UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

عام الأسرة
YEAR OF FAMILY
UAE

نحن الإمارات
WE THE UAE 2031

Science

Comprehensive Curriculum Guide

Grade 1 Main

Unit 4: Sky Patterns

Term 3

2025-2026 A.D

وزارة التربية والتعليم
MINISTRY OF EDUCATION
Certified
This document is certified by the Ministry of Education

وزارة التربية والتعليم
MINISTRY OF EDUCATION

Table of Contents

1. Empowering Science Teaching: The Comprehensive Curriculum Guide 3
2. Glossary 4
3. Scope and Sequence 6
4. Module Overview 9
    Unit 4 Module 1 Observe the Sky 9
    Lesson Objectives 9
    STEM Module Project 10
    Module Assessment Tools 10
    Diagnose and intervene 11
5. Learning Progression 13
6. Scheme of Work 14
    Lesson 1: Objects in the Sky 15
    Lesson 2: Day and Night Patterns 19
    Lesson 3: Patterns During the Year 24
7. Assessment Guidance 28
8. Unified Science Lesson Plan 46

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.

1. Empowering Science Teaching: The Comprehensive Curriculum Guide

A **C**omprehensive **C**urriculum **G**uide (CCG) is a structured, unified blueprint that supports teachers in delivering high-quality, coherent, and standards-aligned science instruction. It brings together all essential curriculum components into a single, organized reference to ensure consistency and efficiency across classrooms.

This guide aims to:

- Align science instruction with the UAE National Curriculum.
- Consolidate all core components—such as the curriculum overview, pedagogical strategies, instructional planner, cross-curricular links, diagnostic tools, assessment guidelines, and the use of AI tools and educational technology—into one accessible resource.
- Optimize and standardize instructional planning reducing teacher preparation time.
- Ensure a seamless implementation of STEM projects, hands-on learning and real-world applications as an integral part of the learning process.
- Support inclusive, differentiated, and student-centered teaching practices to meet the diverse needs of learners.
- Empower teachers to cultivate students' cognitive skills, values, and attitude, and a lasting disposition toward science for lifelong success.

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.

2. Glossary

This section provides clear definitions of key terms and concepts referenced throughout the guide. It supports teachers in developing a shared understanding of instructional approaches, curriculum components, and assessment tools used in the module.

Key term	Definition
Performance Expectations (PEs)	The NGSS is not a set of daily standards, but a set of expectations for what students should be able to do by the end of instruction (years or grade-bands). The performance expectations set the learning goals for students, but do not describe how students get there.
Disciplinary Core ideas (DCI)	The fundamental ideas that are necessary for understanding a given science discipline. The core ideas all have broad importance within or across science or engineering disciplines, provide a key tool for understanding or investigating complex ideas and solving problems, relating to societal or personal concerns, and can be taught over multiple grade levels at progressive levels of depth and complexity.
Science Engineering Practice (SEP)	The practices are what students DO to make sense of phenomena. They are both a set of skills and a set of knowledge to be internalized. The SEPs reflect the major practices that scientists and engineers use to investigate the world and design and build systems.
Crosscutting Concepts (CCCs)	These are concepts that hold true across the natural and engineered world. Students can use them to make connections across seemingly disparate disciplines or situations, connect new learning to prior experiences, and more deeply engage with material across the other dimensions. The NGSS requires that students explicitly use their understanding of the CCCs to make sense of phenomena or solve problems.
Inquiry-based activity	The inquiry-based activity engages students in exploring questions, problems, or scenarios, fostering critical thinking and deep understanding. This approach emphasizes student-centered learning through questioning, investigation, and evidence-based reasoning. It promotes 21st century skills such as critical thinking, problem solving, collaboration, communication, and creativity that are essential for scientific inquiry.
Phenomenon-based learning	Phenomenon-based learning utilizes real-world events or observable phenomena to drive instruction. Students investigate these phenomena to understand underlying scientific principles, integrating multiple disciplines. This method encourages students to ask questions and seek explanations for events they observe in the natural world promoting science literacy.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.

Claims, Evidence, Reasoning (CER)	The CER helps students construct scientific explanations by making a claim, supporting it with evidence, and providing reasoning that links the evidence to the claim. This approach develops students' analytical and argumentative skills by engaging in argument from evidence.
5E Instructional Model	An instructional model followed by McGraw Hill's Inspire Science program. This model is designed to enhance critical thinking and problem-solving skills by actively engaging students with scientific concepts. The 5 Es are: engage, explore, explain, elaborate and evaluate.
STEM Module Project	STEM module projects are interdisciplinary tasks that integrate science, technology, engineering, and mathematics to solve real-world problems. These projects encourage hands-on learning and the application of knowledge across disciplines, fostering 21st century skills, language literacy, digital literacy, financial literacy, numeracy, entrepreneurship, and innovation.
Cross-Curricular Connections	Cross-curricular connections involve integrating concepts and skills from multiple subject areas to provide a more cohesive learning experience. This approach reflects the interconnectedness of knowledge and skills enabling students to apply learning in various contexts.
Differentiated Instruction	Differentiated instruction is a strategic teaching approach that adapts content, process, and product to meet students' varying readiness levels, interests, and learning profiles. Through scaffolded support (approaching, on-level, beyond), leveled resources, and diverse instructional strategies, it ensures equitable access, fosters deeper understanding of scientific concepts, and acquisition of essential skills and competencies.
Formative Assessment	A process used by teachers and students during instruction that provides actionable feedback used to adjust ongoing teaching and learning to improve students' achievement of intended curricular learning targets and goals.
Summative Assessment	The goal of summative assessment is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark.
The Three Dimensions	These are the three strands of knowledge and skills that students should explicitly be able to use to explain phenomena and design solutions to problems. The three dimensions are the Disciplinary Core Ideas (DCIs), Crosscutting Concepts (CCCs), and Science and Engineering Practices ("the Practices" or SEPs).
Three-Dimensional Learning	This is what students' experiences in classrooms implementing the NGSS should reflect: developing and using elements of the three dimensions, together, purposefully (i.e., to explain phenomena or design solutions to problems). Lessons and units aligned to the standards should be three-dimensional; that is, they should allow students to actively engage with the practices and apply the crosscutting concepts to deepen their understanding of core ideas across science disciplines.

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.

3. Scope and Sequence

This section includes a termly overview reflecting the units, modules, lessons, and performance expectations and the corresponding pacing of each module.

Subject	Grade	Stream	Term	Week	Unit Number	Unit Name	Module Number	Module Name	Lesson number	Lesson Name	Number of Periods	Remarks
Science	1	Main	3	Week 1-2	U3	Light and Shadows	U3M1	See Objects	U3M1L1	Light	7	Shifted from T2
				Week 2-4					U3M1L2	Light and Materials	6	
				Week 4-6					U3M1L3	Light Uses	9	
				Week 6-8	U4	Sky Patterns	U4M1	Observe the Sky	U4M1L1	Objects in the Sky	7	
				Week 8-9					U4M1L2	Day and Night Patterns	6	
				Week 9-11					U4M1L3	Patterns During the Year	9	

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.

Module Number	Module Name	PE Code	Performance Expectation	Prioritization	Lesson	Remarks
Unit 3 Module 1	See Objects	1-PS4-2	Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated	**Power Outcome**	Lesson 1: Light	Shifted from T2
		1-PS4-3	Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.	**Support Outcome (Basic)**	Lesson 2: Light and Materials	
		1-PS4-4	Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	**Support Outcome (Basic)**	Lesson 3: Light Uses	
Unit 4 Module 1	Observe the Sky	1-ESS1-1	Use observations of the sun, moon, and stars to describe patterns that can be predicted.	**Power Outcome**	Lesson 1: Objects in the Sky	
					Lesson 2: Day and Night Patterns	
		1-ESS1-2	Make observations at different times of year to relate the amount of daylight to the time of year.	**Power Outcome**	Lesson 3: Patterns During the Year	

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.

Unit 4 Sky Patterns

Module 1 Observe the Sky

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

4. Module Overview

The Module Overview provides a detailed breakdown of the module, including the module's performance expectations, disciplinary core ideas, science and engineering practices, resources, and "diagnose and intervene" section.

Unit and Module	Unit 4 Module 1 Observe the Sky

The learning experiences throughout the module will develop students' acquisition of the following:

Performance Expectation(s):

- **1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- **1-ESS1-2.** Make observations at different times of year to relate the amount of daylight to the time of year.

Disciplinary Core Ideas (DCIs) building towards the module's PEs

- **ESS1.A: The Universe and its Stars**
  - Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)
- **ESS1.B: Earth and the Solar System**
  - Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)

Science Engineering Practices (SEPs) building towards the module's PEs:

- **Analyzing and Interpreting Data**
  - Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)
- **Planning and Carrying Out Investigations**
  - Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)

Lessons	Lesson Objectives
Lesson 1: Objects in the Sky	Students will identify the objects in the sky and make observations about what objects are present during the day and night.
Lesson 2: Day and Night Patterns	Students will make observations and predict patterns of day and night.
Lesson 3: Patterns During the Year	Students will recognize patterns that occur over several days, weeks, or months.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

STEM Module Project

Seasonal Patterns: Students will use what they have learned throughout the module to record data and describe patterns they observe about the seasonal changes over three months.
STEM Module Project (TE p. 55 till 58).

