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

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

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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.					

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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.							
Completed							
Presented							
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