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)

Contact Kent at realsciencechallenge@gmail.com

What is an A in Standards Based Grading?

Consider the sample rubric below…

Proficiency Scale	Emerging	Developing	Proficient	Extending
	The student demonstrates an initial understanding of the concepts and competencies relevant to the expected learning.	The student demonstrates a partial understanding of the concepts and competencies relevant to the expected learning.	The student demonstrates a complete understanding of the concepts and competencies relevant to the expected learning.	The student demonstrates a sophisticated understanding of the concepts and competencies relevant to the expected learning.

Sample Rubric from BC Ministry of Education

A student that is Proficient demonstrates “complete understanding of concepts…relevant to expected learning” while Developing and Extending students demonstrate “partial” or “sophisticated” understanding, respectively. But, what does this mean as a letter grade?

Contact Kent at realsciencechallenge@gmail.com

What is an “A” Swimmer?

Consider the analogous question, What is an A in swimming?

According to the American Red Cross’ Learn-to-Swim program, students at Level 4 are expected to learn and master the following skills.

Let’s assume we track a student’s progress over a 10-week period.

American Red Cross

SKILLS CHECKLIST

Learn-to-Swim Level 4—Stroke Improvement

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Headfirst entry from the side in a compact position (in water at least 9 feet deep)*										
Headfirst entry from the side in a stride position (in water at least 9 feet deep)*										
Swim underwater, 3 to 5 body lengths (without hyperventilating)										
Feetfirst surface dive, submerging completely										
Survival swimming, 1 minute (in deep water)										
Front crawl open turn										
Back crawl open turn										
Tread water using 2 different kicks (modified scissors, modified breaststroke or rotary), 2 minutes										
Front crawl, 25 yards										
Breaststroke, 15 yards										
Butterfly, 15 yards										
Push off in a streamlined position on back and begin flutter kicking, 3 to 5 body lengths										

Contact Kent at realsciencechallenge@gmail.com

An “A” Swimmer

An “A” swimmer might demonstrate the following progression of mastery:

American Red Cross

SKILLS CHECKLIST

Learn-to-Swim Level 4—Stroke Improvement

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Headfirst entry from the side in a compact position (in water at least 9 feet deep)*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Headfirst entry from the side in a stride position (in water at least 9 feet deep)*		✓	✓	✓	✓	✓	✓	✓	✓	✓
Swim underwater, 3 to 5 body lengths (without hyperventilating)			✓	✓	✓	✓	✓	✓	✓	✓
Feetfirst surface dive, submerging completely	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Survival swimming, 1 minute (in deep water)						✓	✓	✓	✓	✓
Front crawl open turn		✓	✓	✓	✓	✓	✓	✓	✓	✓
Back crawl open turn		✓	✓	✓	✓	✓	✓	✓	✓	✓
Tread water using 2 different kicks (modified scissors, modified breaststroke or rotary), 2 minutes							✓	✓	✓	✓
Front crawl, 25 yards					✓	✓	✓	✓	✓	✓
Breaststroke, 15 yards						✓	✓	✓	✓	✓
Butterfly, 15 yards								✓	✓	✓
Push off in a streamlined position on back and begin flutter kicking, 3 to 5 body lengths			✓	✓	✓	✓	✓	✓	✓	✓

This swimmer started off slowly. They were able to master a couple of skills in week 1. In weeks 2 and 3, this swimmer mastered a few more skills. Skill development and mastery continued over the weeks. By weeks 8, 9, and 10, this really started to put everything together - demonstrating mastery over all skills.

This student has demonstrated consistency and growth. They are proficient at each skill. This is an “A” swimmer.

Contact Kent at realsciencechallenge@gmail.com

A “B+” Swimmer

However, another swimmer might demonstrate the following progression of mastery:

American Red Cross

SKILLS CHECKLIST

Learn-to-Swim Level 4—Stroke Improvement

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Headfirst entry from the side in a compact position (in water at least 9 feet deep)*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Headfirst entry from the side in a stride position (in water at least 9 feet deep)*			✓	✓	✓	✓	✓	✓	✓	✓
Swim underwater, 3 to 5 body lengths (without hyperventilating)					✓	✓	✓	✓	✓	✓
Feetfirst surface dive, submerging completely		✓	✓	✓	✓	✓	✓	✓	✓	✓
Survival swimming, 1 minute (in deep water)							✓	✓	✓	✓
Front crawl open turn					✓	✓	✓	✓	✓	✓
Back crawl open turn							✓	✓	✓	✓
Tread water using 2 different kicks (modified scissors, modified breaststroke or rotary), 2 minutes										✓
Front crawl, 25 yards								✓	✓	✓
Breaststroke, 15 yards									✓	✓
Butterfly, 15 yards										✓
Push off in a streamlined position on back and begin flutter kicking, 3 to 5 body lengths			✓	✓	✓	✓	✓	✓	✓	✓

This swimmer starts off slow, mastering only one or two skills per week. However, slowly, this swimmer puts everything together and, in the last week, is able to demonstrate mastery of all skills. This swimmer has demonstrated growth, but they haven’t demonstrated mastery of all skills consistently (ie. only 1 week).

In my books this student is on the developing/proficient level and is probably a B/B+ student. They might progress to an A student in a few more weeks, but at least I know which skills they need to work on to get there and I can communicate this to the student.

Contact Kent at realsciencechallenge@gmail.com

High A's vs Low A's

I argue that both proficient and extending represent "A" students - the difference is that an extending student is that A student who's demonstrated a deeper, more sophisticated understanding of skills. Note: in science education, extending does not mean above and beyond grade level. Instead, it means taking grade level concepts and using it in a deeper way. But, both proficient and extending students get an A - one can be considered a low A and the other a high A

Consider how schools currently convert between letter grades and grade point averages (see below).

NUMERICAL EQUIVALENT		Reg. Q.P.	H.A. Q.P.	A.P. Q.P.	1/2 Q.P.
A+	98-100	4.33	4.83	5.33	2.16
A	93-97	4.00	4.50	5.00	2.00
A-	90-92	3.67	4.17	4.67	1.835
B+	87-89	3.33	3.83	4.33	1.66
B	83-86	3.00	3.50	4.00	1.50
B-	80-82	2.67	3.17	3.67	1.335
C+	77-79	2.33	2.83	3.33	1.16
C	73-76	2.00	2.50	3.00	1.00
C-	70-72	1.67	2.17	2.67	0.835
D+	67-69	1.33	1.33	1.33	0.67
D	63-66	1.00	1.00	1.00	0.50
D-	60-62	0.67	0.67	0.67	0.335
F	Failing	0.00	0.00	0.00	0.00

Even in a traditional, grade-point system, there are high As and low As (ie. A+ = 4.3 grade points, A = 4 grade points, A- = 3.7 grade points, etc.). Thus, there is a range for which a student can be considered an A - albeit a low A and a high A. Same thing with SBG.

Contact Kent at realsciencechallenge@gmail.com