Disciplinary Core Ideas (DCIs) and Science Engineering Practices (SEPs) throughout Module 1 Observe the Sky

		Lesson 1	Lesson 2	Lesson 3	Module Project
Disciplinary Core Ideas (DCIs)	ESS1.A: The Universe and its Stars	•	•		•
	ESS1.B: Earth and the Solar System			•	•
Science Engineering Practices (SEPs)	Analyzing and Interpreting Data	•	•		
	Planning and Carrying Out Investigations				•

Module Assessment Tools (TE p. 2F)

Pre-Assessment: Includes Page Keeley Science Probes and McGraw-Hill Module Pretest	**Formative Assessment:** Includes Claim-Evidence-Reasoning, Three-Dimensional Thinking questions, Talk About It, Inquiry Activities, Quick Check, and Page Keeley Science Probes	**Summative Assessment:** Includes Lesson Reviews, McGraw-Hill Lesson Checks and Module Test, Vocabulary Check, and STEM Module Project

Resources

Student book: available on Minhaji
Inspire Science Platform – to be accessed through LMS
Teacher Guide

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Diagnose and intervene

The "Diagnose and Intervene" section aims to diagnose students' prior knowledge required before exploring the new content. This helps identify and address any gaps from previous years and pre/misconceptions.

Diagnose

Students should demonstrate understanding of the following prior knowledge to be able to explore new content.

The Universe and its Stars

- Recognize day and night
- Notice the sun in the daytime
- Notice the moon and stars at night

Earth and the Solar System

- Identify morning as light time and evening as dark time.

Intervene

Gaps from previous learning	Possible pre/misconceptions
Use the findings from the diagnosis to address any identified gaps.	**Students may think that:** • All stars and planets are the same distance from Earth. Students may also believe that all stars and planets are the same size or that Earth is the largest object in the solar system. In addition, students may think that stars "go away" during the day and reappear at night. Many students might not understand that the Sun is also a star. Students might also incorrectly believe that the Sun moves across the sky when the Sun only appears to move across the sky. Earth revolves around the Sun, resulting in the appearance of sunrise and sunset. • They do not recognize our Sun as a star they can see. They may live in areas where there is so much light at night that they have never seen the stars. They may not recognize our Sun as a star, or they may have seen what is called the "morning star" or the first "evening star," which is the planet Venus.

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	• The Sun, Moon, and stars rise or set throughout the day. They may not realize that stars are present in the sky throughout the day but that they cannot be seen due to the overpowering light coming from the Sun. • Day and night occur due to various reasons. Research shows that children have many preconceptions about day and night. Some of these preconceptions are due to not understanding the position of Earth in relation to the Sun. Students who choose Benito may confuse Earth's orbit with its rotation. Students who choose Hoshi may have an Earth-centered view of the solar system. This is compounded by their daily observations of the Sun seemingly moving across the sky. Students who choose Maribel have a common preconception held by young children that the Sun goes up in the daytime, and down at night. This is reinforced through our use of language when we refer to sunrise and sunset or sundown. • Day and night are caused by the Sun revolving, or traveling in a path around Earth, or by the Earth revolving around the Sun. Other students may think that night happens when clouds cover the Sun. • The Moon gives off its own light or that Earth's shadow causes the Moon phases. • The Sun follows the same path across the sky all year, leading to misunderstandings about daylight hours in different seasons. *Refer to the TE Pages 2, 7, 14, 25, 31, 33 and 39 of the "Teacher Toolbox – Identifying Preconceptions"*

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

5. Learning Progression

Learning progression is fundamentally about **sequencing** and **scaffolding** concepts in a logical way, ensuring students **build on prior knowledge** to reach deeper understanding and mastery.

In this section, you will find the content learning progression of **Unit 4 - Module 1 Observe the Sky**.

Content Learning Progression		
K-2	**3-5**	**6-8**
ESS1.A: The Universe and its Stars		
• Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)	• The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1)	• Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models. (MS-ESS1-1)
ESS1.B: Earth and the Solar System		
• Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)	• The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)	• The solar system appears to have formed from a disk of dust and gas, drawn together by gravity. (MS-ESS1-2)

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

6. Scheme of Work

The scheme of work section provides pedagogical considerations, performance standards, differentiated activities, English language support, and the assessments embedded in each lesson.

Explore and learn
Pedagogical Considerations: **Teachers incorporate the 5E instructional model (Engage, Explore, Explain, Elaborate, Evaluate) in the pedagogical approach. The 5E model includes:** • **Engage:** Encounter the phenomenon, question, or challenge to stimulate curiosity. • **Explore:** Students conduct hands-on investigations, experiments, or simulations to discover scientific concepts in an inquiry-driven way. • **Explain:** Students analyse their findings, and teachers introduce formal explanations, scientific vocabulary, and key concepts. • **Elaborate:** Students apply their understanding to new scenarios, engineering challenges, or interdisciplinary connections. • **Evaluate:** Students demonstrate their learning through assessments, reflection, and performance-based tasks. **Students will engage in learning through:** - Inquiry-based Activities (Hands On – Research – Simulation – Data Analysis – Demonstration – Stem Module Project) - Phenomenon-based activities - Cross-curricular connections - STEM connections (online resources)

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Lesson 1: Objects in the Sky

Inquiry Activity Planner (TE p. 2G)
This is used to preview and prepare for the labs and investigations in this lesson.
To ensure effective instructional delivery and enhance learning experience, inquiry activities should be seamlessly integrated into the teaching of the lesson, allowing students to make direct connections between theory and practice.
Lesson at a Glance (TE p. 8C)

- This is used to facilitate the integration of the **5E instructional** module and incorporation of the inquiry-based and phenomenon-based activities into each lesson.
- Flex Track A and Flex Track B can be referred to in case of significant time constraints.

Possible pre/misconceptions
Students may think that:

- They do not recognize our Sun as a star they can see. They may live in areas where there is so much light at night that they have never seen the stars. They may not recognize our Sun as a star, or they may have seen what is called the "morning star" or the first "evening star," which is the planet Venus.
- The Sun, Moon, and stars rise or set throughout the day. They may not realize that stars are present in the sky throughout the day but that they cannot be seen due to the overpowering light coming from the Sun.

Refer to the TE Pages 7 and 14 of the "Teacher Toolbox – Identifying Preconceptions"

Key Terminology and Vocabulary
Earth- كوكب الأرض
Moon- القمر
Planet- كوكب
Star- نجم
Sun- الشمس

Lesson 1: Objects in the Sky
Performance Standards

Lesson Objectives	Approaching level	On level	Beyond level
Students will identify the objects in the sky and make observations about what objects are present during the day and night.	Identifies day as a light time and night as a dark time and recognizes that the Sun is seen during the day and that the Moon or stars are seen at night but does not yet consistently identify or compare which objects are present in the day sky versus the night sky.	Identifies objects in the sky, including the Sun, Moon, and stars and makes accurate observations about which objects are present during the day and which are present at night, correctly recognizing that the Sun is visible during the day and that stars are visible at night.	Identifies objects in the sky and makes detailed observations comparing day and night skies, explaining patterns such as why stars are not visible during the day or noting that the Moon can sometimes be seen during both day and night.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Inquiry Activity
Hands On: Day and Night Sky (TE p. 10 till 11) **Research:** Up in the Sky (TE p. 18 till 19)

Objects in the Sky Differentiation of Learning Based on the student's level, the teacher can select and implement the appropriate differentiated activities shown in the table below.		
Lesson Objective (LO)	**Differentiated Instructions (DI)**	**English Language Support (EL)**
Students will identify the objects in the sky and make observations about what objects are present during the day and night.	**Differentiated Instruction (DI)1** (TE p. 11) DI1 is related to **Day and Night** • **Approaching Level:** Help students fill in a Venn diagram to compare objects they can see in the sky during the day and at night. Then have them report their observations using compare-and-contrast signal words. • **On Level:** Have students explain how the Sun helps them distinguish between night and day. • **Beyond Level:** Have students research what satellites are and what they do. Why are satellites important today? **Differentiated Instruction (DI)2** (TE p. 23) DI2 is related to **Planets and Stars** • **Approaching Level:** Say false statements about planets, the Moon, the Sun, Earth, and stars. Have students correct your statements. For example, **Earth is a star. Earth is a planet.** • **On Level:** Have students describe the differences between planets and stars. • **Beyond Level:** Have students research videos about night-vision goggles (NVG). ASK: What objects in the sky are visible with NVG that are not visible to the naked eye?	**EL Support 1** (TE p. 13) **ENTERING and EMERGING** Provide sentence frames to help students compare the day and night sky: I see stars in the ___ sky but not in the ___ sky. Help them discuss their findings by teaching connecting words such as and, but, and because. **DEVELOPING and EXPANDING** ASK: What can you only see in the day/night sky? What can you see in both? **BRIDGING and REACHING** Have students elaborate on their claims. I think ___ because ___. **EL Support 2** (TE p. 22) **ENTERING and EMERGING** Have an English-proficient partner ask a question that elicits a response by pointing. For example: Where is a star? **DEVELOPING and EXPANDING** Have an English-proficient partner create sentence frames for their partner to complete. For example: The Sun is a _____. We live on planet ____.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

		BRIDGING and REACHING Have the Emerging-level English learner ask questions about the photos. Then have the Bridging-level student use complete sentences to answer questions.

