A Mass Transit Solution

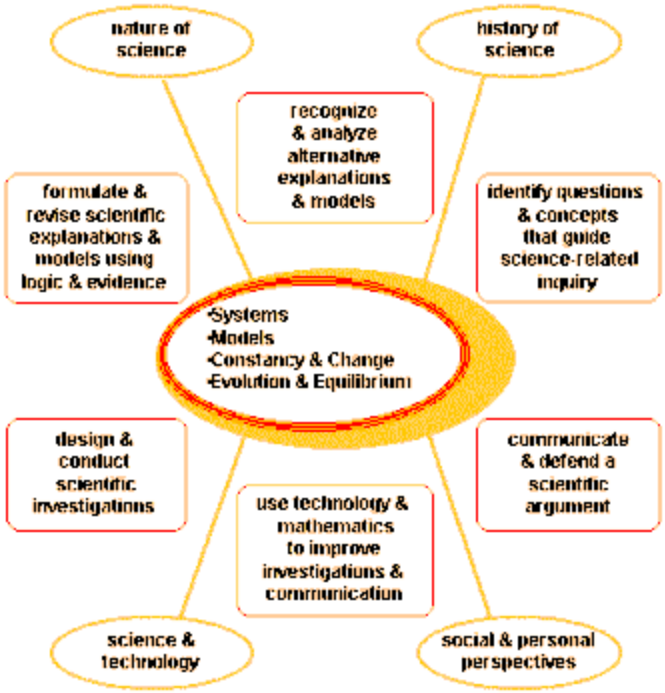
LEARNING AREA: Scientific Applications
EDUCATIONAL LEVEL: High School
CONTENT STANDARD: Concepts in Physics

A student shall:

Design and conduct one investigation through a problem-based study by analyzing data to clarify scientific issues or define scientific questions; and comparing results to current models, personal experience or both; and

Use scientific evidence to defend an idea in a contemporary context by identifying scientific concepts found in evidence; evaluating the validity of the idea in relationship to scientific information; and analyzing the immediate and long-term impact on the individual, society, or both, in the areas of technology, economics, and the environment.

LARGE PROCESSES/CONCEPTS:



NEXT STEP: ASSESSMENT TASK---

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ASSESSMENT TASK: A Mass Transit Solution

DESCRIPTION: Your group is in charge of developing the preliminary plans for a mass transit system between Willmar and Minneapolis. Your findings will be expressed in a 15 to 20 minute presentation to a panel of 4 to 5 local and/or state officials. The panel will make the decision to further fund your group's research. (**Teacher Note:** You should pick any two cities that could use a mass transit system.)

PRODUCTS/EVIDENCE OF LEARNING:
Project Log: The project log will be used to document the findings of the group and the log's layout is up to the group. Specific items, as defined in the overview, will be recorded into the project log.
Presentation: The method that your group uses in your presentation will be up to the group to decide, but it must utilize supporting aids such as handouts, video visuals, models, etc.

OVERVIEW:
This project will take six hours of in-class time that will be spaced over an eight-week time period.

DAY 1: INTRODUCTION OF THE PROJECT. During the first day the class will be split into groups of four students. The way the group works is up to the group, but one person must be the project coordinator. The coordinator's job is to provide leadership to the group as well as maintain the project log.(**Teacher Note:** Be sure that the project coordinator is a responsible student. You may also want to suggest that the group split the work up or have a secretary to track the project log. The groups will have to develop their own project logs.)

DAY 2: INITIAL RESEARCH DAY. The group will need to develop several ideas for a mass transportation system. Each group member should take one of the ideas and find some supporting data for it. (This idea does not need to be one that is being currently used.) As a group member is researching, he/she should keep in mind the transportation sub-systems (propulsion, suspension, guidance, controls, structure/materials, and support systems). A report of each person's findings will need to be compiled and placed into the project log.

DAY 3: THE DECISION OF A MASS TRANSPORTATION SYSTEM. As a group, you must pick one of the initial concepts. As you make your decision, be sure your group contemplates the social-cultural values, political, environmental, technical, and economical impacts. The group should also consider the possible resources available (time, capital, energy, tools, materials, information, and people). A statement of your final decision should be placed into the project log.

DAY 4: EXPANDED RESEARCH OF THE MASS TRANSPORTATION SYSTEM. The group must fully research all of the transportation sub-systems associated with your mass transportation system. You must also find evidence to support all of the different impacts caused by the system.

DAY 5: DEVELOPMENT OF THE PRESENTATION. At this time the group will be developing their method for delivering the presentation. The panel that your group will be in front of will consist of 4 to 5 members from various local or state officials. The group should prepare a list of possible questions that may be asked of them and include this list in the project log. The group should practice their presentation several times before the actual presentation day.

DAY 6: THE PRESENTATION DAY. Be sure that the entire group is prepared. Any multimedia equipment should be ready to use. Also, make sure everyone is dressed appropriately. Remember, your group needs to be approved so you can continue your research!

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CHECK LIST: A Mass Transit Solution

STUDENT	TEACHER	
_____	_____	**1.** The project coordinator compiled and maintained all of the information in the project log.
_____	_____	**2.** The project coordinator directed the group and kept them on task and on time.
_____	_____	**3.** Each individual turned in initial research on a mass transit system for the project log.
_____	_____	**4.** A system was decided on by examining the impacts and resources and was documented in the project log.
_____	_____	**5.** Expanded research on the transportation sub-systems was gathered and analyzed by each individual in the group and all sources and information were recorded in the project log.
_____	_____	**6.** A list of possible questions from the panel was generated by the group and placed in the project log.
_____	_____	**7.** During the presentation, each person completed a part.
_____	_____	**8.** The presentation aids were integrated well and fit the presentation.

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