

Chemistry 20 Industrial Acid Base Chemistry Project

20-C2.1sts explain that the goal of technology is to provide solutions to practical problems

(ST1)[ICT F2-4.4]

- *relate the concept of pH to solutions encountered in everyday life, such as pharmaceuticals, shampoo and other cleaning products, aquatic and terrestrial environments, and blood/blood products*

20-C2.2sts explain that technological problems often require multiple solutions that involve different designs, materials and processes and that have both intended and unintended consequences

(ST3)[ICT F3-4.1]

- *provide examples of processes and products that use knowledge of acid and base chemistry (the pulp and paper industry, the petrochemical industry, food preparation and preservation, cleaning aids, sulfuric acid in car batteries, treating accidental acid or base spills using neutralization and dilution)*
- *explain the significance of the strength and concentration of solutions in everyday life (pharmaceuticals, chemical spills, transportation of dangerous goods, toxicity)*
- *identify examples in Alberta in which holistic practices used by some Aboriginal communities can be used to moderate the impact of development in industries such as the petrochemical industry.*

Goal of the Project:

- Create an interactive, informative website to educate the public about the influence of acid base chemistry in industry and everyday life.

Timeline:

- You will be provided with 2-4 classes to complete this website project
 - depending on if you want to do unit test corrections during this class time
 - class work periods Tuesday March 29-Friday April 1
- This project will be due **Friday April 8 at 2:11pm**
 - NO EXCEPTIONS, NO EXTENSIONS

Details:

- You are able to work with **1 partner** for this project
- Wix, Weebly, google sites, etc are all free modals of website creation. DO NOT PAY FOR A WEBSITE CREATION.

Explanation:

- You are to choose a chemical, specifically an **ACID or a BASE** used in industry or everyday life and research the following required information.
- The required information is not to be glossed over. An in depth analysis of the following information is important to be successful in this project. Remember, you have been provided with 4 classes of work time... That's a lot of time for a lot of quality work.
- Remember also, in depth does not mean quantity. It is the quality of the analysis that is important, not the word count.

Required Information:

- Chemical – common name, IUPAC (chemical) name, molecular formula and molecular structure
- Description of chemical
 - Common uses
 - Chemical qualities that allow the chemical to be used for this reason
 - Mechanism or reason chemical contains these qualities (i.e. the OH⁻ makes the substance basic, the reason this is a strong base is because...)
- Relevant chemical reactions
 - Either
 - Mechanism of chemical production
 - Mechanism of chemical use (reaction when it is used)
 - Mechanism of chemical effect (in the environment – desired or not)
- Concentration description
 - Description of commonly used concentrations (industrial and commercial use versions)
 - Explanation of reason this concentration is important (what happens if the concentration is too low or too high)
- Pros of Chemical
 - 1 Environmental Benefit explained fully
 - 1 Scientific, Technological or Industrial Benefit explained fully
- Cons of Chemical
 - 1 Environmental Detriment explained fully
 - 1 Scientific, Technological or Industrial Detriment explained fully
 - 1 way industry has learned to deal with one of the cons mentioned above
- 5 Fun Facts
 - minimum 5 fun facts about your chosen chemical (ie. Fun fact: in 1964 hairspray surpassed lipstick as women's most popular cosmetic aid)

Website Requirements:

- 3 embedded YouTube videos
 - formatted appropriately within the relevant information
- Minimum 14 relevant pictures
 - formatted appropriately within the information, don't just put pictures at the end or on one page
- Minimum 15 sources in MLA format
 - put on 1 page (SOURCES PAGE)
 - MLA source should be included within work as well (Mogck, 2016)
 - include link after MLA source

Day by Day Plan of Attack Chem 20 Acid Base Project

You should be able to finish this project within class / flex periods as long as you work diligently!

Day 1:

- Choose your partner. Choose that person wisely. You cannot work with a person that you have worked with on the molecule project or on the gas lab. Find a new friend! Introduce yourself.
- Choose your chemical by researching relevant acids or bases that are used in industry
- Make sure that your chemical has both positive and negative effects on industry, environment, people, animals or plants.
- READ OVER RUBRIC TO MAKE SURE YOU UNDERSTAND REQUIREMENTS...
- Begin researching: you should be able to finish:
 - Chemical Choice
 - Description
 - Chemical Reactions (at least part of it)
 - Make sure to make a note of your sources used

Day 2:

- Finish chemical reactions (if you did not before)
- Figure out the concentration description section
 - Make sure to make note of sources

Day 3:

- Find and explain pros and cons
- Find and explain fun facts
- Finish source list

Day 4:

- Start putting the work together on a website
 - Google sites, weebly, wix, etc all have good free formats

Day 5 (FLT):

- Check over your work, make sure it all flows and is polished
- Assess yourself using the attached rubric.

