**Number, Units, and Mechanics**

**Post-Class Activities**

Following the pre and in-class activities that focused on the correct use of numbers, units, abbreviations and mechanics in writing, you should be feeling more confident about getting your style right with regard to these important components.

As ever, your primary goal when communicating science to any audience should be to tell an interesting story in a way that is easily understandable. These post-class activities have been designed to give you specific practice in capitalizing words correctly, working more with units, and using commas and hyphens appropriately.

**Capitalization**

It can be especially hard to learn when you should (and should not) capitalize certain words in your writing. The following list includes a few of the most important, common rules that you should always try to apply:

**1:** Capitalize the first word of a new sentence, or quote, but **not** if it follows a semicolon or colon. Do **not** capitalize the first word in the second part of an open/divided quote (e.g. Learning cellular processes is difficult; there are so many names and theories involved).

**2:** Capitalize people’s names, but titles **only** when they come before those names (e.g. Professor Michelle Richards or Michelle Richards is a professor).

**3:** Capitalize points of the compass **only** when referring to specific geographic places (e.g. Northwest Territory, and northern Canada).

**4:** Capitalize proper nouns and place names, but **not** seasons (e.g. Vancouver General Hospital is situated just off Broadway in Vancouver).

**5:** Capitalize the titles of publications, in print, online, and in video (e.g. New Scientist).

**6:** Capitalize the names of specific academic courses but do **not** capitalize non-specific topics or subjects (I really enjoy history).

**Question 1 (5 marks)**

There is **one** capitalization-based error in each of the **five** sentences below. Try to find the error in each sentence before re-writing it correctly. Copy and paste the sentences and **bold** the **five** changes you have made (1 mark for each correct change).

1. Conducting phone surveys during the Summer months, such as July and August, is not ideal as many Canadians go on vacations during this time.
2. Occasionally, solar flares occur that are large enough for the northern lights, or aurora borealis, to be seen further South than usual in locations such as Vancouver and Toronto.
3. A recent paper in nature describes how researchers modified a standard technique in order to capture better images of protein structures.
4. Most UBC science students must take 100-level biology courses, such as biology 112 and 121.
5. A current UBC Professor is a member of the Canadian Olympic Committee and will oversee Canadian athletes in Sochi as the Chief Medical Officer.

**Using Plurals and Punctuation**

Another difficult combination of mechanics rules to learn incorporates the mixing of rules dictating capitalization, pluralization, and the basic punctuation around numbers and units that you commonly use in scientific communication. For example:

**1:** You should include a space between a number and unit (20 m), but **not** if the unit is a degree (180°) or a percentage (55%).

**2:** You should **not** pluralize units (20 kg, not 20 kgs) unless you also write out the number (eight kilograms).

**3:** You should **not** capitalize unit names (centimetres, not Centimetres) unless you are talking about Celsius or Fahrenheit (because these two are named after scientists).

As ever, remember that consistency is everything; this is why it is acceptable to use numbers when using units, but why you should instead write them when writing out the units in full (5 m or five metres).

**Question 2 (5 marks)**

There are **five** numbers and/or mechanics-related errors in the following paragraph. Try to find the errors and re-write them correctly. Do this by copying and pasting the paragraph before **bolding** the changes that you have made (1 mark for each correct change).

Last summer, I took measurements of two lime trees. One was treated with fertilizer and one was not. At the end of the summer, the fertilized lime tree was 13.6 % taller than the unfertilized tree at three ft tall. Limes from the fertilized tree weighed 45 g, on average, which is almost twice as much as the unfertilized limes. Once picked, the fruit was stored at room temperature, about 21.3 ˚ Celsius. Fertilized limes held about 37 mls of juice while unfertilized limes contained only 20 milliliters.

**Using Commas**

Commas are used to split up sentences and make a reader pause when you want them to. As such, they put emphasis on your writing where you want it to be. If you don’t use commas often enough, this emphasis will be lost and your writing will be less easy to interpret. However, overusing commas has the same result. In all cases, read your sentences thoroughly and ask yourself whether you want your reader to pause where the commas are. If not, you might not need them.

