



UNITED ARAB EMIRATES
MINISTRY OF EDUCATION



Mathematics Curriculum

Comprehensive Curriculum Guide

Grade 4 General Reveal

Term 3

وزارة التربية والتعليم

2025-2026

MINISTRY OF EDUCATION



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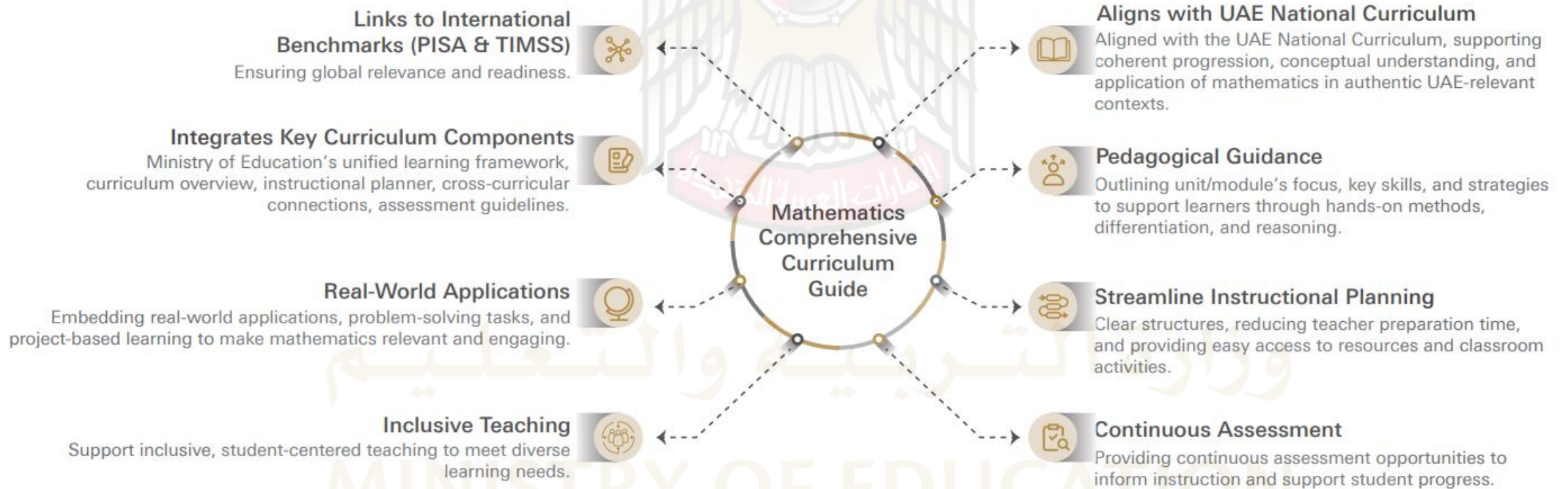
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CCG Overview

The Mathematics Comprehensive Curriculum Guide (CCG) serves as a robust, unified framework designed to support educators in delivering high-quality, coherent, and standards-aligned mathematics instruction. This guide combines all essential components into one accessible and organized resource to ensure consistency, efficiency, and clarity in the classroom.



1

2

- 3

6[illegible]

This section aims to identify the functional knowledge and skills the need support or review to strengthen new learning. Teachers can use this section to conduct a quick check of prerequisite skills and baseline readiness.																
Question Number	Question	DOM Level	Standard	EMPs												
1	Function Tables: Complete the table for the rule $y = 2x + 3$ for $x = 0, 2, 3, 5$.	1	8.1.1	MPL, MP6												
2	Context: Linear Equations The table shows x and y, write an equation that represents y as a function of x. <table><tr><td>x</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>y</td><td>5</td><td>6</td><td>8</td><td>11</td><td>14</td></tr></table>	x	1	2	3	4	5	y	5	6	8	11	14	2	8.1.4	MPL, MP7, MP8
x	1	2	3	4	5											
y	5	6	8	11	14											
3	Compare Functions: Compare these two relationships: $g(x) = 4x$, $g = 5$ table shown. Which function has the greater rate of change? Explain. <table><tr><td>x</td><td>1</td><td>2</td><td>3</td></tr><tr><td>g</td><td>2</td><td>3</td><td>4</td></tr></table>	x	1	2	3	g	2	3	4	3	8.1.2	MPL, MP7, MP7				
x	1	2	3													
g	2	3	4													
4	Linear Functions: A taxi company charges \$10.50 per 1/2 mile. Write a function to model the cost of a ride in terms of d, total distance charged. $d = 7$ miles. Qualitative Graphs: The graph of a function shows a car moving away from a garage, stopping, and then returning. Sketch and label a possible distance-time function representing this motion.	4	8.1.3	MPL, MP4, MP4, MP7												

Nonlinear Functions		
	Towards Mastery	Mastery
Activity Type	Strategic or Current Proof	Build an Equations from Context
Topic of Activity	Graphs on a Grid and a Graph	Group Problem Solving & Modeling
	Students are given printed graphs of different real-world situations, such as - The water level from the Dubai Fountain (source). - A taxi fare increasing at a constant rate (source). Students physically plot the graphs into graph paper. Lower or Middle Explain their reasoning. - Students present equations using graph paper or technology. - Students discuss the consistency of the linear constant or change or not constant. - Students discuss the consistency of the vertical line test.	Build an Equations from Context Expo 2020 Video Time Provide students with the following scenarios: - Expo 2020's is using the first 30 days since the pandemic as a flat revenue fee. - Expo 2020's plan to increase the revenue exponentially based on peak hours. Highly Strategic - Students are required for each scenario based on details given. - Students explain equations using graph paper or technology. - Students discuss which scenario is better and which is not better, explaining why. Expo 2020 Video Time
	Students are given digital data showing showering events at Expo 2020 and are required to - Plot the graph on grid paper, then, explain why the graph is not linear. Then, students: - Analyze the graph to determine if the relationship is linear or nonlinear. - Explain how the changing rate of difference impacts their decision.	Expo 2020 Video Time How many of them?

Module 5 – Reason & Mastered 97

Functions

This section aims to assess how well students have mastered the module objectives upon completion.

Summary of Goals

- Students physically plot the graphs on the lines of **Graphing**, supporting their work.
- Teachers are encouraged to use the **vertical line** test to see if the equation is a function or not.
- Students are encouraged to be introducing line test.

THE VERTICAL LINE TEST EXPLAINED!

Question Number

Question

Correct Answer

1	Function Tables: $f(x) = 2x - 1$ is used to fill a table, if $x = -1, 0, 1$ and completely y and also the pattern. Complete Functions: $f(x) = 2x - 1$ and $f(x) = 2x - 1$ table shown Determine whether the two functions are equivalent. Explain how you know.	1	0, 0, 1	SPLT, MP2
2	Complete Functions: $f(x) = 2x - 1$ and $f(x) = 2x - 1$ table shown Determine whether the two functions are equivalent. Explain how you know.	2	0, 0, 2	SPLT, SPLT, MP7
3	Complete Functions: Identify whether each graph is linear or nonlinear and justify. $f(x) = 2x - 1$ and $f(x) = 2x - 1$	3	0, 0, 3	SPLT, MP2, MP5
4	Complete Functions: Identify whether each graph is linear or nonlinear and justify. $f(x) = 2x - 1$ and $f(x) = 2x - 1$	4	0, 0, 4	SPLT, SPLT, MP2, MP5
5	Qualitative Graphing: Real-life Context: A graph shows the temperature of a city from morning to evening. Describe how the graph might look like. ☐ The temperature rises quickly, remains stable, then drops slowly (decrease and later rise)	5	0, 0, 5	SPLT, MP5

Overview of EMTPs and SMPs

Promotes meaningful understanding over rote memorization.

Conceptual Understanding

Empowers students to take ownership of their learning.

Student Empowerment

Ensures inclusive and culturally responsive mathematics education.

Equity and Access

EMTPs Enhance Quality Teaching Practice

SMPs Enhance Students' Learning Expertise



Conceptual Understanding

Promotes deeper understanding of math concepts



Critical Thinking

Encourages students to analyze and evaluate



Collaboration

Fosters teamwork and communication skills

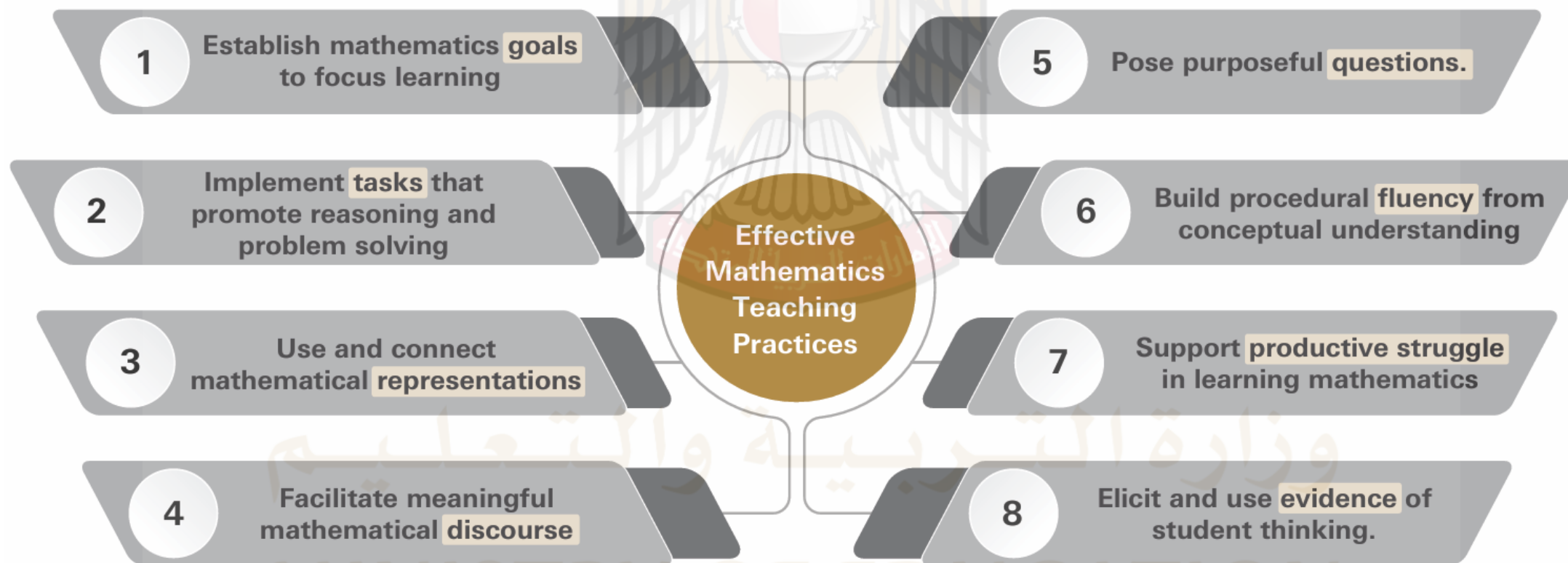


Real-World Application

Connects math to practical scenarios

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Integrating Mathematical Teaching Practices and Standards for Mathematical Practice for Effective Instruction



The National Council of Teachers of Mathematics (2015). Principles to actions: Ensuring mathematical success for all.

Standards for Student Mathematical Practices (with examples)

Standards for Student Mathematical Practices (with examples)			
1	Make sense of problems & persevere in solving them		example Identify patterns in a complex word problem, breaks it down into manageable parts, and persists in finding a solution.
2	Reason abstractly & quantitatively		example Apply proportional reasoning to plan for a budget for a school event considering different quantities and their proportional relationships.
3	Construct viable arguments & critique the reasoning of others		example Build a logical progression of statements to prove a mathematical theorem and evaluates the credibility of another students' solution by identifying flaws in their reasoning.
4	Model with mathematics		example Use geometry to design a garden layout considering the spatial relationships between plants and pathways
5	Use appropriate tools strategically		example Analyse data using spreadsheet and graphs to draw conclusions.
6	Attend to precision		example Provide clear explanations of mathematical concepts, correctly labels diagrams, and expresses numerical answers with the appropriate level of precision.
7	Look for & make use of structure		example Identify the distributive property in an algebraic expression and uses it to simplify complex equations.
8	Look for & express regularity in repeated reasoning		example Observe patterns in repeated steps and find efficient solutions based on regular patterns.

Continuous Assessment

Assessment Information

There should be evidence demonstrating a competent understanding of assessment information - this is cited within CCG Scheme of work/Lesson Plan:

- The lesson plan includes the **current assessment information** of the students
- The lesson plan includes the **ability ranges** of the students based on assessment information
- The lesson plan includes some (not all) **targeted students**
- The lesson plan includes information about **strengths and weaknesses** of the students
- The lesson plan includes the **challenges and support** required for students

Effective Formative Assessment

Teachers carry out effective formative assessments as part of their teaching. They **ask questions, mark learners' work**, observe their students in the process of learning and **give effective feedback**. They **ensure clear opportunities for peer/self-assessment**.

Teachers demonstrate a **high level of formative assessment**: Assessing **knowledge, skills and understanding** - evidenced by using a **large variety of action verbs** for example:

What am I assessing	Verbs to begin questions
Knowledge	State, Name, List, Describe, Label, Write, Recall
Understanding	Explain, Compare, Contrast, Outline
Skills	Construct, Perform, Predict, Investigate, Interpret, Carry out

Continuous Assessment

Assessing Knowledge, Skills and Understanding

- ❖ **Knowledge** is the easiest to assess because it is straightforward to find out whether or not a student has retained some information: a simple question can usually find this out. We ask them to name something or state something or label a diagram.
- ❖ Assessing deeper **understanding** is much more difficult, so we usually ask learners to outline, explain or compare a process. This will give us some idea of the extent of their understanding.
- ❖ **Skills** are the ability to perform, so we will always be looking for some action on the part of the student – Are they able to do something? Can they demonstrate practical abilities?

Action Verbs			
Apply	Define	Draw	List/Name
Calculate	Demonstrate	Explain	Motivate
Classify	Derive	Formulate	Organize
Compare	Describe	Identify	Predict
Contrast	Differentiate	Illustrate	Relate
Convert	Discuss	Interpret	Solve
Criticize/Evaluate	Distinguish	Justify	Summarize

Whether we are assessing knowledge, understanding or skills affects the language we are using, particularly **the verbs we choose**.

Continuous Assessment

This table shows the weightings of continuous assessment for Group A subjects in grades 3 and 4 over the year Group A – Arabic Language, English Language, **Mathematics**, Science, Islamic Education, Social Studies and Moral Education.

Term 1		Term 2		Term 3		Annual	
School-based (formal)	End-of-term (centralized exam)	School-based (formal)	SSA (centrally guided)	School-based (formal)	End-of-term (centralized exam)	School-based Assessment	End-of-term (centralized exam)
10%	25%	15%	15%	10%	25%	50%	50%

Grading Scale (all streams)															
F	E-	E	E+	D-	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
0-49.99	50-52.99	53-56.99	57-59.99	60-62.99	63-66.99	67-69.99	70-72.99	73-76.99	77-79.99	80-82.99	83-86.99	87-89.99	90-92.99	93-96.99	97-100

Academic Calendar for 2025-2026

Term Three

Academic Agenda Dates

- Start date for Students, Administrative & Teaching Staff
- PIRLS 2026 Study (Main Study)
- TIMSS 2027 Study (Field Trial)
- End-of-Term Exams
- Resit Exams

Official Holidays and Breaks

- Mid-Term Break and Eid Al-Adha for Students and Administrative and Teaching Staff
- Hijri New Year
- Last Day of the Academic Year for Students
- Summer Break for Students

Term	Month	Mo	Tu	We	Th	Fr	Sa	Su
Term 3	March 2026	30	31					
	April 2026			1	2	3	4	5
		6	7	8	9	10	11	12
		13	14	15	16	17	18	19
		20	21	22	23	24	25	26
		27	28	29	30			
	May 2026					1	2	3
		4	5	6	7	8	9	10
		11	12	13	14	15	16	17
		18	19	20	21	22	23	24
		25	26	27	28	29	30	31
	June 2026	1	2	3	4	5	6	7
		8	9	10	11	12	13	14
		15	16	17	18	19	20	21
		22	23	24	25	26	27	28
		29	30					
	July 2026			1	2	3	4	5
		6	7	8	9	10	11	12
		13	14	15	16	17	18	19
		20	21	22	23	24	25	26
		27	28	29	30	31		

Date	Statement
30 March 2026	Start date for Students, Administrative, and Teaching Staff
30 March - 02 April 2026	Make-up Exams for the Second Academic Term
03 - 04 April 2026	Term 2 Result Announcement
15 April - 07 May 2026	PIRLS 2026 Study (Main Study)
15 April - 07 May 2026	TIMSS 2027 Study (Field Trial)
25 - 29 May 2026	Mid-Term Break and Eid Al-Adha for Students and Administrative and Teaching Staff
17 June 2026	Hijri New Year
15 - 16 June 2026	Mock Exam
24 June - 03 July 2026	End-of-Term Exams
03 July 2026	Last Day of the Academic Year for Students
06 - 09 July 2026	Make-up Exams for the Third Academic Term
12 - 13 July 2026	End-of-Year Results Announcement
13 - 17 July 2026	Specialized Training for Administrative and Teaching Staff 5
14 - 17 July 2026	Resit Exams
20 July 2026	Resit Exams Results Announcement
18 July 2026	Start of Summer Break for Administrative and Teaching Staff

Lesson Plan Exemplar

This comprehensive lesson plan template structures daily and weekly teaching around learning objectives, instructional strategies, and targeted support, ensuring alignment with the CCGs and the UAE Inspection Framework for effective and inclusive instruction.

This table outlines the lesson plan sections and shows whether they require self-completion or selection from provided options.

Section	Completion
Curriculum Levels (numbers)	Self-completion
Group Demographic (numbers)	Self-completion
Weekly/Daily Title(s) and Learning Objectives	Self-completion
Cross-curricular Links (if applicable)	Self-completion
Essential Question(s)	Self-completion
New Vocabulary (if applicable)	Self-completion
Targeted Learning Skills	Selection
Teaching Strategies	Selection
Formative Assessment Methods	Selection
Targeted Students & Support	Self-completion
Innovation / 21st Century Skills / Global Competencies	Selection
Higher-Order Thinking Focus	Selection
Resources / Tools	Self-completion
Seating Arrangements	Selection
Self-Reflection	Self-completion

CCG (Daily/Weekly) Planning			
Subject: Mathematics	Grade: 8 Adv/Gen	Stream: Advanced	Week Beginning/Date: W8 Monday 12 th May
		Teacher: KM	
Section	Brief Entry		
Curriculum Standards Levels (numbers)	Above CS: 8 In line with CS: 13 Below CS: 3	Group Demographic (numbers)	On Role: 24 SEN: 3 GAT: 1
Weekly/Daily Title(s) and Learning Objectives	Title: Angles Relationships and Triangles LOs: By the end of this week, students will be able to find the measures of interior and exterior angles in a triangle by using relationships between these angles. CCSS: 8.G.A.5 SMP(s): 1, 2, 3, 4, 5, 6, 7	Cross-curricular Links (please highlight)	Yes No If 'Yes' please briefly specify: Literacy: Use of precise mathematical language and reasoning to explain processes verbally and in writing (e.g., justifying why the angle sum of a triangle is 180°).
Essential Question(s)	1. Why do the interior angles in a triangle always sum to 180 degrees- how can we prove this? 2. How is an exterior angle and the interior angles in a triangle related? 3. How can we use angle relationships in triangles to solve mathematical and real-world problems?		
New Vocabulary (if applicable)	Obtuse angle		
Targeted Learning Skills	Please highlight all that apply: Responsibility for their own learning / Interactions, collaboration and communication skills / Application of learning to the world / Making connections between areas of learning / Enquiry/Research / Critical Thinking / Problem Solving / Use of learning technologies / Metacognition / Goal setting and self-monitoring		
Teaching Strategies	Differentiation: Input/Outcome- consider differentiated approach using Teaching Strategies / Formative Assessment / Targeted Students & Support, below Please highlight all that apply: Scaffolding / Differentiated Learning / Group work (Brainstorming, Turn-taking, Roleplaying etc.) / Think/pair/share / Active Learning (reciprocal questioning, pause procedure etc.) / Peer Teaching / Socratic Questioning / Experiential Learning / Game-based Learning / Student Presentation / Guided Practice (I do/we do/you do method) / Discovery Learning / Inquiry-based Instruction / Modeling / Student-led teaching / Flexible Seating / Other If 'Other' please specify: Cold Calling - students will be randomly selected to answer questions		
Formative Assessment Methods	Please highlight all that apply: Think/pair/share / Student Self-evaluation / Peer-assessment / Verbal Feedback / Written Feedback / Quiz / Learning Journals/Reflection Logs / Exit Tickets / Traffic Light Cards / Observations / Other If 'Other' please specify:		
Targeted Students & Support	Special Educational Needs (SEN registered), Learning Support (LS), Gifted & Talented (GAT): (please specify): • Ahmed usually finishes tasks quickly so will be provided with extension activities to deepen understanding and maintain engagement. • Abdullah has been absent for the previous three lessons and will receive targeted support to review key concepts and catch up with the class. • Additional time and support for Shamma; visual guides to be printed larger. • GAT: 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.		
Innovation / 21st Century Skills / Global Competencies	Please highlight all that apply: Creativity and innovation / Use of learning technologies / Global competencies / UAE Cultural Identity / Islamic Values / Civic responsibility / Media and information literacy / Adaptability and flexibility / Initiative and self-direction / Ethical use of digital tools / Digital collaboration / Resilience and emotional regulation / AI / Other If 'Other' please specify:		
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:		
Resources / Tools (e.g. textbook pages, manipulatives, digital tools, AI etc)	• Whiteboard/Projector • Individual whiteboards / paper • Rulers, protractors (optional for extension) • Visual aid of key rules, formula & properties • Textbook pages 24-27 with differentiated problems • Investigation task for higher ability / GAT • Gap-fill exercise for struggling students • Algebraic angle problems (for higher-ability students) -textbook page reference 27-28		
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	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 engage in polygon investigations. • Further strategies to be finalized after lesson upon review of student feedback and responses.		



Lesson Plan Exemplar

Lesson Plan Template

Using the Lesson Planning Tool Effectively

- Complete daily or weekly for each lesson or set of lessons.
- Align with the appropriate Comprehensive Curriculum Guide (CCG).
- Covers all key components required for effective planning and is aligned with the UAE Inspection Framework.
- Helps structure lessons around clearly defined objectives, strategies, and outcomes.
- Acts as a professional learning tool, helping teachers identify effective strategies they may not have used before.
- Supports consistency in teaching and planning across classrooms and departments.
- Supports differentiation and inclusion in the classroom.
- Encourages reflection and continual improvement.



Lesson Plan Template

Daily/Weekly Planning			
Subject:	Grade/Class:	Stream:	Week Beginning/Date:
		Teacher:	
Section	Brief Entry		
Curriculum Standards Levels (numbers)	Above CS: In line with CS: Below CS:	Group Demographic (numbers)	On Role: SEN: G&T:
Weekly/Daily Title(s) and Learning Objectives	Title: LOs:	Cross-curricular Links (please highlight)	Yes No If 'Yes' please briefly specify:
Essential Question(s)			
New Vocabulary (if applicable)			
Targeted Learning Skills	Please highlight all that apply: Responsibility for their own learning / Interactions, collaboration and communication skills / Application of learning to the world / Making connections between areas of learning / Enquiry/Research / Critical Thinking / Problem Solving / Use of learning technologies / Metacognition / Goal setting and self-monitoring		
Differentiation: Input/Outcome - consider differentiated approach using Teaching Strategies / Formative Assessment / Targeted Students & Support, below			
Teaching Strategies	Please highlight all that apply: Scaffolding / Differentiated Learning / Group work (Brainstorming, Turn-taking, Roleplaying etc) / Think/pair/share / Active Learning (reciprocal questioning, pause procedure etc) / Peer Teaching / Socratic Questioning / Experiential Learning / Game-based Learning / Student Presentation / Guided Practice (I do/we do/you do method) / Discovery Learning / Inquiry-based instruction / Modelling / Student-led teaching / Flexible Seating / Other If 'Other' please specify:		
Formative Assessment Methods	Please highlight all that apply: Think/pair/share / Student Self-evaluation / Peer-assessment / Verbal Feedback / Written Feedback / Quiz / Learning Journals/Reflection Logs / Exit Tickets / Traffic Light Cards / Observations / Other If 'Other' please specify:		
Targeted Students & Support	Special Educational Needs (SEN registered), Learning Support (LS), Gifted & Talented (G&T) (please specify):		
Innovation / 21st Century Skills / Global Competencies	Please highlight all that apply: Creativity and innovation / Use of learning technologies / Global competencies / UAE Cultural identity / Islamic values / Civic responsibility / Media and information literacy / Adaptability and flexibility / Initiative and self-direction / Ethical use of digital tools / Digital collaboration / Resilience and emotional regulation / AI / Other If 'Other' please specify:		
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:		
Resources / Tools (e.g. textbook pages, manipulatives, digital tools, etc)			
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	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?		

Learning Progression Tracker – Excel File

The Learning Progression Tracker (LPT) is an Excel tool that supports the successful implementation of **CCG** goals by helping teachers track attendance, mastery, and student progress in a clear, organized way.

The tool is built around **four** core components:

1

Attendance Tracker

Records student attendance and calculates weekly percentages.

2

Learning Progression Tracker

Tracks student mastery of weekly learning objectives.

3

Tracker Analysis

Summarizes class performance using charts and tables

4

Student LP Report

Generates individual student reports for review or sharing.

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Student Learning Progression Report					
This sheet compiles a detailed summary for each student, including: - Their attendance record - Their level (T, M, B) each week - Suggested areas for further practice					
Student:	Khalifa	Class:	4	Date:	21/1/2025
Teacher:	Mohammad			Attendance:	80%
				Overall Score	Mastery

Week	Learning Objectives Breakdown	Score	Practice Pages
Week 2	Relate the value of a digit in one place-value position Determine the value of a digit in any place in a number Read and write numbers from 1 to 1,000,000	M	P 101
Week 3	Compare multi-digit numbers using place value Determine an estimate by rounding numbers Round multi-digit numbers to any place	M	P 107



[Learning Progression Tracker](#)

Learning Progression Tracker – User Guide

A brief guide to help teachers use the tracker effectively

Available on the LMS or access it instantly by accessing this link:

 [Guide for Teachers](#)



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Teaching & Learning Resources

Digital Platforms



desmos classroom

GeoGebra

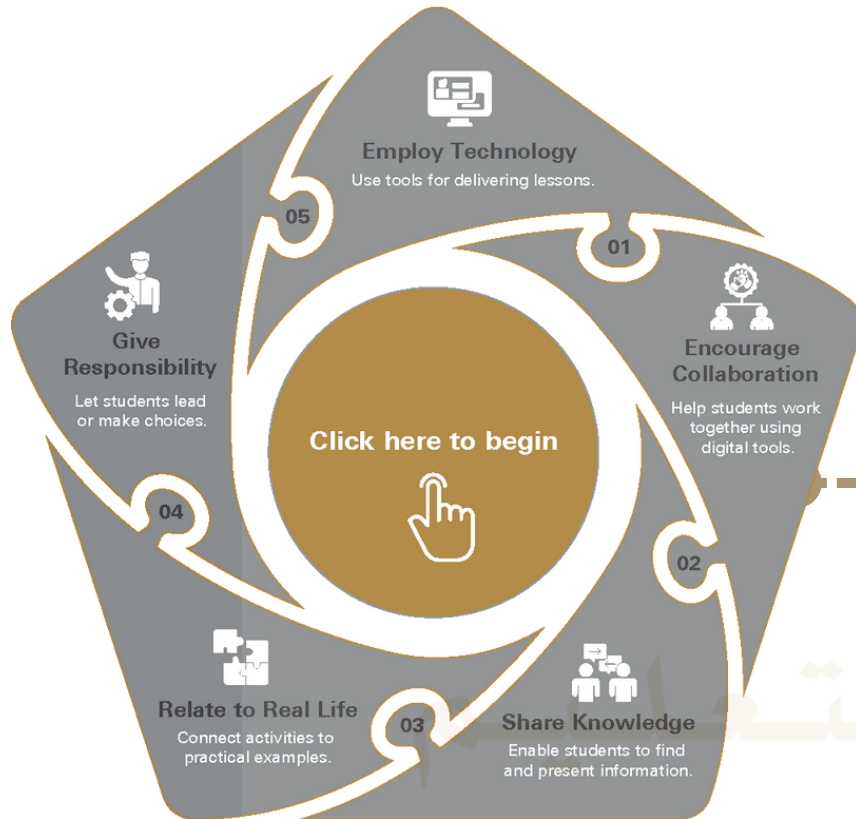


External links are provided for educational purposes only. Teachers should preview all materials to ensure suitability and cultural appropriateness for use in UAE classrooms.

