










مخرجات التعلم والروابط ذات العلاقة في بنك المعرفة المصري
مادة الكيمياء الصف الثالث الثانوي العام الدراسي ٢٠٢٢/٢٠٢١

Learning outcomes	 Discovery	 Designmate	 Britannica
<p>Unit one :transition elements</p> <ol style="list-style-type: none"> Recognize the elements of the first transition series. Recognize the economic importance the elements of the first transition series. Write the electron configuration of these elements. Determine the various oxidation sati of the elements. Explain why iron (II) ion is easily oxidized to iron (III) while manganese (II) ion is not easily oxidized. Define the transition element, Recognize the general properties of the transition elements, Explain the graduation in properties of the first transition series with the increasing in their atomic numbers. identifies the paramagnetic and the diamagnetic substance by using electronic structure. -Clarify the relation between the colors of the ions of transition elements and their electronic configuration. Explain reason for using elements of the first transition series as catalyst. 	https://lms.ekb.eg/repository/resource/53c434ae-34c6-416a-95b4-fd25e3f54a9e/ar	https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323032/ar	https://lms.ekb.eg/repository/resource/ce7d715c-b024-493f-b00a-a2185e52b914/ar
	Manganese	Tendency of the transition metal ions to form complexes	The Transition Elements
	https://lms.ekb.eg/repository/resource/a06f3be3-dc44-441f-8394-a4c9996c4c96/ar	https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030363532/ar	https://lms.ekb.eg/repository/resource/e178d77d-22a2-41ba-90ae-8681dc352cba/ar
	Scandium	Electronic configurations of transition metal elements	Oxidation of the First Transition Elements
	https://lms.ekb.eg/repository/resource/bddb02fd-8647-4e07-adff-7d13c1da189d/ar	https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030313938/ar	https://lms.ekb.eg/repository/resource/0eae2593-b4d0-49ea-9ee9-8bec4064489b/ar
	Rhodium	Oxidation states (Transition elements)	Properties of the First Transition Elements
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323032/ar	https://lms.ekb.eg/repository/resource/e178d77d-22a2-41ba-90ae-8681dc352cba/ar
		Tendency of the transition metal ions to form complexes	Oxidation of the First Transition Elements
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030303038/ar	https://lms.ekb.eg/repository/resource/e5db8e12-2713-4b86-bf57-58abba5069a2/ar
		Extraction of iron	Atomic Structure of the First Transition Elements









Learning outcomes	 Discovery	 Designmate	 Britannica
12. Recognize the iron ores.		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353936/ar	https://lms.ekb.eg/repository/resource/79be4151-fa75-4471-9f4d-1f56fb3c4894/ar
13. Recognize the method of extraction of iron from its ores in the different furnaces		Uses of steel	First Transition Elements as Catalysts
14. Recognize the alloys and their kinds		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030303238/ar	https://lms.ekb.eg/repository/resource/6e23c0e2-6f6c-4ad2-b584-543d51691193/ar
15. Enumerating the uses of alloys.		Alloys and their Uses	Iron Ore Extraction
16. Recognize the properties of ion and its oxides		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030303336/ar	https://lms.ekb.eg/repository/resource/15cdfd2a-9591-4246-b2fd-f74bd2d98976/ar
17. Remember the concepts and laws which have studied before and are related with other chapters.		Metallurgy	Alloys
			https://lms.ekb.eg/repository/resource/2822833c-4b24-4b9d-b5a6-d7bed8a06f09/ar
			Iron






