

Lesson Title: Periodic Table for Classification of Elements - Grade: First Preparatory -
Week: Fourth Week - Meeting: First Meeting

Subject			Class			Meeting			Date
Absent	Present	Late	Absent	Present	Late	Absent	Present	Late	Class
									Term

Learning Outcomes: By the end of the lesson, the student will be able to:

- أولي إعدادي

الأسبوع 4

اللقاء 1

1- Classify elements in the modern periodic table into s, p, d, and f blocks.

2- Identify the locations of metals, non-metals, and metalloids in the periodic table.

3- Classify elements according to their positions in the periodic table into metals, non-metals, and metalloids.

Warm-up:	What is meant by the periodic table of elements? What are the benefits of arranging elements in it?	Warm-up
Teaching Aids / Learning Resources:	Ministry textbook - pictures of the periodic table - simple introductory presentations.	Teaching Aids / Learning Resources
Strategy:	Brainstorming - discussion and dialogue - cooperative learning.	Strategy
Lesson Elements:	Periodic table blocks (s, p, d, f) - metals, non-metals and metalloids - classification of elements in the periodic table according to their positions.	Lesson Elements
Skills	Values	Included Issues
Observation - Classification - Inference	Accuracy - System - Respect for others' opinions	Sustainable Development
..... The modern periodic table is divided into four main blocks: s, p, d, and f. The s-block is located on the left side of the periodic table and corresponds to the first two columns (Groups 1 and 2). The p-block is located on the right side of the periodic table and corresponds to the last six columns (Groups 13–18). The d-block is located in the middle of the periodic table and includes the transition elements (Groups 3–12). The f-block is located in two separate rows at the bottom of the periodic table (lanthanides and actinides). Metals are mainly located on the left and middle of the periodic table. Non-metals are mainly located on the right side of the periodic table. Metalloids lie along the zigzag line separating metals and non-metals. Elements are classified into metals, non-metals, or metalloids according to their position in the periodic table.		
Classroom Performance:	 Students work in groups to identify the s, p, d, and f blocks on a model of the periodic table. Students determine the locations of metals, non-metals, and metalloids, then classify some elements according to their positions.	Classroom Performance
Homework:	 P.	Homework
Weekly Assessment:	 P.	Weekly Assessment

Lesson Title: Periodic Table for Classification of Elements; Grade: First Preparatory; Week: Fourth Week; Meeting: Second Meeting; Term: First Term; Subject: Science.

Date						Period			Date	
Present	Absent	Late	Present	Absent	Late	Present	Absent	Late	Class	
									Period	
Learning Outcomes: By the end of the lesson, the student will be able to:									أولي إعدادي الأسبوع 4 اللقاء 2	Learning Outcomes
1- Explain the change in the atomic radius in the same group in the periodic table.										
2- Deduce the trend of the melting and boiling points in the alkali metals and in the halogens.										
3- Analyze given data to reach conclusions related to the properties of the mentioned groups.										
Warm-up: What is meant by the atomic radius? How can it change when moving from one element to another in the same group?										Warm-up
Lesson Elements: Atomic radius – melting and boiling points of alkali metals – melting and boiling points of halogens – drawing conclusions from data.										Lesson Elements
Teaching Aids / Learning Resources: Student’s textbook – introductory presentation – examples from the periodic table – worksheets.										Teaching Aids / Learning Resources
Strategy: Cooperative learning – discussion and dialogue – problem solving.										Strategy
Included Issues			Values			Skills			Lesson Presentation	
Scientific thinking			Accuracy – objectivity – respect for others’ opinions			Observation – analysis – inference				
1- Atomic radius: The atomic radius increases for the elements in the same group as we move from the top to the bottom in the periodic table, ... due to an increase in the number of energy levels between the nucleus and the outer electrons.										
2- Melting and boiling points in the alkali metals: The melting and boiling points of the alkali metals decrease as we move from the top to the bottom in the group, ... due to the weakening of the attractive force between their atoms as the atomic radius increases.										
3- Melting and boiling points in the halogens: The melting and boiling points of the halogens increase as we move from the top to the bottom in the group, ... due to an increase in the attractive force between their molecules as their molecular mass increases.										
4- Drawing conclusions from data: By analyzing the given data in the textbook tables or graphs, we can determine the general trend for each property and predict the value of another element in the same group.										
Classroom Performance: Analyze data for the melting and boiling points of selected elements from the alkali metals and the halogens, and reach conclusions about the trend of change.										Classroom Performance
Homework:							P.		Homework	
Weekly Assessment:							P.		Weekly Assessment	