Digital Tool Kit Application

Plan smarter. Teach with purpose. Use digital tools that truly enhance learning.

The Digital Tool Kit is a non-judgmental planning and reflection tool designed to help educators intentionally integrate digital tools into their lessons



Why Use It?

The tool supports teachers to:

- Link tech to real learning goals
- Differentiate without adding workload
- Plan with a clear, student-centered purpose
- Identify your growth areas in digital teaching
- Share ideas across departments

How It Works

The toolkit uses a simple planning grid:

- **Vertical Axis** = What kind of learning is being planned?
- **Horizontal Axis** = To what extent does technology enhance that learning?

Start Here: 3 Simple Steps

Use the Planning Grid — Choose your teaching focus and tech level →

Learn how to use the tool in 2 minutes →

Build Your Skills — Join a digital pedagogy course →

What Is the Digital Tool Kit Matrix?

Plan with Purpose: Using the Digital Tool Kit Matrix

The matrix helps you reflect and plan

- **Vertical Axis** (Learning Contexts): Employ → Collaborate → Connect → Relevance → Set Goals
- **Horizontal Axis** (Integration Levels): Substitution → Augmentation → Modification → Infusion → Transformation

Leverage the Digital Tool Kit App in Seconds

Make the Toolkit Work *for* You

1. Choose what kind of learning your students will do
2. Decide how deeply tech will enhance that learning

Click a box, not build from scratch

Select your digital intent (1 grid box)
The app does the thinking

Instant examples and planning tips

Each box includes tool suggestions & lesson ideas
Ideas tailored to your level and focus

Skill up as you go

Take learning curve courses
Build confidence using the supporting resources in the app

Use it for:

- ✓ Quick planning
- ✓ Peer coaching
- ✓ Lesson reflection
- ✓ Team conversations

Level	Basic	Enhanced	Creative	Advanced	Innovative
Employ Technology:  Use tools for delivering lessons.	Uses basic tools like videos or quizzes.	Incorporates interactive platforms.	Embeds multimedia into lessons.	Includes real-world applications.	Uses immersive tools (AR/VR).
Encourage Collaboration:  Help students work together using digital tools.	Basic group tasks.	Students work in groups with shared tools.	Students co-create with digital tools.	Collaboration includes real-world scenarios.	Global or external collaboration.
Share Knowledge:  Enable students to find and present information.	Students consume teacher-provided content.	Encourages online exploration.	Students collect and share findings.	Solves real-world problems using tools.	Students create independent solutions.
Relate to Real Life:  Connect activities to practical examples	Basic daily life examples.	Projects tied to relatable contexts.	Practical scenario-based tasks.	Analyse real-world challenges.	Complex real-world problem-solving.
Give Responsibility:  Let students lead or make choices.	Minimal student choice.	Students present task outcomes.	Flexible tasks with choice of tools.	Students plan and design their tasks.	Full task/project ownership.

Educational Materials and Learning Resources Development Department - Curriculum and Assessment Sector

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Grade 4 General Mathematics Scheme of Work, Academic Year 2025-2026

Key Mathematical Understandings			
By the end of Grade 4, students will be able to:			
Operations & Algebraic Thinking (Domain 4.OA)	Number and Operations in Base Ten (Domain 4.NBT) Number and Operation — Fractions (Domain 4.NF)	Geometry (Domain 4.G)	Measurement & Data (Domain 4.MD)
- Use the four operations with whole numbers to solve problems. - Gain familiarity with factors and multiples. - Generate and analyze patterns.	- Generalize place value understanding for multi-digit whole numbers. - Use place value understanding and properties of operations to perform multi-digit arithmetic. - Extend understanding of fraction equivalence and ordering. - Build fractions from unit fractions. - Understand decimal notation for fractions, and compare decimal fractions.	Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	- Solve problems involving measurement and conversion of measurements. - Represent and interpret data. - Geometric measurement: understand concepts of angle and measure angles.

Term 3 Overview

Grade 4 General Stream Mathematics

Lesson Number	Unit 11	Unit 12	Unit 13	Unit 14
	Multiply Fractions by Whole Numbers	Decimal Fractions	Units of Measurement and Data	Geometric Figures
1	<u>Represent Multiplication of a Unit Fraction By a Whole Number</u>	<u>Understand Tenths and Hundredths</u>	<u>Relate Metric Units</u>	<u>Understand Lines, Line Segments, and Rays</u>
2	<u>Understand Multiplying a Fraction By a Whole Number</u>	<u>Understand Decimal Notation</u>	<u>Relate Customary Units of Weight</u>	<u>Classify Angles</u>
3	<u>Multiply a Fraction by a Whole Number</u>	<u>Compare Decimals</u>	<u>Relate Customary Units of Capacity</u>	<u>Draw and Measure Angles</u>
4	<u>Multiply a Mixed Number by a Whole Number</u>	<u>Adding Decimals Using Fractions</u>	<u>Convert Units of Time</u>	<u>Understand Parallel and Perpendicular Lines</u>
5	<u>Solve Problems Involving Fractions and Mixed Numbers</u>	<u>Solve Problems Involving Money</u>	<u>Solve Problems That Involve Units of Measure</u>	<u>Add and Subtract Angle Measures</u>
6			<u>Solve More Problems That Involve Units of Measure</u>	<u>Solve Problems Involving Unknown Angle Measures</u>
7			<u>Solve Problems Using a Perimeter Formula</u>	<u>Classify Polygons</u>
8			<u>Solve Problems Using an Area Formula</u>	<u>Classify Triangles</u>
9			<u>Solve Problems Involving Perimeter and Area</u>	<u>Understand Line Symmetry</u>
10			<u>Display and Interpret Data on a Line Plot</u>	<u>Draw Lines of Symmetry</u>
11			<u>Solve Problems Involving Data on a Line Plot</u>	

Meet the characters

Meet our characters—your friendly guides on this learning journey. They'll inspire and support you as we explore the curriculum and make mathematics meaningful and fun."



Multiply Fractions by Whole Numbers

Notes & Guidance

In this unit, students apply what they learned in Grade 3 and earlier in Grade 4 about computing fractions, together with their understanding of multiplication, to multiply fractions and mixed numbers by whole numbers. Students begin by representing multiplication of a fraction by a whole number as repeated addition in the same way they represented multiplication with whole numbers. They see that multiplication of a fraction by a whole number involves combining that number of copies of the factor. They represent this using visual fraction models and number lines. Then they symbolically represent the multiplication of any fraction by a whole number.

Pedagogy

- Start with concrete visuals, then move to drawings, then equations (model → picture → equation).
- Begin with unit fractions first:
 $n \times \left(\frac{1}{b}\right) = \frac{n}{b}$ then extend to $n \times \left(\frac{a}{b}\right)$.
- Use repeated addition to introduce meaning before using a shortcut rule.
- Use number lines regularly to show “equal jumps” and total distance/quantity.
- Use fraction strips or bar models to show “copies of a fraction” clearly.
- Teach mixed numbers by breaking them into whole + fraction.
- Include short daily word problems using real contexts (food portions, lengths, money, measurement).
- Use “explain your model” prompts: students must match the model to the equation.
- Use quick checks for misconceptions (especially wrong denominator multiplication) with error examples.

Key Skills

- Represent a fraction $\times$ whole number as repeated addition.
- Interpret multiplication as “n copies of the fraction.”
- Use visual fraction models to show the product (fraction strips, area/bar models).
- Use number lines to model equal jumps of a fraction.
- Connect models to equations and compute products accurately.
- Multiply mixed numbers by whole numbers using decomposition.
- Convert improper fractions to mixed numbers when needed.
- Solve word problems involving fraction quantities and whole-number groups, with correct units

International Assessment Links



Fractions and Decimals: TIMSS assesses understanding of fractions as numbers, using representations, and solving number problems involving fractions. This supports modeling and interpreting equations.



Quantity: PISA assesses using numbers and quantities in real-life contexts, including estimation, reasonableness, and interpreting results. This supports solving fraction situations such as $4 \times \left(\frac{3}{10}\right)$ in measurement and everyday contexts.

Unit 11 – Multiply Fractions by Whole Numbers

Learning Objectives and Standards

Standards	Learning Objectives		Formative Assessment Criteria
4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. 4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$. 4.NF.B.4b Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. 4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.	11.1	- Apply an understanding of fractions and multiplication to multiply a unit fraction by a whole number. - Use fraction models to represent a fraction as multiple of a unit fraction.	Accurately model a whole number times a unit fraction using fraction models, and write a correct equation.
	11.2	- Multiply a fraction by a whole number using visual fraction models. - Write multiples of fractions as multiples of a unit fraction.	Correctly multiply a fraction by a whole number using a visual fraction model, and record the product as an equation.
	11.3	Use an understanding of fractions as multiples of unit fractions to multiply a fraction by whole number.	Correctly use unit-fraction reasoning to compute products and justify the method using equations
	11.4	Multiply mixed numbers by whole numbers by using strategies such as equivalent fractions and decomposing the mixed number into whole number and fractional parts.	Correctly multiply mixed numbers by whole numbers using decomposition or equivalent fractions, and express the answer correctly.
	11.5	Represent and solve word problems involving multiplying fractions by whole numbers with visual fraction models and multiplication equations.	Correctly solve word problems by representing the situation with a fraction model and a multiplication equation, and state the final answer with correct units.

Notes

- Scope & Sequence & Instructional Planners (IPs) – [LMS Platform](#)
- Grade 4 Teacher Edition Book – [MINHAJI](#)

Unit 11 – Are You Ready?

Multiply Fractions by Whole Numbers



This section aims to identify the fundamental knowledge and skills that students already possess before starting the module, as well as any areas that may need support or review to strengthen new learning. Teachers can use this section to conduct a quick check of prerequisite skills and baseline readiness.

Question Number	Question	DOK Level	Standard	SMPs
1	Which addition expression shows a decomposition of $\frac{4}{6}$? ☐ $\frac{1}{6} + \frac{1}{6} + \frac{1}{6}$ ☐ $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$ ☐ $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$ ☐ $\frac{1}{6} + \frac{2}{6} + \frac{2}{6}$	1	4.NF.B.3.b	2,7
2	Which fraction decomposes into $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$? ☐ $\frac{4}{8}$ ☐ $\frac{2}{8}$ ☐ $\frac{1}{8}$ ☐ $\frac{3}{8}$	1	4.NF.B.3.b	2,7
3	Which of these multiplication equations is equivalent to $2 + 2 + 2 + 2 = 8$? ☐ $2 \times 4 = 8$ ☐ $2 \times 2 = 8$ ☐ $2 \times 5 = 8$ ☐ $2 \times 3 = 8$	1	3.OA.A.1	2,6
4	Look at the number line. Write the equation that the number line model represents. Answer: _____ 	2	4.NF.B.3.a	2, 7
5	A group of 4 friends shared 12 blueberries. Each friend ate $\frac{3}{12}$ of the blueberries. What fraction of the blueberries did they eat in all? Answer: _____ of the blueberries. 	2	4.NF.B.3.a	1, 4

Represent Multiplication of a Unit Fraction By a Whole



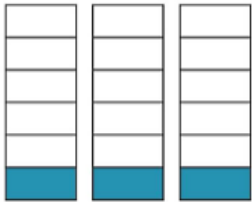
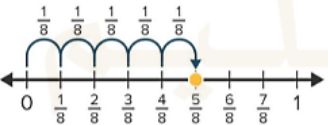
Learning Objectives		
Apply an understanding of fractions and multiplication to multiply a unit fraction by a whole number. Use fraction models to represent a fraction as multiple of a unit fraction.		
Towards Mastery	Mastery	Beyond Mastery
- Students can model unit fractions using fraction strips, bar models, or number lines (with teacher guidance). - Students can represent a whole number times a unit fraction as repeated addition. - Students can write a matching equation with support.	- Students can independently represent multiplication of a unit fraction by a whole number using a model and an equation. - Students can explain that the whole number shows the number of equal groups. - Students can solve one-step word problems and label the answer with correct units.	- Students can solve multi-step or real-world problems that include unit fractions and justify their strategy. - Students can convert between improper fractions and mixed numbers and explain meaning. - Students can connect multiplication to division and check their work.
Misconceptions and Notes		
Students may multiply the denominator by the whole number incorrectly. Students may think multiplication always makes numbers bigger		
Basic Mathematical Skills		
Skill One	Skill Two	
Students can represent unit fractions on models (fraction strips, bar models, number lines).	Students can compute $n \times \left(\frac{1}{b}\right) = \left(\frac{n}{b}\right)$ and write the result as a fraction or mixed number when needed.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL khanacademy		

Domain
Number and Operation —Fractions
Standards
4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. 4.NF.B.4a Understand a fraction a/b as a multiple of 1/b. 4.NF.B.4b Understand a multiple of a/b as a multiple of 1/b and use this understanding to multiply a fraction by a whole number. 4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.
SMPs
SMP2
Key Vocabulary
Denominator Multiple Numerator Unit Fraction Efficient Process

Unit 11 – Lesson 1 - Checkpoint

Represent Multiplication of a Unit Fraction By a Whole Number

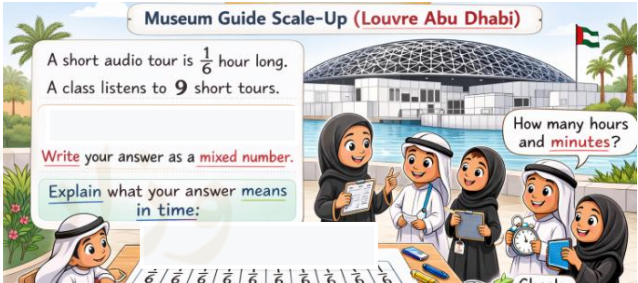


Towards Mastery	Mastery	Beyond Mastery
• What is the product: The answer:  $3 \times \frac{1}{6} = \frac{\boxed{}}{6}$ The answer:  $4 \times \frac{1}{3} = \frac{\boxed{}}{3}$ • What is the missing factor: The answer:  $\boxed{} \times \frac{1}{8} = \frac{5}{8}$ The answer:  $7 \times \frac{\boxed{}}{10} = \frac{7}{10}$	• How can you express the fraction as a multiple of a unit fraction? The answer: $\frac{7}{3} = \boxed{} \times \frac{\boxed{}}{\boxed{}}$ The answer: $\frac{5}{2} = \boxed{} \times \frac{\boxed{}}{\boxed{}}$ • What is the product? Then, explain how you found the product: The answer: $8 \times \frac{1}{4} = \frac{\boxed{}}{\boxed{}}$ Explain: _____ The answer: $9 \times \frac{1}{7} = \frac{\boxed{}}{\boxed{}}$ Explain: _____	• Hala needs $\frac{1}{8}$ cup of raisins to make one batch of bread pudding. She wants to make 4 batches. How many cups of raisins will she need? Use drawings and equations to show your work. Drawing: Equation: • The hallway at Ahmed's school is $\frac{1}{10}$ mile long. On Tuesday, Ahmed walked from one end of the hallway to the other several times for a total of $\frac{6}{10}$ mile. How many times did he walk from one end of the hallway to the other on Tuesday? Explain. The answer: Explain: _____

Unit 11 Lesson 1 - Support Activities

Represent Multiplication of a Unit Fraction By a Whole Number



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Date Farm Fraction Strips	Fraction Multiplication Task Cards	Museum Guide Scale-Up
Type of the Activity	Modeling Activity (hands-on + drawing)	Task Cards (Independent Practice)	Think–Pair–Share
Summary of Activity	Say: 🇲🇪 - You will model 4 equal groups of $(\frac{1}{6})$ using a fraction strip. - You will shade the model to show the total amount. - You will record your result as an equation and a fraction.  Ask: - What fraction is shaded in total? - How does your model show “4 groups”? - Write the equation and the product.	Say: 🇲🇪 - You will pick one task card from the Game Station Fraction Multiplication Worksheet. - You will build the fraction using fraction tiles (or draw fraction tiles if you do not have them) - You will multiply the whole number and the fraction by showing that many copies of the fraction tile. - You will write your final answer on the card and complete the “Draw It!” box. Lesson 11-1 Fraction Multiplication Task Cards C. Build It $4 \times \frac{1}{6}$ Multiply 4 and $\frac{1}{6}$ by using 4 of the $\frac{1}{6}$ fraction tiles. How many sixths do you have in all? Answer: _____ Draw It!  Lesson 11-1 Fraction Multiplication Task Cards A. Build It $2 \times \frac{1}{3}$ Multiply 2 and $\frac{1}{3}$ by using 2 of the $\frac{1}{3}$ fraction tiles. How many thirds do you have in all? Answer: _____ Draw It!  Ask: - How many copies of the fraction tile do you need to show the multiplication? - How does your drawing prove your answer matches the equation? - Can you share your answer with other students?	Say: 🇲🇪 - You will solve a real-world problem using a drawing and an equation. - You will write the equation in unit-fraction form and explain what the product means. - You will check if your answer is reasonable (less than 1, equal to 1, or greater than 1).  Ask: - A short audio tour at Louvre Abu Dhabi is $(\frac{1}{6})$ hour long. - A class listens to 9 short tours. Solve: $9 \times (\frac{1}{6}) = \underline{\hspace{1cm}}$ hour(s) - Write your answer as a mixed number and explain what it means in time.

Unit 11 – Lesson 2 - Overview

Understand Multiplying a Fraction By a Whole Number



Learning Objectives		
Multiply a fraction by a whole number using visual fraction models. Write multiples of fractions as multiples of a unit fraction.		
Towards Mastery	Mastery	Beyond Mastery
- Students can use a visual fraction model (fraction strip/bar model) to show repeated copies of a fraction (with support). - Students can combine the shaded parts to show the total - Students can write an equation that matches the model with teacher guidance.	- Students can independently use a visual model to multiply a fraction by a whole number. - Students can write the product as a fraction and simplify when appropriate. - Students can rewrite fractions as multiples of unit fractions and explain the meaning.	- Students can solve multi-step problems and justify their strategy using both a model and an equation. - Students can choose an efficient representation (bar model, number line, decomposition). - Students can connect multiplication to division to check their answer.
Misconceptions and Notes		
Students may multiply denominators incorrectly (wrong idea): $3 \times \left(\frac{2}{5}\right) = \left(\frac{6}{15}\right)$. Correct: $3 \times \left(\frac{2}{5}\right) = \left(\frac{6}{5}\right)$. Students may think multiplication always makes numbers larger; show that results depend on the size of the fraction and the whole number.		
Basic Mathematical Skills		
Skill One	Skill Two	
Students can build and read visual fraction models (fraction strips/bar models/number lines) to show fractional parts.	Students can rewrite fractions as multiples of a unit fraction and use it to compute products: $\left(\frac{a}{b}\right) = a \times \left(\frac{1}{b}\right)$.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL khanacademy		

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Domain
Number and Operation —Fractions
Standards
4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$.
4.NF.B.4b Understand a multiple of a/b as a multiple of $1/b$ and use this understanding to multiply a fraction by a whole number.
4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.
SMPs
SMP2
Key Vocabulary
Equal Groups Multiple Unit Fraction Approach Representation

Unit 11 – Lesson 2 - Checkpoint

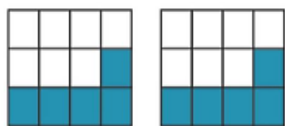
Understand Multiplying a Fraction By a Whole Number



Towards Mastery

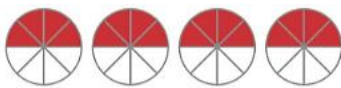
- What is the product? Use the fraction model to solve:

The answer:



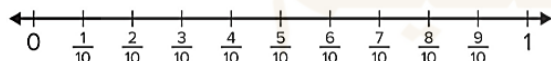
$$2 \times \frac{2}{3} \times \frac{1}{2} = \frac{\square}{\square}$$

The answer:



$$4 \times \frac{1}{2} \times \frac{1}{2} = \frac{\square}{\square}$$

- What is the product? Complete the fraction model to help solve.



The answer:

$$3 \times \frac{3}{10} = \frac{\square}{\square}$$



The answer:

$$2 \times \frac{5}{8} = \frac{\square}{\square}$$

Mastery

- Salma uses 3 bags of nuts to make a trail mix. Each bag contains $\frac{4}{5}$ cup of nuts. How many cups of nuts will be in her trail mix? Draw a fraction model to show your work.

Draw fraction model:



The answer:

- Each leg of a relay race is $\frac{3}{4}$ mile. There are 4 legs. How many miles is the relay race? Justify your answer.

The answer:

Explain: _____



Beyond Mastery

- Ahmed ran $\frac{7}{10}$ mile each day for 10 days. He says he ran $\frac{70}{100}$ miles in all. Do you agree with Ahmed? Explain why or why not.

Answer:



Explain : _____

- Write a real-world problem that can be represented with the equation $m \times \frac{7}{12} = \frac{14}{12}$. Then solve.

The problem:

The solution : _____

Unit 11 Lesson 2 - Support Activities

Understand Multiplying a Fraction By a Whole Number



	Towards Mastery	Mastery
Activity Title	Water Station Fractions (Sports Day)	Visual Model + Solvenity Market
Type of the Activity	Modeling Activity	Reasoning + Justification
Summary of Activity	Say: 🇲🇪🇲🇪 - You will model a fraction using fraction grid. - You will show repeated groups to represent multiplication. - You will write an equation and state the total amount with units.  During a school Sports Day in Abu Dhabi, each water station uses $\frac{1}{12}$ of a large water container. There are 2 stations. Ask: - Draw a model that shows 2 groups of $(\frac{1}{12})$. - Write the multiplication equation. - What fraction of the container is used in total?	Say: 🇲🇪🇲🇪 - You will draw a fraction model to represent the situation. - You will multiply a fraction by a whole number. - You will write the answer as an improper fraction or mixed number and label the unit.  • Show 3 groups of $\frac{4}{5}$ on a bar model. • Write the equation and solve. • Write the total as a mixed number if needed. Ask: - Show 3 groups of $(\frac{4}{5})$ on a bar model. - Write the equation and solve (what is the total weight in the 3 boxes).

Understand Multiplying a Fraction By a Whole Number



	Beyond Mastery
Activity Title	Louvre Abu Dhabi Tour Planning 
Type of the Activity	Reasoning + Justification
Summary of Activity	Say: 🗣️ • Today we’re planning a school visit in Abu Dhabi’s Saadiyat Cultural District. • You will correct the equation if needed. • You will justify your answer using a model and one clear explanation. Ask: • Write the correct equation for the total time. • Is $\left(\frac{70}{100}\right)$ hour the best way to express the total? Why or why not? • Write the total time as a mixed number or whole number if possible. • Name one UAE landmark you would like to visit next (e.g., Qasr Al Watan, Sheikh Zayed Grand Mosque) and why.  A class at Louvre Abu Dhabi takes a short audio tour that lasts $\frac{70}{100}$ hour. They take the tour 10 times across different galleries. A student says the total time is $\frac{70}{100}$. Do you agree? Explain and write the correct total time. ✓ $\left(\frac{70}{100}\right)$ correct equation for the total time. ✗ Is $\frac{70}{100}$ hour the best way to express the total? Why or why not?

Unit 11 – Lesson 3 - Overview

Multiply a Fraction by a Whole Number



Learning Objectives		
Use an understanding of fractions as multiples of unit fractions to multiply a fraction by whole number.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify the unit fraction in a fraction and rewrite it with support: $\left(\frac{a}{b}\right) = a \times \left(\frac{1}{b}\right)$. - Students can model multiplication as equal groups of a unit fraction using fraction strips or bar models (with guidance).	- Students can independently rewrite a fraction as a multiple of a unit fraction: $\left(\frac{a}{b}\right) = a \times \left(\frac{1}{b}\right)$. - Students can multiply a fraction by a whole number by counting unit-fraction copies and writing a correct equation.	- Students can choose an efficient strategy (unit-fraction decomposition, number line, or bar model) and justify it clearly. - Students can interpret products greater than 1 and write answers appropriately as improper fractions or mixed numbers.
Misconceptions and Notes		
- Students may stop at an improper fraction and not interpret it; require a sentence explaining what the total means in the situation. - Always use the routine: unit fraction form → model → equation → meaning.		
Basic Mathematical Skills		
Skill One	Skill Two	
Rewrite a fraction as a multiple of a unit fraction: $\left(\frac{a}{b}\right) = a \times \left(\frac{1}{b}\right)$.	Multiply a fraction by a whole number using unit-fraction reasoning and record the product correctly.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL studypug		

Domain
Number and Operation —Fractions
Standards
4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NF.B.4a Understand a fraction a/b as a multiple of 1/b.
4.NF.B.4b Understand a multiple of a/b as a multiple of 1/b and use this understanding to multiply a fraction by a whole number.
4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.
SMPs
SMP4,SMP8
Key Vocabulary
Associative Property of Multiplication Multiple Effective method

Unit 11 – Lesson 3 - Checkpoint

Multiply a Fraction by a Whole Number



Towards Mastery

- What is the product? Complete the equation.

The answer:

$$3 \times \frac{2}{8} = 3 \times 2 \times \frac{1}{8}$$

$$= 6 \times \frac{1}{8}$$

$$= \frac{\boxed{}}{8}$$

The answer:

$$4 \times \frac{2}{5} = 4 \times 2 \times \frac{1}{5}$$

$$= 8 \times \frac{1}{5}$$

$$= \frac{\boxed{}}{5}$$

- What is the product? Complete the equation.

The answer:

$$2 \times \frac{2}{3} = \boxed{} \times 2 \times \frac{\boxed{}}{\boxed{}}$$

$$= \frac{\boxed{}}{\boxed{}}$$

The answer:

$$3 \times \frac{3}{6} = \boxed{} \times 3 \times \frac{\boxed{}}{\boxed{}}$$

$$= \frac{\boxed{}}{\boxed{}}$$

Mastery

- Salama combines 5 bags of seeds to make bird food. Each bag contains $\frac{3}{4}$ pound. How many pounds of bird food will she have?

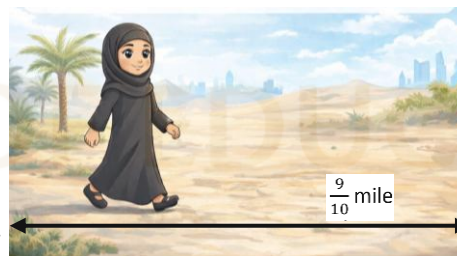
The answer:



- Sara walked $\frac{9}{10}$ mile each day. How many miles did she walk in 5 days? Explain your solution.