Learning outcomes	 Discovery	 Designmate	 Britannica
<p><u>Unit two: chemical analysis.</u></p> <ol style="list-style-type: none"> 1. Explain the concept and types of chemical analysis. 2. Identify the various quantitative qualitative analyses 3. Appreciate the importance of studying the quantitative analysis for both the individuals and society. 4. Carry out an experiment for neutralization of a strong acid by strong base using a suitable indicator. 5. Compare between chemical indicators and their uses. 6. Identify the various quantitative volumetric analysis. 7. Identify the various quantitative gravimetric analysis. 	https://lms.ekb.eg/repository/resource/0bcd6948-fde3-442b-b69e-00da711fd14f/ar	https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-03030343431/ar	https://lms.ekb.eg/repository/resource/0df4740c-771d-44ac-98fe-d7c22746e2e6/ar
	What Is a Mole?	Indicators	Quantitative Analysis
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-03031333138/ar	https://lms.ekb.eg/repository/resource/2aa82f29-ea5d-45b1-bfd3-ea394614ff75/ar
		Neutralization	Chemical Analysis
			https://lms.ekb.eg/repository/resource/39c8006a-ff7f-49d8-9134-f9aa86b4917e/ar
			Quantitative Gravimetric Analysis
			https://lms.ekb.eg/repository/resource/2ac1873b-8da7-4a26-8588-d5dee702d162/ar
			Basic Radicals
			https://lms.ekb.eg/repository/resource/39086026-daac-4e2a-8392-6e2efae1cedc/ar
			Quantitative Volumetric Analysis
			https://lms.ekb.eg/repository/resource/3f7d490e-e13d-4373-849e-abe72a9dc026/ar
			Practical Tasks: Neutralization Reactions
			https://lms.ekb.eg/repository/resource/d6cb0a9c-0df2-4ecb-9239-bceb5118dc5e/ar
			Practical Tasks: Chemical Indicators
		https://lms.ekb.eg/repository/resource/d6cb0a9c-0df2-4ecb-9239-bceb5118dc5e/ar	
		Practical Tasks: Acid and Basic Radicals	






Learning outcomes	 Discovery	 Designmate	 Britannica
<p>Unit 3: chemical equilibrium</p> <ol style="list-style-type: none"> Identify the equilibrium system. Acquire the accuracy skill for handling laboratory equipment. Illustrate the factors affecting the rate of chemical reaction. Write the statement of the law of mass action. Numerate the factors affecting the state of equilibrium. Calculate the equilibrium constant. statement of Le Chatelier's principle Apply the law of mass action on balanced reactions and Write the Carry our some calculations related ta the chemical equilibrium Appreciate the efforts of scientists, for the development of chemistry. Clarify the concept of hale equilibrium. Formulate a positive attitude for the integration of mathematics and science together. Explain the ionization of water and eic product of water. Clarify the concept of pH and its significant on aqueous solutions. Explain the concept of hydrolysis. Clarify the concept of solubility product and its applications. Appreciate the high accuracy of universe creation by God. 	https://lms.ekb.eg/repository/resource/8c5ebbf4-d4c6-473d-a1df-6d7fdd2ad37f/ar	https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353531/ar	https://lms.ekb.eg/repository/resource/9efc104c-6a27-4254-acf4-a69ee68440fa/ar
	Equilibrium	Types of equilibrium	Law of Mass Action
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353339/ar	https://lms.ekb.eg/repository/resource/9d39c3e1-e027-42ed-b093-1523a9c3fab9/ar
		Rate of Reaction and concentration	Ionic Equilibrium
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353438/ar	https://lms.ekb.eg/repository/resource/90718893-bab8-44e4-befa-acf2c0542995/ar
		Effect of pressure on equilibrium	Factors that Affect Chemical Reactions
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353331/ar	https://lms.ekb.eg/repository/resource/cea2551b-cd38-4605-8065-045db52969f6/ar
		Rate of reaction	Le Chatelier's Principle
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030393731/ar	https://lms.ekb.eg/repository/resource/5b2ef774-105f-4a45-82b3-e3db7b654a01/ar
		Equilibrium constant of calcium carbonate	chemical equilibrium
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030383832/ar	https://lms.ekb.eg/repository/resource/ed592e4d-9342-4c44-a4c7-a48a1d6604d3/ar
		Base dissociation equilibrium constant (K_b)	ionization of water
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030373833/ar	https://lms.ekb.eg/repository/resource/37d45410-d792-437d-bd0d-a5bf411499d0/ar
		Factors affecting rate of reaction	Hydrolysis of compounds
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353435/ar	https://lms.ekb.eg/repository/resource/8b58bfcf-e2ff-4bd0-9888-152319c07fa0/ar
		Effect of a catalyst on equilibrium	Practical functions: pH




