



Mechanics & Safety Sciences

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Emergency Preparedness

Personal Safety

- Deliver an educational session on personal safety to younger 4-H members

Public Safety

- Develop a public safety plan for a statewide 4-H event
- Become certified in First Aid and CPR

Workplace Safety

Workplace Safety Basics

- Evaluate a workplace for safety hazards
- Identify points for safety improvements in a workplace
- Demonstrate appropriate use of PPE in a workplace
- Create a manual outlining safety procedures in a specific workplace

Engineering Fundamentals

Measurements

- Create a teaching tool to explain the different systems of units of measurement used around the world and present to a younger 4-H audience
- Demonstrate ability to calculate measurements of area (square feet, square inches, square meters, acres)
- Demonstrate the use of measuring tools in planning and constructing a project
- Demonstrate the ability to estimate the quantity of materials needed for a given project



Mechanical Systems

Structures

- Demonstrate the safe use of tools and equipment needed to build a structure
- Create a project matching predetermined plans

Electricity

- Select appropriate tools for basic electrical work
- Demonstrate an understanding of the difference between AC and DC circuits
- Demonstrate the safe use and maintenance of battery-powered equipment

Plumbing

- Select appropriate tools for basic plumbing work
- Demonstrate an understanding of water pressure and rates of flow in a system

Engines and Machinery

- Explain the functions of complex machines using simple machine terminology
- Explain the use of two-cycle and four-cycle gasoline, diesel, and electric power systems, and when one should be used over the other (environmental concerns, practicalities, or requirements for operations)
- Justify a repair decision for a machine or engine
- Demonstrate the use of simple machines in maintenance or repair scenarios

Careers and Skills

- Interview a professional working in a position related to construction, engines, or mechanics
- Visit a post-secondary training program related to construction, engines, or mechanics
- Describe the purpose of a contract between a service provider and a client, what a contract entails, and when a contract is necessary
- Create elements of a business plan for a specific building trade to include an example contract, advertisement means, and examples of work

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