The answer:

Explain: _____



Beyond Mastery

- Brady needs 6 pieces of wood, each measuring $\frac{7}{8}$ foot, to build a birdhouse. How many feet of wood does he need? Explain how you know your answer is reasonable.

Answer:



Explain : _____

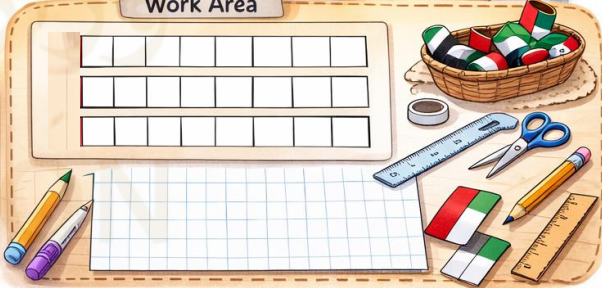
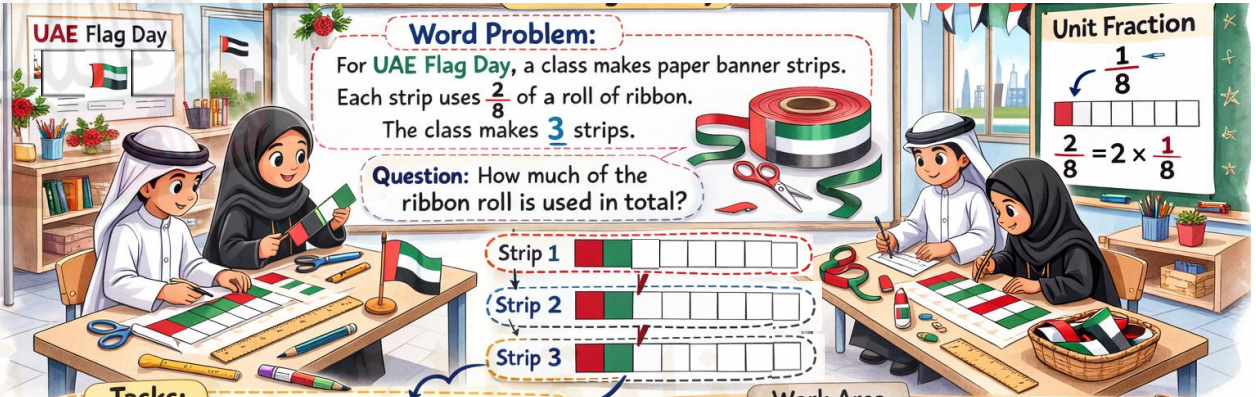
- Hind has $5\frac{5}{8}$ yards of fabric to make a quilt. She cuts the fabric into pieces that are $\frac{1}{8}$ yard each. Hind uses 5 pieces to create one strip. How many strips can Hind make? Show your work.



The solution
Explain your answer: _____

Multiply a Fraction by a Whole Number

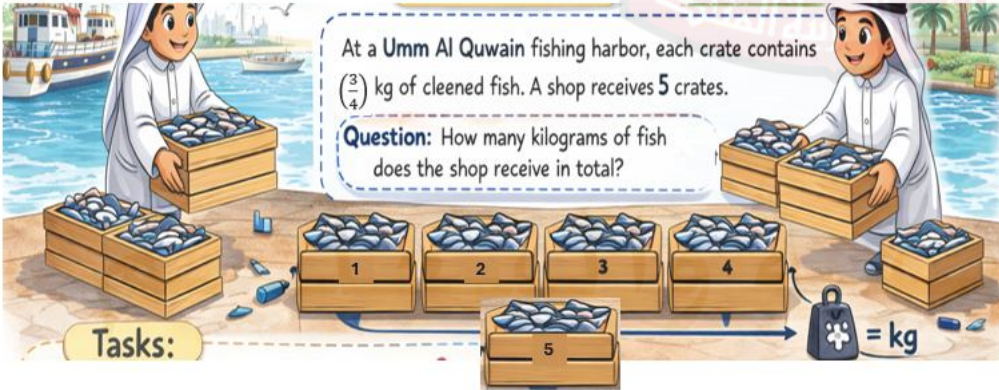
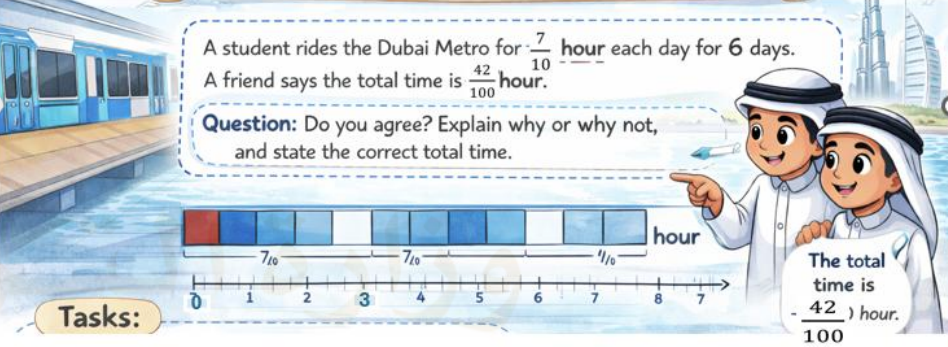


	Towards Mastery
Activity Title	Emirati Flag Banner Strips 
Type of the Activity	Modeling Activity
Summary of Activity	Say: 🗣️ - Before we start: What do the UAE flag colors represent? - You will model a fraction as equal parts on a strip. - You will show repeated groups to represent multiplication. - You will write the equation using unit-fraction thinking: $\left(\frac{a}{b}\right) = a \times \left(\frac{1}{b}\right)$. Ask: - Show 3 groups of $\left(\frac{2}{8}\right)$ on a bar model. - Rewrite $\left(\frac{2}{8}\right)$ as a multiple of a unit fraction. - Write the multiplication equation and find the total fraction used.? - Why do we celebrate UAE Flag Day? What does the flag symbolize for us? - Where do we see the UAE flag in our community (schools, government buildings, events)? Word Problem: For UAE Flag Day, a class makes paper banner strips. Each strip uses $\frac{2}{8}$ of a roll of ribbon. The class makes 3 strips. Question: How much of the ribbon roll is used in total? Tasks: - Show 3 groups of $\frac{2}{8}$ on a bar model. ??? - Rewrite $\frac{2}{8}$ as a multiple of a unit fraction. $\frac{2}{8} = \square \times \frac{1}{8}$ - Write the multiplication equation and find the total fraction used. $\square \times \square = \square$ Work Area  

Unit 11 Lesson 3 - Support Activities

Multiply a Fraction by a Whole Number



	Mastery	Beyond Mastery
Activity Title	Fishing Harbor Crates 	Dubai Metro Time Plan
Type of the Activity	Visual Model + Solve	Reasoning Task
Summary of Activity	Say: 🗣️ - You will represent the situation with a fraction model. - You will multiply a fraction by a whole number to find a total amount. - You will label the final answer with the correct unit.  Tasks: - Draw a model to show 5 groups of $\left(\frac{3}{4}\right)$. - Write the multiplication equation and solve. - If your answer is greater than 1, write it as a mixed number. - Why was fishing important to people in the UAE before oil was discovered?	Say: 🗣️ - You will solve a multi-step situation using fraction multiplication. - You will justify your answer using an equation and a model. - You will check if your result is reasonable.  Tasks: Ask: - Write the correct equation for the total time. - Show a model (bar model or number line) to support your reasoning. - Write the total time in the best form (fraction, mixed number, or whole number if possible).

Multiply a Mixed Number by a Whole Number



Learning Objectives		
Multiply mixed numbers by whole numbers by using strategies such as equivalent fractions and decomposing the mixed number into whole number and fractional parts.		
Towards Mastery	Mastery	Beyond Mastery
- Students can decompose a mixed number into a whole number and a fraction with support. - Students can model “groups of” a mixed number using bar models (with guidance). - Students can multiply the whole-number part first, then the fraction part, but may need help combining results.	- Students can independently use decomposition to multiply. - Students can combine the results correctly and express the final answer as a mixed number. - Students can explain their strategy using an equation and a simple model.	- Students can choose between decomposition or converting to an improper fraction and justify why their method is efficient. - Students can solve multi-step word problems that involve mixed-number multiplication and interpret the result in context. - Students can check reasonableness using estimation (about how many wholes the product should be).
Misconceptions and Notes		
- Students may multiply only the fraction part and forget the whole number part. - Students may struggle converting improper fractions back to mixed numbers; practice regrouping.		
Basic Mathematical Skills		
Skill One	Skill Two	
Decompose a mixed number into whole and fractional parts: $w\left(\frac{a}{b}\right) = w + \left(\frac{a}{b}\right)$	Multiply a fraction by a whole number and combine results correctly to form a mixed number.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL Bbc Khan Academy		

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Domain
Number and Operation —Fractions
Standards
4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$.
4.NF.B.4b Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number.
4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.
SMPs
SMP4
Key Vocabulary
Distributive Property Of Multiplication Mixed Number Check Utilize

Unit 11 – Lesson 4 - Checkpoint

Multiply a Mixed Number by a Whole Number



Towards Mastery

- What is the product? Complete the equation.

$$3 \times 2\frac{1}{2} = 3 \times \left(2 + \frac{\square}{\square}\right)$$

$$= (3 \times 2) + \left(3 \times \frac{\square}{\square}\right)$$

$$= 6 + \frac{\square}{\square}$$

$$= 7\frac{\square}{\square}$$

The answer:

$$2 \times 4\frac{3}{10} = \frac{\square}{\square}$$

The answer:

$$3 \times 1\frac{2}{12} = \frac{\square}{\square}$$

The answer:

Mastery

- Lila is loading 4 boxes into the car. Each box weighs $6\frac{1}{4}$ pounds. How much do the boxes weigh altogether?



The answer:

_____ Pounds

- Ahmed spends $2\frac{1}{4}$ hours on homework each day, 4 days a week. How many hours does he spend on homework each week?

The answer:



Beyond Mastery

- Sara wants to know how long she will be at school each day. Each of her classes lasts $1\frac{2}{3}$ hours, and she has 4 classes. Her work is shown as below:

$$4 \times 1\frac{2}{3} = (4 \times 1) + \left(4 \times \frac{2}{3}\right) = 4 + \frac{6}{3} = 4 + 2 = 6 \text{ hours}$$

How would you respond to her?

- A. $1\frac{2}{3}$ is not correctly decomposed.
- B. $4 \times \frac{2}{3}$ is not correctly multiplied.
- C. The answer is correct.
- D. 4 is not correctly distributed.

Answer:

- Extend Your Thinking: Hind is multiplying $2 \times 1\frac{7}{8}$. She says she can rewrite the product as $2 \times 15 \times \frac{1}{8}$. Do you agree?

Explain your answer:



Unit 11 Lesson 4 - Support Activities

Multiply a Mixed Number by a Whole Number



	Towards Mastery	Mastery
Activity Title	Camel Ride Tickets	Yas Island Challenge Cards
Type of the Activity	Modeling Activity	Question Cards
Summary of Activity	Say: 🗨️ - You will decompose a mixed number into a whole number and a fraction. - You will model equal groups using a bar model or fraction strips. - You will combine the results and write the total as a mixed number. At a desert festival in Al Ain, one camel ride lasts $1\frac{1}{2}$ minutes. A family buys 4 rides. What is the total riding time? Activity: - Decompose $1\frac{1}{2}$ as ? - Show 4 groups on a model, - Write the equation and find the total travel time. Ask: - Decompose: $1\left(\frac{1}{2}\right) = ? + ?$. - Show 4 groups on a model. - Write the equation and find the total time.	Say: 🗨️

Unit 11 Lesson 4 - Support Activities

Multiply a Mixed Number by a Whole Number



	Beyond Mastery
Activity Title	Dubai Expo Challenge – Partner Debate & Model Showdown 
Type of the Activity	Partner Investigation + Justification + Model Defense
Summary of Activity	Say: 🗣️ - You will work with a partner to solve a real-world mixed number multiplication problem. - You will BOTH create a model (bar model, number line, or area model). - You will compare strategies and decide which method is clearer and more efficient. - You will defend your thinking to another pair. Ask: - Why does multiplying by 4 distribute over both parts of the mixed number? - When is it easier to use improper fractions? - How do you know your answer is reasonable? - Expo City Dubai celebrates innovation and cultural exchange, what is one UAE value you think Expo represents? Why? Challenge Round: 🏆 After solving: - Compare answers. - Are both strategies correct? - Which method is more efficient? - Could this answer be written as a whole number?

Unit 11 – Lesson 5 - Overview

Solve Problems Involving Fractions and Mixed Numbers



Learning Objectives		
Represent and solve word problems involving multiplying fractions by whole numbers with visual fraction models and multiplication equations.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify the important numbers and units in a word problem (with support). - Students can represent the situation using a simple bar model or fraction strip. - Students can write a multiplication equation that matches the model but may need help completing the calculation.	- Students can independently represent fraction word problems using a visual model and an equation. - Students can solve the multiplication correctly and state the answer with units. - Students can explain how the model matches the situation.	- Students can solve multi-step word problems involving fractions and mixed numbers, using a clear model and equation. - Students can choose an efficient strategy and justify it. - Students can check reasonableness using estimation and interpret answers greater than 1 as mixed numbers.
Misconceptions and Notes		
- Students may choose addition instead of multiplication when they see repeated fractions; remind them that “same amount repeated” means multiplication. - Students may not label units; require final answers with correct units (kg, m, L, km).		
Basic Mathematical Skills		
Skill One	Skill Two	
Create and read fraction models (bar models, fraction strips, number lines) to represent equal groups.	Write and solve multiplication equations for fraction situations and interpret results as fractions or mixed numbers.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 k5learning Khanacademy IXL		

Domain
Number and Operation —Fractions
Standards
4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. 4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$. 4.NF.B.4b Understand a multiple of a/b as a multiple of $1/b$ and use this understanding to multiply a fraction by a whole number. 4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.
SMPs
SMP1, SMP7
Key Vocabulary
Fraction Multiple Unit Fraction Indicate Represent

Unit 11 – Lesson 5 - Checkpoint

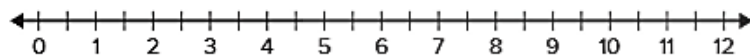
Solve Problems Involving Fractions and Mixed Numbers



Towards Mastery

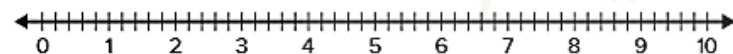
- How can you solve the problem? Use the number line to help you.

Hassan has 3 brothers and each drinks $3\frac{1}{2}$ cups of milk each day. How many cups of milk do Hassan's brothers drink each day?



The answer:

Ahmed watches video clips for $9\frac{2}{5}$ minutes. The first 3 clips are $1\frac{4}{5}$ minutes long each. How long is the last video clip?



The answer:

Mastery

- Salma puts $\frac{3}{5}$ cup of bananas in her oatmeal each morning. Her sister only uses $\frac{1}{5}$ cup of bananas. After 7 days, how many more cups of bananas did Salma eat than her sister?



The answer:

- Amna had a goal of swimming 10 miles this week. She swam $2\frac{3}{4}$ miles each day for 4 days. Did she reach her goal?



Explain your answer:

Beyond Mastery

- Sahar uses $\frac{3}{4}$ teaspoon of nutmeg each day for a pastry recipe she makes 5 days a week.

a. How much nutmeg does she need for the pastry recipe for 4 weeks?

b. Sahar receives an order for additional batches of the recipe for each week. She now uses $5\frac{1}{4}$ teaspoons each week for the pastry recipe. How many more teaspoons of nutmeg does she use each week?

Answer:

- Salem uses $3\frac{2}{5}$ pounds of lemons for each batch of lemonade. He has 12 pounds of lemons. Does he have enough lemons for 3 batches of lemonade? If so, how many pounds of lemons would he have left?

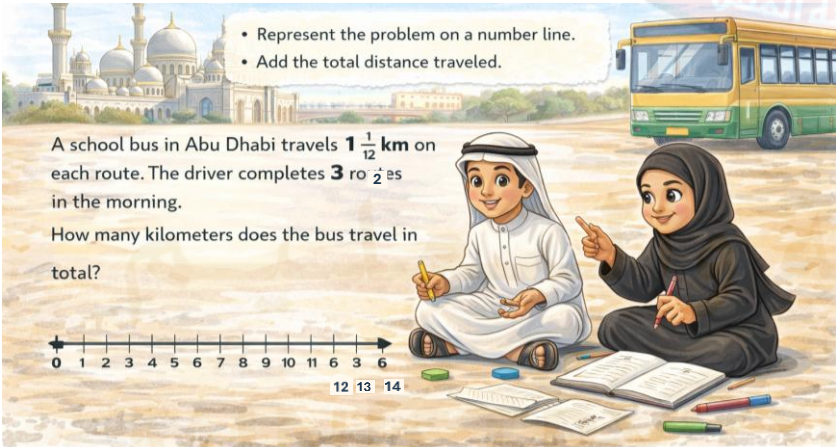
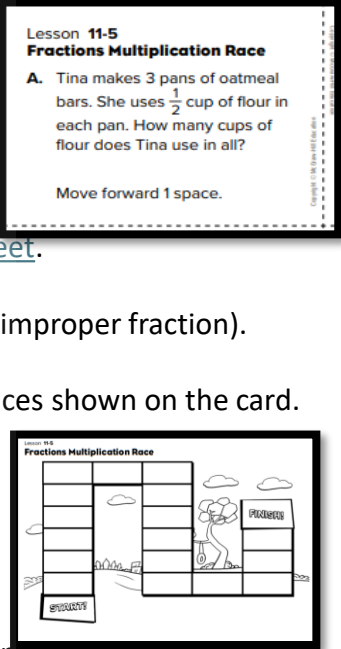
Answer :

 pounds


Unit 11 Lesson 5 - Support Activities

Solve Problems Involving Fractions and Mixed Numbers



	Towards Mastery	Mastery
Activity Title	Abu Dhabi Bus Route Tracker	Fractions Multiplication Race
Type of the Activity	Number Line Modeling	Game-Based Practice
Summary of Activity	Say: 🗣️ - You will represent the problem on a number line. - You will add equal fractional distances step by step. - You will use the model to find the total distance.  • Represent the problem on a number line. • Add the total distance traveled. A school bus in Abu Dhabi travels $1\frac{1}{2}$ km on each route. The driver completes 3 routes in the morning. How many kilometers does the bus travel in total? Ask: - How many equal jumps will you show on the number line? - What does each jump represent? - How does the number line help you find the total distance?	Say: 🗣️ - You will play a math race game with your group. - Play Rock Paper, Scissors to decide who starts. - On your turn: - Pick one card from this Game Station Fractions Multiplication Worksheet. - Solve the problem using a model or equation. - Explain your strategy aloud (decomposition or improper fraction). - The Answer Keeper checks the solution. - If correct → move your game piece the number of spaces shown on the card. - If incorrect → stay where you are. - Rotate roles and continue until someone reaches the finish line. Pick a student and ask: - Which strategy did you use to solve the problems? Why? - How does your explanation show that the multiplication makes sense? - When checking a partner's work: Which step helped you decide if the answer was correct? 

Unit 11 Lesson 5 - Support Activities

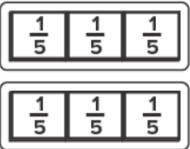
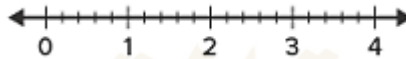
Solve Problems Involving Fractions and Mixed Numbers



	Beyond Mastery
Activity Title	Dubai Sports Academy – Goal Check Debate
Type of the Activity	Debate + Reasoning (Yes/No + Justify)
Summary of Activity	Say: 🗨️ - You will work in two teams: Team YES and Team NO. - You will solve the problem and choose a side. - You will prepare a clear argument using numbers + an equation + a model (bar model or number line). - You will challenge the other team’s reasoning respectfully and defend your conclusion. Debate Question: - Did she reach her goal? If not, how many kilometers more does she need to run? Ask: - What is the equation that represents “4 days of $2\frac{3}{4}$ km”? - How does your model show the total distance clearly? - How did you compare the total to 12 km? - What evidence proves your final decision (YES or NO)?

Multiply Fractions by Whole Numbers



Question Number	Question	DOK Level	Standard	SMPs
1	Choose the representation that shows $2 \times \frac{3}{5} = \frac{6}{5}$? ☐  ☐  ☐  ☐ 	1	4.NF.B.4.b	2,4,5
2	Fill in the missing number to find the product. $9 \times \frac{1}{6} = \underline{\hspace{1cm}} ?$. There are _____ equal groups of $\frac{1}{6}$.	1	4.NF.B.4.a	2,7
3	Hind is making 6 servings of mixed fruit. She uses $\frac{1}{5}$ cup of blueberries and $\frac{2}{5}$ cup of strawberries per serving. Look at the number line. How many cups of berries will she need for all 6 servings? Use the number line to solve. 	2	4.NF.B.4.c	2,4,5,6
4	Salma uses $\frac{5}{6}$ gallon of water each week to water her vegetable garden. How many gallons of water does she use to water her garden for 6 weeks? ☐ 5 gallons ☐ 6 gallons ☐ $6\frac{5}{6}$ gallons ☐ $10\frac{5}{6}$ quarts 	2	4.NF.B.4.c P	1,2,4,6
5	Ahmed plays video games for $\frac{3}{4}$ hour after he finishes his homework each day. After 3 days, Ahmed says he played a total of $2\frac{1}{4}$ hours. His friend says the total should be $1\frac{1}{4}$ hours. Who is correct? Use an equation or a visual model to justify your answer, and explain the mistake made by the person who is incorrect. 	3	4.NF.B.4.b	1,2,3,4,6

Decimal Fractions

Notes & Guidance

In this unit, students use decimal grids, number lines, and coins to model fractions with denominators of 10 and 100. They use models to help generate equivalent fractions with denominators of 10 and 100 and to add two fractions with unlike denominators of 10 and 100. Students apply their understanding of decimal fractions to write a fraction with a denominator of 10 or 100 as a decimal and vice versa. Students also locate decimals on a number line and use models and place value to compare decimals. Students apply the representation and comparison of decimal fractions to solve word problems involving money.

Key Skills

- Recognize decimals as another form of fractions
- Fluently represent fractions with denominators 10 and 100 using decimal notation.
- Explain equivalence between fractions and decimals
- Locate and order decimals on a number line.
- Precision in comparing decimals using place value reasoning.
- Solve real-world problems involving money and measurement.

Pedagogy

- Build understanding through multiple representations and active reasoning rather than procedures alone.
- Use real contexts (e.g., money, measurement, shopping, distances) to anchor meaning.
- Use decimal grids, number lines, place-value charts, and coins to help students model tenths and hundredths visually before symbolic work.
- Facilitate mathematical discourse by asking students to explain how they know two decimals are equivalent or which is greater.
- Encourage productive struggle through problem-solving tasks where students compare, justify, and represent decimals in different ways.
- Use purposeful questions (e.g., “Why does 0.3 equal $\frac{3}{10}$?” “How can we show this another way?”) and provide formative feedback to address misconceptions.
- Incorporate collaborative tasks, partner talk, so students reason, defend strategies, and critique others’ thinking.

International Assessment Links



Number: Deepen understanding of decimals and fractions, use place value to compare and compute with tenths and hundredths, convert between representations, and apply efficient strategies to solve problems involving money, measurement, and real-world contexts while explaining thinking using models and number lines.



Quantity: Apply understanding of decimals, fractions, and numerical relationships as they appear in real-life situations, interpret and represent quantities using appropriate models, select effective strategies, and reason about solutions to contextual problems involving money and measurement.

Unit 12 – Decimal Fractions

Learning Objectives and Standards

Standards	Learning Objectives		Formative Assessment Criteria
4.NF.C Understand decimal notation for fractions, and compare decimal fractions. 4.NF.C.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.2 For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$. 4.NF.C.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram. 4.NF.C.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model. 4.MD.A Solve problems involving measurement and conversion of measurements. 4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	12.1	- Represent fractions with denominators of 10 or 100 using fraction models. - Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100.	Accurately model fractions with denominators of 10 or 100 and generate equivalent fractions
	12.2	- Express fractions with denominators of 10 or 100 using decimal notation. - Extend the place value chart to hundredths, and use place value reasoning to understand that the decimal point separates the ones place from the tenths place.	Correctly express fractions with denominators of 10 or 100 in decimal form.
	12.3	- Compare two decimals using representations such as decimal grids and number lines. - Compare two decimals by expressing them as fractions.	Compare and order decimals using models or number lines.
	12.4	Use equivalent fractions to add fractions with denominators of 10 and 100.	Accurately add fractions with denominators of 10 and 100
	12.5	Solve problems involving money using the relationship between tenths and hundredths by representing with dollars, dimes, and pennies.	Solve money-related word problems by representing amounts with dollars, dimes, and pennies and correctly calculate totals or differences.

Notes

- Scope & Sequence & Instructional Planners (IPs) – [LMS Platform](#)
- Grade 4 Teacher Edition Book – [MINHAJI](#)

Unit 12 – Are You Ready?



This section aims to identify the fundamental knowledge and skills that students already possess before starting the module, as well as any areas that may need support or review to strengthen new learning. Teachers can use this section to conduct a quick check of prerequisite skills and baseline readiness.

Question Number	Question	DOK Level	Standard	SMPs
1	Calculate the sum: $\frac{2}{5} + \frac{1}{5} = ?$	1	4.NF.B.3.a	6, 7, 8
2	Which comparison is true? Explain. (A) $\frac{5}{6} > \frac{2}{3}$ (B) $\frac{3}{4} < \frac{6}{8}$ (C) $\frac{1}{4} > \frac{1}{3}$ (D) $\frac{2}{6} < \frac{3}{12}$	2	4.NF.A.2	2, 3, 6
3	Which fraction is equivalent to $\frac{3}{5}$? (A) $\frac{6}{8}$ (B) $\frac{6}{10}$ (C) $\frac{1}{2}$ (D) $\frac{6}{5}$	2	4.NF.A.1	6, 7, 8
4	Write the fraction marked by X on the number line. Explain how you know. 	2	3.NF.A.2.b	2, 4, 3, 7
5	Aisha runs $\frac{4}{10}$ km in the morning and $\frac{5}{10}$ km in the afternoon. How far does Aisha run in all? Explain how you know.	3	4.NF.B.3.d	1, 4, 3, 6

Understand Tenths and Hundredths



Learning Objectives		
Represent fractions with denominators of 10 or 100 using fraction models. Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100.		
Towards Mastery	Mastery	Beyond Mastery
- Students can model fractions with denominators of 10 or 100 using grids, strips, or area models. - Students can shade or represent tenths and hundredths. - Students can recognize that 10 tenths equals 100 hundredths using visual models.	- Students can independently represent fractions with denominators of 10 or 100 using models. - Students can fluently express equivalent fraction with denominator 100. - Students can convert between tenths and hundredths accurately without models.	- Students can apply fraction equivalence to real-world contexts. - Students can compare and justify which fractions represent the same or greater quantities. - Students can explain how changing the denominator (10 ↔ 100) affects the number of parts and the size of each part.
Misconceptions and Notes		
Students confuse tenths and hundredths when the numerator is the same. Students may not understand how to determine which fractions can be written as an equivalent number of tenths.		
Basic Mathematical Skills		
Skill One	Skill Two	
Students can identify tenths and hundredths on fraction models (grids, strips, number lines).	Students can generate equivalent fractions between tenths and hundredths using multiplication.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL Mathspace		

Domain
Number & Operations—Fractions
Standards
4.NF.CUnderstand decimal notation for fractions, and compare decimal fractions. 4.NF.C.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.2 For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.
SMPs
MPs 4, 7
Key Vocabulary
Equivalent fractions; hundredths; one-hundredth; one-tenth; tenths

Unit 12 - Lesson 1 - Checkpoint

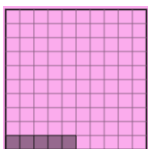
Understand Tenths and Hundredths



Towards Mastery

- Express the shaded parts as a fraction.

