W 1035-C
6-9 YEARS IN PROJECT

Engineering and Safety Science

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Emergency Preparedness

Personal Safety

- Deliver an educational session on personal safety to younger 4-H members.
- Consistently implement transportation safety as a driver or passenger (automobile, public transportation, bike, etc.).

Public Safety

- Develop a public safety plan for a statewide 4-H event.
- Become certified in first aid and CPR.

Natural Disasters

- Create a plan to help a community recovering from a natural disaster.
- Describe the relationship between the environment and natural disasters.

Workplace Safety

Workplace Safety Basics

- Evaluate a given workplace for safety hazards.
- Identify points for improvements in your workplace or a given workplace.
- Recommend production improvements for your workplace or a given workplace.

Safety Awareness

- Design a safety preparedness map for a production site.
- Assess the safety procedures for a given event.
- Rate preparedness of a workplace, group or event to respond to a public safety emergency.

Occupational Safety and Health Administration (OSHA)

- Create a new standard to be practiced in your workspace or a given workplace.
- Verify and validate new OSHA regulations in practice on a given job site.

Engineering Fundamentals

Engineering Technology and Careers

- Visit an engineering professor at a college or university to learn about the program in your field of interest.
- Design a project in an engineering field of your choice.

Engineering Design

- Complete an engineering project using each of the steps in the engineering design process.
- Create a teaching tool to explain the engineering design process to younger 4-H members.

Physics

- Provide examples of static and dynamic force situations.
- Calculate the net force for given scenarios.
- Deliver an educational session for younger 4-H members to learn the laws of motion and laws of thermodynamics.
- Plan and complete a physics experiment.

Measurements

- Create a teaching tool to explain the different systems of units used around the world.
- Investigate various engineering estimation techniques.
- Test various engineering estimation techniques.
- Design a project that could be completed using engineering estimation.

Drafting and Spatial Data

- Complete an engineering draft using a computer aided drafting program.
- Create a teaching tool to describe the difference between an orthogonal and isometric drawing.

Transportation

Modes of Transportation

- Choose the best transportation mode for a given shipping scenario.

Car and Bicycle Mechanics

- Perform a cost analysis to replace a car part.

Engines

- Justify why one engine should be used over another due to situations like environmental concerns, practicalities or requirements for operations.

Machines

- Justify a machine repair decision.
- Construct examples of simple and complex machines.

Building Trades and Home Repair

- Interview a professional working in a construction, grounds management or home repair trade.
- Shadow a professional working in a construction, grounds management or home repair trade for a period of time.

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