**Question 3 (5 marks)**

Read the paragraph below, which comprises five sentences. Your task is to decide whether each of these sentences requires a comma or not. Copy and paste the paragraph and add in commas where you think they belong (1 mark for each sentence). *Hint: Not all sentences require a comma, and no sentences require more than one. You will gain 1 mark for each sentence in which you place a comma correctly, and 1 mark for omitting a comma from a sentence that does not require one.*

Some people may think that synthetic pesticides are the main pesticides found in food. Naturally occurring pesticides are also present in the foods we eat however. For example a wide variety of common fruits and vegetables produce natural pesticides to protect themselves against different fungi and insects. Natural pesticide concentrations may increase when plants are stressed or in danger. Concentrations of natural pesticides occurring in fruits and vegetables are generally low enough to be safe for human consumption yet these concentrations can be up to 10,000 times higher than those of their synthetic counterparts.

**Using Hyphens**

Hyphens are used to make compound words, and can be harder to master than commas. The simple rule you should follow, when deciding whether or not to hyphenate one or more words, is to read the whole sentence in which these words are present and ask yourself whether the message is the same with or without the hyphens. If it is, then you don’t need them.

For example, ‘I was deeply concerned about my lack of revision ahead of the midterm,’ would be interpreted the same as ‘I was deeply-concerned about my lack of revision ahead of the midterm,’ which means the first version is correct (you should not use a hyphen here). However, ‘I volunteered with four year olds,’ or ‘I volunteered with four year-olds,’ is not the same as ‘I volunteered with four-year-olds.’ Depending on how old the children were, you should either use the second or third versions here (the first one is always wrong, because the children are either one or four years old).

*For more help with hyphenation, please view the following short Grammar Squirrel video here:* [*http://www.youtube.com/watch?v=K\_\_1C4Hq3aU*](http://www.youtube.com/watch?v=K__1C4Hq3aU)

**Question 4 (5 marks)**

Read the paragraph below. Your task is to place **five** hyphens throughout the paragraph where they are needed (1 mark for each correctly placed hyphen). *Hint: There are five hyphens (in total) that should be added; you might need to link two or more words together with the hyphens. If you place more than five hyphens, you will be penalized!*

Recently, 10 year old Nathan Gray of Nova Scotia discovered a supernova (a massive explosion that occurs during the final evolution of a star) in the very distant galaxy called PGC 61330. Likely the youngest person to discover a supernova, Gray was examining photos taken by Halifax based astronomer David Lane, of St. Mary’s University, when he made the discovery. His discovery comes at the end of a six month long endeavour to try to beat his sister’s record as she also discovered a supernova when she was 10. Luckily for Gray, his adventurous attitude and determination allowed him to beat his sister, but only by a mere 33 days.

**Question 5 (5 marks): Putting it all together**

To answer the following question (scenario), write just **one** sentence that incorporates all the information included in Table 1 (below). Remember to follow all style-based rules and try to write the sentences in an engaging, simple way.

**Table 1: Write one sentence that incorporates all the elements in the Q5 scenario.**

***Hint: every element has been written in words in the table, but you might need to change the styles appropriately in your sentences/stories. Don’t worry too much about the content of your sentence; you can make it up as long as your sentence reads well and shows your command of Unit 3 skills.***

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| **Question**  **(Scenario)** | **Organization** | **Focus of sentence** | **Measurement (size and units)** | **Mechanics to include** |
| **Q5** | British Antarctic Survey  (1 mark)  *Hint: this is a research centre* | A reported concern that the rapid thinning of Pine Island Glacier in Antarctica is irreversible (1 mark) | Sea level could rise by up to ten millimetres over the next twenty years (1 mark) | At least one hyphen and one comma  (1 mark each, 2 marks total) |