Fraction:

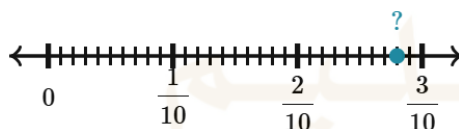


Fraction:



- Look at the number line below.
Write the point on the number line as a fraction.

Fraction:



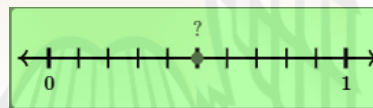
- Complete the equivalent fraction.

$$\frac{40}{100} = \frac{?}{10}$$

Mastery

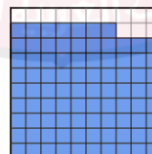
- Look at the number line below.
Write the point on the number line as fraction.

Fraction:



- Express the shaded parts as a fraction.

Fraction:



- Express the following as equivalent fractions with denominator of 10 or 100.

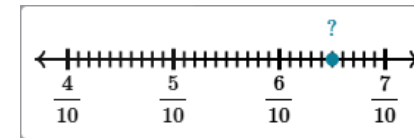
$$1) \frac{70}{100} = \frac{?}{?}$$

$$2) \frac{17}{10} = \frac{?}{?}$$

Beyond Mastery

- Look at the number line below.
Write the point on the number line as fraction.

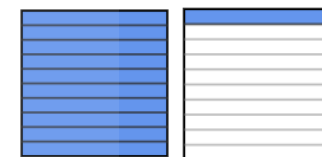
Fraction:



- What does the shaded area represent? Choose the correct answers.

11 hundredths

11 tenths



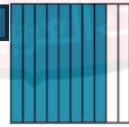
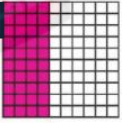
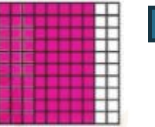
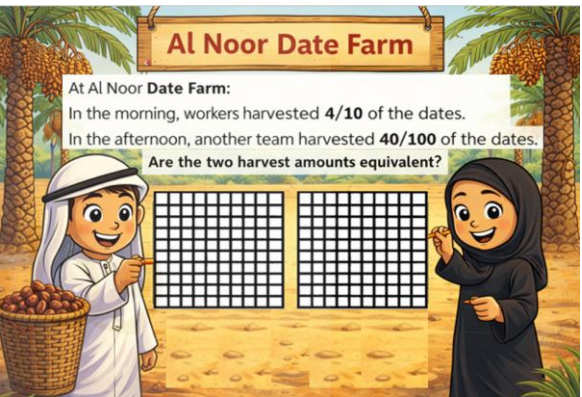
- What are two different ways you can express the fraction $\frac{13}{10}$? Explain your thinking.

- Amna drank $\frac{70}{100}$ litre of water during her tennis match. How many tenths of a litre did Amna drink?

Unit 12 Lesson 1 - Support Activities

Understand Tenths and Hundredths



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Date Farm Grids (10ths to 100ths Harvest)	Fraction Match-Up	Explain Your Harvest
Type of the Activity	Modeling Activity	Hands-On Matching Activity	Think–Pair–Share
Summary of Activity	Say: 🗨️ You are farmers working on a UAE date palm farm. You will model tenths and hundredths (10 × 10 grids) to show how parts of the farm are harvested.  Ask: What does 45/100 mean? If the farm harvests 5 more hundredths, what is the new amount?	Say: 🗨️ - You will match fraction cards to the correct tenths or hundredths model. - You will work with a partner or small group. - You will explain why your cards match the models. A B C D E  F  $\frac{20}{100}$ $\frac{6}{10}$ $\frac{40}{100}$ $\frac{8}{10}$ $1\frac{8}{10}$ $1\frac{40}{100}$ Ask: How do you know a model shows tenths and not hundredths? What does each small square represent in a 10×10 grid? What does each long strip represent in a tenths model? Order the cards from least to greatest.	Say: 🗨️ - You are expert farmers on a date palm farm. - You will prove and explain how farm harvests are related. - You will work with your partner.  Ask: Can fractions look different but still represent the same amount? If the afternoon team harvests 10 more hundredths tomorrow, will they harvest 1 whole farm? Explain.

Understand Decimal Notation



Learning Objectives		
Express fractions with denominators of 10 or 100 using decimal notation. Extend the place value chart to hundredths, and use place value reasoning to understand that the decimal point separates the ones place from the tenths place.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify tenths and hundredths on place value charts using models or grids. - Students can match simple fractions to decimals with teacher guidance (e.g., $3/10 = 0.3$, $25/100 = 0.25$).	- Students can independently express fractions with denominators of 10 or 100 in decimal notation. - Students can use place value reasoning to explain that the decimal point separates the ones place from the tenths place.	- Students can apply decimal and fraction equivalence to real-world contexts. - Students can explain how changing the place value of a digit (ones, tenths, hundredths) affects the size of the number.
Misconceptions and Notes		
Students may find it difficult to visualize tenths and hundredths, which results in their confusion of decimals		
Basic Mathematical Skills		
Skill One	Skill Two	
Students can identify ones, tenths, and hundredths on a place value chart using models or labels.	Students can express fractions with denominators of 10 or 100 as decimals without models.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL Interactive Activity		

Domain
Number & Operations—Fractions
Standards
4.NF.CUnderstand decimal notation for fractions, and compare decimal fractions. 4.NF.C.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $62/100$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.
SMPs
MP7
Key Vocabulary
Decimal, Decimal point, hundredths, tenths

Unit 12 - Lesson 2 - Checkpoint

Understand Decimal Notation



Towards Mastery

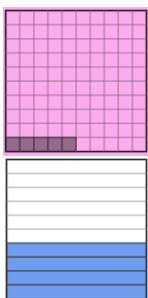
- Express the shaded parts as both a fraction and a decimal.

Fraction:

Decimal:

Fraction:

Decimal:

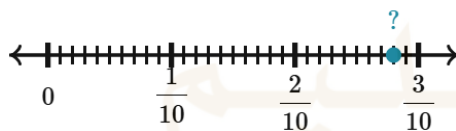


- Look at the number line below.

Write the point on the number line as fraction and a decimal.

Fraction:

Decimal:



- Express $\frac{23}{100}$ as a decimal.

- Complete the equivalent fraction and write each as a decimal.

$$\frac{40}{100} = \frac{?}{10}$$

Mastery

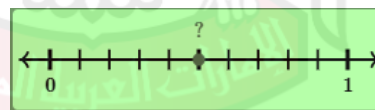
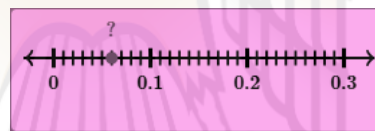
- Look at the number line below.
Write the point on the number line as fraction and a decimal.

Fraction:

Decimal:

Fraction:

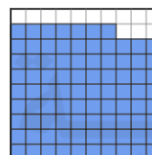
Decimal:



- Express the shaded parts as both a fraction and a decimal.

Fraction:

Decimal:



- Find the equivalent fractions and write each as a decimal.

$$1) \frac{70}{100} = \frac{?}{?}$$

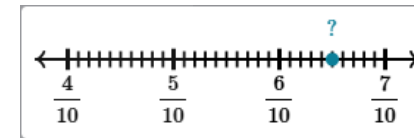
$$2) \frac{17}{10} = \frac{?}{?}$$

Beyond Mastery

- Look at the number line below.
Write the point on the number line as fraction and a decimal.

Fraction:

Decimal:



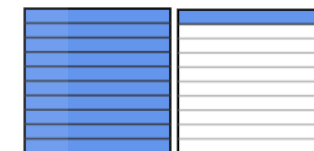
- What does the shaded area represent? Choose the correct answers.

☐ 11 hundredths

☐ 11 tenths

☐ 1.1

☐ 0.11

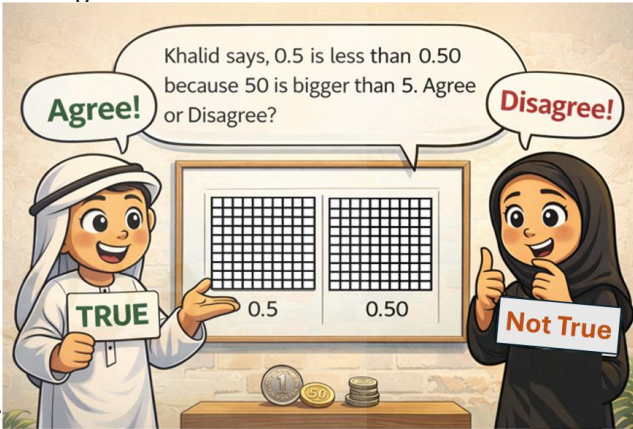


- Aisha uses a board that is $1\frac{7}{10}$ meters long. Hana uses a board that is $1\frac{56}{100}$ meters long. How can you express each length as a decimal?

Unit 12 Lesson 2 - Support Activities

Understand Decimal Notation



	Towards Mastery	Mastery	Beyond Mastery						
Activity Title	Dirham Place Value Chart	True or False?	Juice Amounts						
Type of the Activity	Modeling Activity	Reasoning and Justification Activity	Number Talk						
Summary of Activity	Say: 🗣️ You are money experts in the UAE. You will use a <i>Dirham place value chart</i> to understand how tenths and hundredths work using money. <table border="1"><thead><tr><th>Ones</th><th>Tenths</th><th>Hundredths</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr></tbody></table> Connect each money to the Place Value above. AED 0.25 AED 1.25 AED 0.09 Ask: What is the fraction form for each money? Show each money on a 10 x 10 grid. Fatima buys dates for AED 0.75 . How many tenths and hundredths is that?	Ones	Tenths	Hundredths				Say: 🗣️ You are money experts in the UAE. You will decide if statements about money and decimals are true or false and you will explain <u>why</u>. First, read the statement carefully, think and decide, then model to explain. Ahmed has AED 1.55. This amount is the same as AED $1\frac{55}{100}$. True or False A juice costs AED 0.50. Aisha can pay with AED $\frac{5}{10}$. True or False 4 fils is the same as AED 0.4. True or False 1.05 = 1 dirham and 5 fils. True or false	Say: 🗣️ You are math thinkers and problem solvers. You will listen carefully, think quietly first, show your thinking in different ways to explain and justify your reasoning.  Khalid says, 0.5 is less than 0.50 because 50 is bigger than 5. Agree or Disagree? As When will adding a zero change value and when will it not? Can two decimals look different but still represent the same amount? Is it always true that more digits means a larger number? Give examples.
	Ones	Tenths	Hundredths						

Compare Decimals



Learning Objectives		
Compare two decimals using representations such as decimal grids and number lines. Compare two decimals by expressing them as fractions.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify tenths and hundredths on decimal grids or place value charts using models. - Students can compare two decimals using pictures or models, but may need with teacher guidance.	- Students can independently compare two decimals using place value reasoning or number lines. - Students can correctly use symbols ($<$, $>$, $=$) to show decimal comparisons.	- Students can apply decimal and fraction comparisons to real-world contexts. - Students can justify their comparisons using multiple strategies (models, fractions, place value reasoning).
Misconceptions and Notes		
Students may compare for example, 1.6 to 1.73 correctly but represent the decimals incorrectly on the decimal grids. When comparing decimals, students may compare the digits without considering the position of each digit. For example, when comparing 0.27 and 0.4, students may think that 0.27 is greater than 0.4 because 27 is greater than 4.		
Basic Mathematical Skills		
Skill One	Skill Two	
Identify which decimal is larger using models	Compare decimals using place value or fractions Convert decimals to fractions for comparison	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL Mathspace		

Domain
Number & Operations—Fractions
Standards
4.NF.CUnderstand decimal notation for fractions, and compare decimal fractions. 4.NF.C.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.
SMPs
MPs 2, 5
Key Vocabulary
Decimals, equivalent fractions

Unit 12 - Lesson 3 - Checkpoint

Compare Decimals



Towards Mastery	Mastery	Beyond Mastery
- Choose the correct comparisons. 0.4 = 0.04 0.78 < 0.9 0.27 > 0.3 2.51 > 2.3 - Use <, >, or = to compare the numbers given below. 0.4 ____ 0.06 0.56 ____ 0.65 0.07 ____ 0.70 13.4 ____ 1.34 - Show 0.8 and 0.3 on the number line. Which number is closer to 1.0?	- Jawahir bought 0.72 kg of beans and 0.58 kg of spices. Which weighed more? Explain your thinking. - What decimals can make the following true? Give 2 examples for each. $x = 2.60$ $m < 1.75$ $p > 1.4$ $t > 2.01$ - Ali has AED 3.4 . Ahmed has AED 3.50. Who has more money? Draw to show your answer.	- Maha writes $2.30 > 2.3$ because 30 is greater than 3. How would you respond to Maha? - Which comparisons are false? Explain your thinking. 0.49 < 0.47 1.42 = 1.40 1.58 > 1.5 2.99 < 2.09 - Noora wants to explain to her friend how to compare 1.4 and 1.35. How can you assist her?

Unit 12 Lesson 3 - Support Activities

Compare Decimals



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Desert Decimal Explorers	Weather Data	Weather Report
Type of the Activity	Jump on the Answer	Which One Doesn't Belong? Integration with Science (Environment)	Claim-Support-Question Integration with Language (Communication Skills)
Summary of Activity	Say: You are desert explorers in the UAE. You will use a giant number line to help place and compare decimals. First, we will create a large number line on the classroom floor. I will give you a problem, think quietly first, then ask <i>"Is it closer to 0? 0.5? 1?"</i> Ask: Which digit tells you the tenths? Which tells you the hundredths? Which is greater, tenth or hundredth?	Say: You are weather analysts in the UAE. You will compare real weather data such as temperature and rainfall. Rainfall: 0.45 cm, 0.54 cm, 0.405 cm, 0.50 cm Temperature: 36.5°C, 36.05°C, 36.50°C, 35.65°C Order rainfall from least to greatest and explain your thinking. Abu Dhabi's temperature was 35.8°C in the morning and 35.80°C in the afternoon. Did the temperature change? Explain. Dubai recorded 0.75 cm of rain on Monday and 0.705 cm on Tuesday. Which day had more rain? Explain Ask: How does rainfall help plants survive in desert environments? What might happen if there is very little rainfall for many months? Why is water conservation important in the UAE? How does high temperature affect people, animals, and plants?	Say: You are meteorologists in the UAE. You will analyze real weather data and make a claim. You will prove your thinking using place value reasoning, models, or equations. Ask: Do any numbers look different but have the same value? <i>"Wednesday had the most rainfall"</i>. Do you agree? Explain A weather station reports 0.4 cm, 0.40 cm, and 0.400 cm of rainfall. Are these equal? Explain.

Unit 12 - Lesson 4 - Overview

Adding Decimals Using Fractions



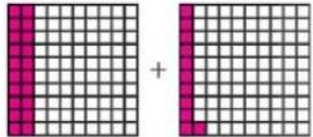
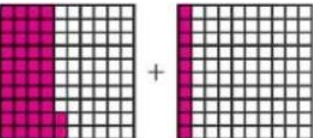
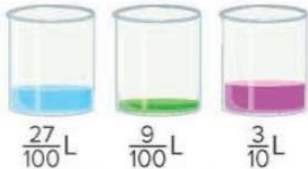
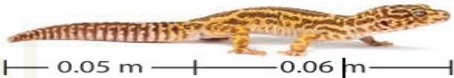
Learning Objectives		
Use equivalent fractions to add fractions with denominators of 10 and 100.		
Towards Mastery	Mastery	Beyond Mastery
- Students can represent fractions with denominators of 10 or 100 using visual models. - Students can combine shaded parts to add fractions, but may need teacher guidance.	- Students can flexibly use equivalent fractions to rename tenths and hundredths with a common denominator. - Students can accurately add fractions with denominators of 10 and 100.	- Students can apply fraction addition with tenths and hundredths to real-world contexts. - Students can use multiple strategies (models, equivalent fractions, place value reasoning) to solve addition problems.
Misconceptions and Notes		
Some students may want to add both the numerators and denominators of the fractions.		
Basic Mathematical Skills		
Skill One	Skill Two	
add fractions with the same denominator using pictures or models.	Use equivalent fractions to add and solve accurately.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Number & Operations—Fractions
Standards
4.NF.CUnderstand decimal notation for fractions, and compare decimal fractions. 4.NF.C.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.2 For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.
SMPs
MPs 4, 6
Key Vocabulary
Equivalent fractions, hundredths, tenths

Unit 12 - Lesson 4 - Checkpoint

Adding Decimals Using Fractions

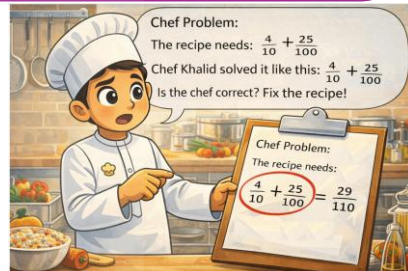


Towards Mastery	Mastery	Beyond Mastery
- Use representation to add.   - What is the sum? 1) $\frac{4}{10} + \frac{9}{100}$ 2) $\frac{53}{100} + \frac{3}{10}$ - Find $0.75 + 0.2$ - What is $0.8 + 0.25 + 0.75$?	- Karem walks $\frac{5}{10}$ kilometer to meet his friend. Then Karem and his friend walk $\frac{35}{100}$ kilometer to the park. How far did Karem walk in all? - Which addition problems have a sum of $\frac{62}{100}$. Choose all that apply. A) $\frac{6}{10} + \frac{2}{100}$ B) $\frac{6}{100} + \frac{2}{10}$ C) $\frac{22}{100} + \frac{4}{10}$ D) $\frac{4}{10} + \frac{58}{100}$ - Complete the sums: 1) $0.50 + 0.4 = \underline{\hspace{2cm}}$ 2) $0.3 + 0.25 + 0.1 = \underline{\hspace{2cm}}$ 3) $0.6 + 0.25 = \underline{\hspace{2cm}}$	- Hind hikes $\frac{24}{100}$ kilometer for a photo shoot. Then she hikes $\frac{5}{10}$ kilometer to the waterfall. How far does she hike in all?  - Two liquids were combined into an empty beaker. The beaker now has more than half liter of liquid in it. Which two liquids were combined? Explain.  - Which gecko is longer? Explain.  

Unit 12 Lesson 4 - Support Activities

Adding Decimals Using Fractions



	Towards Mastery	Mastery	Beyond Mastery						
Activity Title	Build It Together – Juice Mixing Demo	Falcon Fraction Bingo	Fix the Chef’s Recipe						
Type of the Activity	I do – We do – You do	Addition Bingo	Error Analysis						
Summary of Activity	Say 🗣️ You are preparing fresh drinks for customers. You will mix juice amounts using tenths and hundredths of a liter. I do: First, I will mix 0.3 L and 0.05 L on the same 10×10 grid or place value chart. We do: Next we will mix 0.4 L and 0.06 L using 10×10 grid or place value chart. You do: Then, you will mix 0.45 L and 0.15 L. 	Say 🗣️ You are Falcon Math Champions in the UAE 🦅 . You will practice adding fractions with denominators of 10 and 100 to win Falcon Fraction Bingo. Each student gets a Bingo board with answers <table border="1" data-bbox="1215 766 1592 876"><tr><td>0.65</td><td>0.38</td><td>0.72</td></tr><tr><td>0.8</td><td>1.05</td><td>0.57</td></tr></table> I will call out fraction addition problems A) $\frac{4}{10} + \frac{25}{100}$ B) $\frac{60}{100} + \frac{2}{10}$ C) $\frac{9}{10} + \frac{15}{100}$ D) $\frac{18}{100} + \frac{2}{10}$ E) $\frac{27}{100} + \frac{3}{10}$ F) $\frac{4}{10} + \frac{32}{100}$ You will solve and convert answer to decimals. First to get a row shouts “Falcon Bingo!” Ask: Why do we need a common denominator before adding? A falcon trainer collected $\frac{6}{10}$ kg of dates in the morning and $\frac{35}{100}$ kg in the afternoon. How many kilograms in total?	0.65	0.38	0.72	0.8	1.05	0.57	Say 🗣️ You are Master Chefs in the UAE 👨‍🍳 . You will help fix mistakes in a recipe by checking fraction addition carefully. <i>To make one serving of Saffron Date Milk, the recipe needs include $\frac{4}{10}$ liter of fresh milk and $\frac{25}{100}$ liter of date syrup. What Is the Total?</i> 
	0.65	0.38	0.72						
0.8	1.05	0.57							
	Ask: When we add decimals, which place value must line up? A juice stand mixes 0.6 L of mango juice and 0.35 L of orange juice. How much juice do they have in total? Show work.		You will show the correct solution step-by-step, convert your final answer to a decimal. Ask: Why must fractions have a common denominator before adding? What happens if we add denominators? When adding tenths and hundredths, what is the easiest strategy?						

Solve Problems Involving Money



Learning Objectives		
Solve problems involving money using the relationship between tenths and hundredths by representing with dollars, dimes, and pennies.		
Towards Mastery	Mastery	Beyond Mastery
Students can combine money amounts using pictures or manipulatives but may need teacher guidance.	- Students can independently use the relationship between tenths and hundredths to rename money amounts with a common unit. - Students can accurately add and subtract money amounts using dollars, dimes, and pennies.	- Students can apply money calculations to real-world contexts (e.g., shopping). - Students can use multiple strategies (models, equivalent fractions, place value reasoning) to solve money problems.
Misconceptions and Notes		
Students may confuse coin value with place value. Students may think more digits means a larger amount.		
Basic Mathematical Skills		
Skill One	Skill Two	
Rename amounts using tenths and hundredths.	Add or subtract money amounts accurately	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL Khan Academy Mathspace		

Domain
Measurement & Data
Standards
4.MD.A Solve problems involving measurement and conversion of measurements. 4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
SMPs
MP 4
Key Vocabulary
Cents, decimals, dollars

Unit 12 - Lesson 5 - Checkpoint

Solve Problems Involving Money



Towards Mastery	Mastery	Beyond Mastery
- What decimals represent the total money: AED _____ AED _____ AED _____ - Show how you will use UAE fils (coins) to represent amounts below: 1) AED 0.24 2) AED 0.33 3) AED 0.46 4) AED 0.12 5) AED 0.85 6) AED 0.95	- Mariam has the amount shown. Her mom gives her a one dirham and 2 ten fills. How much money does Mariam have now? - Naser has the amount shown. He spends AED 1.25. How much money does John have now? - Show 2 ways you can represent each amount below 1) AED 0.29 2) AED 0.35 3) AED 0.65 4) AED 5.12 5) AED 3.85 6) AED 1.95	- Shaikha wants to buy a snack for AED 1.75. She has a one dirham, 6 ten fils, and 7 fils. Does she have enough money to buy the snack? Explain. - Reem buys 2 pieces of pizza. She hands the cashier AED 2.00. What coins could Reem receive back in change? AED 0.80 for 1 - Mohamed has 4 twenty-five fils and some other fils. He has a total of AED 1.80. What are the other fils he has? Explain.

Unit 12 Lesson 5 - Support Activities

Solve Problems Involving Money



	Towards Mastery	Mastery
Activity Title	Souq Shopping	Classroom Mini-Market
Type of the Activity	Think-Aloud	Act It Out
Summary of Activity	Say 🗣️ You are smart shoppers at a souq. You will show how to solve a money problem step by step by thinking out loud. Aisha buys dates for AED 2.35 and juice for AED 1.40. How much does she spend in total?  Ask: Why must we line up the decimal points when we add? What happens if we forget to line up place values? What does the 3 in 2.35 represent?	Say 🗣️ You are shopkeepers and customers in this Classroom Mini-Market. You will buy and sell items using dirhams and fils. You will add decimals to find totals. You will calculate change correctly, and explain your thinking clearly. 1) Ali has AED 5, he buys dates and juice. How much did he spend? Find the change he will get. 2) Aisha buys water and chips. What is the total money spent?  Ask: Why is AED 1.50 different from AED 1.05? Which digit represents fils in the prices? If Khalid pays AED 10 for dates at AED 4.75 and juice at AED 2.25. How much change should he receive?

Unit 12 Lesson 5 - Support Activities

Solve Problems Involving Money



		Beyond Mastery
Activity Title		Plan Your Eid Budget  
Type of the Activity		Choice Board
Summary of Activity	Say  You are preparing for Eid celebrations. You have been given a budget and must make smart decisions. You will choose <u>one</u> challenge from the board. Show all calculations clearly, use place value reasoning, justify your decisions, and explain why your plan makes sense. How does celebrating Eid show good UAE citizenship?	 The graphic is a colorful choice board titled "Plan Your Eid Budget" with the subtitle "Beyond Mastery – Choice Board Activity". It features a background of a night cityscape with a crescent moon and star. A yellow banner at the top right states "Budget: AED 50.00". The board contains five challenge boxes: 1. "Eid Outfit Planner" (purple) with a crescent moon icon, asking for calculations for an abaya, sandals, and perfume. 2. "Sweet Treats Package" (orange) with a fruit icon, asking to choose 3 items from a list and stay under AED 25. 3. "Eid Distribution" (green) with a gift icon, asking how many cousins can receive AED 3.75 each. 4. "Charity Decision" (blue) with a house icon, asking for calculations on donating 0.25 of the budget plus an additional AED 6.50. 5. "Smart Shopper Challenge" (grey) with a shopping bag icon, asking if a set of gifts fits the budget. Illustrations of a boy and a girl are at the bottom.

Unit 12 – Did You Get it?

Decimal Fractions



This section aims to assess how well students have mastered the module objectives upon completion of the module.

Question Number	Question	DOK Level	Standard	SMPs
1	What number makes the equation true? How do you know? $\frac{50}{100} = \frac{x}{10}$	2	4.NF.C.5	2, 3
2	What fraction is equivalent to 0.41? Use a model to explain.	3	4.NF.C.6	3, 4
3	Samir drank 0.82 liters of water. Ahmed drank 0.9 liters of water. Who drank more water? Justify your answer.	2	4.NF.C.7	2, 3
4	Maha says the sum of $\frac{3}{10} + \frac{4}{100}$ is the same as the sum of $\frac{1}{10} + \frac{24}{100}$. How can Maha justify her statement?	3	4.NF.C.5	3, 7
5	Ibrahim has 5 dirhams, 6 ten fils, and 12 one fils. Does Ibrahim have enough money to buy a sandwich for AED 5.75. Explain.	3	4.MD.A.2	1, 2, 4

Units of Measurement and Data

Notes & Guidance

In this unit, students deepen their understanding of measurement conversion, real-world problem solving with measurement quantities, area and perimeter applications, and data representation using line plots.

A common misconception is treating unit conversion as simple addition or subtraction rather than recognizing scaling relationships. Students often confuse area and perimeter, especially when units are not labeled carefully. Emphasize that area measures surface (square units) while perimeter measures distance around (linear units).

Pedagogy

- Use a Concrete–Representational–Abstract (CRA) approach: begin with hands-on measurement tools (rulers, meter sticks, measuring tapes), move to visual models such as conversion charts and grids, and then transition to equations and symbolic reasoning.
- Implement measurement conversion using conversion ladders or ratio tables. Have students physically group centimeter strips into meters and compare metric and customary systems through structured investigation.
- Facilitate area and perimeter exploration by building rectangles with square tiles, comparing shapes with the same perimeter but different areas, and investigating formulas through pattern recognition.
- Engage students in line plot data investigations by collecting class measurement data (e.g., shoe lengths, hand spans), creating line plots using fractional units ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$), and asking comparison questions such as differences, totals, and trends.

