**Pure Substances and Mixtures Scenarios**

**Scenario**

Please choose from one of the following questions/scenarios. Each scenario/question requires research.

1. You are an environmental scientist. You have been called in to investigate a lake that may be polluted. You look across the lake and notice that there is a factory. There are also many houses and cottages along the lake. You look around and notice various types of boats.

Consider:

* What could be polluting the water?
* How would you go about determining whether or not the lake is polluted? This will involve using your knowledge from this unit as well as researching additional methods.
* If the lake is polluted, how does this affect the living things in the area?
* How could this problem be solved?
* What are the economic/environmental/ social/ ethical/ political/cultural implications?

2. Many industries separate mixtures or solutions in order to produce products that they sell to people. Identify one of these industries and give a detailed explanation of the process used to separate the mixture or solution.

Also consider:

* What are the impacts on society of this process (both positive and negative)?
* What are the impacts on the environment of this process (both positive and negative)?
* What are some solutions for the negative impacts?
* Do the positive impacts outweigh the negative impacts?
* What are the economic/environmental/ social/ ethical/ political/cultural implications?

3. Some municipalities have banned the use of pesticides on lawns and gardens. Do you support or refute this ban?

Consider:

* What are pesticides used for? What are they made up of?
* How do pesticides affect plants and animals?
* How do pesticides affect humans?
* If residents cannot use pesticides, then how are they expected to control for weeds? What are the alternate options?
* Do the harmful effects of pesticides outweigh their benefits?
* What are the economic/environmental/ social/ ethical/ political/cultural implications?

This is independent assignment. Your research (rough notes) must be in point form and hand written. This research will be completed in class over two-three periods with the use of computers for internet. After you notes have been collected I will review them and then you will compose your position into a good copy over two classes.

The format for your good copy may be a poster, report, speech, slide show, news reporter, etc. (I am open to other formats but they must be approved by me.)

**Assessment**

**Criterion A: One World**

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| Achievement Level | Descriptor |
| 0 | You do not reach a standard described by any of the descriptors given below. |
| 1-2 | You **state** how science is applied and how it may be used to address a specific problem or issue involving the use of pure substances and mixtures.You **state** the effectiveness of science and its application in solving the problem or issue involving the use of pure substances and mixtures. |
| 3-4 | You **describe** how science is applied and how it may be used to address a specific problem or issue involving the use of pure substances and mixtures.You **describe** the effectiveness of science and its application in solving the problem or issue involving the use of pure substances and mixtures.You **describe** the implications of the use and application of science interacting with **at least one** of the following factors: ethical, social, economic, political, cultural and environmental. |
| 5-6 | You **explain** how science is applied and how it may be used to address a specific problem or issue involving the use of pure substances and mixtures.You **discuss** the effectiveness of science and its application in solving the problem or issue involving the use of pure substances and mixtures.You **discuss and evaluate** the implications of the use and application of science interacting with **at least two** of the following factors: ethical, social, economic, political, cultural and environmental. |

**Criterion B: Communication in Science**

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| Achievement Level | Descriptor |
| 0 | You do not reach a standard described by any of the descriptors given below. |
| 1-2 | You use a **limited range** of scientific language **correctly**.You communicate scientific information with **limited effectiveness**.You **make little attempt** to document sources of information. |
| 3-4 | You use **some** scientific language correctly.You communicate scientific information with **some effectiveness**.You **partially document** sources of information. |
| 5-6 | You use **sufficient** scientific language correctly.You communicate scientific information **effectively**.You **fully document** sources of information **correctly**. |