Project Information Rubric

	4	3	2	1
Chemical Choice <ul style="list-style-type: none"> • common name • IUPAC (chemical) name • molecular formula • molecular structure 	Chemical is an acid or a base relevant to Chem 20 Unit C Acid Base Solutions All parts of the chemical choice requirements are included and clearly described in the project.	Chemical is an acid or a base relevant to Chem 20 Unit C Acid Base Solutions All parts of the chemical choice requirements are included however slightly unclear within the project.	Chemical is an acid or a base relevant to Chem 20 Unit C Acid Base Solutions Missing one part of the chemical choice requirements are included however slightly unclear within the project.	Chemical is an acid or a base relevant to Chem 20 Unit C Acid Base Solutions Missing two or more parts of the chemical choice requirements are included however slightly unclear within the project.
Chemical Description <ul style="list-style-type: none"> • Common uses • Chemical qualities • Mechanism or reasoning 	Description includes all required information, and is covered at or above a chem 20 level	Description includes all required information however is covered slightly below a chem 20 level	Description includes all required information however is covered significantly below a chem 20 level OR Description is missing one of the required information however is covered at or above a chem 20 level	Description includes all required information however is covered significantly below a chem 20 level OR Description is missing one of the required information however is covered slightly below a chem 20 level
Chemical Reactions <ul style="list-style-type: none"> • Mechanism of chemical production • Mechanism of chemical use (reaction when it is used) • Mechanism of chemical effect (in the environment – desired or not) 	All parts of the chemical reaction requirements are included and clearly described in the project. All chemical reactions are explained in word form (i.e. Hydrochloric acid reacts with methane) AND chemical formula (i.e. $\text{HCl} + \text{CH}_4$) Side reactions or possible environmental reactions are included in the description.	All parts of the chemical reaction requirements are included and clearly described in the project. All chemical reactions are explained in word form (i.e. Hydrochloric acid reacts with methane) OR chemical formula (i.e. $\text{HCl} + \text{CH}_4$) Side reactions or possible environmental reactions are included in the description.	Missing one part of the chemical reaction requirements, however included sections are clearly described in the project. All chemical reactions are explained in word form (i.e. Hydrochloric acid reacts with methane) AND chemical formula (i.e. $\text{HCl} + \text{CH}_4$) (both word equations and balanced chemical equations are included for all reactions)	Missing one part of the chemical reaction requirements, however included sections are clearly described in the project. All chemical reactions are explained in word form (i.e. Hydrochloric acid reacts with methane) OR chemical formula (i.e. $\text{HCl} + \text{CH}_4$) (Either word equations or balanced chemical equations are included for all reactions – not both)

<p>Concentration Descriptions</p> <ul style="list-style-type: none"> • Description of commonly used concentration • Reason this concentration is important 	<p>A full explanation of concentrations used in industry are described</p> <p>Potential dangers or issues with having an alternative concentrations are clearly explained</p>	<p>An explanation of the concentration used in industry is stated, however it is not explained the reason the concentration is important.</p> <p>Potential dangers or issues with having an alternative concentration are clearly explained.</p>	<p>A full explanation of concentrations used in industry are described</p> <p>Potential dangers or issues with having an alternative concentration are unclear or not included in the description.</p>	<p>An explanation of the concentration used in industry is stated, however it is not explained the reason the concentration is important.</p> <p>Potential dangers or issues with having an alternative concentration are unclear or not included in the description.</p>
<p>Pros of Chemicals</p> <ul style="list-style-type: none"> • Environmental • Scientific 	<p>2 pros are completely explained in the website, allowing for complete understanding of why this is an important environmental or scientific pro (what is the positive influence on industry and people)</p>	<p>2 pros are explained in the website, however it is unclear the benefit of the overall impact these pros have on society or industry and people.</p>	<p>1 pro is completely explained in the website, allowing for complete understanding of why this is an important environmental or scientific pro (what is the positive influence on industry and people)</p> <p>1 pro is completely irrelevant, however completely described in the website</p>	<p>1 pro is explained in the website, however it is unclear the benefit of the overall impact these pros have on society or industry and people.</p> <p>1 pro is completely irrelevant, and poorly explained in the website.</p>
<p>Cons of Chemicals</p> <ul style="list-style-type: none"> • Environmental • Scientific 	<p>2 cons are completely explained in the website, allowing for complete understanding of why this is an important environmental or scientific pro (what is the negative influence on industry and people)</p>	<p>2 cons are explained in the website, however it is unclear the negative impact these cons have on society or industry and people.</p>	<p>1 con is completely explained in the website, allowing for complete understanding of why this is an important environmental or scientific pro (what is the negative influence on industry and people)</p> <p>1 con is completely irrelevant, however completely described in the website</p>	<p>1 con is explained in the website, however it is unclear the negative impact these cons have on society or industry and people.</p> <p>1 con is completely irrelevant, and poorly explained in the website.</p>