Key Skills

Students should be able to:

- Convert units within the same system using multiplication/division.
- Solve multi-step word problems involving measurement.
- Apply formulae for area and perimeter of rectangles.
- Interpret and construct line plots with fractional data.
- Use estimation to check reasonableness of answers.
- Explain reasoning clearly using appropriate mathematical language.
- Model real-life measurement situations mathematically (MP4).
- Use tools strategically (MP5).
- Attend to precision in units and labels (MP6).

International Assessment Links



Measurement and Geometry (Primary Level): Focus on students' applying measurement concepts in practical contexts, interpreting data from line plots and charts and to use mathematical reasoning to justify measurement conclusions.



Quantity: Understanding and using numbers to describe attributes of objects and situations. Measuring, estimating, and calculating quantities. Interpreting data representations such as graphs and charts.

Unit 13 – Units of Measurement and Data

Learning Objectives and Standards

Standards	Learning Objectives		Formative Assessment Criteria
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. 4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. 4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. 4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.	13.1	Convert larger metric units of length, liquid volume, and mass to smaller equivalent units.	Students can convert larger metric units (km, m, kg, L) into smaller equivalent units (m, cm, g, mL).
	13.2	Express larger customary units of weight in terms of smaller units.	Students can express larger customary units (tons, pounds) in terms of smaller units (pounds, ounces). Students can use known benchmark equivalencies (e.g., 1 lb = 16 oz).
	13.3	Express larger customary units of capacity in terms of smaller units.	Students can convert between customary capacity units (gallons, quarts, pints, cups). Students can use conversion relationships accurately (e.g., 1 gallon = 4 quarts).
	13.4	Express larger units of time in terms of smaller units.	Students can convert hours to minutes, minutes to seconds, days to hours, and weeks to days.
	13.5	Solve word problems that involve converting metric units of measure by using representations.	Students can solve word problems involving metric unit conversions.
	13.6	Use representations to solve word problems that involve converting units of measure.	Students can solve multi-step word problems involving unit conversions.
	13.7	Use the formula for the perimeter of a rectangle. Use the formula for the perimeter of a rectangle to solve real-world problems.	Students can use the formula $P = 2l + 2w$ to find the perimeter of a rectangle.
	13.8	Use the formula for the area of a rectangle. Use the formula for the area of a rectangle to solve real-world problems.	Students can use the formula $A = l \times w$ to calculate area.
	13.9	Solve real-world problems by applying the area and perimeter formulas.	Students can determine whether to use perimeter or area based on context. Students can solve real-world problems involving both perimeter and area.
	13.10	Create line plots to display measurement data sets in fractions of a unit. Interpret measurement data displayed on line plots to answer questions.	Students can create line plots to represent measurement data.
	13.11	Solve problems involving addition and subtraction of fractions based on analysis of data displayed in line plots.	Students can solve addition and subtraction problems involving fractional data on line plots.

Notes

- Scope & Sequence & Instructional Planners (IPs) – [LMS Platform](#)
- Grade 4 Teacher Edition Book – [MINHAJI](#)

Unit 13 – Are You Ready?

Units of Measurement and Data



This section aims to identify the fundamental knowledge and skills that students already possess before starting the module, as well as any areas that may need support or review to strengthen new learning. Teachers can use this section to conduct a quick check of prerequisite skills and baseline readiness.

Question Number	Question	DOK Level	Standard	SMPs
1	A rope is 3 meters long. How many centimeters is 3 meters? (A) 30 <i>cm</i> (B) 300 <i>cm</i> (C) 3,000 <i>cm</i> (D) 0.3 <i>cm</i>	1	4.MD.A.1	SMP 6
2	How many minutes are in 2 hours? Explain how you know.	2	4.MD.A.1	SMP 2
3	Sara buys 4 pounds of apples. Each pound costs AED 6. How much does she spend in all? Show your work.	2	4.OA.A.3	SMP 1
4	A rectangle has a length of 8 cm and a width of 5 cm. What is the perimeter? (A) 13 <i>cm</i> (B) 26 <i>cm</i> (C) 40 <i>cm</i> (D) 80 <i>cm</i>	2	4.MD.A.3	SMP 7
5	The table shows the lengths of ribbons in meters. Which length appears most often? Explain how you know.	2-3	4.MD.B.4	SMP 4

Unit 13 - Lesson 1 - Overview

Relate Metric Units



Learning Objectives		
Convert larger metric units of length, liquid volume, and mass to smaller equivalent units.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify and name basic metric units of length, liquid volume, and mass (km, m, cm; L, mL; kg, g). - Students can recognize when to convert from a larger unit to a smaller unit.	- Students can accurately convert between larger to smaller metric units (km → m, m → cm; L → mL; kg → g). - Students can use multiplication and division facts to support metric conversion.	- Students can solve multi step problems involving metric conversions in real world contexts. - Students can choose appropriate units to measure and convert for efficiency and clarity.
Misconceptions and Notes		
- Ensure students understand place value: converting metric units is multiplying/dividing by powers of 10 (10, 100, 1000). - Use visual models such as number lines and base 10 blocks which represent how units expand/shrink. - Reinforce real life measure contexts (e.g., bottles, running tracks, camel water troughs). Common Misconceptions: - Students may think converting a small to a larger unit means multiplying. - Confusing when to multiply vs divide in conversions. - Treating all units as the same scale (e.g., ml vs l requires 1000, not 100). - Forgetting to adjust both value and unit name.		
Basic Mathematical Skills		
Skill One	Skill Two	
Multiplying by 10, 100, 1000	Multi digit multiplication/division	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 Measurement and Units		

Domain
Measurement & Data
Standards
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
SMPs
MP 7
Key Vocabulary
Centimeters Convert Grams Kilograms Kiloliters Argue Efficient Liters Meters Metric Units Milliliters Millimeters

Unit 13 - Lesson 1 - Checkpoint

Relate Metric Units



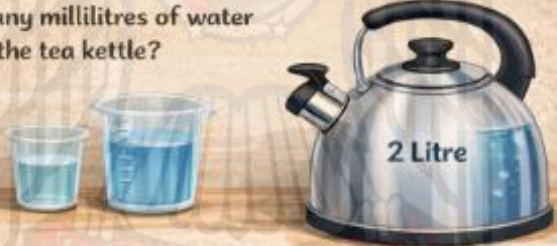
Towards Mastery

Fill in the blanks:

- 12 meters = ? centimeters
 $12 \times \underline{\hspace{2cm}} = 1,200$
12 meters = centimeters
- 8 kilograms = ? grams
 $8 \times \underline{\hspace{2cm}} = 8,000$
8 kilograms = grams
- 14 centimeters = millimeters
- 25 liters = milliliters
- 4 centimeters = millimeters
- 6 meters = millimeters
- Nida has a bottle with 2 L of juice.
How many mL is that?

Mastery

1) How many millilitres of water will fill the tea kettle?



2) A box of paper weighs 9 kilograms. Does it weigh more than 9000 grams?
1 kg = 1,000 g



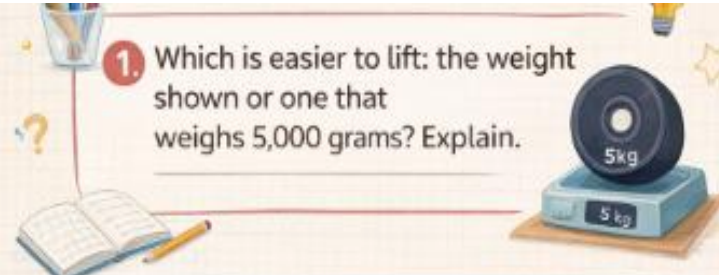
3) Khalid's aquarium holds 75,000 millilitres. How many litres is that?

1,000 mL = 1 L

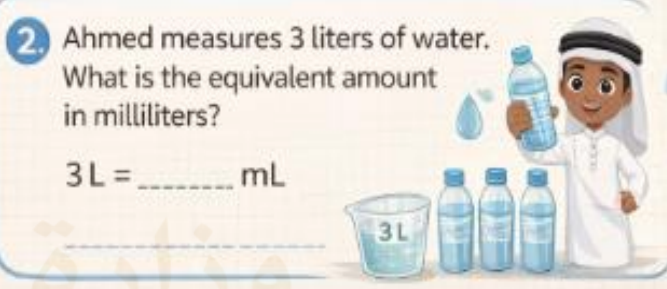


Beyond Mastery

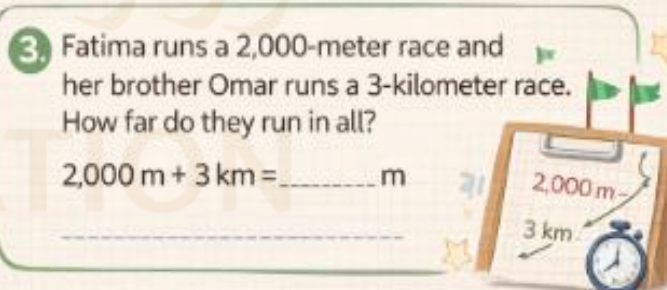
1. Which is easier to lift: the weight shown or one that weighs 5,000 grams? Explain.



2. Ahmed measures 3 liters of water. What is the equivalent amount in milliliters?
3 L = mL



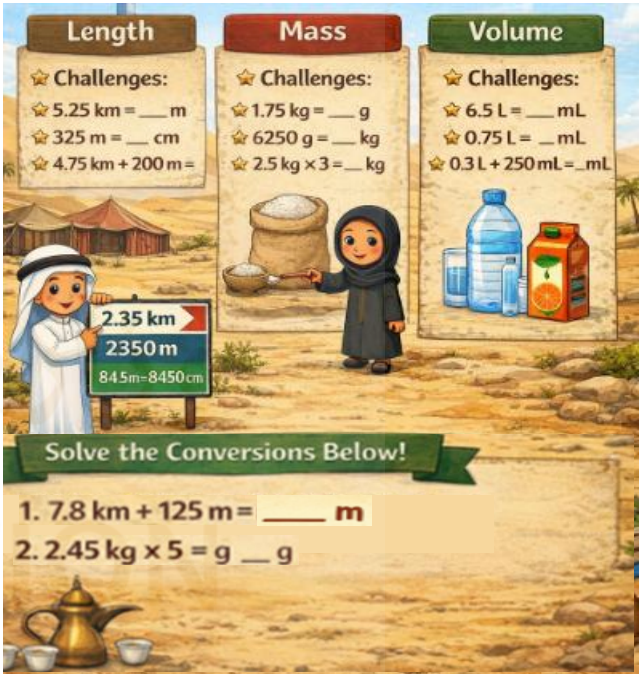
3. Fatima runs a 2,000-meter race and her brother Omar runs a 3-kilometer race. How far do they run in all?
 $2,000 \text{ m} + 3 \text{ km} = \underline{\hspace{2cm}} \text{ m}$



Unit 13 Lesson 1 - Support Activities

Relate Metric Units



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Measurement Conversions		
Type of the Activity	Real Life Application		
Summary of Activity	 The 'Towards Mastery' activity card features three columns: Length (Kilometers → Meters, Meters → Centimeters), Mass (Kilograms → Grams), and Volume (Liters → Milliliters). It includes conversion examples like 5 km = 5000 m and 3 m = 300 cm, and challenges such as 6 km = ___ m and 850 g = ___ mg. The card is illustrated with a boy, a girl, a camel, and a desert setting.	 The 'Mastery' activity card features three columns: Length (Kilometers → Meters → Centimeters), Mass (Kilograms → Grams), and Volume (Liters → Milliliters). It includes conversion examples like 82 km = ___ m and 6500 cm = ___ m, and challenges such as 45 kg = ___ g and 13000 g = ___ kg. The card is illustrated with a boy, a girl, and a desert setting.	 The 'Beyond Mastery' activity card features three columns: Length (Challenges: 5.25 km = ___ m, 325 m = ___ cm, 4.75 km + 200 m = ___), Mass (Challenges: 1.75 kg = ___ g, 6250 g = ___ kg, 2.5 kg × 3 = ___ kg), and Volume (Challenges: 6.5 L = ___ mL, 0.75 L = ___ mL, 0.3 L + 250 mL = ___ mL). It includes conversion examples like 2.35 km = 2350 m and 845 m = 8450 cm, and challenges such as 7.8 km + 125 m = ___ m and 2.45 kg × 5 = g ___ g. The card is illustrated with a boy, a girl, and a desert setting.

Unit 13 - Lesson 2 - Overview

Relate Customary Units of Weight



Learning Objectives		
Express larger customary units of weight in terms of smaller units.		
Towards Mastery	Mastery	Beyond Mastery
Students can identify and compare customary units of weight (pounds, ounces) and express simple relationships (e.g., “How many ounces in 1 pound?”).	Students can accurately convert customary weight units (e.g., pounds to ounces) and solve multi-step real life problems.	Students can estimate, analyze and apply customary unit conversions in complex, multistep problem-solving situations including justification.
Misconceptions and Notes		
- Students may think more ounces = more pounds without knowing conversion. - Confusing ounces with pounds when adding mixed units (e.g., 2 lb 8 oz). Teacher Tips: - Use visuals (scales, manipulatives) when introducing conversions. - Anchor chart with 16 oz = 1 lb should be visible throughout. - Always model lending/regrouping when converting from ounces to pounds.		
Basic Mathematical Skills		
Skill One	Skill Two	
Ordering weights from least to greatest	Multi step conversions (e.g., converting pounds to ounces and vice versa)	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 Measurement and Units		

Domain
Measurement & Data
Standards
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
SMPs
MP 6
Key Vocabulary
Customary Unit Equivalence Table Ounces Pound Ton Weight Represent Utilize

Unit 13 - Lesson 2 - Checkpoint

Relate Customary Units of Weight



Towards Mastery	Mastery	Beyond Mastery
1. Fill in the blanks: 1. 5 pounds = ? ounces $5 \times \underline{\hspace{1cm}} = 80$ 5 pounds = <u> </u> ounces 3. 4 pounds = <u> </u> ounces 2. 8 tons = ? pounds $8 \times \underline{\hspace{1cm}} = 16,000$ 8 tons = <u> </u> pounds 4. 5 tons = <u> </u> pounds 2. ? If Ahmed buys 1 pound of dates, how many ounces is that?	1 Ali bought 4 kilograms of tomatoes to make a batch of pizza sauce. What is the weight of the tomatoes in grams? 2 There are 160 ounces of potatoes in a 10-pound bag. Why is the number of ounces greater than the number of pounds? 3 If Mariam buys 3 kilograms of flour and uses 1,200 grams, how many grams of flour are left?	1 A truck weighs $\frac{3}{4}$ tons. What is the weight of the truck in pounds? 2 Tarek delivered 1 ton of fertilizer to a farm. Each day, he spreads 50 pounds of fertilizer on the crops. How many days will it take Tarek to spread all the fertilizer?

Unit 13 Lesson 2 - Support Activities

Relate Customary Units of Weight



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Weight Match Cards		
Type of the Activity	Manipulative-based / Fluency		
	In this activity students will have to explore each card and assess what is wrong. It could be the supporting image and/or is it the weight conversion They will use words such as too few or too much and then work out the reasonable solution that goes along with the picture and/or the original measure provided.		
Summary of Activity	WRONG SOLUTION Find the mistakes & fix the problem! 1 Pound = 1oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 5 Pounds = 8oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 16 oz = 2oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 8 Ounces = 2 lbs ❌ WRONG SOLUTION Find the mistakes & fix the problem! 3 Pounds = 6 oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 12 Pounds = 1 oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 4 Pounds = 2oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 32 Ounces = 2lbs ❌ WRONG SOLUTION Find the mistakes & fix the problem! 2 Pounds = 10 oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 24 Pounds = 6 oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 72 Ounces = 3 lbs ❌ WRONG SOLUTION Find the mistakes & fix the problem! 8 Pounds = 18 oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 96 Ounces = 4½ ❌❌ WRONG SOLUTION Find the mistakes & fix the problem! 7½ Pounds = 100 oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 5 Pounds 10oz = 60oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 30¼ Pounds = 50oz ❌ WRONG SOLUTION Find the mistakes & fix the problem! 3¾ Pounds = 65 oz ❌❌ WRONG SOLUTION Find the mistakes & fix the problem! 56 Ounces = 5½ lbs ❌		

Relate Customary Units of Capacity



Learning Objectives		
Express larger customary units of capacity in terms of smaller units.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify customary units of capacity (gallon, quart, pint, cup). - Students can recognize that larger units consist of multiple smaller units (e.g., 1 quart = 2 pints).	- Students can convert between customary capacity units using known relationships (gallon to quarts; quarts to pints; pints to cups). - Students can solve routine word problems involving capacity conversions.	- Students can explain reasoning and show step-by-step conversion using drawings/number lines. - Students can solve multi-step real-life problems involving mixtures of customary capacity units.
Misconceptions and Notes		
- Students may think bigger unit = bigger number. Emphasize the inverse: larger units contain many smaller units. - Students may confuse volume (capacity) with weight. Always use context (liquid containers). - Skipping steps in conversions leads to errors. Encourage visual aids and number sentences. - Some may invert conversion factors (e.g., multiplying instead of dividing).		
Basic Mathematical Skills		
Skill One	Skill Two	
Simple multiplication & division facts	Multi-step multiplication/division	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 Measurement and Units		

Domain
Measurement & Data
Standards
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
SMPs
MP 3 & 7
Key Vocabulary
Capacity Cup Customary Unit Gallon Pint Quart Process Vary

Unit 13 - Lesson 3 - Checkpoint

Relate Customary Units of Capacity



Towards Mastery

Fill in the blanks:

1.

Cups (c)	Fluid Ounces (fl oz)
1	8
2	
3	
4	
5	

 2.

Quarts (qt)	Pints (pt)
1	2
2	
3	
4	
5	

What number makes the equation true?

3. 6 cups = _____ fluid ounces 4. 8 quarts = _____ pints

5. _____ quarts = 4 gallons 6. _____ cups = 7 pints

Solve:

★ Zayed pours juice into cups. Which is bigger: 1 quart or 3 cups?

Mastery

Fill in the blanks:

1. Mohammed's coffee pot holds 4 cups of coffee. 1 cup = 8 fluid ounces.

Part A: Convert

- a) How many fluid ounces does the pot hold?
b) Show your working using a multiplication equation.

Cups	Fluid Ounces
1 cup	8 fluid ounces
2 cups	
3 cups	
4 cups	



Part B: Verify the Thinking

Three students solved the problem:

- Omar: $4 \times 8 = 28$ fluid ounces
- Aisha: $4 \times 8 = 32$ fluid ounces
- Khalid: $8 + 8 + 8 + 8 = 30$ fluid ounces

- ✓ Who is correct?
- ✓ Explain why the others are incorrect.
- ✓ Verify the correct answer using a different strategy.



Part C: True or False

- 2 cups = 24 fluid ounces
- 5 cups = 40 fluid ounces
- 32 fluid ounces = 4 cups

For each statement:

- Write **True** or **False**.
- Correct the statement if it is false.

Beyond Mastery

- 1 Ali used $2\frac{1}{2}$ quarts of oil for the lawnmower. How many pints of oil did he use? Explain how you found the solution.



- 2 Leila prepared 12 quarts of lemonade. She is filling bottles that each hold 2 cups. How many bottles can she fill?

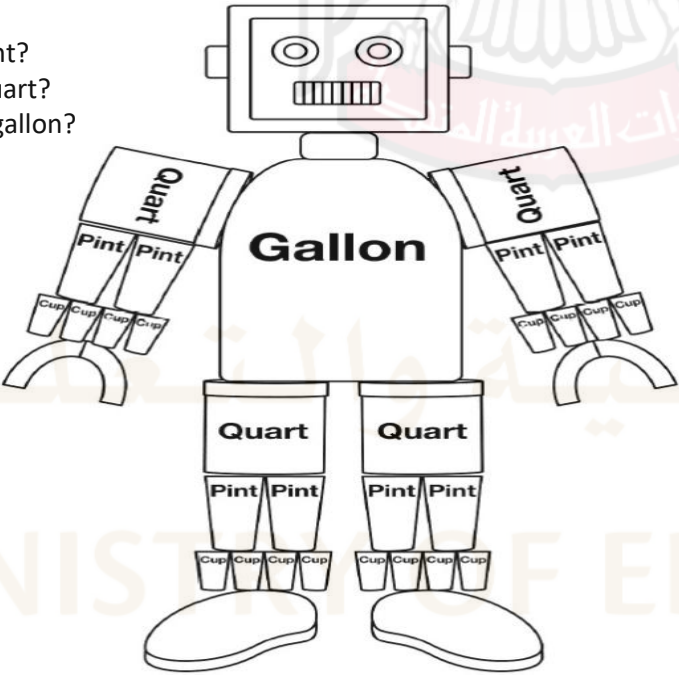


3 Salem filled a large tank with 2 gallons and 1 quart of camel milk. How many cups is that in total?

Unit 13 Lesson 3 - Support Activities

Relate Customary Units of Capacity



	Towards Mastery	Mastery
Activity Title	Gallon Man	
Type of the Activity	Manipulative-based	
Summary of Activity	Color the Gallon Man and work out: How many cups make a pint? How many pints make a quart? How many quarts make a gallon? 	Color the Gallon Man (same as the one in towards mastery) and work out: Which is greater: a quart or a pint? _____ Which is less: a cup or a pint? _____ How many cups are in a quart? _____ How many cups are in 2 quarts? _____ How many pints are in 2 quarts? _____ How many cups are in 3 pints? _____ Which is greater: 8 cups or 1 quart? _____ Which is less: 2 cups or one gallon? _____

Unit 13 Lesson 3 - Support Activities

Relate Customary Units of Capacity



	Beyond Mastery
Activity Title	Gallon Man
Type of the Activity	Manipulative-based
Summary of Activity	Color the Gallon Man and work out: 1) A lemonade stand sells 2 gallons of juice. How many cups of lemonade were sold? 2) A soup pot holds 3 quarts. How many pints is that? 3) A recipe needs 6 cups of milk. How many pints is that? 4) A juice container holds 3 gallons and 2 quarts. How many cups does it hold?

Convert Units of Time



Learning Objectives		
Express larger units of time in terms of smaller units.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify common units of time (days, hours, minutes, seconds). - Students can convert between simple time units where one conversion step is involved (e.g., hours to minutes).	- Students can convert units of time using two or more steps (e.g., days to hours to minutes). - Students can solve real-life word problems involving time conversions.	- Students can apply time conversions to multi-step problems involving problem-solving and reasoning. - Students can explain and justify their strategy for solving conversion problems.
Misconceptions and Notes		
- Mixing units: Students may treat hours and minutes as if they are on the same scale (like base 10). Emphasize base-60 for minutes and seconds. - Step omission: Students often skip a step (e.g., converting hours to minutes directly without breaking it down). - Context confusion: Word problems may confuse students. Encourage drawing time lines or number bars. - Teacher Tip: Use a time conversion chart (e.g., 1 hr = 60 min; 1 min = 60 sec; 1 day = 24 hrs) as an anchor chart and post it visibly.		
Basic Mathematical Skills		
Skill One	Skill Two	
Read clocks (analog and digital)	Identify units of time and symbols (sec, min, hr, day).	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 Convert Units of Time		

Domain
Measurement & Data
Standards
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table
SMPs
MP 2
Key Vocabulary
Days Equivalence Table Hours Minutes Seconds Confirm Modify

Unit 13 - Lesson 4 - Checkpoint

Convert Units of Time



Towards Mastery

Fill in the blanks:

What number makes the equation true?

1. 5 hours = ? minutes 2. 10 minutes = ? seconds
 $5 \times \underline{\quad} = 300$ $10 \times \underline{\quad} = 600$
 5 hours = minutes 10 minutes = seconds

3. 7 hours = minutes 4. 6 minutes = seconds

5. hours = 360 minutes 6. hours = 900 minutes

Ali woke up at 7:00 AM and had breakfast by 7:30 AM. How many minutes passed?
 minutes

Mastery



Solve the questions:

Hassan and Khalid are running in $\frac{1}{2}$ mile relay race. Khalid runs the first part in 3 minutes. Hassan runs the second part in 150 seconds. Who took longer? How much longer?

$\frac{1}{2}$ mile

3 min = seconds 150 sec = minutes

Amir goes to the mosque for prayer 5 times a day. If each prayer takes about 10 minutes, how many minutes does he spend in prayer in a day?

5 times/day

10 minutes

Beyond Mastery

Solve the questions:

Fatima boiled an egg for $9\frac{1}{2}$ minutes. For how many seconds did she boil the egg?

Amal spent 2 hours and 45 minutes reading. How many minutes did she read?

2 hours = minutes
 45 min = minutes

Unit 13 Lesson 4 - Support Activities

Convert Units of Time



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Al Ain Zoo 		
Type of the Activity	Hands on activity		
	Students will complete the activity to help the zookeepers convert the time units. Students will have to use their judgement to decide whether the zookeepers have allocated a reasonable time for each activity and suggest suitable times for the activities listed in the tables.		
Summary of Activity			
	1) The image shows the zoo is open from 9 am - 9 pm. How many hours is the zoo open? 2) The Parrot Show runs at 3:00 pm and 4:30 pm. How many hours are there between the two show times? 3) The Lemur Walk runs from 5:30 pm – 6:30 pm. If a student attends the entire activity, how many minutes do they spend there?	1) The Henna activity runs from 11:00 am - 1:00 pm. Express the total time in a) Hours b) Minutes 2) The Sheikh Zayed’s Falconry Trip runs from 2:00 pm - 4:00 pm. Express the duration in hours and minutes. 3) The Wings of the Sahara Show runs at 6:00 pm & 7:30 pm. How many minutes are there between the two show times?	A family arrives at 9:00 am and plans to attend: Giraffe Feeding (9:00 am – 1:00 pm) Sheikh Zayed’s Falconry Trip (2:00 pm – 4:00 pm) Lemur Walk (5:30 pm – 6:30 pm) a) How many total hours are they scheduled in activities (use only actual activity durations, not waiting time)? b) Express the total time in minutes.

Solve Problems That Involve Units of Measure



Learning Objectives		
Solve word problems that involve converting metric units of measure by using representations.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify and match metric units (millimeters, centimeters, meters, kilometers, grams, kilograms, liters, and milliliters). - Students can convert simple metric units using visual models and reference charts.	- Students can convert metric units using a variety of representations (number lines, tables, models). - Students can solve two-step real-world problems that require converting between metric units.	- Students can analyze multi-step problems involving conversions among metric units. - Students can choose appropriate strategies and justify their solutions.
Misconceptions and Notes		
- Students confuse <i>milli</i>- prefixes with <i>centi</i>- or think 1 ml is larger than 1 L. - Students invert conversion ratios (e.g., multiply instead of divide). - Students treat metric units as additive without conversion (e.g., adding meters to centimeters without converting). Teacher Tips: Always anchor to real objects (ruler, water bottle, school bus map). Use visual pathways (number line conversions).		
Basic Mathematical Skills		
Skill One	Skill Two	
Reading measurement tools (ruler, scale)	Unit estimation strategies	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 Convert Units of Measure		

Domain
Measurement & Data
Standards
4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
SMPs
MP 4
Key Vocabulary
Bar Diagram Number Line Logical Prediction

Unit 13 - Lesson 5 - Checkpoint

Solve Problems That Involve Units of Measure

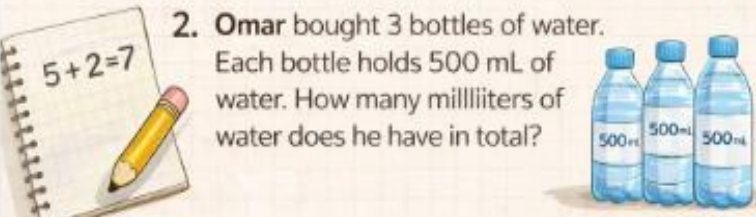


Towards Mastery

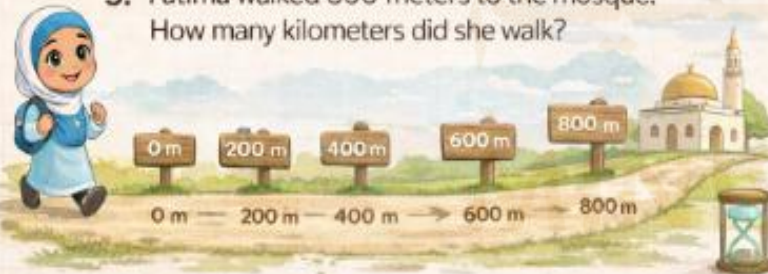
1. Shaimah needs 125 milliliters of olive oil for a recipe. How many times can she make the recipe with 1 liter of olive oil?



