Cub Scout Nova Award
Swing!

Cub Scout and Webelos Nova award for Engineering
This module is designed to help you explore how engineering and simple machines called levers affect your life each day.

1. Choose A, B, or C and complete all requirements.

A. Watch an episode or episodes (about an hour total) of a show about anything related to motion or machines. Then do the following
   i. Make a list of at least two questions or ideas from what you watched.
   ii. Discuss two of the questions or ideas with your Counselor

B. Read (about one hour total) about anything related to motion or machines. Then do the following:
   i. Make a list of at least two questions or ideas from what you read.
   ii. Discuss two of the questions or ideas with your Counselor

C. Do a combination of reading and watching (about one hour total) about anything related to motion or machines. Then do the following:
   i. Make a list of at least two questions or ideas from what you read and watched.
   ii. Discuss two of the questions or ideas with your Counselor.

☐ Requirement 1

I chose option: ☐ A ☐ B ☐ C

Name(s) of things I watched and/or read: ________________________________

☐ i. I made a list of at least two questions or ideas from what I read and watched.

☐ ii. I discussed the ideas and questions with my Counselor.

Counselor’s okay ________________________________ Date ____________
2. Complete ONE adventure from the following list for your current rank
   OR
   Complete option A or B.

   If you choose an Adventure, choose one you have not already earned. Discuss with your counselor what kind of science, technology, engineering, and math was used in the Adventure or Option.

   **Option A:** With your parent’s permission, take an old or broken household or mechanical item, break it down into its component pieces, and identify the purpose of five parts. Suggested items include a keyboard, floppy disk, telephone, VCR, tape deck, bicycle, people counter, printer or similar item. Make sure to use appropriate safety precautions.

   **Option B:** Participate in two sports, either as an individual or part of a team, and identify the levers used in each sport.

☐ Requirement 2 *(circle the Adventure or Option you completed)*

<table>
<thead>
<tr>
<th>Wolf Cub Scouts</th>
<th>Bear Cub Scouts</th>
<th>Webelos Scouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Away</td>
<td>Baloo the Builder</td>
<td>Adventures in Science</td>
</tr>
<tr>
<td>Paws of Skill</td>
<td>A Bear Goes Fishing</td>
<td>Engineer</td>
</tr>
</tbody>
</table>

**OR**

**Option A Complete all**

☐ Item taken apart: __________________________

☐ Purpose of 5 parts __________________________

☐ __________________________

☐ __________________________

☐ __________________________

☐ __________________________

**OR**

**Option B Complete both sports**

☐ Sport #1 / Lever __________________________

☐ Sport #2 / Lever __________________________

I discussed what kind of science, technology, engineering, or math was used in the Adventure or Option

__________________________________________________________________________

Counselor’s okay __________________________ Date __________
3. Explore each of the following:
   A. Levers
      i. Make a list or drawing of three types of levers. (A lever is one kind of a simple machine.)
      ii. Show:
         a. How each lever works
         b. How the lever in your design will move something
         c. The class of each lever
         d. Why we use levers
   B. On your own, design, including a drawing, sketch, or model, ONE of the following:
      i. A playground fixture that uses a lever
      ii. A game or sport that uses a lever
      iii. An invention that uses a lever
      Be sure to show how the lever in your design will move something.
   C. Discuss your finding with your Counselor.

☐ Requirement 3 (complete A, B and C)

☐ A. i) Three types of levers
     ☐ iia) How the lever works
     ☐ iib) How it moves something
     ☐ iic) Lever class
     ☐ iid) Why we use levers

☐ B. I designed a: playground fixture game invention (circle one)

☐ C. I discussed my findings with my Counselor

Counselor’s okay ___________________________ Date ____________
4. Do the following:

   A. Visit a place that uses levers, such as a playground, carpentry shop, construction site, restaurant kitchen, or any other location that uses levers.

   B. Discuss with your Counselor the equipment or tools that use levers in the place you visited.

   □ Requirement 4 (complete A and B)

   □ A. I visited a site ____________________________________________
   □ B. I discussed the visit with my Counselor

   Counselor’s okay ___________________________ Date ________

5. Discuss with your Counselor how engineering and simple machines affect your everyday life.

   □ Requirement 5

   □ I discussed with my Counselor how engineering and simple machines affect my everyday life.

   Counselor’s okay ___________________________ Date ________