Lesson 1: Objects in the Sky Assessment Criteria	
Lesson Objective (LO)	**Assessment Criteria**
Students will identify the objects in the sky and make observations about what objects are present during the day and night.	**Pre-Assessment** ***Page Keely Science Probes:*** Seeing Stars (TE p. 7) **Formative Assessment** • ***REVISIT Page Keely Science Probes*** (TE p. 22) • ***Inquiry Activities*** Refer to the above "Inquire Activity" section. • ***Talk About It*** Encounter the Phenomenon – What do you observe in the night sky? (TE p. 9) Inquiry Activity – Day and Night Sky (TE p. 11) Make Connection (TE p. 17) • ***Claim Evidence Reasoning*** Are all stars visible during the day? *(*TE p. 13*)* • ***Three-Dimensional Thinking*** *Questions* (TE p. 17, 23) • ***Quick Check*** (TE p. 17) Use this formative assessment to determine whether students are ready to move on. *Please note that all sub-activities within each main activity should be covered. This includes components such as 'Talk About It', DCI-related questions, SEPs, CCC, 3D Thinking, etc.* **Summative Assessment (Online Resources)** Use the Lesson Review pages as a summative assessment of student learning. Assign students the vocabulary check and lesson check, based on the DCIs for the lesson. Use the customization tool to create a tailor-made lesson check.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	STEM Module Project Refer to Module Project Rubric (TE p. 55) and download the rubric through Inspire Science "STEM Module Project" online resources.
Lesson 1: Objects in the Sky STEM Module Project	
What to Expect During Lesson 1, students will analyze the sky to learn about the patterns in the universe and stars.	

-

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Lesson 2: Day and Night Patterns

Inquiry Activity Planner (TE p. 2G)
This is used to preview and prepare for the labs and investigations in this lesson.
To ensure effective instructional delivery and enhance learning experience, inquiry activities should be seamlessly integrated into the teaching of the lesson, allowing students to make direct connections between theory and practice.
Lesson at a Glance (TE p. 26C)

- This is used to facilitate the integration of the **5E instructional** module and incorporation of the inquiry-based and phenomenon-based activities into each lesson.
- Flex Track A and Flex Track B can be referred to in case of significant time constraints.

Possible pre/misconceptions
Students may think that:

- Day and night occur due to various reasons. Research shows that children have many preconceptions about day and night. Some of these preconceptions are due to not understanding the position of Earth in relation to the Sun. Students who choose Benito may confuse Earth's orbit with its rotation. Students who choose Hoshi may have an Earth-centered view of the solar system. This is compounded by their daily observations of the Sun seemingly moving across the sky. Students who choose Maribel have a common preconception held by young children that the Sun goes up in the daytime, and down at night. This is reinforced through our use of language when we refer to sunrise and sunset or sundown.
- Day and night are caused by the Sun revolving, or traveling in a path around Earth, or by the Earth revolving around the Sun. Other students may think that night happens when clouds cover the Sun.
- The Moon gives off its own light or that Earth's shadow causes the Moon phases.

Refer to the TE Pages 25, 31 and 33 of the "Teacher Toolbox – Identifying Preconceptions"

Key Terminology and Vocabulary
Horizon- الأفق
Moon Phase- طور القمر
Sunrise-شروق الشمس
Sunset-غروب الشمس

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Lesson 2: Day and Night Patterns Performance Standards			
Lesson Objectives	**Approaching level**	**On level**	**Beyond level**
Students will make observations and predict patterns of day and night.	Identifies day and night and makes observations of visible sky objects, such as noticing the Sun during the day and the Moon or stars at night, and records observations of shadows or the Moon at different times, but predictions about patterns are limited or inconsistent, such as noticing changes without clearly identifying that they repeat in a regular way.	Makes observations and uses evidence from investigations to predict patterns of day and night by describing how the Sun appears to move across the sky during the day, how shadows change direction and length using a sundial, how sunrise and sunset mark different times of day as Earth rotates once each day, and how the Moon's appearance changes in a repeating pattern over time.	Makes observations and uses evidence from investigations to predict and explain patterns of day and night by connecting changes in sundial shadows, sunrise and sunset, Earth's daily rotation, and repeating Moon phases, and uses these patterns to make accurate predictions about what will happen next, such as where a shadow will be later in the day or how the Moon will look on another night.
Inquiry Activity			
Hands On: Sundial Patterns (TE p. 28 till 30) **Hands On:** Moon Phases (TE p. 34 till 35)			

Lesson 2: Day and Night Patterns Differentiation of Learning Based on the student's level, the teacher can select and implement the appropriate differentiated activities shown in the table below.		
Lesson Objective (LO)	**Differentiated Instructions (DI)**	**English Language Support (EL)**
Students will make observations and predict patterns of day and night.	**Differentiated Instruction (DI)1** (TE p. 27) DI1 is related to **Shadows and the Sun** • **Approaching Level:** Have students draw a simple picture of what they see in the classroom. Then have them look at the room again and add shadows to their drawings. Which shadows are created by the Sun? • **On Level:** Ask partners to describe how a sundial creates a pattern every day.	**EL Support 1** (TE p. 31) **ENTERING and EMERGING** Read the paragraph aloud, pointing out the patterns in the diagram for each instance of move around in the text. ASK: What moves around the Sun? (Earth) How long does it take? (365 days) What moves around Earth? (Moon)

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	• **Beyond Level:** Have students write a SUNDIAL acrostic poem. Challenge them to use words and phrases to tell how a sundial works. **Differentiated Instruction (DI)2** (TE p. 37) DI2 is related to **Patterns of the Sun and Moon** • **Approaching Level:** Help students describe the patterns of the Sun and Moon using the lesson vocabulary. • **On Level:** Have students make up a folktale about the patterns of the Sun and Moon. • **Beyond Level:** Have students research the following question: Do constellations move in the night sky? Have them explain their findings.	**DEVELOPING and EXPANDING** Point out the diagram of the Sun, Earth, and Moon. Provide sentence frames for students to use to answer the questions. ASK: How long does it take Earth to move around the Sun? What moves around Earth? **BRIDGING and REACHING** Once students have finished, have them summarize the paragraph, using the diagram as a visual. **EL Support 2** (TE p. 34) **ENTERING and EMERGING** Review the concept of patterns. Write a numerical pattern on the board, such as 2, 4, 6, 8. ASK: Is it a pattern? yes What is the pattern? count by twos Repeat for other patterns. **DEVELOPING and EXPANDING** Ask students to recall the pattern of the sundial as the Sun "moved" from east to west across the sky. Write morning, afternoon, night. ASK: Is it a pattern? yes. How do you know if something is a pattern? It repeats. You know what comes next. **BRIDGING and REACHING** What other patterns in nature can students remember? Have partners find examples of patterns in the classroom. Then have them tell how they know it is a pattern by using the sentence frame: It is a pattern because ____. **EL Support 3** (TE p. 36) **ENTERING and EMERGING** Revisit the science probe. If their answers have changed, tell students to give a thumbs up. If their answers have not changed, tell students to give a

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

		thumbs down. Encourage them to extend their answers to a full sentence: My answer has [changed/not changed]. **DEVELOPING and EXPANDING** Supply students with language to use to revisit the science probe. Have students revise their responses: My thinking was _____. I am now thinking ____. **BRIDGING and REACHING** Have students explain why the characters in the Page Keeley Science Probe were correct or incorrect.

Lesson 2: Day and Night Patterns Assessment Criteria	
Lesson Objective (LO)	**Assessment Criteria**
Students will make observations and predict patterns of day and night.	**Pre-Assessment** ***Page Keely Science Probes:*** Day and Night (TE p. 25) **Formative Assessment** • ***REVISIT Page Keely Science Probes*** (TE p. 32, 36) • ***Inquiry Activities*** Refer to the above "Inquire Activity" section. • ***Talk About It*** Encounter the Phenomenon – What is this tool used for? (TE p. 27) Inquiry Activity – Sundial Patterns (TE p. 30) • ***Three-Dimensional Thinking Questions*** (TE p. 35, 37) • ***Quick Check*** (TE p. 33) Use this formative assessment to determine whether students are ready to move on. *Please note that all sub-activities within each main activity should be covered. This includes components such as 'Talk About It', DCI-related questions, SEPs, CCC, 3D Thinking, etc.*

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	Summative Assessment (Online Resources) Use the Lesson Review pages as a summative assessment of student learning. Assign students the vocabulary check and lesson check, based on the DCIs for the lesson. Use the customization tool to create a tailor-made lesson check. **STEM Module Project** Refer to Module Project Rubric (TE p. 55) and download the rubric through Inspire Science "STEM Module Project" online resources.
Lesson 2: Day and Night Patterns STEM Module Project	
What to Expect During Lesson 2, students will make observations to predict patterns of day and night**.**	

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Lesson 3: Patterns During the Year

Inquiry Activity Planner (TE p. 2G)
This is used to preview and prepare for the labs and investigations in this lesson.
To ensure effective instructional delivery and enhance learning experience, inquiry activities should be seamlessly integrated into the teaching of the lesson, allowing students to make direct connections between theory and practice.
Lesson at a Glance (TE p. 40C)

- This is used to facilitate the integration of the **5E instructional** module and incorporation of the inquiry-based and phenomenon-based activities into each lesson.
- Flex Track A and Flex Track B can be referred to in case of significant time constraints.