2. Omar bought 3 bottles of water. Each bottle holds 500 mL of water. How many milliliters of water does he have in total?



3. Fatima walked 800 meters to the mosque. How many kilometers did she walk?



Mastery

1. Hassan filled 3 jugs with 2 liters each and 1 jug with 1,500 mL. How many liters in total?

2. Fatima walked 700 meters to the park, then another 600 meters to her friend's house. What is the total distance in meters?



3. A delivery truck carried 6,500 g of dates and 4 kg of rice. What is the total mass in kilograms?



Beyond Mastery

1. During a UAE science camp, a group collected 2.75 kg of sand from one desert patch and 1,600 g from another. What is the total in kg?



2. Mariam has 8,000 g of dates and gives 2.5 kg to her cousin. How many kilograms remain?



3. A falcon flew 2,000 m one day, 3.5 km the next, and 1,500 m the following day. What is the total in kilometers?

Unit 13 Lesson 5 - Support Activities

Solve Problems That Involve Units of Measure



	Towards Mastery	Mastery
Activity Title	Metric Conversion Stations	
Type of the Activity	Students rotate through three simple stations and answer the questions.	
Summary of Activity	Station 1: Water Station (Liters → Milliliters) Metric Riddle #1 A bottle holds 1.5 liters of water. How many milliliters is that? Think About:💡 1 liter = _____ milliliters - Are we multiplying or dividing? Show Your Steps:🔗 - Write the conversion fact: _____ - Multiply or divide: _____ - Final answer: _____ mL Station 2: Race Track (Kilometers → Meters) Metric Riddle #2 Omar runs 3 kilometers in the race. How many meters did Omar run? Think About:💡 1 kilometer = _____ meters - Are we multiplying or dividing? Show Your Steps:🔗 - Write the conversion fact: _____ - Multiply or divide: _____ - Final answer: _____ m	Station 3: Ribbon Design (Centimeters → Meters) Metric Riddle #3 A roll of ribbon is 250 centimeters long. How long is the ribbon in meters? Think About:💡 100 centimeters = _____ meter - Are we multiplying or dividing? 3. Final answer: _____ m Station 1 Parisa's suitcase weighs 7.5 kilograms. She adds 2,300 grams of clothes. How many kilograms will the suitcase weigh in total? Station 2 A truck drives 345 kilometers. Convert this distance to meters. Station 3 A car's gas tank holds 40 liters of fuel. After fueling up, it reads 26,500 milliliters. How many liters of fuel are used?

Solve Problems That Involve Units of Measure



	Beyond Mastery
Activity Title	Metric Conversion Stations
Type of the Activity	Students rotate through three simple stations and answer the questions.
Summary of Activity	Station 1 Selim combines 3.68 kilograms of flour and 975 grams of sugar to bake baklava. How many grams of ingredients does Selim use in total? Station 2 A plane descends 2.25 kilometers during its descent for landing. How many centimeters does the plane descend? Station 3 Two water tanks hold a total of 8,500 liters. Tank A contains 3.75 kiloliters of water. How many milliliters are in Tank B?

Solve More Problems That Involve Units of Measure



Learning Objectives		
Use representations to solve word problems that involve converting units of measure.		
Towards Mastery	Mastery	Beyond Mastery
Students can solve simple word problems involving unit conversions using visual supports or manipulatives with teacher guidance.	Students can independently solve multi-step word problems that involve converting units of length, mass, and volume with accurate reasoning.	Students can solve complex real-world problems involving multiple conversions across different units and justify strategies used.
Misconceptions and Notes		
- Mixing up units (e.g., meters vs. millimeters). - Forgetting to convert before adding or subtracting. - Thinking smaller numbers (e.g., “300 ml is more than 2 L”). - Difficulty with decimal conversions (e.g., 1.2 km to meters). Teaching Tips - Always anchor meaning by showing physical examples (bottles, measuring tapes). - Use number lines to represent conversions visually. - Reinforce understanding by <i>estimating first</i> before calculating.		
Basic Mathematical Skills		
Skill One	Skill Two	
Understanding units (m, cm, km, g, kg, mL, L)	Converting between units (e.g., m ↔ cm, km ↔ m, g ↔ kg, mL ↔ L)	
Resources		

Domain
Measurement & Data
Standards
4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
SMPs
MP 5
Key Vocabulary
Elapsed Time Time Interval Indicate Reasonable

Unit 13 - Lesson 6 - Checkpoint

Solve More Problems That Involve Units of Measure



Towards Mastery	Mastery	Beyond Mastery
1 Yasmine's dog weighs 4 pounds. Alia's dog weighs $3\frac{2}{3}$ pounds. What is the combined weight of the two dogs in ounces? 2 Fasil makes 3 gallons of soup. He puts the soup in 1-quart containers. How many containers can he fill? 3 Jasmine has $3\frac{2}{3}$ yards of lace for 5 pillows. She uses 20 inches of lace for each pillow. How much lace does she have left?	Nour worked in the garden from 2:20 p.m. to 6:15 p.m. How many minutes did she work in the garden? A vine grow $\frac{1}{2}$ foot each week. How many inches does it grow in 6 weeks? Amal has 3 quarts of blueberries and 7 pints of raspberries. How many pints of berries does she have?	One soccer game ends at 10:15 a.m. and the next soccer game starts at 1:20 p.m. How many minutes are there between the games? Yusuf swam 400 meters in 14 minutes. Maryam swam 960 meters in the same amount of time. Who swam faster? Explain. Extend Your Thinking A concert is from 12:15 p.m. to 2:45 p.m. A movie lasts 2 hours and 8 minutes. The movie ends at 2:24 p.m. What time did the movie start? How much longer was the concert? Explain

Unit 13 Lesson 6 - Support Activities

Solve More Problems That Involve Units of Measure



	Towards Mastery	Mastery
Activity Title	Metric Team Race	
Type of the Activity	Problem-Solving / Fluency	
	Divide the class into teams of 3-4 students. Each team gets a whiteboard or chart paper. Each group can only submit one final answer. Fastest correct team earns 3 points, second correct team earns 2 points. Any group with clear explanation earns a bonus point.	
Summary of Activity	ROUND 1: DESERT DISTANCE DASH SCENARIO: Ahmed is driving 12 kilometers across the desert. The desert map shows distance in meters only! TEAM TASK: Convert 12 kilometers into meters. - One student writes. - One student calculates. - One student checks. - One student prepares to explain the reasoning. FINAL ANSWER: Ahmed drives _____ meters. BONUS QUESTION (for explanation point): ROUND 2: WATER SUPPLY SPRINT SCENARIO: Fatima packed 6 water bottles. Each bottle contains 500 milliliters. She needs to know how many liters she has in total. TEAM TASK: Find the total amount of water in liters. RACE RULES: - Show total milliliters first. - Then convert to liters. - All steps must be visible. FINAL ANSWER: Fatima has _____ liters of water.	ROUND 1: DESERT JOURNEY DASH SCENARIO: Aisha is driving 7.5 kilometers off-road across the desert. She will drive back the same distance on her return trip. TEAM TASK: Convert the total distance Aisha travels into meters and kilometers. FINAL ANSWERS: Aisha travels _____ meters ROUND 2: WATER USAGE WAVE SCENARIO: Khalid uses 3,200 milliliters of water to water his garden each day. How many liters of water does he use in a week? TEAM TASK: Calculate the total amount of water in liters Khalid uses in a week. FINAL ANSWER: Khalid uses _____ liters of water.

Unit 13 Lesson 6 - Support Activities

Solve More Problems That Involve Units of Measure



	Beyond Mastery
Activity Title	Metric Team Race
Type of the Activity	Problem-Solving / Fluency
Summary of Activity	Divide the class into teams of 3-4 students. Each team gets a whiteboard or chart paper. Each group can only submit one final answer. Fastest correct team earns 3 points, second correct team earns 2 points. Any group with clear explanation earns a bonus point.  ROUND 1: DESERT ADVENTURE RUSH  SCENARIO: Nadia drives 15.5 kilometers across the desert to camp. At the campsite, she fills a 3.5-liter water jug to its full capacity.  TEAM TASK: Solve both challenges: a. Convert the jug's water capacity into milliliters. b. Calculate the total distance Nadia travels in meters if she drives back the same distance.  ROUND 2: WATER STORAGE SPRINT  SCENARIO: Ali has a 250-liter water tank. Each day, he uses 18,500 milliliters of water for his household needs.  TEAM TASK: Determine how many days it take for the tank to be empty. ● Convert milliliters to liters. ● Divide tank capacity by daily liters used. ● Round to the nearest day.

Solve Problems Using a Perimeter Formula



Learning Objectives		
Use the formula for the perimeter of a rectangle. Use the formula for the perimeter of a rectangle to solve real-world problems.		
Towards Mastery	Mastery	Beyond Mastery
Students can identify and state the formula for the perimeter of a rectangle. Students can calculate the perimeter of rectangles with whole-number side lengths.	Students can apply perimeter formula accurately to solve problems. Students can distinguish when to use the perimeter formula.	Students can solve multi-step and open-ended problems involving perimeter. Students can use estimation to check the reasonableness of answers.
Misconceptions and Notes		
• Students may confuse perimeter and area: Perimeter measures the distance around while area measures space inside. • Some may add lengths instead of using the formula. Reinforce the formula: Perimeter = 2 × (Length + Width) • Miscounting grid units when rectangles are drawn on graph paper. Model by tracing and counting sides. • Mixing units (cm vs m). Always specify units. • Assuming squares and rectangles are the same. Clarify that all squares are rectangles, but not all rectangles are squares.		
Basic Mathematical Skills		
Skill One	Skill Two	
Identify shapes and sides (geometry basics).	Read and write measurement units (cm, m).	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 IXL		

Domain
Measurement & Data
Standards
4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
SMPs
MP 8
Key Vocabulary
Formula Length Perimeter Width Distinguish Between

Unit 13 - Lesson 7 - Checkpoint

Solve Problems Using a Perimeter Formula



Towards Mastery	Mastery	Beyond Mastery
1. 6 ft 5 ft P = _____ ft 2. 14 yd 7 yd P = _____ yd 3. l = 10 miles, w = 4 miles P = 2 × (10 + _____) P = _____ miles 4. l = 5 km, w = 2 km P = (2 × 5) + (2 × _____) P = _____ km 5. l = 8 m, w = 5 m P = _____ m 6. l = 5 units, w = 5 units P = _____ units 7. What is the perimeter of a rectangle that is 5 m long and 3 m wide? P = _____ m	8 inches 10 yd P = 24 inches w = _____ inches P = 36 yd w = _____ yd A rectangular playground has a length of 72 feet and a width of 36 feet. What is the perimeter? The school garden is 12 m long and 8 m wide. What is its perimeter?	A rectangular tablecloth has a width of 60 inches. The length is $\frac{1}{2}$ times the width. What is the perimeter? STEM Connection Salem designs a rectangular farm with one side measuring 800 meters and a perimeter of 2,400 meters. What is the length of the other side? Extend Your Thinking If the length is double the width, what are three possible perimeters of a rectangle?

Solve Problems Using a Perimeter Formula

	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Choice board		
Type of the Activity	Fluency / Problem-solving The students will pick 3 out of 4 questions to answer from their mastery level.		
Summary of Activity	Towards Mastery (Foundational Fluency) 1. A rectangle has a length of 8 cm and a width of 5 cm. What is its perimeter? 2. A rectangle has a length of 12 m and a width of 4 m. Find the perimeter. 3. A classroom notice board is 9 m long and 3 m wide. How much border is needed to go around it? 4. A rectangular playground is 15 m long and 10 m wide. What is the total distance around the playground?	At Mastery (Application & Multi-Step Thinking) 1. The perimeter of a rectangle is 36 cm. The length is 12 cm. What is the width? 2. A garden is 18 m long and 7 m wide. Fencing costs 5 AED per meter. How much will it cost to fence the entire garden? 3. A rectangular carpet has a perimeter of 50 m. The width is 10 m. What is the length? 4. A football field is rectangular. Its length is 30 m and width is 20 m. If a student runs around it 3 times, how far does the student run?	Beyond Mastery (Reasoning, Comparison & Justification) 1. Two rectangles both have a perimeter of 40 cm. Rectangle A is 14 cm by 6 cm. Rectangle B is 12 cm by 8 cm. Which rectangle has the greater area? Explain. 2. A rectangular park has a length that is 4 times its width. The perimeter is 60 m. What are the dimensions of the park? 3. Sara says: "If I double the length of a rectangle and keep the width the same, the perimeter doubles." Is Sara correct? Explain using an example. 4. A farmer has 80 m of fencing to build a rectangular pen. What possible dimensions could the largest area? Explain your reasoning.

Solve Problems Using an Area Formula



Learning Objectives		
Use the formula for the area of a rectangle to solve real-world problems.		
Towards Mastery	Mastery	Beyond Mastery
• Students can identify the area formula for a rectangle (Area = length x width). • Students can compute area with guidance for simple rectangles.	• Students can independently apply the area formula to find the area of a rectangle. • Students can solve straightforward word problems involving area.	• Students can solve multi-step real world area problems (including switching units). • Students can explain their reasoning and justify solutions orally or in writing.
Misconceptions and Notes		
Students may confuse area with perimeter. Emphasize difference (area measures inside, perimeter around). Students may forget units (sq meters). Always write mm², cm², m². Students may swap length and width but multiply anyway (that’s okay if commutative is shown). When solving word problems, students may miss relevant lengths. Teach them to underline given information first.		
Basic Mathematical Skills		
Skill One	Skill Two	
Recognize length and width in rectangles.	Solve basic single-step word problems using the area formula.	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2		
IXL		

Domain
Measurement & Data
Standards
4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
SMPs
MP 4
Key Vocabulary
Area Formula Length Rectangle Square Units Unit Squares Width Examine Utilize

Unit 13 - Lesson 8 - Checkpoint

Solve Problems Using an Area Formula



Towards Mastery

1.  $A = \underline{\hspace{2cm}}$ square ft

2.  $A = \underline{\hspace{2cm}}$ square yd

3. $l = 12$ meters, $w = 6$ meters $A = \underline{\hspace{2cm}}$ square meters

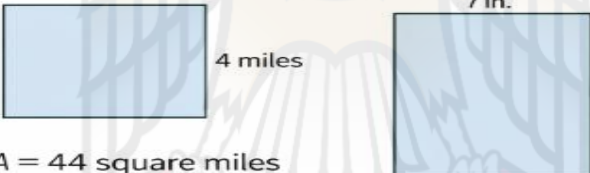
4. $l = 25$ km, $w = 4$ km $A = \underline{\hspace{2cm}}$ square km

A rectangle rug in Khalid's living room is 4 m long and 2 m wide. What is its area?

A courtyard outside Fatima's house measures 3 m by 3 m. How many square meters is it?

Mastery

Find the length of all the sides using the information provided.

 $A = 44$ square miles $l = \underline{\hspace{2cm}}$ miles $A = 49$ square inches

The Dubai school basketball court is 20 m x 10 m. What is its area

Zain's room is 6 m by 5 m. Find its area

Beyond Mastery

♦ If the width of the blanket is half the length, what is the area of the blanket?  60 in.

Error Analysis

The side lengths of a square are 6 units. Abdullah says the area of the square is 24 square units. How can you explain his error?

Extend Your Thinking

♦ The perimeter of a rectangle is 24 feet. What could be the area? Find 3 possible answers.



Unit 13 Lesson 8 - Support Activities

Solve Problems Using an Area Formula



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Classroom treasure hunt		
Type of the Activity	Manipulative based The teacher will stick the treasure hunt cards around the classroom, and the students will answer the questions based on their mastery level. The teacher has the flexibility to stick all the cards from different mastery levels around the classroom based on the students.		
Summary of Activity	Treasure Hunt! Card 1 A garden is 8 feet long and 5 feet wide. What is the area of the garden?  Treasure Hunt! Card 2 A swimming pool is 10 meters long and 6 meters wide. What is the area of the pool?  Treasure Hunt! Card 3 A rectangular rug is 7 feet long and 4 feet wide. What is the area of the rug?  Treasure Hunt! Card 4 A classroom wall is 9 meters long and 3 meters high. What is the area of the wall? 	Treasure Hunt! Card 1 A rectangular walkway is 12 feet long and 7 feet wide. It is being covered with decorative tiles. What is the area of the walkway?  Treasure Hunt! Card 2 A soccer field is 100 meters long and 65 meters wide. What is the area of the soccer field?  Treasure Hunt! Card 3 A rectangular piece of land is 80 feet long and 50 feet wide. If each square foot costs \$2 to buy, what is the total cost of the land?  Treasure Hunt! Card 4 A restaurant dining room is 18 meters long and 14 meters wide. What is the room's area in square meters? 	
	Treasure Hunt! Card 1 A garden is twice as long as it is wide. The total area of the garden is 128 square feet. What are the dimensions of the garden?  Treasure Hunt! Card 2 A swimming pool is 9 meters longer than it is wide. The pool has an area of 180 square meters. What are the dimensions of the pool?  Treasure Hunt! Card 3 A rectangular floor needs to be covered with square tiles that each measure 1 foot on each side. The floor is 9 feet longer than it is wide. and 252 tiles are used in total. What are the dimensions of the floor?  Treasure Hunt! Card 4 Michael planted a rectangular field of length 75 meters and width 30 meters. He left a 3 meter wide border of grass around the entire field for walking. What is the area of the planting section that needs to be filled? 		

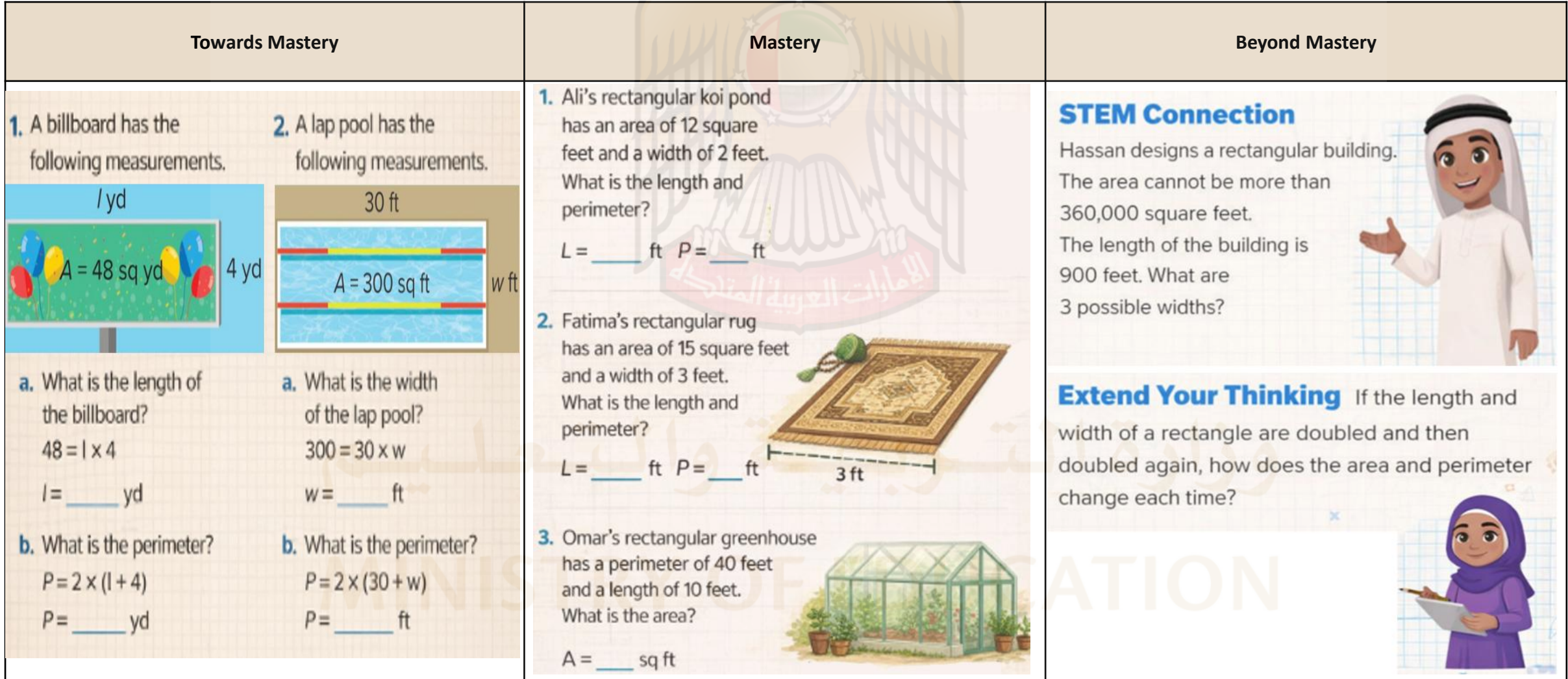
Solve Problems Involving Perimeter and Area



Learning Objectives		
Solve real-world problems by applying the area and perimeter formulas.		
Towards Mastery	Mastery	Beyond Mastery
Students can calculate the perimeter and area of simple rectangular shapes using formulas when values are given.	Students can apply perimeter and area formulas to solve multi-step real-world problems and explain reasoning.	Students can solve complex multi-step problems, apply variable reasoning, and connect to other math domains (e.g., addition, multiplication).
Misconceptions and Notes		
- Students confuse area units with perimeter units. Always emphasize square units (m²) for area vs linear units (m) for perimeter. - Use concrete manipulatives and grid paper to show how area counts squares. - Model think aloud strategies and highlight keywords (total, all around, combined). - Provide anchor chart to students to show interchangeability of length and width.		
Basic Mathematical Skills		
Skill One	Skill Two	
Understand units of measure (m, cm, mm, km)	Apply formulas: $Area = L \times W$, $Perimeter = 2(L + W)$	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 K5 Learning		

Domain
Measurement & Data
Standards
4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
SMPs
MP 3 & 4
Key Vocabulary
Area Formula Perimeter Rectangle Variable Argue Process

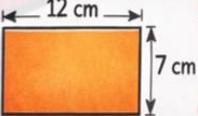
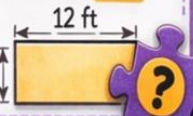
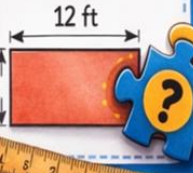
Solve Problems Involving Perimeter and Area



Unit 13 Lesson 9 - Support Activities

Solve Problems Involving Perimeter and Area



	Towards Mastery	Mastery
Activity Title	Matching Cards	
Type of the Activity	Manipulative based Students must match the question card with the correct answer.	
Summary of Activity	Card 1 A rectangle is 8 cm long and 4 cm wide. Find the <u>Perimeter</u>. Card 3 A rectangle is 10 meters long and 3 meters wide. Find the <u>Perimeter</u>. Card 5 A rectangle is 6 inches by 5 inches. Find the <u>Area</u>. Card 7 A rectangle is 7 feet by 9 feet. Calculate the <u>Area</u>. Card 2 The <u>Perimeter</u> is 24 cm. Card 4 The <u>Area</u> is 63 square feet. Card 6 The <u>Area</u> is 30 square inches. Card 8 The <u>Perimeter</u> is 26 meters.	Card 1 A rectangle is <u>12 cm</u> long and <u>7 cm</u> wide. Find the <u>Perimeter</u>.  Card 3 A rectangle has a perimeter of <u>34 meters</u>. The width is <u>8 meters</u>. Find the <u>length</u>. Card 5 A rectangle is <u>9 inches</u> long and <u>6 inches</u> wide. Find the <u>Area</u>. Card 7 A rectangle has an <u>area</u> of <u>72 square feet</u>. The length is <u>12 feet</u>. Find the <u>width</u>.  Card 2 The <u>Perimeter</u> is <u>38 cm</u>.  Card 4 The <u>Length</u> is <u>9 meters</u>. Card 6 The <u>Area</u> is <u>54 square inches</u>. Card 8 The <u>Width</u> is <u>6 feet</u>. 

Solve Problems Involving Perimeter and Area



	Beyond Mastery
Activity Title	Matching Cards
Type of the Activity	Manipulative based Students must match the question card with the correct answer.
Summary of Activity	Card 1 A square has a perimeter of 64 inches. What is the area? ? Card 2 The area is 256 square inches. ✓ Card 3 The perimeter of a rectangle is 44 inches. The length is 5 inches more than the width. What is the Length? Card 4 The perimeter is 48 feet. Card 5 A rectangular pool is twice as long as it is wide. If the area is 128 square feet, what is the perimeter? Card 6 The Length is 13.5 inches. Card 7 A rectangle has a length and width that total 29 meters. If the area is 198 m² what is the perimeter? Card 8 The perimeter is 58 meters.

Unit 13 - Lesson 10 - Overview

Display and Interpret Data on a Line Plot



Learning Objectives		
Create line plots to display measurement data sets in fractions of a unit. Interpret measurement data displayed on line plots to answer questions.		
Towards Mastery	Mastery	Beyond Mastery
- Place given fractional measurements (e.g., $\frac{1}{4}$, $\frac{1}{2}$) correctly on a number line. - Label simple line plots with titles and axes. - Answer basic retrieval questions from a completed line plot.	- Independently create line plots from data sets with fractions ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{8}$). - Interpret the data to solve comparison questions.	- Solve multi-step problems using the line plot data (addition & subtraction of fractions). - Interpret and justify conclusions based on comparisons (difference between highest & lowest).
Misconceptions and Notes		
- Students may treat dot count incorrectly, forgetting that stacked X's represent frequency. - Confusion between number line intervals vs. line plot frequencies. - Students may misinterpret fraction sizes when comparing (e.g., thinking $\frac{1}{2}$ is smaller than $\frac{1}{4}$). - Encourage students to label both axes and title their plots for clarity. - Use real concrete measures (rulers, strings, etc.) before abstract plotting to solidify understanding.		
Basic Mathematical Skills		
Skill One	Skill Two	
Understanding of fractions: $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{8}$ and like denominators.	Interpreting data distributions & frequency.	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 K5 Learning		

Domain
Measurement & Data
Standards
4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
SMPs
MP 2
Key Vocabulary
Data Eighth(s) Fourth(s) Interval Line Plot Scale Distinguish Between Indicate

Unit 13 - Lesson 10 - Checkpoint

Display and Interpret Data on a Line Plot



Towards Mastery

1a The table shows the time Ahmed spent practicing the saxophone each day. Display the data on a line plot.

Saxophone Practice (hours)	
Monday	1½
Tuesday	0
Wednesday	½
Thursday	1
Friday	1
Saturday	0
Sunday	1½

1b How many hours did Ahmed practice in all?
_____ hours

Mastery

Use the line plot for exercises 1–4.

