d) Test and evaluate solutions from a given design problem against design criteria and constraints to validate function
e) Derive improvements to design solutions to produce an optimized product or system

2. USE AND MAINTAIN TECHNOLOGICAL PRODUCTS AND SYSTEMS

STUDENTS WILL:

a) Use information resources, manuals, documents, or experienced people to describe how systems work
b) Utilize tools, materials, and machines to diagnose, adjust, and repair a system
c) Utilize computer and information resources to operate and maintain a system

3. ASSESS THE IMPACT OF PRODUCTS AND SYSTEMS

STUDENTS WILL:

a) Utilize instruments to measure and gather data
b) Identify trends or patterns in data to be applied toward decision making and identify positive and negative effects of technologies
c) Interpret and evaluate accuracy of information to determine the quality of products and systems

4. CAREER PATHWAYS

STUDENTS WILL:

a) Explain roles and functions of individuals engaged in technical careers involving problem solving and troubleshooting
b) Investigate education, training requirements, and opportunities for career paths involving problem solving and troubleshooting
c) Assess personal employability skills for technical careers and evaluate personal suitability for such careers

ILLUSTRATIVE ACTIVITIES BY THEME MODULE

These activities are intended to serve as examples of how the contents in this module could be tied to each of the six middle level themes.

PROBLEM SOLVING AND INNOVATION

RACE CAR DESIGN

Students design a rubber band powered speed racing vehicle using design, drawing, and fabrication skills. Students utilize the scientific method to develop basic experiments to measure the vehicle's performance, modifying their vehicle for performance by altering weight

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