أولي إعدادي

الأسبوع 4

اللقاء 2

Lesson Title : Changes of State of Matter**ثانية إعدادي****Science – Second Preparatory****الأسبوع 4****اللقاء 1****Week**

Fourth Week

Meeting

First Meeting

Term

First Term

Subject

Science

Learning Outcomes: By the end of the lesson, the student will be able to:

- 1- Distinguish between changes of state of matter when a substance gains or loses thermal energy.
- 2- Identify the reverse processes in changes of state of matter.
- 3- Recognize that melting and freezing, boiling and condensation, and sublimation and deposition are reversible changes.

Discuss examples from daily life such as the cost of water vapor on leaves and ice forming on a window in winter.

Warm-up

Ministry of Education textbook – pictures of changes of state – a flow chart – a video clip.

**Teaching Aids /
Learning Resources**

Discussion and dialogue – active learning – scientific explanation.

Strategy

Melting and freezing – boiling and condensation – sublimation and deposition – reversible changes.

Lesson Elements**Included Issues****Values****Skills**

Understanding the changes of matter in the environment and daily life.

System – accuracy – appreciation of natural phenomena.

Observation – interpretation – linking – drawing conclusions.

The teacher explains that some changes of state of matter are reversible processes, such as melting and freezing, and boiling and condensation. The teacher explains that a substance absorbs thermal energy when it changes from the solid state to the liquid state (melting), or from the liquid state to the gaseous state (boiling). When thermal energy is lost, the reverse changes occur, where the gas changes to a liquid (condensation), or the liquid changes to a solid (freezing). Then, the teacher explains sublimation as the change from the solid state directly to the gaseous state, and deposition as the change from the gaseous state directly to the solid state, and notes that these processes are also reversible.

**Lesson
Presentation**

Students distinguish in a diagram between each process of change of state and its reverse process, and give real-life examples of melting and freezing, boiling and condensation, and sublimation and deposition.

**Classroom
Performance**

P.

Homework

P.

**Weekly
Assessment**

Lesson Title: Boiling and Evaporation

ثانية إعدادي
Science – Second Preparatory Grade
الأسبوع 4
المقاء 2

Fourth Week

Week

Second Meeting

Meeting

First Term

Term

Science

Subject

Learning Outcomes:

By the end of the lesson, the student will be able to:

- 1- Differentiate between the processes of boiling and evaporation.
- 2- Identify the factors that affect the rate of evaporation.
- 3- Explain the effect of temperature, surface area, humidity, and air movement on the rate of evaporation.

Warm-up:

Stimulating question: Why do wet clothes dry faster on a windy day?

Teaching Aids / Learning Resources

Ministry of Education textbook – illustrative shapes for boiling and evaporation – various containers – board.

Strategy:

Cooperative learning – discussion – comparison – conclusion.

Lesson Elements:

Boiling – evaporation – similarities and differences – factors affecting the rate of evaporation.

Skills

Comparison – observation – interpreting phenomena – drawing conclusions.

Values

Rational use of energy – accuracy – cooperation.

Included Issues

Benefiting from environmental factors in daily life.

Lesson Presentation:

The teacher explains that boiling occurs throughout the liquid at a definite temperature called the boiling point, and vapour bubbles are formed inside the liquid. Evaporation, on the other hand, occurs only at the surface of the liquid and can occur at temperatures below the boiling point.

Then, the teacher discusses that liquid particles gain energy from the surroundings, overcoming the attractive forces between them and spreading into the air.

After that, the factors affecting the rate of evaporation are explained: higher temperature increases the rate of evaporation, larger surface area of the liquid increases the rate of evaporation, higher humidity decreases the rate of evaporation, and faster air movement increases the rate of evaporation.

Classroom Performance:

Students compare between boiling and evaporation in terms of where each occurs, the temperature, and the groups of factors affecting the rate of evaporation, then solve textbook questions as real-life examples.

Homework:

P.

Weekly Assessment:

P.

Absent			Present			Attended			Date
Absent			Present			Attended			Class
Absent			Present			Attended			Term

Learning Outcomes: By the end of the lesson, the student will be able to:

- 1- Identify the products of combustion reactions.
- 2- Explain the sources of each combustion product and its properties.
- 3- Compare between combustion products in terms of their nature and effects on the environment.