**Ahmed's Class
Long Jump Distances (ft)**

1) What was the greatest distance jumped?
2) How many students jumped 4 feet or higher?
3) How many students jumped 4½ feet?
4) How many students jumped 3½ feet?

Beyond Mastery

The table shows the distances Fatima's family hiked each day during a family vacation. Use the data in the table for exercises

1 Draw a line plot to display the data.

2 Which distance was most frequently hiked?
_____ miles.

3 What is the difference between the longest and shortest distance Fatima's family hiked? _____ miles.

Distance Hiked (miles)	
Monday	3¼
Tuesday	2
Wednesday	3¾
Thursday	2¼
Friday	4
Saturday	2¾
Sunday	3¼

Unit 13 Lesson 10 - Support Activities

Display and Interpret Data on a Line Plot



	Towards Mastery	Mastery
Activity Title	Line Plot Anchor Chart	
Type of the Activity	Anchor Chart Activity	
Summary of Activity	Students create an anchor chart to show the steps to draw and interpret line plot. They will complete the relevant sections to complete the anchor chart.	

What is a Line Plot?

Line Plot

Step 1: Collect Your Data

Step 2: Order the Data

Step 3: Draw a Number Line

Step 4: Plot Your X Marks

Step 5: Check Your Work

Vocabulary

✓

✓

✓

✓

✓

✓

Line Plot

How to Analyze a Line Plot:

Q STEP 1: Look for the most frequent value

Q STEP 2:

Q STEP 3:

Q STEP 4:

Q STEP 5:

✓ The most common measurement is _____ because _____.

✓

✓

Multi-Step Thinking

✓ How much longer is the longest measurement than the shortest?

✓

✓

Display and Interpret Data on a Line Plot

	Beyond Mastery
Activity Title	Line Plot Anchor Chart
Type of the Activity	Anchor Chart Activity
Summary of Activity	Students create an anchor chart to show the steps to draw and interpret line plot. They will complete the relevant sections to complete the anchor chart. Advanced Questions ✓ What pattern do you notice? ✓ ✓ ✓ ✓ ✓ Line Plot Can a Line Plot Be Misleading? ✗ Unequal intervals ✗ ✗ ✗ ✗ What's wrong? ✓ Spot the mistake ✓ ✓ Justify Your Thinking ✓ Prove your answer using the graph. ✓ ✓ ✓

Solve Problems Involving Data on a Line Plot



Learning Objectives		
Solve problems involving addition and subtraction of fractions based on analysis of data displayed in line plots.		
Towards Mastery	Mastery	Beyond Mastery
- Students can read and interpret the frequency of data points on a line plot, - Students can add or subtract simple like-fractions connected to line plot data.	- Students can accurately analyze a line plot with data measured in fractions. - Students can solve addition or subtraction problems involving those fractions.	- Students can interpret trends and compare multiple datasets. - apply fraction addition/subtraction creatively in multi-step problems.
Misconceptions and Notes		
- Students confuse the X-marks on a line plot with the actual value. Remind them the line shows <i>frequency</i>, not measurement value. - Fractions must align to <i>equal intervals</i> on the number line. Reinforce using fraction strips or rulers. - Some students add numerators without common denominators. Use manipulatives to show why this fails.		
Basic Mathematical Skills		
Skill One	Skill Two	
Add and subtract like fractions.	Compare fractional data points.	
Resources		
REVEAL – Teacher’s Edition – Grade 4 – Volume 2 Line Plots		

Domain
Measurement & Data
Standards
4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
SMPs
MP 6
Key Vocabulary
Eighth(s) Fourth(s) Like Denominators Line Plot Display Examine

Unit 13 - Lesson 11 - Checkpoint

Solve Problems Involving Data on a Line Plot



Towards Mastery	Mastery	Beyond Mastery
Movie Length Word Problems Movie Length (hours) 1. What is the difference between the lengths of the longest movie and the shortest movie? 2. What is the combined length of the shortest movie and the longest movie? 3. How long would you need to watch all the movies?	Use the diagrams below to answer the questions: Daily Band Practice (hr) Daily Basketball Practice (hr) 1a) How many hours were spent practicing band? 1b) How many hours were spent practicing basketball? 1c) If Noor and Hassan wanted to practice both activities for the same amount of time each week, which activity would you need to practice more? By how much? 1d) How much time was spent practicing both activities throughout the week?	1a) What is the difference in thickness between the thickest book and the thinnest book? Book Thickness (in.) 1b) What is the combined thickness of the $\frac{5}{8}$-inch books? 1c) Error Analysis Caleb says the combined thickness of all the books is $2\frac{6}{8}$ inches. How would you respond to Caleb?

Unit 13 Lesson 11 - Support Activities

Solve Problems Involving Data on a Line Plot



	Towards Mastery	Mastery
Activity Title	Line Plots in the Classroom	
Type of the Activity	Hands on Students have the opportunity to measure objects within the classroom and represent it using a Line Plot. (Feel free to adapt the numbers based on the class data.)	
Summary of Activity	PART 1: Collect the Data Have students share their shoe sizes (include halves only — no quarters). PART 2: Organize the Data (Frequency Table) PART 3: Create the Line Plot  How many students wear size 6? How many students wear size 6½? Which shoe size is most common? How many students wear size 5 or 5½? Are there more students wearing size 6 or 6½? How many students were surveyed in total? What is the difference between the number of students who wear size 5 and size 7? Structured Sentence Support - There are ____ students who wear size ____. - The most common shoe size is ____ because it has ____ Xs. - There are ____ more students wearing ____ than ____.	PART 1: Collect the Data Materials: - Rulers marked in ¼ inches - Student pencils Instructions: - Measure your pencil to the nearest ¼ inch. - Record your measurement. - Add your data to the class chart. Remind students: - Look carefully at the quarter marks. - Round to the nearest ¼ inch PART 2: Create a Frequency Table PART 3: Create the Line Plot How many more pencils measure 6 inches than 5¼ inches? How many pencils measure between 5½ and 6½ inches inclusive? If 2 students sharpen their pencils and they decrease from 6¼ inches to 6 inches, what is the new total for 6 inches? Does 6 inches become the most common length? True or False: “Most pencils are longer than 6 inches.” Use numbers to justify. What is the difference between the longest and shortest pencil?

Unit 13 Lesson 11 - Support Activities

Solve Problems Involving Data on a Line Plot



	Beyond Mastery
Activity Title	Line Plots in the Classroom
Type of the Activity	Hands on Students have the opportunity to measure objects within the classroom and represent it using a Line Plot. (Feel free to adapt the numbers based on the class data.)
Summary of Activity	PART 1: Data Collection Students have to: ▪ Select some textbooks or reading books. ▪ Measure the spine thickness to the nearest 1/8 inch. ▪ Record results. PART 2: Create the Line Plot PART 3: Beyond Mastery Analysis Tasks What is the thinnest book? What is the thickest book? What is the difference between the thinnest and the thickest book? Group your data into the following groups: Group A: $1\frac{1}{8} - 1\frac{6}{8}$ Group B: $1\frac{7}{8} - 2\frac{4}{8}$ Group C: $2\frac{5}{8} - 2\frac{7}{8}$ Which group has the most books? Which group has the least? How many more books are in the largest group than the smallest? If every book cover adds $\frac{1}{8}$ inch, what happens to the entire data set? Does the most common thickness change?

Unit 13 – Did You Get it?

Units of Measurement and Data



This section aims to assess how well students have mastered the module objectives upon completion of the module.

Question Number	Question	DOK Level	Standard	SMPs
1	A water tank holds 5 liters of water. How many milliliters is that? Then, explain why your answer makes sense.	1-2	4.MD.A.1	SMP 2,6
2	A runner jogs 3 kilometers in the morning and 750 meters in the evening. How many meters did the runner jog in total? Show all steps.	3	4.MD.A.1, 4.OA.A.3	SMP 1,4
3	A rectangle has a length of 9 m and a width of 4 m. a) Find the perimeter. b) Find the area. c) Explain why perimeter and area are different even though they use the same numbers.	3	4.MD.A.3	SMP 3
4	A line plot shows plant growth in centimeters: How many plants grew more than $\frac{4}{8}$ cm? What is the total growth of all plants combined? Show your reasoning. 	3	4.MD.B.4	SMP 4,6
5	A school garden has a rectangular planting area. The length is 12 meters, and the width is 5 meters. The school wants to build a fence around the garden and lay grass inside it. a) How much fencing is needed? b) How much grass is needed? c) If fencing costs AED 8 per meter and grass costs AED 5 per square meter, what is the total cost? d) Explain why you used different formulas to solve each part. Show all reasoning and justify your answers.	4	4.MD.A.3, 4.OA.A.3	SMP 1,3,4,7

Geometric Figures

Notes & Guidance

In this unit, students deepen and formalize their understanding of two-dimensional geometric figures as they learn to identify, describe, and classify shapes using their properties. Students explore points, lines, line segments, rays, angles, symmetry, and polygons, and use attributes such as side lengths, angle measures, and parallel and perpendicular lines to analyze figures. They draw and construct shapes using tools, compare and sort shapes based on shared properties, and apply geometric reasoning to solve problems. Students use models, diagrams, and real-world contexts to explain relationships among shapes and justify their thinking.

Pedagogy

- Move from concrete to pictorial then to abstract representations to strengthen conceptual understanding before procedural fluency.
- Build understanding through multiple representations and hands-on exploration.
- Use real contexts (architecture, tiles, maps, sports fields, design patterns) to anchor geometric meaning.
- Provide tools such as rulers, protractors, mirrors, grids, and geoboards to support modelling and construction.
- Facilitate mathematical discourse by asking students to explain how they classified or constructed figures.
- Encourage productive struggle through problem-solving tasks where students compare, justify, and reason about shape properties.
- Use purposeful questions (e.g., “How do you know these lines are perpendicular?” “What properties make this a rectangle?”).
- Incorporate collaborative tasks and partner talk/discussions.

Key Skills

- Identify and draw points, lines, line segments, and rays.
- Recognize, measure, and draw angles using a protractor.
- Decompose and find unknown angle measures using addition and subtraction.
- Identify and construct parallel and perpendicular lines.
- Classify triangles and quadrilaterals based on side lengths, angles, and line relationships.
- Recognize and draw lines of symmetry in two-dimensional figures.
- Apply geometric properties to solve real-world and mathematical problems.

International Assessment Links



Geometry: Develop understanding of geometric shapes and their properties, identify and classify figures using attributes such as side lengths, angles, and parallel or perpendicular lines, measure and construct angles accurately, and apply geometric reasoning to solve problems using diagrams, tools, and representations.



Space & Shape: Apply understanding of shapes, spatial relationships, and geometric properties in real-life contexts, interpret and analyze diagrams, select appropriate tools and strategies, and reason about measurements, constructions, and classifications to solve practical problems.

Unit 14 – Geometric Figures

Learning Objectives and Standards

Standards	Learning Objectives		Formative Assessment Criteria
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. 4.MD.C.5.a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $1/360$ of a circle is called a "one-degree angle," and can be used to measure angles. 4.MD.C.5.b An angle that turns through n one-degree angles is said to have an angle measure of n degrees. 4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. 4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. 4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. 4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	14.1	Identify and draw points, lines, line segments, and rays.	Accurately identify and draw points, lines, line segments, and rays
	14.2	Understand concepts of angle measurement and classify angles as right, acute, or obtuse. Recognize that an angle is formed when two rays share a common endpoint.	Correctly classify and describe angles as right, acute, or obtuse
	14.3	Measure angles in whole-number degrees using a protractor. Draw angles with a given measurement using a protractor.	Measure and draw angles to the nearest whole-number degree
	14.4	Draw perpendicular and parallel lines. Identify perpendicular and parallel lines in two-dimensional figures.	Identify and construct parallel and perpendicular lines in figures.
	14.5	Decompose an angle into two or more angles and recognize that the whole angle is the sum of the decomposed angles.	Decompose angles and accurately determine the whole or missing angle measure.
	14.6	Represent problems involving unknown angle measures using an equation. Determine how angles are related to solve mathematical and real-world problems involving an unknown angle measure.	Represent unknown angle problems using equations and correctly solve for the missing measure
	14.7	Identify properties of quadrilaterals such as parallel and perpendicular lines. Classify quadrilaterals based on the presence or absence of parallel and perpendicular lines.	Classify quadrilaterals based on parallel and perpendicular sides
	14.8	Use side lengths and angle size to classify triangles.	Classify triangles correctly by side lengths and angle measures
	14.9	Recognize a line of symmetry for a 2-dimensional figure as a line that divides a figure into matching parts. Explain how to find lines of symmetry on 2-dimensional figures.	Identify and draw lines of symmetry that divide figures into matching halves
	14.10	Draw multiple lines of symmetry on 2-dimensional figures Identify attributes of 2-dimensional figures that are symmetrical.	Determine and draw all lines of symmetry in two-dimensional figures

Notes

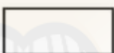
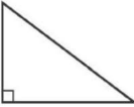
- Scope & Sequence & Instructional Planners (IPs) – [LMS Platform](#)
- Grade 4 Teacher Edition Book – [MINHAJI](#)

Unit 14 – Are You Ready?

Geometric Figures



This section aims to identify the fundamental knowledge and skills that students already possess before starting the module, as well as any areas that may need support or review to strengthen new learning. Teachers can use this section to conduct a quick check of prerequisite skills and baseline readiness.

Question Number	Question	DOK Level	Standard	SMPs
1	Which of these is not an example of a rectangle? A  B  C  D 	2	3.G.A.1	6, 7
2	What is the difference between a triangle and a quadrilateral? Choose the correct answer. Explain how you know. I) Equal sides II) Right angles III) Amount of sides	3	3.G.A.1	1,3, 7
3	Which name best describes the figure shown? Choose the correct answer.  I) Rhombus II) Rectangle III) Square IV) Quadrilateral	1	3.G.A.1	5, 7
4	The map shows a city park that has 2 rectangular parts. What is the total area of the park? 	3	3.MD.C.7d	1, 4, 6
5	Describe the attributes of the figure shown. 	2	3.G.A.1	3, 6, 7

Unit 14 - Lesson 1 - Overview

Understand Lines, Line Segments, and Rays



Learning Objectives		
By the end of the lesson, students will be able to identify and draw points, lines, line segments, and rays.		
Towards Mastery	Mastery	Beyond Mastery
- Students can recognize and name points, lines, line segments, and rays using models or pictures. - Students can draw simple examples of points and line segments using tools.	- Students can independently identify and accurately draw points, lines, line segments, and rays. - Students can explain the differences between lines, segments, and rays.	Students can apply their understanding of points, lines, line segments, and rays to solve real-world and geometric problems.
Misconceptions and Notes		
Students may think that a line is the same as a line segment. Students may not look at the correct part of the figure to identify the geometric shape.		
Basic Mathematical Skills		
Skill One	Skill Two	
Recognize and name points, lines, line segments, and rays in pictures or diagrams.	Draw and label points, lines, line segments, and rays using correct notation.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Geometry
Standards
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
SMPs
MP 6
Key Vocabulary
Endpoint, line, line segment, point, ray

Unit 14 - Lesson 1 - Checkpoint

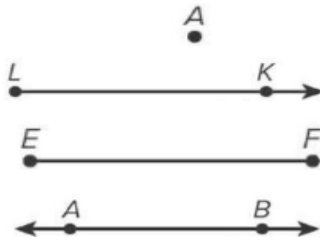
Understand Lines, Line Segments, and Rays



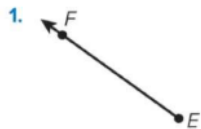
Towards Mastery

- Matching: Draw lines to match the figures to their names

- Point
- Line
- Line segment
- Ray



- Naming: Write names to describe the figures below.



- Draw each figure given below.

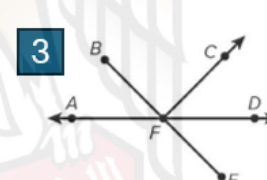
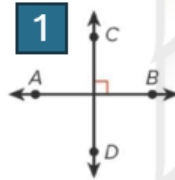
1) Ray $\overrightarrow{ST}$

2) Line $\overleftrightarrow{JK}$

3) Line segment $\overline{UV}$

Mastery

- Look at each diagram. Identify a line, a ray, and a line segment? Write the correct name.

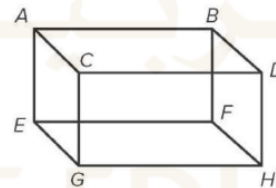


Line: _____
Ray: _____
Line segment: _____

Line: _____
Ray: _____
Line segment: _____

Line: _____
Ray: _____
Line segment: _____

- Identify and name all the line segments in the figure below.



- Draw and label a figure that contains line ON, ray OP, and line segment NP.

Beyond Mastery

- Puzzles:

A desert road looks like it goes on forever. What geometric figure can be used to represent it?



"The beam from a lighthouse in Abu Dhabi shines outward. What geometric figure can be used to represent it?"



A mosque window has 4 straight edges. What geometric figure can be used to represent it? Explain.



- Marwan says that the edge of a desk is an example of a line. How do you respond to Marwan?

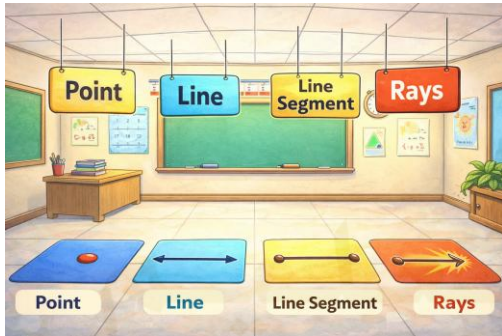


- Draw a figure in your home or classroom that has a line, a ray, and a line segment.

Unit 14 Lesson 1 - Support Activities

Understand Lines, Line Segments, and Rays

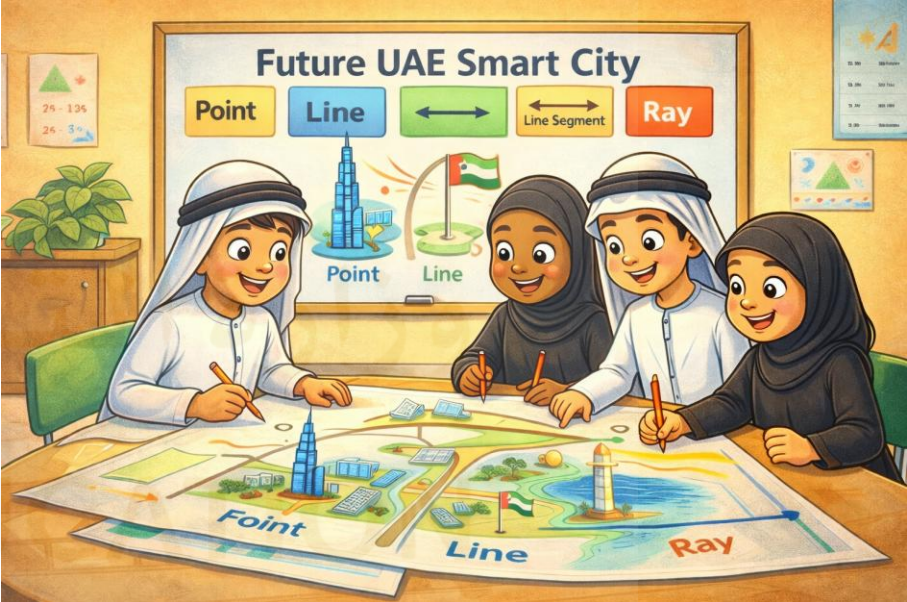


	Towards Mastery	Mastery								
Activity Title	UAE Landmark Hunt 	UAE Geometry Explorers 								
Type of the Activity	Hands-on Activity	Card Sort Activity								
Summary of Activity	Say 🗨️ I will place large cards in four corners labeled: <i>Point – Line – Line Segment – Ray</i> You will explore, think, and place shapes found in famous UAE landmarks to the correct corner.  Ask How is a line different from a line segment? If we draw Etihad Rail from Abu Dhabi to Dubai on paper, would it be a line or a line segment? Explain. How does this railway help connect people across the UAE? How does the light house help protect ships? Why do we respect our UAE flag?	Say 🗨️ You will work in groups as Geometry Explorers in the UAE! You will sort and organize the UAE objects in the table below to show examples of Points, Lines, Line segments, and Rays  <table><tr><th>Point</th><th>Line</th><th>Line Segment</th><th>Ray</th></tr><tr><td></td><td></td><td></td><td></td></tr></table> Ask Why is the lighthouse beam in Abu Dhabi a ray and not a line? Which object from today’s activity makes you feel most proud of the UAE? Why? How can we show respect for public places like railways, mosques, and landmarks?	Point	Line	Line Segment	Ray				
	Point	Line	Line Segment	Ray						

Unit 14 Lesson 1 - Support Activities

Understand Lines, Line Segments, and Rays



	Beyond Mastery
Activity Title	Design Your Smart City Map 
Type of the Activity	Small Group Activity
Summary of Activity	Say 🗣️ In your group, sketch a simple plan of your “Future UAE Smart City.” Include at least: 3 examples of points, 3 lines, 3 line segments, and 3 rays. You will exchange maps with another group, then identify and check: Did they correctly label, points, lines, segment, rays.  Ask Where do we see rays in real UAE life? Why is a railway usually shown as a line segment and not a full line? How does geometry help engineers design smart cities? How does good city design help people travel safely?

Classify Angles



Learning Objectives		
By the end of the lesson, students will be able to 1) Understand concepts of angle measurement and classify angles as right, acute, or obtuse. 2) Recognize that an angle is formed when two rays share a common endpoint.		
Towards Mastery	Mastery	Beyond Mastery
- Students can recognize angles in pictures and models and identify the vertex and sides (rays). - Students can identify right, acute, and obtuse angles using visual comparisons or angle models. - Students can describe that an angle is formed when two rays share a common endpoint, but may need teacher guidance.	- Students can accurately draw and label angles using rays and a common endpoint (vertex). - Students can use angle measurement concepts to explain why an angle belongs to a specific category.	- Students can apply their understanding of angle measurement to real-world contexts (corners, turns, designs, maps). - Students can compare and justify angle classifications using measurements or reasoning.
Misconceptions and Notes		
Students may think that acute, right, and obtuse angles must be in an upright position.		
Basic Mathematical Skills		
Skill One	Skill Two	
Recognize that an angle is formed by two rays with a common endpoint (vertex).	Sort or name right, acute, and obtuse angles using models or pictures. Draw, label, and explain angles based on their measurements or properties.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL Mathspace		

Domain
Geometry Measurement & Data
Standards
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. 4.MD.C.5.a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
SMPs
MP 5
Key Vocabulary
Acute angles, angle, endpoint, obtuse angle, ray, right angle

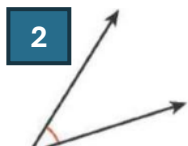
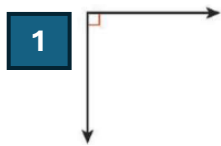
Unit 14 - Lesson 2 - Checkpoint

Classify Angles



Towards Mastery

- Classify the angles below. Explain your thinking.



- Draw and name the angles below.

Right angle

Obtuse angle

Acute angle

- Fill in the blanks:

- An _____ angle measures less than a right angle.
- An angle measure of 90° is a _____ angle.
- An _____ angle measures greater than a right angle.

Mastery

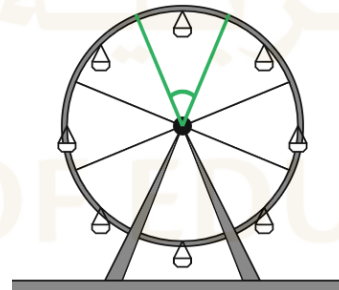
- What type of angle is the angle highlighted in green below?



- Is the following angle acute, right, obtuse, or straight?

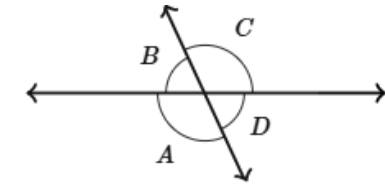


- What type of angle is the highlighted angle below?



Beyond Mastery

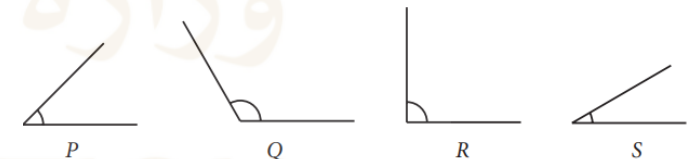
- Which of the angles in the diagram are obtuse angles? Name them.



- What type of angle is $\angle A$ in the figure?



- In which of the following are the angles ordered by size, from least to greatest?



- (A) Q, P, R, S (B) Q, R, P, S (C) S, P, R, Q (D) S, R, P, Q

Unit 14 Lesson 2 - Support Activities

Classify Angles



	Towards Mastery	Mastery	Beyond Mastery								
Activity Title	Angles Around Us 	UAE Structures 	Falcon Flight Investigation  								
Type of the Activity	Think-Pair Share	Think-Pair Share	Claim–Support–Question Integration with AI/Research								
Summary of Activity	Say  You will explore angles we see in mosques, majlis, and traditional UAE places.  First, observe and predict, then share with your partner. Use protractor to measure and say the type of angles in the structures. Ask What makes an angle a right angle? How can you tell if an angle is acute? What clues tell you an angle is obtuse? Why should we respect mosques and cultural buildings?	Say  You will investigate how angles appear in real UAE structures and how we can classify them as right, acute, or obtuse?  You will complete the table below. <table><tr><th>Structure</th><th>Angle Seen</th><th>Angle Type</th><th>Justify</th></tr><tr><td></td><td></td><td></td><td></td></tr></table> Ask Name one structure that contains all three types of angles. Name one structure that has none of the angle types. If the Dubai Frame makes a 90° angle and the mosque arch makes a 120° angle, how much larger is the arch angle?	Structure	Angle Seen	Angle Type	Justify					Say  You are Falcon Flight Investigators! You will research using geometry and AI tools to study how a falcon’s wings form <u>different</u> angles when it <u>flies</u>, <u>glides</u>, or <u>dives</u>. Analyze the angles formed by the wings. a) Is the angle acute, right, or obtuse? b) Explain how do you know. You will choose one wing position, make a claim, then support with evidence.  Ask Is it always true that angles less than 90° are acute? Explain why. Why is the falcon important in UAE culture? A falcon dives and its wings form a 70° angle. If it opens 25° more, what is the new angle? What type of angle is it now?
Structure	Angle Seen	Angle Type	Justify								

Unit 14 - Lesson 3 - Overview

Draw and Measure Angles



Learning Objectives		
By the end of the lesson, students will be able to 1) Measure angles in whole-number degrees using a protractor. 2) Draw angles with a given measurement using a protractor.		
Towards Mastery	Mastery	Beyond Mastery
- Students can use a protractor with guidance to measure simple angles in whole-number degrees. - Students can draw basic angles using tools but may need teacher support for accuracy.	- Students can independently measure angles in whole-number degrees using a protractor. - Students can accurately draw angles with a given measurement using a protractor.	- Students can apply angle measurement and drawing skills to solve real-world or geometric problems. - Students can compare, construct, and justify angles using measurements and reasoning.
Misconceptions and Notes		
Students may think that they always need to line up one of the rays with 0 degrees, when measuring the angles.		
Basic Mathematical Skills		
Skill One	Skill Two	
place a protractor correctly and read simple angle measures.	Accurately measure angles in whole-number degrees using a protractor. Draw angles with a given measurement.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Measurement & Data
Standards
4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. 4.MD.C.5.a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles. 4.MD.C.5.b An angle that turns through n one-degree angles is said to have an angle measure of n degrees. 4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
SMPs
MP 5
Key Vocabulary
Angle, degrees, endpoint, protractor, ray

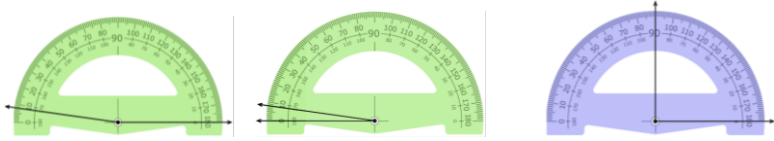
Unit 14 - Lesson 3 - Checkpoint

Draw and Measure Angles



Towards Mastery

- What is the measure of each angle? Is the angle **acute**, **right**, or **obtuse**?