Possible pre/misconceptions	**Key Terminology and Vocabulary**
Students may think that: • The Sun follows the same path across the sky all year, leading to misunderstandings about daylight hours in different seasons. *Refer to the TE Page 39 of the "Teacher Toolbox – Identifying Preconceptions"*	Fall-فصل الخريف Season-فصل Spring-فصل الربيع Summer-فصل الصيف Winter-فصل الشتاء

Lesson 3: Patterns During the Year
Performance Standards

Lesson Objectives	Approaching level	On level	Beyond level
Students will recognize patterns that occur over several days, weeks, or months.	Identifies that daylight changes across the year and recognizes simple patterns such as some days having more daylight and some days having less daylight. Can name seasons or times of year and notice that summer days are longer and winter days are shorter, but explanations are brief or incomplete. May describe changes using observations or pictures without clearly connecting daylight patterns to changes over weeks or months.	Recognizes and describes patterns in daylight that occur over several weeks and months, including that daylight is longest in summer and shortest in winter. Explains that the time between sunrise and sunset changes gradually throughout the year and correctly identifies seasons using daylight length as evidence. Uses observations or data to compare different times of year and shows understanding that these patterns repeat each year.	Recognizes long-term patterns in daylight across months and explains why these patterns occur using simple cause-and-effect reasoning, such as Earth's position and tilt affecting how much sunlight a place receives. Connects longer daylight to warmer seasons and shorter daylight to cooler seasons and explains that places in different parts of the world can experience opposite seasons at the same time, while still recognizing that daylight patterns follow a repeating yearly cycle.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Inquiry Activity
Simulation: Sunlight (TE p. 42 till 44) **Data Analysis:** Seasons and the Sun (TE p. 50 till 51)

Lesson 3: Patterns During the Year Differentiation of Learning Based on the student's level, the teacher can select and implement the appropriate differentiated activities shown in the table below.		
Lesson Objective (LO)	**Differentiated Instructions (DI)**	**English Language Support (EL)**
Students will recognize patterns that occur over several days, weeks, or months.	**Differentiated Instruction (DI)1** (TE p. 42) DI1 is related to **Seasonal Patterns** • **Approaching Level:** Lead a discussion about the seasons in your area. Have students list the seasons they know about. Then ask them to tell you which season is warmest, coolest, wettest, driest, and so on. • **On Level:** Have students think about how animals react to seasonal patterns during the year. Then have them compare and contrast two of the animals. They might mention that some animals migrate, others hibernate, and many are active in the same place all year long. • **Beyond Level:** Have students predict which day of the year is the longest where they live and then research the answer. Which day is shortest? On which days of the year will the hours of day and night be approximately equal? **Differentiated Instruction (DI)2** (TE p. 53) DI2 is related to **Seasonal Changes** • **Approaching Level:** Have students draw what summer would look like in Lebanon, Kansas. What would the temperature be? How high in the sky will the Sun rise?	**EL Support 1** (TE p. 45) **ENTERING and EMERGING** Help students understand and evaluate the language choices from the Science Read Aloud. SAY: Find Chicago. Students point. Find your country. Students point. Point from Chicago to the other country. ASK: Which direction? Students should answer with appropriate word. **DEVELOPING and EXPANDING** Use a world map to preteach north, south, east, and west. Have partners report about direction using the sentence frame: Place name is north/south/east/west of name of place. **BRIDGING and REACHING** Have students use comparative and superlative adjective phrases *farther/farthest* from to describe the distance between locations on the map. **EL Support 2** (TE p. 52) **ENTERING and EMERGING** Pair English language learners with students who are English proficient. Working together, review the patterns they learned about in the lesson. Have

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	Allow students to include plants and animals in their drawings to supply extra proof of the season. • **On Level:** Have partners make up clues about each season using superlative adjectives, such as The Sun is lowest in the sky during this season. Then have partners give their clues to another pair who should give the correct answer. (winter) • **Beyond Level:** Have partners research how the change of seasons must be considered when working in certain careers. For example, what does the change of seasons mean for a farmer?	students point to one pattern they found and share with the group using words and pantomime. Using arm length to show if a day is long or short during the summer. **DEVELOPING and EXPANDING** Partner students and have them review the patterns they learned about in the lesson. Have students point to a pattern in their book and explain it using simple sentences. **BRIDGING and REACHING** Have students share a pattern they found in the lesson and summarize the evidence in the book using complete sentences.

Lesson 3: Patterns During the Year Assessment Criteria	
Lesson Objective (LO)	**Assessment Criteria**
Students will recognize patterns that occur over several days, weeks, or months.	**Pre-Assessment** ***Page Keely Science Probes:*** Daylight Hours (TE p. 39) **Formative Assessment** • ***REVISIT Page Keely Science Probes*** (TE p. 47, 52) • ***Inquiry Activities*** Refer to the "Inquire Activity" section above. • ***Talk About It*** Encounter the Phenomenon – What time of year do you think it is? (TE p. 41) Inquiry Activity – Sunlight (TE p. 44) Inquiry Activity- Seasons and the Sun (TE p. 51) ***Three-Dimensional Thinking Questions*** (TE p. 44, 53) • ***Quick Check*** (TE p. 48) Use this formative assessment to determine whether students are ready to move on.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	Please note that all sub-activities within each main activity should be covered. This includes components such as 'Talk About It', DCI-related questions, SEPs, CCC, 3D Thinking, etc. **Summative Assessment (Online Resources)** Use the Lesson Review pages as a summative assessment of student learning. Assign students the vocabulary check and lesson check, based on the DCIs for the lesson. Use the customization tool to create a tailor-made lesson check. **STEM Module Project** Refer to Module Project Rubric (TE p. 55) and download the rubric through Inspire Science "STEM Module Project" online resources.

Lesson 3: Patterns During the Year
STEM Module Project

What to Expect
During Lesson 3, students will carry out investigations and recognize patterns in plants and weather relative to the length of day throughout the year.

Module Summative Assessment

- Module Vocabulary Practice (TE p. 23, Online resources)
- Module Test (TE p. 23, 37 and 53 Online resources)

You might want to assign from the Additional Resources the pre-made Module Test based on key concepts and disciplinary core ideas, or you can customize your own using the customization tool

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

7. Assessment Guidance

7.1. Science Assessment Overview and Implementation

Assessment is a key pillar of effective science instruction, providing clear evidence of student learning, informing instructional decisions, and supporting curriculum goals. This guide is designed to help Cycle 1 science teachers plan and implement assessment with clarity and consistency. It outlines the various assessment types, weightings, tools, and procedures to be used throughout instruction. In addition, it provides detailed guidance on the development and application of rubrics and observation sheets to support valid and reliable evaluation of student performance. When integrated appropriately, the components of this guide enable teachers to monitor student progress systematically, respond to diverse learning needs, and support continuous improvement toward achieving the intended learning outcomes.

Table 1: Science assessment overview for Cycle 1.

	Types	Weight	Tools	Main Rules	Application Procedures
Continuous Assessments	**Performance Tasks**	40%	• Inquiry Activities • Quick check • STEM module project Other	• At least one performance task and one lab experiment per module. • Dedicate 60–80% of teaching, learning and assessment to power and 20–40% to support outcomes (Basic and supplementary).	• Develop rubrics and observation sheets following the exampler provided. • Ensure safety protocols. • Use tasks from lesson-specific assessments and other relevant teacher-selected tasks. • Encourage diversity of task types across modules. • Support students with resources and materials. • Review results and provide feedback for improvement. Refer to the for the "Science Labs Experiment Guides" for more details and guidance.

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	Writing Activities	30%	• Page keely science probes • Claim-Evidence-Reasoning • Three-Dimensional Thinking questions	• Students complete a variety of writing tasks (e.g., reports, research) across chapters. • At least one writing task per module. • Done independently outside class time. • Includes both individual and group assessments. • Dedicate 60–80% of teaching, learning and assessment to power and 20–40% to support outcomes (Basic and supplementary).	• Develop rubrics and observation sheets following the exampler provided. • Use activities from lesson-specific assessments and other relevant teacher-selected activities. • Encourage diversity of activity types across modules. • Guide students through LMS, the MH open learning platform -Inspire science, and other learning resources. • Review results and provide feedback for improvement.
	Quizzes	30%	• Lesson review • McGraw-Hill Lesson checks • Module test • Vocabulary check	• Conducted during class time. • At least two per semester. • 20–25 minutes in length. • Dedicate 60–80% of teaching, learning and assessment to power and 20–40% to support outcomes (Basic and supplementary).	• Use quizzes from lesson-specific assessments and other relevant teacher-selected quizzes. • Review results and provide feedback for improvement.
Centralized Exam	**End of Term (EoT) Exam**	100%		• Centrally prepared by the Ministry of Education. • Based on 60–80% power and 20–40% supporting outcomes.	Refer to the "Ministry of Education Assessment Policy" for more details.

