Challenge

Planning Notes

- This Challenge can be used to connect real-life behaviours to the mathematics of safety. Begin the lesson with a discussion of auto safety and factors that affect braking time, especially distractions, medications, alcohol, and drugs.
- As a class, discuss what influences reaction time.
- Remind students how many centimetres are in 1 metre, and how many metres are in 1 kilometre.
- Encourage students to think about the reasonableness of their answers.

Common Errors

- When working with rational numbers, students may have difficulty following procedures, estimating, and checking their work.

R_x Encourage students to read the steps in their answer out loud (or have their answer read to them), to check the reasonableness of their answers. This is particularly important with this exercise because the nature of the real-life components allows students to draw on past experiences to consider the reasonableness of answers.

The chart below shows the Rubric for the Challenge and provides notes that specify how to identify the level of specific answers for this project.

Score/Level	Holistic Descriptor	Specific Question Notes
5 **(Standard of Excellence)**	❑ Applies/develops **thorough** strategies and mathematical processes for making **significant** comparisons/connections that demonstrate a **comprehensive** understanding of how to develop a complete solution ❑ Uses **efficient** and **effective** procedures that may contain a **minor mathematical error** that does not affect understanding ❑ Uses **significant** mathematical language to explain understanding and provides **in-depth** support for the conclusion	• provides a complete and correct solution **Note:** The solution may have weak communication but all calculations are correct, or there is a minor error that does not hinder the understanding of the problem.
4 **(Above Acceptable)**	❑ Applies/develops **thorough** strategies and mathematical processes for making **reasonable** comparisons/connections that demonstrate a **clear** understanding ❑ Uses **reasonable** procedures that may contain a **minor mathematical error** that may hinder the understanding in one part of a complete solution ❑ Uses **appropriate** mathematical language to explain understanding and provides **clear** support for the conclusion	• provides a complete response to all parts of the exercise with at most one weak explanation or justification, and at most two calculation errors *or* • provides a complete and correct response to #2 and #3 based on an incorrect average in #1
3 **(Meets Acceptable)**	❑ Applies/develops **relevant** strategies and mathematical processes for making **some** comparisons/connections that demonstrate a **basic** understanding ❑ Uses **basic** procedures that may contain a **major mathematical error** or **omission** ❑ Uses **common** language to explain understanding and provides **minimal** support for the conclusion	• correctly completes #1 and #2, and makes a correct start to #3; some communication may be weak *or* • correctly completes #1 and #3 based on an incorrect #2; some communication may be weak *or* • provides correct partial answers for all parts without any work or justification
2 **(Below Acceptable)**	❑ Applies/develops **some relevant** mathematical process for making minimal comparisons/ connections that lead to a **partial solution** ❑ Uses **basic** procedures that may contain several major mathematical errors ❑ Communication is **weak**	• provides a correct response to #1 and #2 without justification *or* • provides a correct response to #2 based on an incorrect average in #1 *or* • provides a correct response to #1, and a partial response to #3 based on an incorrect #2
1 **(Beginning)**	❑ Applies/develops an **initial start** that may be **partially correct** or could have led to a correct solution ❑ Communication is **weak** or **absent**	• provides a correct response to #1 *or* • correctly identifies some values in #1, but the average is not calculated, it is incorrect, or it is based on fewer than five values **Note:** A response with more than five values is acceptable.