Learning outcomes	 Discovery	 Designmate	 Britannica
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030383138/ar Le Chatelier's principle	https://lms.ekb.eg/repository/resource/83c9cfba-5096-41e4-9fe4-5c6475353d7d/ar acid roots
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353533/ar Characteristics of Equilibrium Constant	https://lms.ekb.eg/repository/resource/ca300a0a-a387-4a1e-8f8f-7c1dae43916d/ar The Solubility Product
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303031313736/ar Acid dissociation equilibrium constant (Ka)	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030383235/ar Shifting of equilibrium by changing temperature	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333638/ar Electrolytes	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353439/ar Conditions that must be met in a reverse equilibrium reaction	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030313135/ar self ionization of water	






Learning outcomes	 Discovery	 Designmate	 Britannica
<p>Unit Four: Electrochemistry</p> <ol style="list-style-type: none"> Distinguish between the concept of oxidation and reduction and give examples of each. Determines the oxidation and reduction processes in chemical reactions. used the oxidation number to determine the change in an element's atom in terms of oxidation and reduction Declare the standard hydrogen electrode and its use in measurement of standard electrode potentials. Write the cell diagram of galvanic cell Measure experimentally some electrode potentials use the Electrochemical series for identify the reaction. Calculate the electromotive force for galvanic cell. Identify different types of galvanic cells. Explain the reactions that take place during the metal rust specially iron. Decler how to protect iron from rusting Explain the reactions occurring in galvanic cell and the rule of the salt bridge Explain the interactions that occur in the analytic cells. Verify experimentally faradays laws. 		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303031333333/ar	https://lms.ekb.eg/repository/resource/4c6892b3-298a-4151-a8d3-5c7579e06f89/ar
		Redox reaction	Oxidation and Reduction Worked Examples
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353334/ar	https://lms.ekb.eg/repository/resource/0bb5c336-c650-415c-84c5-206c34e2d723/ar
		Redox reactions	History of Electrochemistry
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030353334/ar	https://lms.ekb.eg/repository/resource/aafffae0-6cc8-475b-b147-8d99d5633889/ar
		Redox reactions	Galvanic Cell
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303031333333/ar	https://lms.ekb.eg/repository/resource/53a03a7c-b978-438a-9ae4-7a9fe9d783ff/ar
		Redox reactions	Practical Tasks: Galvanic Cell
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333637/ar	https://lms.ekb.eg/repository/resource/ab15df0b-2679-46ef-8769-66ee8d253f87/ar
		Use of standard hydrogen electrode as an anode	Practical Tasks: The Electromotive Series
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333636/ar	https://lms.ekb.eg/repository/resource/720f294b-81de-47fb-bf3b-919304104e7e/ar
		Standard hydrogen electrode	Rust and Corrosion
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333831/ar	https://lms.ekb.eg/repository/resource/91ac4107-12c2-4c8e-a788-0f52885ad41b/ar
		Electrolytes	Rust and Corrosion
	https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030303330/ar	https://lms.ekb.eg/repository/resource/36b4399c-825d-4db4-b227-8ba14859959e/ar	
	Hoope's process for refining aluminium	Practical Tasks: Faraday's Laws of Electrolysis	

Learning outcomes	 Discovery	 Designmate	 Britannica
15. Calculate the amount of deposited matter using Faradays laws. 16. Declare the products of electrolysis of solutions and melts of salts. 17. Distinguish between galvanic and electrolytic cells. 18. Identify the application of the electrolytic cells. 19. Identifies some environmental problems resulting from oxidation and reduction reactions and proposes solutions to them.		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030303130/ar	https://lms.ekb.eg/repository/resource/0544fcf9-6287-4e8c-a376-bd8b4881c7e5/ar
		Extraction of silver	Faraday's Laws of Electrolysis
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030303834/ar	https://lms.ekb.eg/repository/resource/202557c2-60a3-4ba2-abd4-1c747aeb7245/ar
		Corrosion	Electrolytic Cells Applications
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333639/ar	
		Electrolysis¹	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030393638/ar	
		Factors affecting the product of electrolysis (Part-I)	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030393639/ar	
		Factors affecting the product of electrolysis (Part-II)	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333733/ar	
		Difference between electrochemical cell and electrolytic cell	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333635/ar	
		Applications of electrolysis (Part-II)	
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030333634/ar	
	Designmate Applications of Electrolysis (Part-I)		