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

7.2. Assessing Science Performance: Tools, Strategies, and Classroom Applications

7.2.1. Science performance rubric

The science performance rubric is a structured assessment tool designed to evaluate student learning following science tasks/activities such as experiments, projects, scientific reports, and presentations. It defines clear performance levels and assessment criteria, allowing teachers to assess multiple aspects of student performance with consistency and transparency.

The rubric includes both **analytic** and **holistic** formats (Figure 1). The analytic rubric breaks down student performance into specific criteria, providing detailed criterion-by-criterion evaluation (Table 2). In contrast, the holistic rubric offers an overall score of student performance based on general descriptors (Table 4).

In addition to guiding formal assessment, the rubric provides measurable indicators that support scoring consistency (Tables 3 and 5), facilitate targeted feedback, and inform instructional planning aligned with the intended learning outcomes.

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

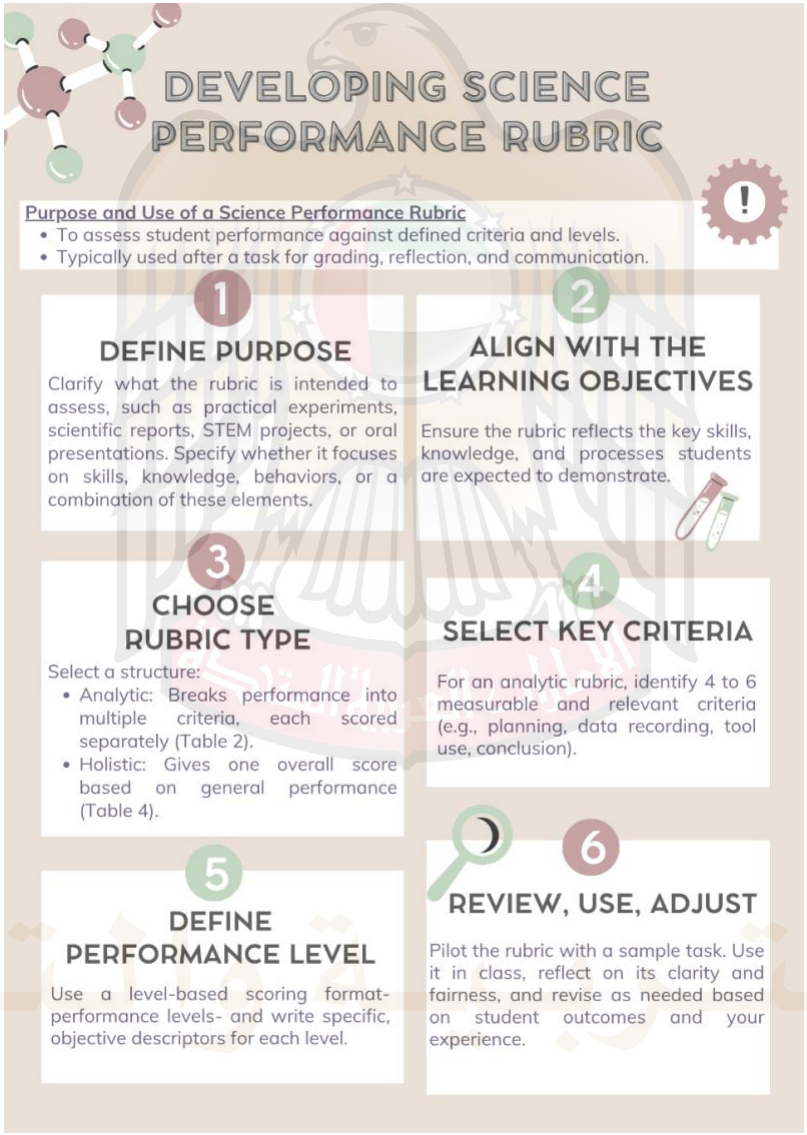


Figure 1: Teacher guide to develop science performance rubric

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

7.2.1.1. Instructions for use — Example: Analytic rubric in table 2

- Use the sample rubric in Table 2 as a flexible reference; adapt it to suit your specific lesson or activity.
- Choose only the criteria that apply to the activity; not all need to be used at once.
- Adjust the language or expectations based on age level, task type, or lesson goals.
- Use the "score" and "notes" sections to document observations and student growth.
- Plan ahead by integrating the rubric into your lesson objectives and success criteria.
- Share a simplified version with students for peer or self-assessment, where appropriate.
- Focus on guiding improvement - not just assigning a score.

Table 2: Sample of analytic science performance rubric (3-Level Scale)

#	Criteria	Approaching Level (1)	On Level (2)	Beyond Level (3)	Score	Teacher Notes	Targeted Skills, Values, and Attitudes*
1	**Asking scientific questions**	Asks simple or prompted questions	Asks questions related to the task	Asks deeper "why" or "how" questions about what they are doing			**Scientific inquiry, Curiosity, Critical thinking**
2	**Scientific engagement**	Joins the task only after reminders	Participates in the task and stays focused	Shows excitement and curiosity throughout the task			**Engagement, Scientific interest, Responsibility**
3	**Investigation planning**	Needs help to say what to do and what to use	Can list steps and tools with little help	Plans steps and tools independently and in order			**Planning, Organization, Problem solving**
4	**Hypothesis (initial idea)**	Gives an idea not connected to the task	Suggests a simple idea related to the task	Gives a thoughtful idea that fits the task			**Prediction, Reasoning, Creativity**
5	**Experiment steps**	Follows steps with frequent help or skips parts	Follows most steps with few mistakes	Follows all steps in the right order without help			**Procedure following, Attention to detail, Independence**
6	**Using tools and equipment**	Needs help to use tools safely	Uses most tools with reminders	Uses all tools properly and safely on their own			**Tool use, Safety, Independence**

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

7	**Safety rules**	Forgets safety rules often	Follows most safety rules with reminders	Follows all safety rules carefully			**Safety awareness, Responsibility, Respect**
8	**Measurement reading**	Needs help to read measurements	Reads most measurements with few mistakes	Reads all measurements accurately			**Measurement accuracy, Observation, Numeracy**
9	**Recording data**	Record data with missing or incorrect parts	Records most data correctly	Records all data clearly and in the correct place			**Data recording, Neatness, Accuracy**
10	**Showing results**	Draws or shows results with mistakes	Shows results with some labels and structure	Shows results clearly with labels and structure			**Data presentation, Visual communication, Clarity**
11	**Calculations or sorting**	Needs support to count or group items	Counts or sorts with few errors	Counts or sorts correctly without help			**Numeracy, Classification, Thinking skills**
12	**Explaining results**	Says what happened without linking to what they did	Gives a simple explanation based on what they did	Explains what happened and why it happened			**Interpretation, Cause-effect reasoning, Logic**
13	**Data interpretation**	Has trouble linking data to results	Makes basic links between data and results	Uses data to explain patterns, results, or trends			**Data analysis, Reasoning, Pattern recognition**
14	**Using evidence**	Explains using guesses or general ideas	Refers to what they saw or measured	Uses specific results to explain their thinking			**Evidence-based thinking, Justification, Logic**
15	**Error recognition**	Doesn't notice mistakes or problems	Notices some problems or mistakes	Identifies what went wrong and how it affected results			**Self-reflection, Accuracy, Error identification**
16	**Drawing conclusions**	Makes a conclusion not linked to results	Makes a reasonable conclusion based on results	Makes a strong conclusion based on evidence and task			**Conclusion making, Reasoning, Scientific logic**

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

17	**Scientific vocabulary**	Uses few or unclear science words	Uses some correct science words	Uses accurate science vocabulary to explain			**Science communication, Vocabulary, Clarity**
18	**Communicating findings**	Shares work with little detail or structure	Shares results with some visuals or explanation	Clearly presents results using visuals and explanations			**Communication, Explanation, Presentation skills**
19	**Applying learning**	Has difficulty linking learning to other ideas	Can relate learning to simple real-life examples	Applies learning to new ideas or situations			**Real-world connection, Application, Innovation**
20	**Team collaboration**	Needs reminders to work with others	Takes part and shares with group	Helps the group, shares, and encourages others			**Teamwork, Cooperation, Shared responsibility**
21	**Learning attitudes**	Needs reminders to stay focused and use materials properly	Works responsibly and respects others	Shows responsibility, curiosity, and care for materials			**Respect, Curiosity, Responsibility**
22	**Honesty and fairness**	Needs reminders to report honestly or share fairly	Usually fair and honest in work and reporting	Always honest, fair, and responsible in tasks			**Fairness, Honesty, Integrity**
23	**Organization and cleanliness**	Leaves space untidy or disorganized	Keeps space mostly clean and organized	Keeps materials organized and workspace clean throughout			**Cleanliness, Organization, Professional behavior**

The column titled "Targeted Skills, Values & Attitudes" is included for your reference. It highlights the key skills and dispositions that each rubric criterion supports. This information is intended to inform instructional planning and skill development. It is **not part of the formal assessment rubric and should not be used for grading purposes.*

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Table 3: Student scores for science performance used for analytic rubric.

