

Hi there!

I'm glad you're using this resource. Continue to check our website (realsciencechallenge.com) to find more resources. And, sign up for our newsletter to receive updates on materials that will be available soon.

I spend countless hours writing, researching, editing and generating graphics/charts for each question. I want to continue creating useful content for you to use - however, I also want to ensure my work is fairly compensated.

Therefore, below are the terms and conditions for use of our materials.

What is allowed:

- photocopying our content for your students to use.
- posting a copy of our content (ie. questions, rubrics) on a password protected site for your students to access and/or complete.
- copying our questions into your tests or assignments. Please give credit in this case.

What is not allowed:

- Selling our content.
- Repackaging our content in your own materials and then selling it. NOTE: giving credit to us still does not make this okay.
- Distributing and/or posting our content online (for example, on social media or a blog).

Thank you for supporting us. And, we look forward to helping you with your teaching practice. Please feel free to reach out to us if you have any questions or suggestions.

Sincerely,

Kent
REAL Science Challenge Founder
Science Department Head (Burnaby South Secondary)

Big Red Boots by MSCHF



Contact Kent at realsciencechallenge@gmail.com
Copyright © 2023 REAL Science Challenge

BC Science Curricular Competencies Rubric

Category: Questioning & Predicting

Curricular Task (ie. skill)

- Formulate multiple hypotheses and predict multiple outcomes

Intro

A prediction includes two parts. First, a guess as to the future results of an event based upon a set of criteria. Typically, this is indicated as an "if, then" statement. Next, a prediction also includes an explanation for the results stated in our prediction. Thus, our guesses are based on reason and facts and are not just pulled out of thin air.

Progress	Emerging	Developing	Proficient	Extending
Characteristics	<i>Indicates a change in X but does not provide a specific change in Y.</i>	<i>Indicates a change in X and provides a specific change in Y.</i>	<i>Provides an explanation or reason regarding how X affects Y.</i>	<i>Provides an alternate outcome of Y under a specific situation related to X.</i>
Included Keywords	<i>"If x <increases / decreases>...."</i>	<i>"...then y will <increase / decrease>"</i>	<i>"...because..." "According to..." "Since..."</i>	<i>"However..." "On the other hand..."</i>

Note: each level of proficiency includes all characteristics from the levels before it. For example, a developing response "indicates a change in X and provides a specific change in Y," while a proficient response (1) "indicates a change in X and provides a specific change in Y" AND (2) "provides an explanation or reason regarding how X affects Y."

Sample Question - Density

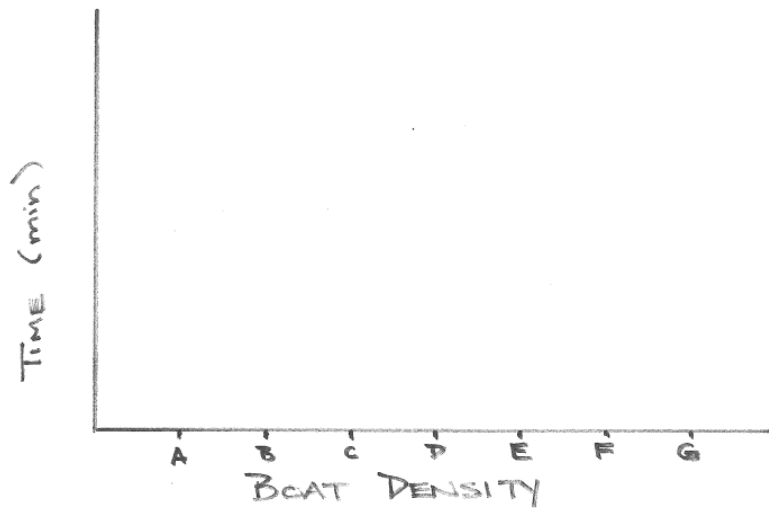
Category: Questioning and Predicting

Kyle is a competitive rower. In competition, all rowboats are the same length and width. However, because rowboats can be made of different materials, a rowboat's density could differ depending on the materials used.

Kyle wants to study how a rowboat's density affects his rowing speed. In his experiment, Kyle completes a 2000m course a total of 7 times. Each time, Kyle uses a rowboat of different density.

On the graph below, sketch your prediction of how using rowboats of increasing density will affect the time it takes Kyle to finish the 2000m course. In other words, if Kyle uses boats of increasing density, will time it take to finish the course increase, decrease, or remain the same? Or, will it be another trend altogether?

Then, write out your prediction using the "If, then, because, however" format



Sample Student Response - Emerging

If boat density increases, then the time it takes to finish the course will change..

Sample Student Response - Proficient

If boat density increases, then the time it takes to finish the course will increase as well. Objects that have a lower density will float higher in water while objects with a higher density will sink more in water. As the boat with greater density moves through water, it will encounter more resistance (ie. water waves), which will slow the boat down. Thus, it will take more time to finish the course.