Design and Building

2I. Railroading

2J. Rifle Shooting

2K. Robotics

2L. Shotgun Shooting

3. Do ALL of the following:

3A. Make a list or drawing of the six simple machines.

3B. Be able to tell your counselor the name of each machine and how each machine works.

3C. Discuss the following with your counselor:

3C-1. The simple machines that were involved with the motion in your chosen STEM exploration (Hint: Look at the moving parts of an engine to find simple machines.)

3C-2. The energy source causing the motion for the subject of your STEM exploration

3C-3. What you learned about motion from doing the STEM exploration

4. Choose A or B and complete ALL the requirements.

4A. Visit an amusement park. Then discuss the following with your counselor:

4A-1. The simple machines present in at least two of the rides

4A-2. The forces involved in the motion of any two rides

4B. Visit a playground. Then discuss the following with your counselor:

4B-1. The simple machines present in the playground equipment

4B-2. The forces involved in the motion of any two playground fixtures

5. Do the following

5A. On your own, design one of the following and include a drawing or sketch: an amusement park ride OR a playground fixture OR a method of transportation.

5B. Discuss with your counselor:

5B-1. The simple machines present in your design

5B-2. The energy source powering the motion of your creation

6. Discuss with your counselor how engineering affects your everyday life.