Level	Score	Total score	Student Score *(converted to 20-point scale)*
Approaching Level	1	Number of criteria × 3	$\frac{\sum score\ per\ criteria}{Total\ Score} \times 20$
On Level	2		
Beyond Level	3		

Table 4: Sample of a holistic science performance rubric.

Level	Overall Description of Student Performance	Score (/3)	Teacher Notes
Approaching level (1)	The student needs frequent support to stay engaged and complete the task. They ask questions only when prompted and may skip steps or use tools incorrectly. Their results are incomplete or unclear, and they need help to explain what happened. They rarely use science words and struggle to link the activity to what they are learning. The student needs reminders to stay organized, follow safety rules, or work cooperatively.		
On level (2)	The student takes part in the science task with some guidance and reminders. They ask simple questions, follow most steps, and use tools with support. They record some of their results correctly and give simple explanations. They try to use science words and make basic connections to the task. The student shows a responsible attitude sometimes, shares with others, and shows interest in learning.		
Beyond level (3)	The student actively participates in the science task, shows curiosity, and works independently most of the time. They ask thoughtful questions, follow steps accurately, use tools and materials safely, and record and show their results clearly. The student explains what happened using science words, gives logical conclusions, and applies what they learned to new ideas. They show honesty, take care of materials, and work well with others.		

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Table 5: Scoring process based on a holistic science performance rubric

Step	What the Teacher Does
1. Observe the Whole Task	Watch the student during the investigation and/or review the final product (data table, explanation, presentation, etc.).
2. Consider All Key Aspects	Mentally review how the student performed in planning, execution, data handling, reasoning, behavior, and communication.
3. Match with a Rubric Level	Read the holistic rubric descriptions and select the one that best matches the student's overall performance.
4. Assign a score	Use the scoring key (e.g., 3 = Beyond level, 2 = On level...) to assign a score.
5. Justify with Notes	Write a brief note in the comments column to explain the score (e.g., "Well-structured plan, accurate measurements, confident presentation").

7.2.1.2. Samples of analytic science performance rubrics

The sample rubrics below are provided to support the assessment of various student activities during science instruction. Teachers are encouraged to use, adapt, or modify them as needed to suit the classroom context, the type of activity, and the diverse needs of their students. The samples rubrics include: writing a scientific report (Table 6), creating and delivering a presentation (Table 7), and designing a poster presentation (Table 8).

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Table 6: Analytic science performance rubric for a scientific report.

#	Criteria	Approaching Level	On Level	Beyond Level	Score (/3)	Teacher Notes
1	**Report Structure**	The report is not in order and is hard to follow.	The report has some order, but parts are missing or unclear.	The report is well-organized with a clear beginning, middle, and end.		
2	**Introduction**	The purpose of the report is unclear or missing.	The purpose of the report is mentioned, but some parts are missing or unclear.	The introduction clearly presents the topic and purpose of the report.		
3	**Research Content**	Very little information is used or only copied from one place.	Some information is used from one or two places.	Uses clear and helpful information from more than one good source.		
4	**Clarity of Ideas**	Hard to understand the writer's ideas.	Some ideas are clear, others are not well explained.	All ideas are very clear, well explained, and easy to understand.		
5	**Data Collection & Presentation**	No pictures, numbers, or charts are shown.	Some data is shown, but it's messy or not explained clearly.	Data is clearly shown using charts or pictures and is explained well.		
6	**Documentation**	Does not say where the information came from.	Mentions one or two places the information came from.	Lists three or more reliable sources in a clear way.		
7	**Report Format**	Messy and hard to read; fonts or sizes are different.	Mostly neat and readable, but fonts or titles may not match.	Very neat and easy to read, with matching titles and font styles.		
	Total Score (*Number of criteria × 3)*				e.g., 7×3=21	
	Student Total Score (∑score per criteria)					
	Student Score converted to 20-point scale ($\frac{\sum score\ per\ criteria}{Total\ Score} \times 20$)					

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Table 7: Analytic science performance rubric for creating and delivering a presentation.

#	Criteria	Approaching Level (1)	On Level (2)	Beyond Level (3)	Score (/3)	Teacher Notes
1	**Language**	Uses unclear words, hard to understand, or uses words that are too difficult.	Uses mostly clear and simple words that the class can understand.	Speaks clearly using simple and correct words that are easy to understand.		
2	**Communication**	Speaks very quietly or mumbles; doesn't use gestures or look at the audience.	Speaks clearly so we can hear, but no excited most of the time with some gestures or looking at the class.	Uses a strong voice with good gestures and looks at the audience often.		
3	**Presentation Structure**	Talks without a clear beginning, middle, or end.	Has some order, a clear beginning and middle; ending may be missing or unclear.	Has a well-organized beginning, middle, and ending that are easy to follow.		
4	**Introduction & Purpose**	Doesn't say what the presentation is about or why it matters.	Tells us what the topic is and gives some ideas but not in an exciting way	Clearly says what the presentation is about and starts in an engaging way.		
5	**Presenting Ideas**	Ideas are hard to follow or not explained clearly.	Ideas are clear but need more explanation or examples.	Ideas are very clear, well explained, and supported with examples.		
6	**Clarifying Concepts**	Doesn't explain what things mean or give any examples.	Explains some ideas, but not all are clear or complete.	Explains ideas well and gives examples or a short summary.		
7	**Answering Questions**	Does not try to answer questions or answers are confusing.	Answers more than 50 % of the questions clearly and in a correct way, but with a few mistakes.	Answers all questions clearly, correctly, and with confidence.		
8	**Visual Aids**	No pictures or drawings, or they don't match what is being said.	Pictures or drawings help explain, serve the purpose of the presentation, but are not always clear (not easy to see or too big in size).	Pictures or drawings are clear, neat, and help explain the topic.		

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

9	**Sounds & Videos**	Sounds or videos don't work well or are hard to hear or see.	Sounds or videos mostly work and beneficial for the presentation.	Sounds or videos work well and match the topic clearly.		
10	**Time Management**	Presentation is too short or too long and misses important parts.	Misses timing a little, may spend too much or too little time on some parts. Or/and talks fast or slow.	Great use of time with balanced and complete parts.		
	Total Score (*Number of criteria × 3)*				e.g., 10×3=30	
	Student Total Score (∑score per criteria)					
	Student Score converted to 20-point scale ($\frac{\sum score\ per\ criteria}{Total\ Score}$ *×20)*					

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Table 8*:* Analytic science performance rubric for designing a science poster.

#	Criteria	Approaching (1)	On Level (2)	Beyond (3)	Score (/3)	Teacher Notes
1	**Poster Organization and Overview**	Poster is messy and hard to read; some parts are missing or unclear.	Poster has most parts and is a bit organized, but it could be clearer.	Poster is neat, clear, and easy to understand; all parts are included.		
2	**Presenting Ideas**	Main ideas are hard to understand or missing.	Main ideas are there but not clearly explained orbut need more support or order.	Main ideas are clear, well explained, and easy to follow.		
3	**Data Presentation**	Only words are used; no clear pictures or graphs.	Some pictures or graphs are used but are not clearly presented	Pictures, graphs, or tables are used clearly to show data and information		
4	**Use of Visual Aids, Audio, and Video**	No or few pictures/videos used; they do not help explain the topic.	Some pictures/videos are used but don't fully explain the topic or are not in the right place.	Pictures or videos are well placed and make the topic easy to understand.		
5	**Poster Design**	Poster looks plain or messy and doesn't attract attention.	Poster is okay and fits the topic but could be more fun or neat, and eye-catching.	Poster is colorful, neat,well-organized, and makes people want to look at it.		
	Total Score (*Number of criteria × 3)*				e.g., 5×3=15	
	Student Total Score (∑score per criteria)					
	Student Score converted to 20-point scale ($\frac{\sum score\ per\ criteria}{Total\ Score}$×20)					

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

7.2.2. Science observation sheet

The Science Observation Sheet is an informal assessment tool designed to help teachers keep track of student learning during science activities. It allows real-time evidence to be recorded using a clear and easy-to-use format. By supporting continuous observation, the sheet helps teachers track student progress over time, identify misconceptions as they arise, and make timely instructional adjustments. It also complements formative assessment by offering valuable qualitative insights that complement more formal evaluation tools (see Figure 2).

