

Making Connections: Motion and Transportation Technology

SPH4C

Learning Goal: The student will analyse the design and uses of a transportation technology and evaluate its social and environmental impact, including the impact on risk behaviour and accident rates.

Example Issue: All-terrain vehicles (ATVs), designed to be driven off-road, are used in occupations requiring access to remote areas and for recreational purposes. However, ATVs can lack stability on uneven surfaces, which can result in serious accidents, particularly for inexperienced drivers. The vehicles can also cause damage when they are driven in environmentally sensitive areas.

Instructions: Select one of the following transportation technologies (or another of your choice, in consultation with your teacher) and research the physics of its design, its uses, and its societal and environment impacts, both positive and negative. Present your findings in a poster format. Use diagrams wherever appropriate.

all-terrain vehicle
cable car
hang glider
in-line skates
motorcycle
sailboat
streetcar
tractor

bicycle
canoe
helicopter
jet
moped
skateboard
submarine
truck

bus
hot-air balloon
hovercraft
maglev train
rocket
snowmobile
tank
unicycle

Evaluation Rubric:

Category	Level 1 (5 marks)	Level 2 (6 marks)	Level 3 (7 marks)	Level 4 (8 – 10 marks)
Physics of design	Includes a description of the physics of the design but significant important details are omitted.	Includes a description of the physics of the design but some important details are omitted.	Includes a description of the physics of the design.	Includes a detailed description of the physics of the design.
Uses	Includes a description of most possible uses but significant uses are omitted.	Includes a description of most possible uses.	Includes a description of all possible uses.	Includes a detailed description of all possible uses.
Societal impact	Includes a description of the societal impact but significant important details are omitted.	Includes a description of the societal impact but some important details are omitted.	Includes a description of the societal impact.	Includes a detailed description of the societal impact (with particular reference to safety).
Environmental impact	Includes a description of the environmental impact but significant important details are omitted.	Includes a description of the environmental impact but some important details are omitted.	Includes a description of the environmental impact.	Includes a detailed description of the environmental impact.
Diagrams	Some facts are supported by relevant diagrams but diagrams may be missing labels.	Some facts are supported by relevant labelled diagrams.	Most facts are supported by relevant labelled diagrams.	All facts are supported by relevant labelled diagrams.
Presentation	Some attempt at neatness and legibility is evident.	Poster is somewhat neat and legible.	Poster is mostly neat and legible.	Poster is neat and legible with large text.

Please record all sources on the back of the poster.