Stoichiometry Project

Create a visual project WITH A VIDEO RECORDING to demonstrate your choice of an industrial process.

Goal of the Project

Analyze the chemical reactions involved in various industrial and commercial processes and products that use stoichiometric and chemical principles.

Describe how industries apply principles of stoichiometry to minimize waste and maximize yield Assess the significance of specific by-products from industrial, commercial and household chemical reactions

Discuss the risks and benefits of technologies and assess for each potential application from a variety of perspectives, including sustainability

Analyze the use of technologies, such as smokestacks and catalytic converters, to reduce emissions that are harmful to the environment, such as SO2(g) and greenhouse gases.

Choose a Product

- Industrial product
- Commerical product

Research the Industrial Chemistry

- Figure out the significant chemical reaction
- Define stoichiometry and explain how it relates to the chemical reaction
- Discuss how industries minimize waste and maximize yields

Figure out the Risks and Benefits

- Figure out the significant chemical reaction
- Define stoichiometry and explain how it relates to the chemical reaction
- Discuss how industries minimize waste and maximize yields

Analyze Technologies

- Industrial technologies used to reduce the risks of the industry
- How it works

Put it Together

- Cerate your visual project
- Check the rubric to make sure you have included all requirements

Example Industrial Processes

- Production of urea
- Fertilizers
- Fuel combustion

o Water treatment
o Air bag deployment
o Neutralization of excess stomach acid
o Production of medicine
o Production of plastic

Stoichiometry Project Rubric Total 27 marks=NO VIDEO NO MARKS

	3	2	1
Product Choice	Product is relevant to chemistry 20 and to society. Importance of the product is clearly outlined in the project	Product is relevant to chemistry 20 and to society. Importance of the product is not clearly outlined, however obvious in the project	Product is not relevant to chemistry 20 or the importance of the product in unclear in the project
Relevant Chemical Reactions	Balanced chemical equations are noted, including states AND the chemical process is explained	Balanced chemical equations are noted, including states OR the chemical process is explained	The chemical reaction is not balanced OR the chemical process is unclear or incorrect
Explanation of Stoichiometry	A complete definition of stoichiometry is included, explaining the importance of mole ratio, and relating the definition to the chemical process described in the project	A definition of stoichiometry is included and related to the chemical process described in the project, however missing relevant connections or important factors involved in mole ratio	A definition of stoichiometry is included however is not related to the chemical process described in the project
Discussion of Maximizing Yield (and minimizing waste)	2 examples of how industry maximizes yield are included in the project AND 2 examples of how industry minimizes waste are included and completely described in the project	1 example of how industry maximizes yield are included in the project AND 1 example of how industry minimizes waste are included and completely described in the project	1-2 examples of how industry EITHER maximizes yield OR minimizes waste is included and completed described in the project
Benefits to Society	Minimum 3 benefits are completely described in the project, including 1 economic, 1 social and 1 environmental benefit	2 benefits to society are completed describe in the project (either economic, social or environmental)	1 benefit to society is completed described in the project (either economic, social or environmental) OR a list of benefits is included however not explained in the project
Risks to Society	Minimum 3 risks are completely described in the project, including 1 economic, 1 social and 1	2 risks to society are completed describe in the project (either economic, social or environmental)	1 risk to society is completed described in the project (either economic, social or environmental) OR a list of risks is

	environmental risk		included however not explained in the project
Explanation of Industrial Technologies	A complete description of 2-3 ways industries reduce the risk factors involved, including diagrams and discussion explaining the technological processes	A complete description of 1 way industries reduce the risk factors involved, including diagrams and discussion explaining the technological processes OR 2-3 industrial technologies are described however explanation is unclear.	A list of ways industries reduce the risk factors involved OR 1 industrial technology is described however explanation is unclear.
Citation	Provided a list of citations from diagrams and any examples provided that are related to their work	Provided a list of citations from examples provided that are related to their work	Provided a list of citations from diagrams that are related to their work
Overall Project	The project is engaging, exciting and very well done. I would present this to parents at the showcase of learning.	The project is well done, however missing that "wow" factor. There are 1- 2 areas of improvement within the project	A powerpoint, prezzi or Google Slide was created. The project is unoriginal or simply done OR the presentation is not engaging or well done. It is apparent the project was thrown together

Total = /27 = %