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

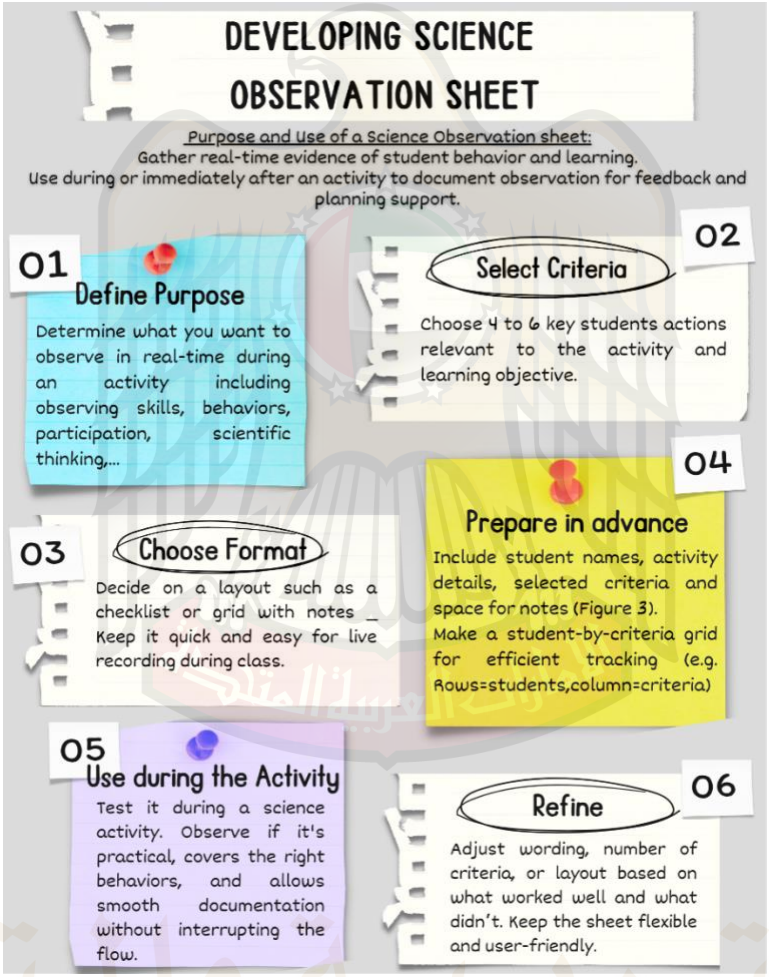


Figure 2: Teacher guide to develop science observation sheet

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

7.2.2.1. Instructions for Use

- Select 4–6 observable behaviors or skills that are most relevant to the specific science task. These can be practical, cognitive, collaborative, or behavioral (e.g., "Uses tools correctly," "Follows procedure," "Demons trates curiosity").
- Customize the sheet (Figure 3) by replacing the observation criteria based on your grade, lesson, objectives.
- For each criterion, mark the level of performance—such as Always, Sometimes, or Never—to indicate how consistently the behavior or skill was observed.
- Use the Teacher Notes column to record specific evidence, feedback or follow-up.
- Keep the format simple and quick to use during the activity, allowing for effective observation.

Science Activity Observation Sheet

Grade: _____ **Class:** _____ **Date:** _____ **Activity Title:** _____

Student Name	Uses tools and equipment correctly	Follows safety procedures	Records data accurately	Collaborates with group	Demonstrates curiosity	Teacher Notes
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	

Figure 3: Sample of a science observation sheet

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

7.2.2.2. Samples of Science Observation sheets

Teachers are encouraged to utilize the sample observation sheets provided for activities such as concept mapping (Table 9), model creation (Table 10), and debating (Table 11). Teachers may modify the sheets as needed to align with their specific classroom contexts and instructional objectives.

Table 9: Sample of a concept mapping observation sheet

Student Name	Identifies Main Concept Clearly	Connects Ideas Logically	Uses Accurate Vocabulary	Organizes Layout Clearly	Shows Concept Relationships	Uses Linking Words	Teacher Notes
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	

Table 10: Sample of a model creation observation sheet

Student Name	Plans before building	Chooses appropriate materials	Demonstrates creativity	Follows instructions	Builds a functional model	Explains how the model works	Teacher Notes
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Table 11: Sample of a debating observation sheet

Student Name	States position clearly	Supports arguments with evidence	Listens and responds respectfully	Uses appropriate language and tone	Speaks clearly and confidently	Stays on topic	Teacher Notes
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	
	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	☐ Always	
	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	☐ Sometimes	
	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	☐ Never	

Table 12: Guide to selecting and applying assessment tools in science classroom

Assessment Tool	Best Used For	Purpose	When to Apply
Analytic Rubric	Complex tasks with multiple performance criteria.	Evaluate each criterion separately for detailed feedback.	- After students complete full projects or investigations. - When assessing final products or formal assignments. - When giving detailed feedback for improvement.
Holistic Rubric	Quick, overall evaluation of student work.	Provide a single score reflecting overall quality.	- During short performance tasks. - When giving quick feedback. - For classwork not requiring detailed scoring. - For peer or self-assessment activities.
Observation Sheet	Real-time monitoring of student behaviors and skills.	Collect evidence of participation, process skills, and engagement.	- While students work on activities, labs, or group tasks. - To monitor behaviors and skills.

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

8. Unified Science Lesson Plan

8.1 Science Daily/Weekly Lesson Plan - Template

Daily/Weekly/ Lesson Planning

Subject: **Grade/Class**: **Week Beginning/Date**: **Teacher:** **Nb of Session(s):**

Module Title		**Group Demographic (numbers)**	**On Role:** **Special Educational Needs (SEN):** **Gifted & Talented (G&T):**
Lesson(s) Title		**Resources**	*(e.g. textbook pages, manipulatives, digital tools, etc)*
		Materials	
Module Performance Expectations (PEs)			
Module Prior Knowledge			

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Lesson Objective(s)	
Lesson Possible Misconception(s)	
Lesson Key Vocabulary	
Module Science & Engineering Practices (SEPs	**Please highlight all that apply:** 1-Asking Questions and Defining Problems, 2- Developing and Using Models, 3- Planning and Carrying Out Investigations, 4- Analyzing and Interpreting Data, 5-Using Mathematics and Computational Thinking, 6- Constructing Explanations and Designing Solutions, 7- Engaging in Argument from Evidence, 8- Obtaining, Evaluating, and Communicating Information.
Steps of the Scientific Methods	**Please highlight all that apply:** 1-Make an observation, 2-Ask a research question, 3- Gather background information and do research , 4-Formulate a hypothesis, 5-Make a prediction, 6-Plan the experiment (Design the investigation and identify variables), 7-Conduct the experiment, 8-Collect and record data, 9- Analyze, interpret, and evaluate data, 10-Draw conclusion based on evidence, 11-Communicate findings and results, 12-Reflect and propose next steps or further investigations**.**
Higher-Order Thinking Focus	**Please highlight all that apply:** Analysis / Evaluation / Justification / Reasoning / Hypothesis generation / Making connections / Drawing conclusions / Synthesizing information / Designing solutions / Arguing a position / Constructing explanation / Other If 'Other' please specify:

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

21st Century Skills / Global Competencies	**Please highlight all that apply:** Critical thinking/ creativity/ Collaboration/ Communication/ Adaptability and flexibility / Creative thinking/ Innovation/ Entrepreneurship/ Productivity/ Accountability/ Leadership/ Responsibility/ Cultural identity Initiative and self-direction / Resilience and emotional regulation / social and cross-cultural skills/ Other. If 'Other' please specify:
Cross-Curricular Connections	**Please highlight all that apply:** Digital Literacy/ Numeracy/ Sustainability/ Literacy/ AI/ Social Studies/ Other. If 'Other' please specify:
UAE Links	

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

<table>
<tr><th colspan="2">Session Plan</th><th>Time</th></tr>
<tr><td>Essential Question(s)</td><td colspan="2"></td></tr>
<tr><td rowspan="4">5E Model Phase
(e.g. Engage/ Explore/ Explain/ Elaborate/ Evaluate)</td><td>Activities</td><td rowspan="2"></td></tr>
<tr><td>Assessment
1- Performance task:
2- Writing activities:
3- Quizzes:</td></tr>
<tr><td>EL Support</td><td></td></tr>
<tr><td>Differentiated Instruction</td><td></td></tr>
<tr><td>STEM Project</td><td colspan="2"></td></tr>
<tr><td>Homework</td><td colspan="2"></td></tr>
<tr><td>Targeted Students & Support</td><td colspan="2">SEN registered, G&T, Learning Support (please specify):</td></tr>
<tr><td>Seating Arrangements</td><td colspan="2">Please highlight all that apply:

Individual / Pairs / Groups (same level) / Groups (mixed levels) / Workstations (rotations) / Flexible / U-shape / Other

If ‘Other’ please specify:</td></tr>
<tr><td>Self-Reflection & Next step</td><td colspan="2">Prompts
• How has formative data from previous lesson(s) informed this lesson?
• How will formative data from this lesson guide and inform your planning for the next lesson(s)?
• What intervention / acceleration is required based on this formative data?</td></tr>
</table>

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Session (#) Plan (Applicable for Weekly/Lesson plan)		Time
Essential Question(s)		
5E Model Phase *(e.g. Engage/ Explore/ Explain/ Elaborate/ Evaluate)*	**Activities**	
	Assessment **1- Performance task:** **2- Writing activities:** **3- Quizzes:**	
	EL Support	
	Differentiated Instruction	
STEM Project		
Homework		
Targeted Students & Support	**SEN registered, G&T, Learning Support (please specify):**	
Seating Arrangements	**Please highlight all that apply:** Individual / Pairs / Groups (same level) / Groups (mixed levels) / Workstations (rotations) / Flexible / U-shape / Other If 'Other' please specify:	
Self-Reflection & Next step	**Prompts** • How has formative data from previous lesson(s) informed this lesson? • How will formative data from this lesson guide inform your planning for the next lesson(s)? • What intervention / acceleration is required based on this formative data?	

