Kinematics Research Assignment

Task: Choose a technology that applies concepts related to kinematics. Research and analyze this technology and assess its impact on society and the environment.

Details: You may work alone or in a pair (2 people).
You have 5 minutes maximum to present.
You need to explain the structure & function of your device with the aid of 2 visual aids. (visible to classmates at back of room)
You need to discuss 2 environmental impacts and 2 societal impacts of your technology.

Note – a written component is not required, so please make sure all key information is presented clearly & audibly. Be very obvious ie: 'The social impacts are…".

Examples of some possible topics:

1. Device used to measure speed in sports ie: speed of a pitch in MLB
2. Motion detectors for security systems
3. Speedometers in vehicles
4. Speed limiters and tracking devices in the trucking industry (and proposed for teen (new) drivers!)
5. Lasar speed guns (lidar)
6. Radar guns (Doppler)
7. Accelerometers used to study the motion of animals in the wild.
8. Accelerometers used in video game consoles/iPads
9. Devices used to monitor false starts in sprints
10. GPS
11. Earthquake monitors
12. Anemometer (wind speed device)
13. Tachometer (rotational speed)
14. Seat belt locking devices
15. Air speed indicators (measure plane's speed relative to the air around it)
16. Monitoring migration patterns of ocean animals
17. Monitoring migration patterns of land/air animals
18. Safe speed/acceleration in rollercoasters. What is it? How do they measure?
19. Measuring ocean currents. How does that explain the Great Pacific Garbage Patch?
20. How are satellites used to track weather systems. (think hurricanes)
21. Breaking the Sound Barrier – what does that mean?

<u>For impacts on society</u>, consider: Why is it important? Who uses it? Who does it benefit? Does it harm anyone? Does it affect the economy (if so, how)? This is a sample of thoughts.

<u>For impacts on the environment</u>, consider: Materials used in its construction, are they sustainable? Are they responsibly gathered? Is the manufacturing process environmentally sound? What happens to the device at the end of its useful life? How is it disposed of? Does using the device harm/help environment? This is a sample of thoughts.

Rubric: **Name:** _____ **Topic** _____

Knowledge & Understanding

/5

Marks	Descriptions **Curriculum expectation B1.1 – analyse kinematics technology**
/2	Includes an accurate and detailed description of the internal structure of the device with the aid of a clear diagram visible from the back of the class.
/3	Includes an accurate and detailed description of the how the device works with the aid of a clear diagram visible from the back of the class.

Application

/10

Marks	Descriptions **Curriculum expectation B1.2 – social/enviro impacts.**
/5	Clearly identifies and explains a minimum of two ways the device impacts society. The more insightful & specific the better. ie: "manufacturing this device creates jobs" is correct but very generic and not specific.
/5	Clearly identifies and explains a minimum of two ways the device impacts the environment. The more insightful & specific the better.

Communication

/5

Marks	Descriptions **Curriculum expectation A1.11 – communicate findings**
/5	Presents with a strong voice, makes eye contact with the audience, does not use notes as memory aids. If you know your topic, you will be able to just speak to us.

*Note that one communication level will be automatically lost if the rubric is not included in the report.

Inquiry

/5

Marks	Descriptions **Curriculum expectation A1.7 – select relevant info & document**
/2	Sources were properly cited using APA style formatting. For best marks, at least 1 text source must be used. (encyclopedia, magazine, newspaper, etc.)
/3	Research notes included: own words/point form, dated, source at top of note

Marking: Full marks awarded if criteria met, without errors/omissions. Overly simplified explanations may not receive full marks. Often relevant details are missing. Remember your audience: grade 11 students.

Self Evaluation:

Group Members:	You:	Partner:
Planning: Took an active role in planning the project.	4 3 2 1 R M	4 3 2 1 R M
Workload: Completed a fair share of the work.	4 3 2 1 R M	4 3 2 1 R M
Completion: Completed their share of the work on time.	4 3 2 1 R M	4 3 2 1 R M

4 = Excellent, above expectations
3 = Good, met expectations;
2 = Fair, met some expectations;
1 = Poor, met few expectations;
R = Did not meet most expectations;
M = Did not participate.

*If you are unhappy with the contribution of your group members and would like to meet with the teacher and group members to discuss a fair redistribution of the marks, please check here: ☐