Learning outcomes	 Discovery	 Designmate	 Britannica
<p><u>Unit five : organic chemistry</u></p> <ol style="list-style-type: none"> Understand the theory of vital forces. Deduce that chemistry is an experimental science. Compare between organic and inorganic compounds. Distinguish between molecular and structural patterns. Draw different isomers for one molecular formula. Classify organic compounds. Perform an experiment to detect the carbon and hydrogen in the organic materials. Classify hydrocarbon to its different types. Nomenclature of organic compounds by IUPAC system. Explain methods of preparing the hydrocarbon. writing the reaction equations and drawing the preparation apparatus. Explain the economic importance of the hydrocarbon and their derivatives. Recognize functional groups of organic compounds. 	https://lms.ekb.eg/repository/resource/b7fa9d31-04de-473c-905b-ad508c223e8/ar	https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303031323139/ar	https://lms.ekb.eg/repository/resource/44d65feb-2dc1-4dee-bff2-f6724acb1b55/ar
	Discovery Education Chemistry in Focus: Organic Chemistry: Part 02	Designmate Combustion and its types	Alkenes
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030363534/ar	https://lms.ekb.eg/repository/resource/4565600d-0fc3-4b1b-9827-ad16cfa66e26/ar
		Designmate Introduction (Carbon compounds)	Practical Tasks: Alkenes
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030313232/ar	https://lms.ekb.eg/repository/resource/44d65feb-2dc1-4dee-bff2-f6724acb1b55/ar
		Hydrogen	Alkenes
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323430/ar	https://lms.ekb.eg/repository/resource/41f8b5a8-9aa1-4714-87bf-818fee0d3cb7/ar
		Re-arrangement reaction	Cycloalkanes
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030313537/ar	https://lms.ekb.eg/repository/resource/9dc28c71-a317-4329-89b8-705abafd644f/ar
		Charcoal	Organic Reactions
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323936/ar	https://lms.ekb.eg/repository/resource/09a22add-3546-415f-ab77-b68b04697bc1/ar
		Classification of Functional Groups -1	Polymerization
		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323536/ar	https://lms.ekb.eg/repository/resource/f652a45e-898f-4e22-822e-63275b2df3a1/ar
	Electronic structure of carboxylic acid	The Carbonyl Group	



Learning outcomes	 Discovery	 Designmate	 Britannica
14. Differentiate between the classification of alcohols according to the hydroxyl group and according to carbinol group attachment.		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323834/ar	https://lms.ekb.eg/repository/resource/fa9a0842-f115-4d93-b7e6-6fffbeab3613/ar
		Isocyanide compounds	Properties of Acids
15. Nomenclature of alcohol. 16. Recognize the characteristic interactions of alcohols.		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323536/ar	https://lms.ekb.eg/repository/resource/e7b88b22-dbb7-4165-b9b7-458bc950f9f5/ar
17. Distinguish between the alcohols and phenols.		Electronic structure of carboxylic acid	Uses of Alkanes
18. Find the relation between alcohols and the other organic compounds like aldehydes, ketones and acids.		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030323933/ar	
		Nomenclature of amines	
19. Know the economic importance of alcohols. 20. Recognize the properties of acids. 21. Recognize the different kinds of organic reactions and how they contribute in the synthesis of our daily life products.		https://lms.ekb.eg/repository/resource/65757265-6b61-656b-6232-303030373534/ar	
22. Recognize the economic importance of acids and esters			
		Soaps and Detergents	