<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th><strong>RUBE GOLDBERG COACH/ ADVISOR</strong></th>
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<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>To encourage youth to engage in critical thinking, creativity, problem solving in a non-traditional learning environment while having fun in the process. Guide youth in inventing a complex contraption to complete a simple task.</td>
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| **Responsibilities** | • Guide a team of 3-10 youth to help them create a complex contraption to complete a simple task, eg. put toothpaste on a toothbrush.  
• Make sure the team meets periodically to practice and build various designs and to keep a record of progress in their team journal.  
• Review the rules for the competition and ensure they are followed.  
• Make sure the team is registered for county and state events on time.  
• Help youth problem solve, generate ideas, test and redesign as needed.  
• Attend NDSU Extension 4-H volunteer trainings related to role.  
• Assure safety of all participants. |
| **Time Required** | Meet at least three times before the competitive event. However, it will take more than three meetings to complete the machine.  
Meetings: 2 hours per time  
Competitive Event: 4-5 hours |
| **Resources Available** | • Rube Goldberg 4-H Engineering Design Challenge Rule Book  
• 4-H Activity Day Training, “Amazing Moving Machines”  
• Energy Transfers and Lego Contraptions and Chain Reactions (both available through Amazon at $29.00 for the pair or under $15 for each) and Rube Goldberg’s Simple Normal Humdrum School Day (under $10)  
| **Web:** | The official Rube Goldberg site:  
https://www.rubegoldberg.com/education/teaching-resources/  
(nice outline of a program and how to run it)  
https://www.teachingchannel.org/videos/rube-goldberg-contraptions |
| **For grades 4-6:** | Intro to simple machines:  
https://www.teachengineering.org/lessons/view/cub_simple_lesson01  
(be sure to check out student worksheets)  
Lesson: Pyramid Building: How to Use a Wedge:  
https://www.teachengineering.org/lessons/view/cub_simple_lesson02  
Lesson: Let's Move It! (wheels, axles and levers)  
https://www.teachengineering.org/lessons/view/cub_simple_lesson03  
Lesson: Slide Right on By Using an Inclined Plane  
https://www.teachengineering.org/lessons/view/cub_simple_lesson04  
Lesson: Powerful Pulleys |
http://www.teachengineering.org/lessons/view/cub_simple_lesson05

**Videos for examples.** After watching videos, ask youth what simple machines they noticed in the videos. What types of simple tasks did each Rube Goldberg machine accomplish? Youth should record their observations in their journal. When they finish their journal, they may turn to a partner and compare observations in a brief discussion.

Potential Video Examples:
- [https://www.youtube.com/watch?v=GOMIBdM6N7Q&feature=youtu.be](https://www.youtube.com/watch?v=GOMIBdM6N7Q&feature=youtu.be)
- [https://www.youtube.com/watch?v=qybUFnY7Y8w&feature=youtu.be](https://www.youtube.com/watch?v=qybUFnY7Y8w&feature=youtu.be)
- [https://www.youtube.com/watch?v=cv5WLLYo-fk&feature=youtu.be](https://www.youtube.com/watch?v=cv5WLLYo-fk&feature=youtu.be) – ART (very good example)

| Qualifications          | 1. Enthusiasm and experience in working with youth  
|                        | 2. Interest in science, technology and experimentation  
|                        | 3. Ability to communicate effectively with youth and adults  
|                        | 4. Commitment to ND 4-H program mission and core values  
|                        | 5. Time management skills  
|                        | 6. Able to drive to events |
| Benefits to Volunteer   | • Satisfaction of significant contribution to growth of 4-H youth.  
|                        | • Satisfaction of working as a team to reach goals.  
|                        | • Respect and gratitude of parents/guardians and community.  
|                        | • Recognition of accomplishments by unit and county.  
|                        | • Opportunity for continued personal growth.  
|                        | • Opportunity for increasingly responsible leadership roles. |

| Contact Person          | Michelle Effertz, McLean County Extension Agent  
|                        | 712 5th Ave., PO Box 1108, Washburn, ND 58577-1108  
|                        | (701) 462-8806  
|                        | Email: michelle.effertz@ndsu.edu |

| Date                    | February 15, 2018 |

| Signatures              | Volunteer | Extension Agent |