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Session (#) Plan (Applicable for Weekly/Lesson plan)		Time
Essential Question(s)		
5E Model Phase *(e.g. Engage/ Explore/ Explain/ Elaborate/ Evaluate)*	**Activities**	
	Assessment **1- Performance task:** **2- Writing activities:** **3- Quizzes:**	
	EL Support	
	Differentiated Instruction	
STEM Project		
Homework		
Targeted Students & Support	**SEN registered, G&T, Learning Support (please specify):**	
Seating Arrangements	**Please highlight all that apply:** Individual / Pairs / Groups (same level) / Groups (mixed levels) / Workstations (rotations) / Flexible / U-shape / Other If 'Other' please specify:	
Self-Reflection & Next step	**Prompts** • How has formative data from previous lesson(s) informed this lesson? • How will formative data from this lesson guide and inform your planning for the next lesson(s)? • What intervention / acceleration is required based on this formative data?	

MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

8.2 Science Daily/Weekly Lesson Plan – Example

Daily/Weekly/ Lesson Planning

Subject: Science **Grade/Class**: Grade1 **Week Beginning/Date**: 01/09/2025 **Teacher:** Muhammad **Nb of Session(s):** 2

<table>
<tr><td>Module Title</td><td>U2M1: Animal Parents and Their Offspring</td><td>Group Demographic (numbers)</td><td>On Role: 25
Special Educational Needs (SEN): 3
Gifted & Talented (G&T): 5</td></tr>
<tr><td rowspan="2">Lesson(s) Title</td><td rowspan="2">Lesson 1: Animal Structures</td><td>Resources</td><td>(e.g. textbook pages, manipulatives, digital tools, etc)</td></tr>
<tr><td>Materials</td><td>Foldables, butterfly larvae, cage, fish, aquarium, gravel and fish food.</td></tr>
<tr><td>Module Performance Expectations (PEs)</td><td colspan="3">1-LS1-1 - Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</td></tr>
<tr><td>Module Prior Knowledge</td><td colspan="3">Animal Structure, Function, and Reproduction
- Explain that all animals have body parts.
- Understand that animal body parts help them grow and survive.</td></tr>
<tr><td>Lesson Objective(s)</td><td colspan="3">Students will construct explanations about the structure and function of animal body parts.</td></tr>
</table>

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

Lesson Possible Misconception(s)	1- Students may think that animals behave the same way as humans. (TE p. 2) 2- Students may not realize that all animals, including unfamiliar ones, have specific structures that help them survive and grow. (TE p.7) 3- Students may fail to recognize similarities among animals or distinguish them clearly from non-living things. (TE p.13)
Lesson Key Vocabulary	- Amphibian – برمائي - Bird – طائر - Fish – سمكة - Insect – حشرة - Mammal – ثدييات - Reptile – الزواحف
Module Science & Engineering Practices (SEPs)	**Please highlight all that apply:** 1-Asking Questions and Defining Problems, 2- Developing and Using Models, 3- Planning and Carrying Out Investigations, 4- Analyzing and Interpreting Data, 5-Using Mathematics and Computational Thinking, 6- Constructing Explanations and Designing Solutions, 7- Engaging in Argument from Evidence, 8- Obtaining, Evaluating, and Communicating Information.
Steps of the Scientific Methods	**Please highlight all that apply:** 1-Make an observation, 2-Ask a research question, 3- Gather background information and do research , 4-Formulate a hypothesis, 5-Make a prediction, 6-Plan the experiment (Design the investigation and identify variables), 7-Conduct the experiment, 8-Collect and record data, 9- Analyze, interpret, and evaluate data, 10-Draw conclusion based on evidence, 11-Communicate findings and results, 12-Reflect and propose next steps or further investigations**.**
Higher-Order Thinking Focus	**Please highlight all that apply:** Analysis / Evaluation / Justification / Reasoning / Hypothesis generation / Making connections / Drawing conclusions / Synthesizing information / Designing solutions / Arguing a position / Constructing explanation / Other If 'Other' please specify:

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

21st Century Skills / Global Competencies	**Please highlight all that apply:** Critical thinking/ Collaboration/ Communication/ Adaptability and flexibility /Creative thinking/ Innovation/ Entrepreneurship/ Productivity/ Accountability/ Leadership/ Responsibility/ Cultural identity/ initiative and self-direction / Resilience and emotional regulation / social and cross-cultural skills/ Other. If 'Other' please specify:
Cross-Curricular Connections	**Please highlight all that apply:** Digital Literacy/ Numeracy/ Sustainability/ Literacy/ AI/ Social Studies/ Other. If 'Other' please specify: Engineering
UAE Links	Link to local animals like falcons and oryx and how they use their body parts to survive in the desert, highlighting their role in Emirati heritage and conservation efforts.

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

<table>
<tr><th colspan="2">Session (1) Plan</th><th>Time</th></tr>
<tr><td>Essential Question(s)</td><td colspan="2">How do animals use their body parts to stay safe and find food?</td></tr>
<tr><td rowspan="4">5E Model Phase
Engage</td><td>Activities
1- Discover the phenomenon – What keeps these animals safe? (TE p. 3) (10 min)
2- STEM connection – What does a zoologist do? (TE p. 4) (10 min)
3- Module opener – Word wall (TE p. 6) (10 min)</td><td rowspan="2">30 min</td></tr>
<tr><td>Assessment
1- Performance task: Talk about it (TE p. 3)
2- Writing activities: Page keeley science probes (TE p.7)
3- Quizzes: NA</td></tr>
<tr><td>EL Support
- EL Support 1 (TE p. 4)</td><td>5 min</td></tr>
<tr><td>Differentiated Instruction
- DI is related to animals and their babies (TE p.3)</td><td>5 min</td></tr>
<tr><td>STEM Project</td><td>Looking ahead to the STEM module project (TE p. 5)</td><td>5 min</td></tr>
<tr><td>Homework</td><td colspan="2">NA</td></tr>
<tr><td>Targeted Students & Support</td><td colspan="2">SEN registered, G&T, Learning Support
- Ahmed usually finishes tasks quickly so will be provided with extension activities to deepen understanding and maintain engagement.
- Additional time and support for Shamma: visual guides to be printed larger.</td></tr>
<tr><td>Seating Arrangements</td><td colspan="2">Please highlight all that apply:
Individual / Pairs / Groups (same level) / Groups (mixed levels) / Workstations (rotations) / Flexible / U-shape / Other
If ‘Other’ please specify:</td></tr>
<tr><td>Self-Reflection & Next step</td><td colspan="2">Were classroom resources used effectively?
- The visual aids were helpful, but I could’ve used more interactive tools.
What intervention / acceleration is required based on this formative data?
- Struggling students will receive scaffolded support through gap-fill tasks, while higher-ability students will</td></tr>
</table>

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

	engage in Animal parts.

Session (2) Plan		Time
Essential Question(s)	How do scientists, like zoologists, study animal structures and their functions?	
5E Model Phase *Engage*	**Activities** 1. Assess prior knowledge: Do they have body parts? (TE p. 7) (10 min) 2. Discover the phenomena: Which structure will help this bird catch its food? (10 min)	20 min
	Assessment 1. **Performance task:** Talk about it (TE p.9) 2. **Writing activities:** Page keeley science probes (TE p.7) 3. **Quizzes:**	
	EL Support NA	
	Differentiated Instruction NA	
5E Model Phase *Explore*	**Activities:** 1. Hands-on - Animal parts (prep: 20 min, Class: 30 min)	25 min
	Assessment 1. **Performance task:** Inquiry activity (TE p.10-11), Quick Check (TE p.15) 2. **Writing activities:** NA 3. **Quizzes:** NA	
	Differentiated Instruction NA	
	EL Support NA	

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.

STEM Project	During Lesson 1, students will observe common animal structures. They will compare similarities and differences among different types of animals, which will assist in their protective gear design (TE p. 5).
Homework	NA
Targeted Students & Support	**SEN registered, G&T, Learning Support** - Abdullah has been absent for the previous three lessons and will receive targeted support to review key concepts and catch up with the class. - G&T: Reem and Ahmed to proceed to the investigation sooner if needed – monitor every 10 min. If completed within lesson, create a PPT to present findings.
Seating Arrangements	**Please highlight all that apply:** Individual / Pairs / Groups (same level) / Groups (mixed levels) / Workstations (rotations) / Flexible / U-shape / Other If 'Other' please specify:
Self-Reflection & Next step	**What intervention / acceleration is required based on this formative data?** - Further strategies to be finalized after the lesson upon review of student feedback and responses.

وزارة التربية والتعليم
MINISTRY OF EDUCATION

All rights reserved. No part of this page may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior permission in writing of the publisher.
Portions of this guide are based on Inspire Science by McGraw Hill Education. Teacher Edition materials were accessed through the McGraw Hill online platform.