ثالثة إعدادي
الأسبوع 4
اللقاء 1

Warm-up: What materials are produced when fuel burns in our daily lives?

Teaching Aids / Learning Resources: Student's textbook - Presentation slides - Images and videos illustrating combustion reactions and their products.

Strategy: Cooperative learning - Discussion and dialogue - Think-Pair-Share.

Lesson Elements: Combustion products - their sources - their properties.

Skills	Values	Included Issues	Lesson Elements
Observation - Analysis - Comparison	Responsibility - Environmental conservation	Environmental education	

Lesson Presentation:

- Combustion reactions produce several important substances, the most notable of which are:
 - **Carbon dioxide (CO₂):** produced from the combustion of materials that contain carbon; it is a colourless and odourless gas, and its increase in the air leads to an increase in the greenhouse effect.
 - **Carbon monoxide (CO):** produced from incomplete combustion of fuel; it is a colourless, odourless, and highly toxic gas.
 - **Water vapour (H₂O):** produced from the combustion of hydrogen in the fuel; it is a colourless gas under normal conditions and condenses to form water droplets when cooled.
 - **Carbon (soot):** fine solid particles produced from incomplete combustion; it is black in colour, causes surface soiling, and affects air quality.
 - **Sulfur dioxide (SO₂):** produced from the combustion of fuels containing sulfur, such as coal and oil; it is a colourless, irritating gas.
 - **Nitrogen oxides (NO_x):** produced from the reaction of nitrogen in the air with oxygen at high temperatures inside engines and combustion furnaces; they exist mainly as NO and NO₂ and are harmful gases.

Lesson Presentation

Classroom Performance:

- The student identifies the combustion products through given examples (pictures or video clips).
- The student compares between combustion products in terms of their source and characteristics using a simple table.

Classroom Performance

Homework: P.

Homework

Weekly Assessment: P.

Weekly Assessment

Lesson Title: Combustion Reactions and Environmental Pollution						Grade: Third Preparatory				
Week: Fourth Week			Meeting: Second Meeting			Term: First Term		Subject: Science		
								Date		
Absent	Present	Late	Absent	Present	Late	Absent	Present	Late	Class	
							4		Period	
ثالثة إعدادي الأسبوع 4 اللقاء 2										
Learning Outcomes:										
1- Explain the sources of environmental pollution resulting from combustion, such as vehicle exhaust and industrial emissions.										
2- Identify the negative effects of pollution resulting from combustion on human health and the environment.										
3- Suggest ways to reduce environmental pollution resulting from combustion, in accordance with what is stated in the textbook.										
What are the effects that may result from burning crop residues or vehicle exhaust in the environment around us?									Warm-up	
Teaching Aids / Learning Resources		Ministry of Education textbook - explanatory pictures and videos - display device - worksheets.							Teaching Aids / Learning Resources	
Strategy		Cooperative learning - discussion and dialogue - problem solving.							Strategy	
Lesson Elements		Sources of environmental pollution resulting from combustion - its effects - ways to reduce it.							Lesson Elements	
Skills			Values			Included Issues				
Observation - analysis - inference			Responsibility - preserving the environment			Environmental education - sustainable development				
- Environmental pollution resulting from combustion comes from several important sources, including the burning of crop residues, vehicle exhaust, and industrial emissions. - Combustion pollutants include gases such as carbon monoxide, carbon dioxide, nitrogen oxides, and sulfur dioxide, as well as fine particles that cause air pollution. - These pollutants lead to health problems such as respiratory diseases, deterioration of air quality, eye irritation, acid rain, and damage to plants, living organisms, and climate change. - The amount of environmental pollution resulting from combustion can be reduced by: - Improving the efficiency of combustion in engines and factories. - Using catalytic converters in cars. - Installing gas-cleaning devices in factories. - Using cleaner fuels such as natural gas and low-sulfur fuels. - Expanding the use of renewable energy sources such as solar energy and wind energy to reduce reliance on fossil fuels.									Lesson Presentation	
The student presents data or pictures of sources of environmental pollution resulting from combustion, and suggests appropriate solutions to reduce it. Participates in a group discussion about the importance of using cleaner fuels and renewable energy.									Classroom Performance	
P.									Homework	
P.									Weekly Assessment	