

You must choose a topic from two different categories listed below.

Research topic ONE from topics 1 or 2 -Presentation Dates: _____

1. **Thermochemical Change**
2. **Electrochemical Change**

Research topic TWO from topics 3 or 4 –presentation Dates: _____

3. **Chemical changes of Organic Compounds**
4. **Chemical equilibrium focusing on acid base systems**

Specifications for Presentation:

Choose a **technological application** that relates to your topic

- Draw a properly labelled energy diagram for the reaction(s) involved in your technology. Use the correct type of arrow: stoichiometric or equilibrium
 - Explain the energy changes in terms of bonds breaking and reforming
 - Include a discussion of activation energy and catalysts
 - If possible use Hess's law to calculate the ΔH for the reaction(s)
 - If possible determine the voltage required or voltage produced
 - If possible, determine the oxidizing agent and the reducing agent.
 - Determine 'stresses' that could improve the yield of products.
- Describe hazards or limitation of your chosen technology
- What are the benefits of your technological application?
- What are the drawbacks to the use of your technology?
- Explore the historical, current and the futuristic possibilities for your application.

1. Work on your own or with ONE partner.
2. Make a presentation on your topic. You can pick the method of presenting: (power point, skit, speech, video, musical number, etc) The sky's the limit here – be creative and don't bore us. Length of presentation must be 5 --> 10 minutes
3. Convince us that you understand the topic thoroughly
4. Be prepared to answer questions that relate to your topic. This means you need to do WIDE research and anticipate what will be asked as SPIN off questions
5. Provide us with an ACTIVITY relating to your topic. It can be a game (computer based or paper and pencil game), a quiz, a lab, a word search, etc etc. You want to enhance our LEARNING. If things need to be "RUN OFF" for the class, I need them a minimum of one day before your presentation to get them ready.

This presentation will be assessed by two of your peers and by your teacher

You will be asked to assess other's work as well.

Potential topics:

Thermochemical – possible topics

1. Hydrocarbon fuelled electricity generation
2. Hybrid cars and combustion of alternative fuels
3. Recycle of exhaust emissions
4. Making of concrete or plaster for casts
5. Hot packs and/or cold packs
6. Catalytic combustors

Electrochemical – possible topics

1. ancient and current technology for extracting elements from ore
2. Methods of preventing corrosion of metals
3. Industrial oxidation reduction reactions (water treatment, production of paper, food preservation, etc)
4. Voltaic cells
5. Electrolytic cells
6. Fuel Cells
7. Removal of emissions
8. Down Cells

Organics – possible topics

1. Synthetic compounds: fuels, medications, plastics, pesticides, herbicides, meal replacement, vitamin supplements, soaps, detergents,
2. preparation of economically important hydrocarbon compounds: antifreeze, polymers, methanol, ethanol, vehicle fuels,
3. Organic processes: esterification, addition, substitution, halogenation, hydration, combustion, etc

Acid / Equilibrium – possible topics

1. equilibrium theory : Explore Le Chatelier's principle and applications
2. Haber Bosh process (ammonia)
3. Solvay process (sodium carbonate)
4. Buffering systems: human body, food processing, etc
5. Acid rain & pH curves

Marking Rubric

Name of presenter(s) _____

Topic _____

Assessed by: _____

	Demonstrates <u>high</u> level of completion	Demonstrates <u>adequate</u> level of completion	Demonstrates <u>limited</u> level of completion	Comments
Evidence of thorough research & NO evidence of plagiarism	5 4	3 2	1 0	
Addressed all parts of the assignment	5 4	3 2	1 0	
Appropriate length	2	1	0	
Audible and good eye contact with audience	4 3	2 1	0	
Addressed questions adequately	4, 3	2 1	0	
Activity: challenging, entertaining, meaningful	5 4	3 2	1 0	
Unique ideas that set your presentation apart from the others.	2	1	0	

Total mark out of a possible 27 marks _____