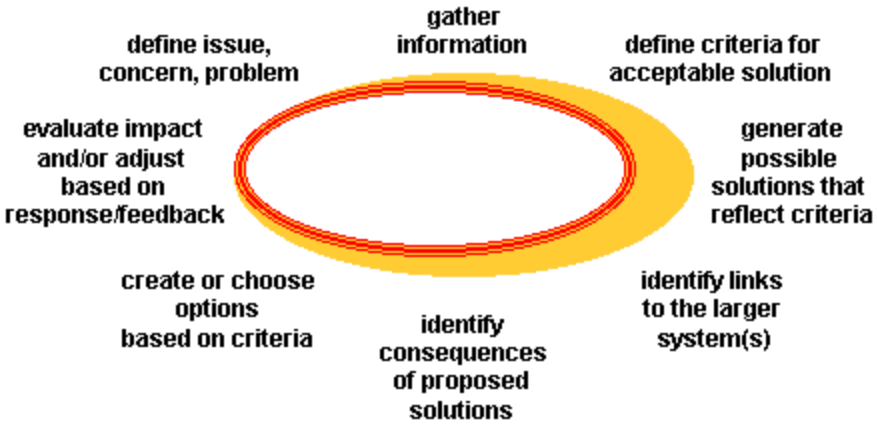
Reduction of Freeway Overcrowding

LEARNING AREA: Economics and Business
EDUCATIONAL LEVEL: High School
CONTENT STANDARD: Technical Systems

A student shall apply knowledge, skills, and tools of technological systems by:

1. Creating, modifying, analyzing, or troubleshooting a technological system;
2. Transferring knowledge of a specific system to create or modify a plan for a macrosystem;
3. Examining short-term impact on the environment and long-term sustainability.

Large Processes/Concepts-----



NEXT STEP: Assessment Task

Minnesota Department of Transportation • Office of Aeronautics • Aviation Education Section
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Reduction of Freeway Overcrowding

Assessment Task-----

DESCRIPTION

Students will develop a plan to improve the flow of traffic on existing metro freeways. Consideration will be given to the human tendencies that cause overcrowding and how these behaviors can be changed. Students will develop a workable model of technological, social, or financial systems that will improve freeway traffic flow.

PRODUCTS/EVIDENCE OF LEARNING

Show evidence that traffic flow needs improvement on metro freeways.
Describe past and present systems for the improvement of freeway traffic flow.
Produce a written plan describing a model system for the improvement of freeway traffic flow including the impact of the model on environmental, financial and, social systems.

OVERVIEW

In the metropolitan area of Minneapolis and St.Paul, the area freeways frequently are choked to a standstill with vehicles carrying only one person. Future drivers must be made aware of the significance of this problem and how they can promote change in people and governing systems to improve the use of major highways.

The objective of this package is to change students value system regarding the inefficient use of automobiles as a prime mover of people. Thus, student attitudes toward freeway usage through the evaluation of present conditions and what has caused them, and the thoughtful consideration of personally acceptable changes that might be made to improve freeway access, will cultivate a new vision for future drivers.

Students will study the nature of overcrowding on the freeways through classroom discussion of MN/DOT data and personal experience. They will form a conclusion regarding the extent of the problem and submit a brief report on their findings.

Students will study a variety of technological systems that are widely use in business and industry to monitor, manipulate, evaluate, and modify the movement of objects, products, conveyances, and people.

Students will submit a written plan to modify the way drivers will use the existing freeways in the future that will reduce overcrowding and improve freeway performance. Each student plan will include the following:

1. An evaluation of how bad the overcrowding situation is on area freeways at the present time. Students will be required to show the sources for their findings.
2. A type of reward (incentive) that could be offered by MN/DOT to encourage drivers to use their vehicles to transport more than one person when driving on metro freeways. The reward must be of a nature that would be acceptable to all drivers and have along term nature.
3. The application of technology that will evaluate how efficiently a vehicle is being used to transport peo ple on freeway systems, and how the data will be used by MN/DOT traffic management to reward or discipline drivers.
4. A statement of the impact their plan will have on the environment, personal finances, social systems, safety, and taxes and the infrastructure.

NEXT STEP: Checklist

Reduction of Freeway Overcrowding

Checklist-----

ANALYZE A TECHNICAL SYSTEM
How bad is overcrowding on today's freeways?

Student evaluation: 1 2 3 4

Teacher evaluation: 1 2 3 4

TRANSFERRING KNOWLEDGE OF A SPECIFIC SYSTEM TO CREATE A PLAN FOR A MACROSYSTEM
How will drivers use existing freeways in the future to improve freeway performance?

Student evaluation: 1 2 3 4

Teacher evaluation: 1 2 3 4

EXAMINING SHORT-TERM IMPACT ON THE ENVIRONMENT AND LONG-TERM SUSTAINABILITY
How will this plan impact the environment, personal finance, social systems, safety, and taxes and the infrastructure?

Student evaluation: 1 2 3 4
Teacher evaluation: 1 2 3 4

Student Signature_____
Teacher Signature_____

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