

## Hi there!

I'm glad you're using this resource. Continue to check our website ([realsciencechallenge.com](https://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).

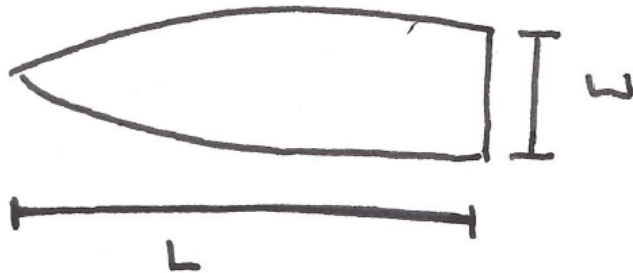
Thank you for supporting us. And, we look forward to helping you with your teaching practice. Please feel free to reach out to us if you have any questions or suggestions.

Sincerely,

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

## BOAT DESIGN : CONSTRAINTS

(I) Length: Width ratio  $\geq 3:1$



Ex.  $\frac{\text{length}}{\text{width}} \geq 3$

Thus, if  $l = 24$ ,  $w = 8 \dots$

$$\frac{24}{8} = 3 \quad \checkmark \text{ okay!}$$

if  $l = 24$ ,  $w = 6 \dots$

$$\frac{24}{6} = 4 \quad \checkmark \text{ okay!}$$

if  $l = 24$ ,  $w = 24 \dots$

$$\frac{24}{24} = 1 \quad \not\checkmark \text{ Not okay.}$$

(II) Materials

↳ 1 sheet  $12'' \times 12''$  foil

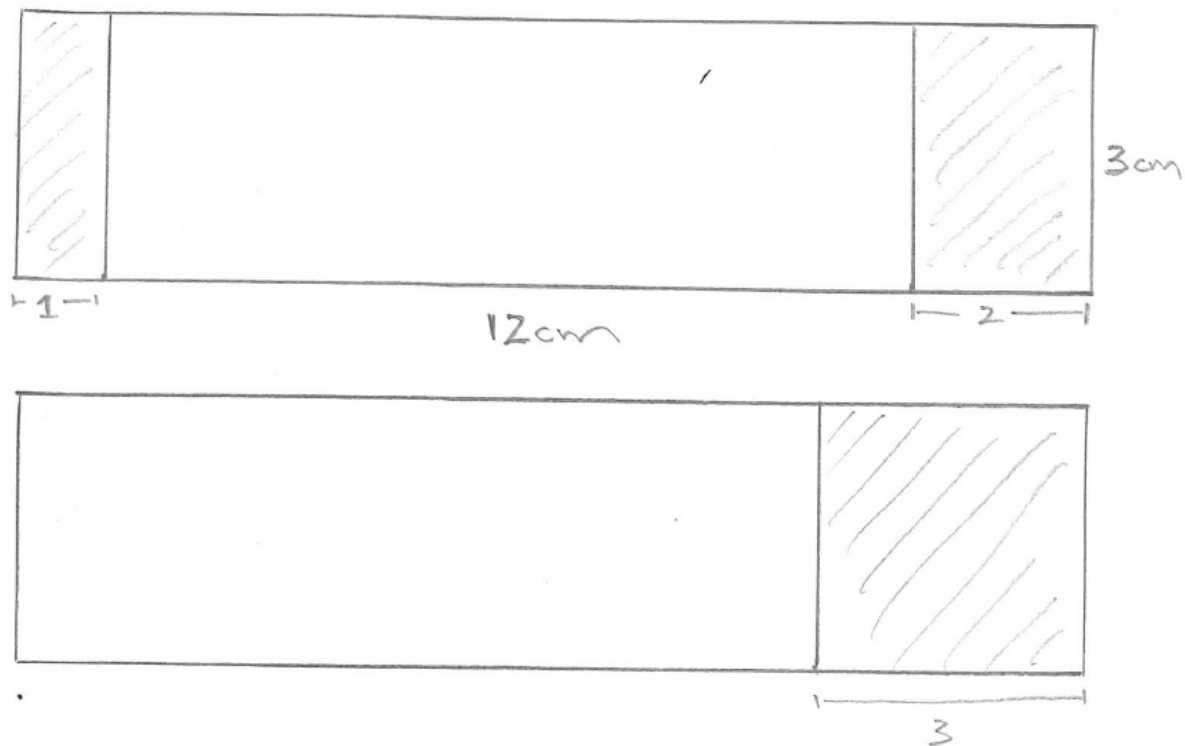
↳ tape

(III) Weight distribution

↳ marbles can only cover

75% of boat,

25% must be empty.



Note:  $\frac{3}{12} = 25\%$

### Performance Mark (Sample)

Emerging (1)	Developing (2)	Proficient (3)	Extending (4)
20 Marbles	45 Marbles	65 Marbles	90 Marbles