<p>5 Fun Facts</p>	<p>5 or more fun facts are included in the project. These fun facts are completely related to your acid or base, and are interesting or funny in some way (NOT NECESSARILY CHEMISTRY RELATED)</p>	<p>5 or more fun facts are included in the project. These fun facts are completely related to your acid or base, however are in no way fun.</p>	<p>3-4 fun facts are included in the project. These fun facts are completely related to your acid or base, and are interesting or funny in some way (NOT NECESSARILY CHEMISTRY RELATED)</p>	<p>1-2 fun facts are included in the project. These fun facts are completely related to your acid or base, and are interesting or funny in some way (NOT NECESSARILY CHEMISTRY RELATED)</p> <p>2-4 fun facts are included in the project. These fun facts are completely related to your acid or base, however are in no way fun.</p>
<p>Sources (x2)</p> <ul style="list-style-type: none"> • MLA Format 	<p>15-20 sources are sited within the work as well as on a sources page within the website. These sites are sources in proper MLA format and a like to each source was included following the MLA reference.</p>	<p>9-14 sources are sited within the work as well as on a sources page within the website. These sites are sources in proper MLA format and a like to each source was included following the MLA reference.</p>	<p>4-8 sources are sited within the work as well as on a sources page within the website. These sites are sources in proper MLA format and a like to each source was included following the MLA reference.</p> <p>15-20 sources are sited on a source page. These sites are sources in proper MLA format and a like to each source was included following the MLA reference.</p>	<p>1-3 sources are sited within the work as well as on a sources page within the website. These sites are sources in proper MLA format and a like to each source was included following the MLA reference.</p> <p>Less than 15 sources are sited on a source page. These sites are sources in proper MLA format and a like to each source was included following the MLA reference.</p>

Project Formatting Rubric

	3	2	1	0
YouTube Videos	3 YouTube videos are EMBEDDED into the website. These videos are relevant to your chosen acid or base chemical.	1-2 YouTube videos are EMBEDDED into the website. These videos are relevant to your chosen acid or base chemical.	3 YouTube videos are EMBEDDED into the website. These videos are slightly irrelevant to your chosen chemical. 3 YouTube links are included in your website, with clear relevance to your chemical.	1-2 YouTube videos are EMBEDDED into the website. These videos are relevant to your chosen acid or base chemical. 1-2 YouTube links are included in your website, with clear relevance to your chemical.
Pictures	14 or more pictures are included throughout the website, with a good balance between text and pictures. Pictures are of high quality and relevant to your chosen chemical.	7-13 pictures are included throughout the website, with a good balance between text and pictures. Pictures are of high quality and relevant to your chosen chemical.	14 or more pictures are included throughout the website, with a good balance between text and pictures. However pictures are of low quality or are not relevant to your chosen chemical.	7-13 pictures are included throughout the website, with a good balance between text and pictures. However pictures are of low quality or are not relevant to your chosen chemical.
Information Formatting	Information is easy to find, follow and navigate. All headings are clearly labelled and pages have appropriate amounts of information on them. Information is formatted into paragraphs, to ensure easy of understanding. No spelling or grammar errors are present in the information.	Information is easy to find, follow and however slightly difficult to navigate. All headings are clearly labelled and pages have appropriate amounts of information on them. Information is formatted into paragraphs, to ensure easy of understanding. No spelling or grammar errors are present in the information.	Information is easy to find, follow and navigate. All headings are clearly labelled and pages have appropriate amounts of information on them. Information is formatted into paragraphs, to ensure easy of understanding. Clear spelling or grammar errors are present in the information.	Headings are not clearly labelled, making it more difficult to locate and make sense of information. OR Information is formatted not in paragraphs which makes it difficult to read and understand.
Overall Impression of Website	Overall, this website is informative, entertaining and easy to use. This is a professional looking website.	Overall, this website is informative, entertaining and easy to use. This website is slightly unorganized or juvenile.	Overall, this website is informative and easy to use, however slightly boring or lackluster. This is a professional looking website all be it boring.	Overall, this website is informative and easy to use, however slightly boring or lackluster. As well, the website is slightly unorganized or juvenile.

