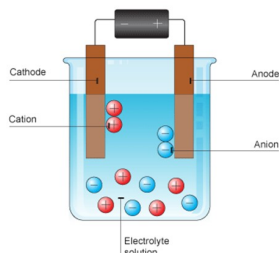


Home learning activities

Subject
Science
Year Group
Year 9
Unit of work / Knowledge organiser
'Energy Changes' – 1
Activities
<ul style="list-style-type: none"> • Complete the weekly 'Knowledge Check' through 'GCSEPod'. • Watch all 'GCSEPod' clips on the 'Energy Changes' Unit. • Complete the 'GCSEPod' Questions assigned for this Unit of work and any additional assignments which have been set by your teacher.
Where do you complete the work?
Use computer/phone for 'GCSEPod' or 'Seneca' and study materials.
What to do if you finish the work? (Extension activity)
<ul style="list-style-type: none"> • Sign up for 'Seneca Learning' using the 'Sign Up Guide' sheet and the special passcode: j5v9tvzq48. Complete the assignments which have been set.
These websites might help:
<ul style="list-style-type: none"> • BBC Bitesize -> Secondary -> GCSE -> Combined Science -> AQA Trilogy -> Chemistry -> Energy Changes • www.freesciencelessons.co.uk -> GCSE Videos -> Chemistry Paper 1 -> Energy Changes
If you are struggling with your work or if you have finished.
<p>Please email your classroom teacher directly using the email list found in the Home Learning section of the website.</p>



Positive
Anode
Negative
Is
Cathode

Section 1 Electrolysis key terms

38 Electrolysis	The process of splitting an ionic compound by passing electricity through it.
39 Electro-lyte	An ionic compound that is molten (melted) or dissolved in water . The ions are free to move .
40 Electrode	An electrical conductor that is placed in the electrolyte and connected to the power supply .
41 Cathode	The electrode attached to the negative terminal of the power supply .
42 Anode	The electrode attached to the positive terminal of the power supply .

Section 2 What is discharged in electrolysis?

Electrolyte	Cathode	Anode
43 Molten Compound	Metal	Non-metal
44 Dissolved compound (aqueous solution)	The metal if the metal is less reactive than hydrogen . Hydrogen is produced if the metal is more reactive than hydrogen .	Oxygen is produced unless the solution contains halide ions (chloride, bromide, iodide) when the halogen (chlorine, bromine, iodine) is produced.

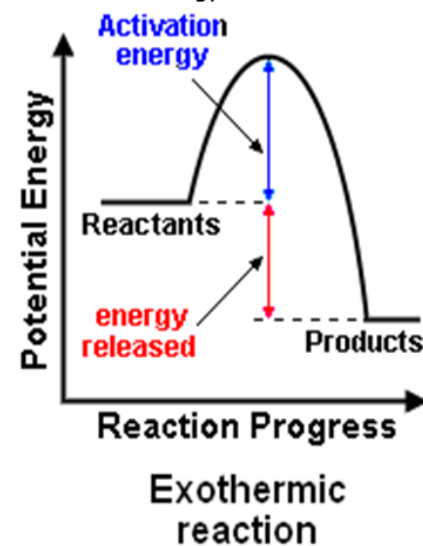
Section 3 Aluminium Electrolysis

45 Cryolite	Aluminium oxide is dissolved in cryolite to lower its melting point . This saves money on energy costs .
46 Cathode	Positive Al³⁺ ions move to the cathode . Aluminium is produced. Al³⁺ + 3e⁻ → Al
47 Anode	Negative O²⁻ ions move to the anode . Oxygen is made. 2O²⁻ → O₂ + 4e⁻ Wears away as the carbon anode reacts with oxygen to form carbon dioxide .

Section 4 Energy Changes Key Terms

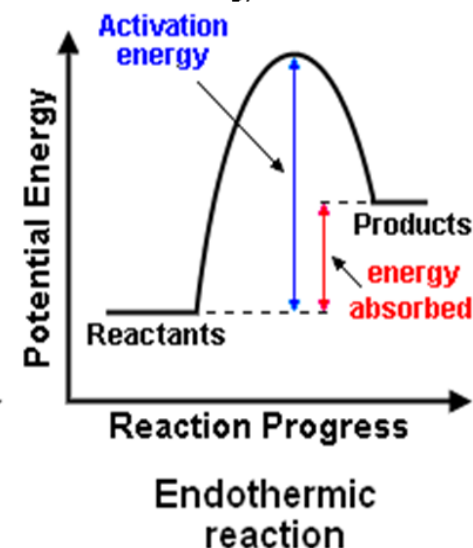
1 Conservation of energy	Energy is not created or destroyed , only transferred from one store to another
2 Exothermic	A reaction that transfers energy to the surroundings so the temperature of the surroundings increases , e.g. combustion and neutralisation reactions. Used in self-heating cans and hand warmers .
3 Endothermic	A reaction that takes in energy from the surroundings so the temperature of the surroundings decreases , e.g. thermal decomposition . Used in sports injury packs .
4 Activation energy	The energy needed for particles to successfully react .
5 Breaking bonds	Energy is needed to break bonds.
6 Forming bonds	Energy is released when bonds are formed.

7 Exothermic Energy Profile



9 Energy released from forming bonds is **greater than** the energy needed to break bonds. (HT)

8 Endothermic Energy Profile



10 Energy released from forming bonds is **less than** the energy needed to break bonds. (HT)

'Seneca Learning' Sign-Up Guide

Passcode: j5v9tvzq48

Step 1: Open an internet browser - *Any browser except Internet Explorer will work.*

Step 2: Go to SenecaLearning.com

Step 3: Click on "Get Started" or "Sign Up"

Step 4: Create your account - *If you don't know your parent email, then type: N/A.*

Step 5: Click on "Classes & Assignments" - *You'll find this in the top menu.*

Step 6: Click on "Join Class" - *It's the green button in the top right corner.*

Step 7: Type the code from your teacher - *If you received a link instead, then open the link.*