Angle = ____
Type: ____

Angle = ____
Type: ____

Angle = ____
Type: ____

- Aisha drew an obtuse angle. Which of the following could be its measure?

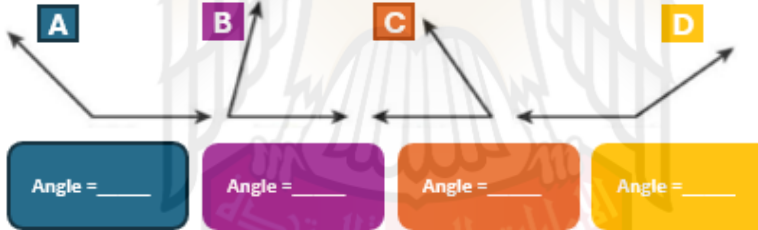
A) 127° B) 34° C) 90° D) 78°

- Measure the angles formed by each letter.



Mastery

- What is the measure of each angle? Use a protractor to measure.



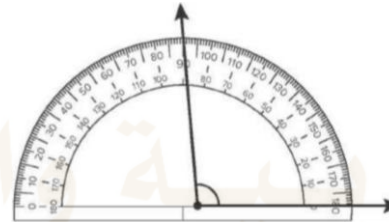
Angle = ____

Angle = ____

Angle = ____

Angle = ____

- How would you place the protractor to measure the angle accurately?



- Measure the angles formed by each letter.



Beyond Mastery



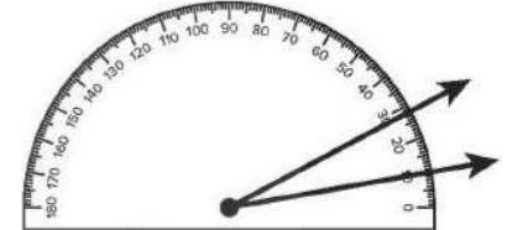
- Draw the following angles. Use a protractor to measure.

An angle greater than 90 degrees but less than 180 degrees.

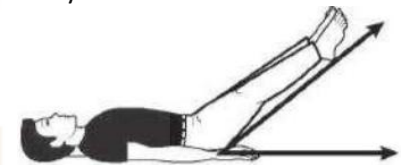
A 90 degrees angle

An angle less than 90 degrees

- Khalid says the angle shown has a measure of 28°. How do you respond?



- Integration with PE:** Before exercise, Hamdan stretches his legs. He needs to lift his legs more than 30°. Is he doing the stretch correctly? Explain how you know.



Ask:

What type of angle (acute, right, obtuse) is safest for a beginner stretch?

How does exercising safely and correctly help build a strong and active nation?

Unit 14 Lesson 3 - Support Activities

Draw and Measure Angles



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Angle Builders	Angle Made to Order	Angle Detectives
Type of the Activity	Hands-On Guided Exploration	Peer Check Activity	Small Group Activity
Summary of Activity	Say: 🗨️ You will draw the angles give below on a ray that starts at point M.  Use a protractor to: a) Draw and label 40° angle at point M. b) Draw and label 135° angle at point M. c) Draw and label 90° angle at point M. e) Draw and label both angles 40° and 135° angle at point M. Ask Where should the center of your protractor be placed? Why must one side of the angle stay on the given ray? Which of the angles you drew is acute? Which is obtuse? Which is right? If you draw a 40° angle and then open it 50° more, what is the new angle?	Say: 🗨️ I will give you four blank cards labeled A, B, C, and D. On each card, you will carefully draw one angle that meets the requirement given. Card A: An angle that is less than 35° Card B: An angle that is between 35° and 80° Card C: An angle that is greater than 80° but less than 120° Card D: An angle that is greater than 120° but less than 180° Partner check: Swap your cards with your partner for checking and feedback. Ask If an angle is 80°, which card does it belong in card B? Why If card A measures 30°, and you increase it by 20°, what is the new measure? Which card would it belong to? Can two different students draw different angles that both belong in card C? Explain.	Say: 🗨️ Your group will use the protractor to draw the angles below: An angle greater than 90° but less than 180° A 90° angle An angle less than 90° After drawing, measure again to confirm, label each angle, and classify each as acute, right, or obtuse. You will exchange your work with other groups for review and feedback. Ask Why a group might have make a mistake in drawing and measuring their angles? If a group made a mistake, how should we respond? Why is respectful correction important in school and society?

Understand Parallel and Perpendicular Lines



Learning Objectives		
By the end of the lesson, students will be able to 1) Draw perpendicular and parallel lines. 2) Identify perpendicular and parallel lines in two-dimensional figures.		
Towards Mastery	Mastery	Beyond Mastery
- Students can draw simple examples of parallel or perpendicular lines with teacher guidance. - Students can recognize and identify parallel and perpendicular lines in diagrams and models.	- Students can independently identify parallel and perpendicular lines in two-dimensional figures. - Students can accurately draw parallel and perpendicular lines using tools.	- Students can apply their understanding of parallel and perpendicular lines to real-world or geometric problems. - Students can analyze figures to compare, classify, and explain line relationships using reasoning.
Misconceptions and Notes		
Students may confuse the terms, perpendicular lines and parallel lines.		
Basic Mathematical Skills		
Skill One	Skill Two	
Draw parallel or perpendicular lines	Identify parallel and perpendicular lines in pictures or diagrams.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Geometry
Standards
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
SMPs
MP 6
Key Vocabulary

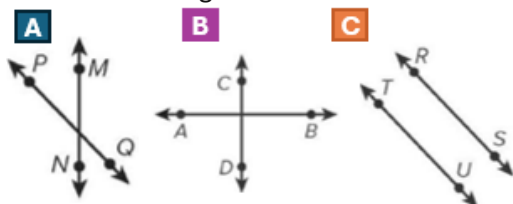
Unit 14 - Lesson 4 - Checkpoint

Understand Parallel and Perpendicular Lines



Towards Mastery

- Look at the lines in the figures below.



- Which lines cross and make a right angle?
Figure: _____
- Which lines go in the same direction and never meet?
Figure: _____
- Which lines cross but not make a square corner?
Figure: _____
- Which figure shows parallel, perpendicular, or neither?
Figure: _____

- Draw a line to meet the description for each.

Parallel to



Perpendicular to



Neither parallel nor perpendicular to



Mastery

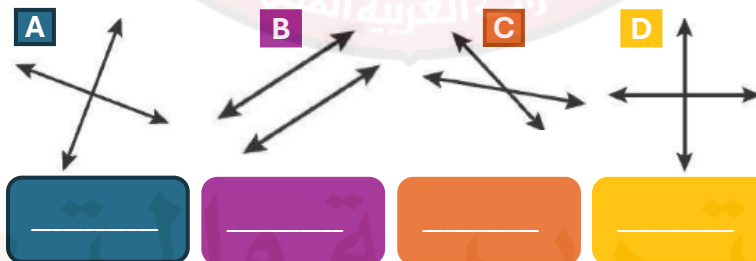
- Listen to the descriptions and draw a pair of lines that match accurately.

Perpendicular

Parallel

Intersecting,
but not
perpendicular

- Label the pairs of lines drawn below.



- Ahmed thinks that a window only has perpendicular line segments. Explain any errors in his thinking.

Beyond Mastery

- Name a real-world object that does not include parallel or perpendicular lines? Draw and explain your object.

- Write the capital letter that matches each description.

I have parallel lines and perpendicular lines. Some of my lines look like train tracks and some make right angles. Who am I?

I do not have parallel lines. I do not have perpendicular lines. All my lines are slanted or curved. Who am I?

I have perpendicular lines, but no parallel lines. I make at least one right angle, but I do not have "matching" straight lines. Who am I?

I have parallel lines, but I do not have any perpendicular lines. My lines never make a perfect square corner. Who am I?

- What 2-Dimensional figures have the following descriptions? Name and draw them.

Parallel and perpendicular line segments

Parallel line segments

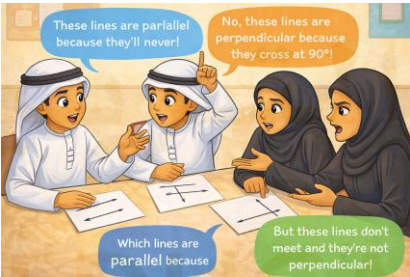
Neither parallel nor perpendicular line segments

Perpendicular line segment

Unit 14 Lesson 4 - Support Activities

Understand Parallel and Perpendicular Lines



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	UAE Road Designers: Safety & Smart Planning	Drawing Line Relationships	Geometry Truth Seekers
Type of the Activity	Guided Investigation Integration with Social Studies	Independent Practice- Draw, Label & Justify	Is It Always True?
Summary of Activity	Say: As UAE city road designers, design safe and smart roads for a new community. You will use sticks or lines to -build parallel highways -create safe intersections. You will explain how your design improves traffic safety.  Ask What do you call lines that: - cross and make a right angle? - go in the same direction and never meet? Why are safe intersections important for children and elderly people? How do parallel road lanes protect drivers? Imagine a car is traveling fast on a highway, what happens if the intersection is not perpendicular?	Say: You will: Carefully listen to the descriptions and draw using tools. Figure A: A pair of lines that cross each other at right angle. Figure B: A pair of straight lines that never meet. Figure C: A pair of lines that intersect but are not crossing at right angle. What are the different types of line relationships you draw. Explain and justify your reasoning clearly.  Ask Ahmed says: "A window only has perpendicular line segments." Do you agree? Explain Draw a figure that shows both parallel and perpendicular lines in the same shape.	Say: You will: Analyze the statements. Decide if they are <u>always true</u>, <u>sometimes true</u>, or <u>never true</u>. Justify your reasoning using diagrams and clear explanations. A: "All rectangles have parallel and perpendicular lines." B: "A figure cannot have both parallel and perpendicular lines." C: Parallel lines are always the same length. E: A shape with no right angles cannot have parallel sides F: A triangle can have parallel sides. Ask Can a shape have perpendicular lines but no parallel lines? Can a shape have parallel lines but no right angles? Name a real-world object that: - Does not include parallel or perpendicular lines. - Includes both parallel and perpendicular lines.

Unit 14 - Lesson 5 - Overview

Add and Subtract Angle Measures



Learning Objectives		
By the end of the lesson, students will be able to decompose an angle into two or more angles and recognize that the whole angle is the sum of the decomposed angles.		
Towards Mastery	Mastery	Beyond Mastery
- Students can recognize that an angle can be split into smaller angles using diagrams or models. - Students can identify parts of a decomposed angle and describe the smaller angles that make up the whole. - Students can solve simple angle addition or subtraction problems, but may need teacher support.	- Students can accurately add or subtract angle measures to find the measure of the whole or missing angle. - Students can represent their solutions using equations, diagrams, or labelled angles.	- Students can apply angle decomposition to solve real-world angle problems. - Students can choose appropriate strategies (decomposing, combining) and write correct equations.
Misconceptions and Notes		
Students may think that an angle measure should be subtracted from 180° or 360° since that is the amount of rotation they see on a protractor. When finding the sum of the two angles, students may simply give the measure for one of the angles, instead of the combined measure.		
Basic Mathematical Skills		
Skill One	Skill Two	
Identify parts of a decomposed angle.	Calculate the measure of a whole or missing angle using addition or subtraction.	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Measurement & Data
Standards
4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
SMPs
MP 2
Key Vocabulary
Angles, degrees, protractor

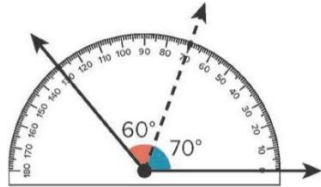
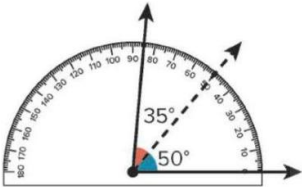
Unit 14 - Lesson 5 - Checkpoint

Add and Subtract Angle Measures

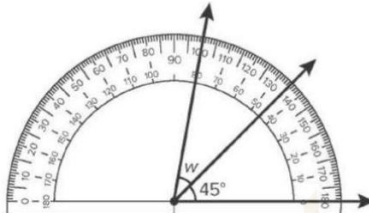
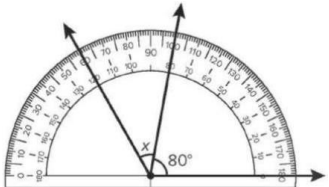


Towards Mastery

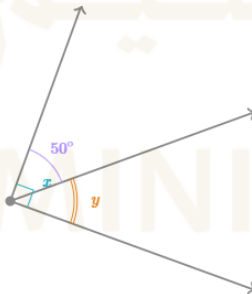
- Calculate the sum of the two angles shown below.



- Find the measure of the unknown angles shown below.



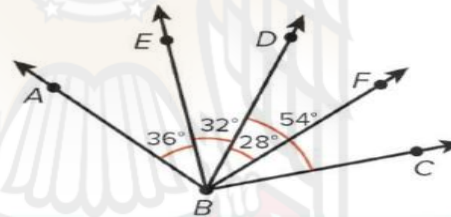
- Find the measure of angle y.



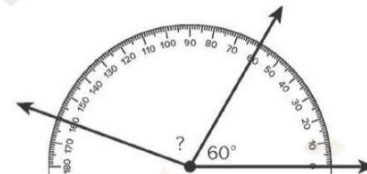
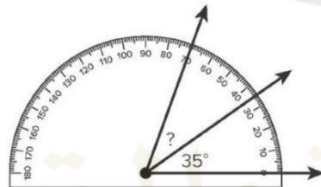
Mastery

- Use the figure below to find the measurements of the angles.

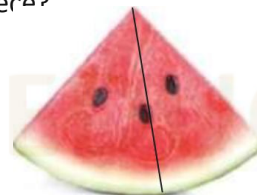
- Angle ABD
- Angle FBC
- Angle ABC



- Find the missing angles in the figures below.

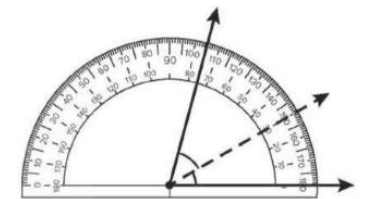
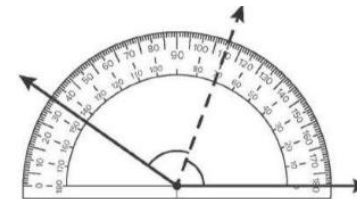


- If you cut the watermelon slice into 2 pieces, what would be the angle measurement of each piece?

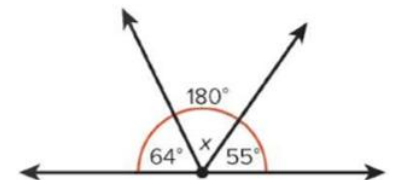
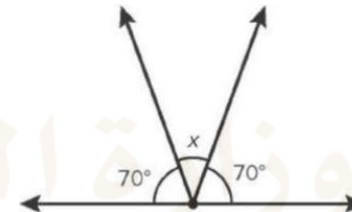


Beyond Mastery

- What is the sum of the two angles?



- Find the measure of the angles marked x. Explain your thinking.



- Adnen wants to cut an orange slice into two smaller pieces. The whole orange slice angle measures 110° . Adnen says the two new angles could be 45° and 55° . Do you agree? Why or why not?



Unit 14 Lesson 5 - Support Activities

Add and Subtract Angle Measures



	Towards Mastery	Mastery
Activity Title	Palm Tree Angle Puzzle	Missing Angle Challenge
Type of the Activity	Think-Pair-Share	Problem Solving Activity
Summary of Activity	Say: You will think first, then pair up, finally share your strategy. The angle shown on the palm leaf measures 120° Draw to show two different ways to split 120° into smaller angles, and label each part. Complete the equations below for your split Equation1: $__ + __ = 120^\circ$ Equation 2: $120^\circ - __ = __$ Ask Can you split it evenly? Can you use one right angle? Can you use three smaller angles? Can you split 120° into three different angles?	Say: In this activity you will carefully analyze angle diagrams, represent your thinking using equations and solve your equations to find the missing angles. A: Three copies of angle p make a straight line. How many degrees is angle p? Explain or show your reasoning. B: Three copies of angle q make a right angle. How many degrees is angle q? Explain or show your reasoning. C: Aisha puts angle p and angle q together. How many degrees is the resulting angle? Explain or show your reasoning.? Explain or show your reasoning. Ask When do we add angles? When do we subtract? How do we know which operation to use?



Beyond Mastery	
Activity Title	Missing Angle Detectives
Type of the Activity	Choice Board
Summary of Activity	Say: 🗣️ In this activity you will work with your partner. Carefully analyze angle diagrams, represent your thinking using equations, solve your equations to find the missing angles, and justify your answers clearly. Angle Mastery Choice Board Choose any 3 tasks including one ⭐ task. 1 Missing Angle Detective $\angle ABD = 60^\circ$ $\angle ABC = 28^\circ$ $\angle CBD = \underline{\hspace{2cm}}$ 2 If $\angle AEI$ measures 101°, what is the measure of $\angle AEU$? 3 What is the measure of $\angle FJI$? 4 ⭐ What is the measure of $\angle VZY$? 5 What is the measure of the unknown angle in the figure? 6 ⭐ What is the measure of $\angle BED$? Ask What mistakes should you avoid when solving multi-step angle problems? How does helping each other reflect UAE unity and cooperation?

Unit 14 - Lesson 6 - Overview

Solve Problems Involving Unknown Angle Measures



Learning Objectives		
By the end of the lesson, students will be able to 1) Represent problems involving unknown angle measures using an equation. 2) Determine how angles are related to solve mathematical and real-world problems involving an unknown angle measure.		
Towards Mastery	Mastery	Beyond Mastery
- Students can identify known and unknown angle measures in simple problems. - Students can solve one-step angle addition or subtraction problems with teacher support.	- Students can independently add or subtract angle measures to determine an unknown angle. - Students can represent unknown angle problems using equations or labeled diagrams.	- Students can apply angle relationships to solve real-world or multi-step problems involving unknown angles. - Students can choose appropriate strategies (decomposing, combining, writing equations) to solve for unknowns.
Misconceptions and Notes		
When finding the unknown angle measure, students may add the angle measures.		
Basic Mathematical Skills		
Skill One	Skill Two	
Recognize known and unknown angles.	Write equations for unknown angles Solve unknown angle problems	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Measurement & Data
Standards
4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
SMPs
MP 8
Key Vocabulary
Angles, degrees,

Unit 14 - Lesson 6 - Checkpoint

Solve Problems Involving Unknown Angle Measures



Towards Mastery

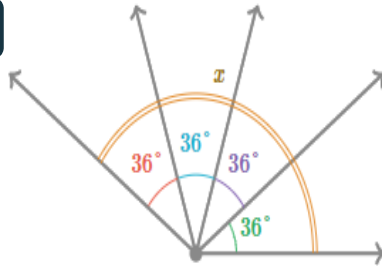
- Which equation will tell us the measure of angle x .

A. $36^\circ + 36^\circ + 36^\circ + 36^\circ + 36^\circ = x$

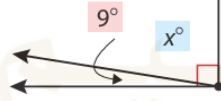
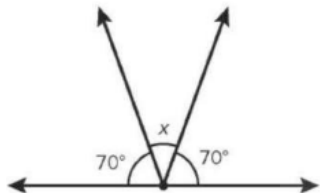
B. $36^\circ + 36^\circ + 36^\circ = x$

A. $36^\circ + 36^\circ + 36^\circ + 36^\circ = x$

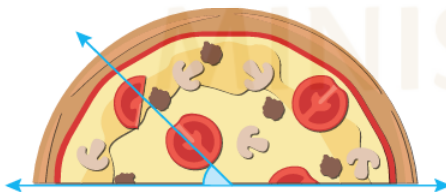
A. $36^\circ + 36^\circ = x$



- Find the value of x .

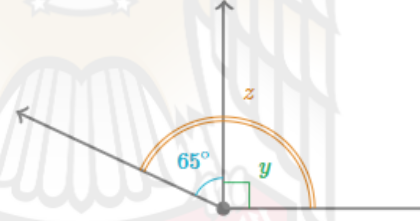


- The smaller piece of pizza has an angle measure of 65° . What is the angle measure of the larger piece?

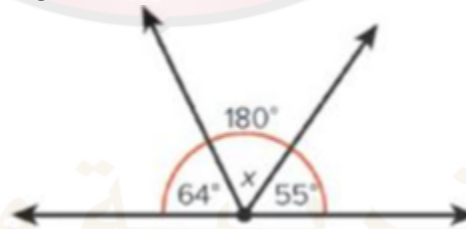


Mastery

- Write an equation you can use to find angle z . Then solve.



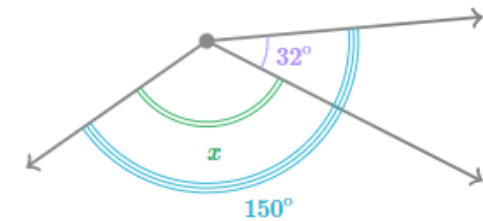
- How can you find angle x ?



- A 120° angle is composed of two adjacent angles. One angle has a measure of 40° . What is the measure of the other angle?

Beyond Mastery

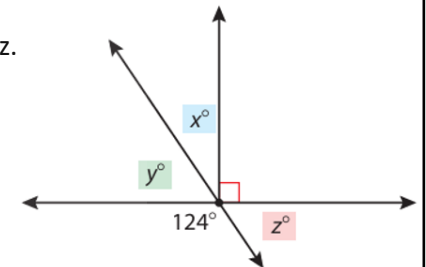
- Write and solve an equation you can use to find x .



- The angle measure of the bird's beak is 30° . The upper part measures 17° . What does the lower part measure?



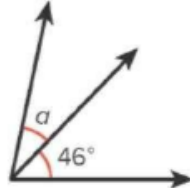
- Find the values of x , y , and z .



Unit 14 Lesson 6 - Support Activities

Solve Problems Involving Unknown Angle Measures



	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Robot Turn Mystery 🚀🇦🇪	The Smart Drone Turn Challenge 🚁	Smart City Angle Design Challenge
Type of the Activity	Problem Solving Activity	Independent Activity	Think-Pair-Share
Summary of Activity	Say: 🗣️ You will work in groups to solve the problems on the sheet below. Part 1: Adam is testing his robot's turning system in an Innovation Lab. The robot makes a total turn of 78°. Part of the turn is 46°. The remaining turn is called angle a. What is the measure of angle a?  Part 2: If the robot's total turn was 120° instead of 78°, and one part was still 46°, what would angle a be? Draw a diagram and solve.  Ask Why do we subtract to find angle a? What would happen if we added instead of subtracted? How do robots and technology support the UAE's future goals?	Say: 🗣️ You will independently in this activity, then share your thinking with the whole class later. A: A smart drone in the UAE Innovation Lab is programmed to turn 65° to avoid an obstacle. The first part of its turn is 22°. What is the measure of the second angle? Draw a diagram. Write an equation to solve it. B: If the drone is adjusted to turn exactly 90° at a corner, and it already turned 35°. Draw a diagram. How much more must it turn?  Ask Explain why subtraction is used to solve for the unknown. Can the missing angle be larger than 65°, ? Why not? What mistake might someone make when solving this? How does checking your work show responsibility?	Teacher: Display the problem below on the board, then let students share their observations freely. You are designing a rotating solar panel system. The full rotation angle must be divided into three smaller angles. 1) Draw one large angle (your choice). 2) Divide it into three smaller angles. 3) Label any two of the small angles. 4) Write and solve the equation you will use to find the missing angle.  Ask If Adam chose the total angle is 165°, and two angles are 45° and 50°, what is the third angle? Draw to show your thinking. If Aisha says the missing angle is 30°, and the total is 100°, what could the other two angles be?

Classify Polygons



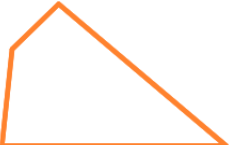
Learning Objectives		
By the end of the lesson, students will be able to 1) Identify properties of quadrilaterals such as parallel and perpendicular lines. 2) Classify quadrilaterals based on the presence or absence of parallel and perpendicular lines.		
Towards Mastery	Mastery	Beyond Mastery
- Students can recognize and identify quadrilaterals in pictures and models. - Students can identify simple properties such as sides, vertices, and right angles with guidance. - Students can sort shapes based on visible parallel or perpendicular lines, but may need teacher support.	- Students can independently identify properties of quadrilaterals, including parallel and perpendicular lines. - Students can accurately classify quadrilaterals based on the presence or absence of parallel and perpendicular sides.	- Students can apply their understanding of quadrilateral properties to solve real-world or classification problems. - Students can compare and justify how different quadrilaterals are similar or different using properties.
Misconceptions and Notes		
Students may think that opposite sides of a quadrilateral are always parallel. Students may confuse the definitions of trapezoids and parallelograms.		
Basic Mathematical Skills		
Skill One	Skill Two	
Classify quadrilaterals using properties.	Recognize quadrilaterals Notice line relationships	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Geometry
Standards
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
SMPs
MP 6
Key Vocabulary
Parallel lines, parallelogram, perpendicular lines, trapezoid

Unit 14 - Lesson 7 - Checkpoint

Classify Polygons



Towards Mastery	Mastery	Beyond Mastery
- Match the quadrilateral with its attributes. 1) Rhombus 2) Square 3) Trapezoid 4) Parallelogram 1) A parallelogram with 4 right angles and 4 equal sides 2) A quadrilateral with two pairs of parallel lines 3) A quadrilateral with only one pair of parallel lines 4) A parallelogram with 4 equal sides - How are squares and rectangles the <u>same</u>? How are they <u>different</u>? - Are parallelograms also trapezoids?	- Which facts are true about all trapezoids? Circle all the correct answers. A. Every trapezoid has 4 sides. B. Every trapezoid has 2 pairs of parallel sides. C. Every trapezoid has 4 right angles. D. Every trapezoid has 4 equal sides. - How are parallelogram and rhombus the <u>same</u>? How are they <u>different</u>? - For each polygon below, decide: a) Does it have parallel sides only? b) Does it have perpendicular sides only? c) Does it have both parallel and perpendicular sides? d) Does it have neither?    	- Which facts are true about all rhombuses? Circle all the correct answers. A. Every rhombus has 4 sides. B. Every rhombus has 2 pairs of parallel sides. C. Every rhombus has 4 right angles. D. Every rhombus has 4 equal sides. - Reem says, “All quadrilaterals have both parallel sides and perpendicular sides.” a) Do you agree or disagree with Reem? b) Give examples of different quadrilaterals to support your answer. c) Explain which ones have parallel sides, perpendicular sides, both, or neither. d) Can you find a quadrilateral that proves Reem is wrong? - Select all the trapezoids.   

Classify Polygons



	Towards Mastery	Mastery
Activity Title	Build & Test	Unpack the Shape
Type of the Activity	Hands-on Activity	Collaborative Activity
Summary of Activity	Say: 🗨️ You will work in groups, using sticks, grid papers, or geoboards to build: a) A quadrilateral with parallel sides. b) A quadrilateral with perpendicular sides. c) A quadrilateral with both parallel and perpendicular sides. d) A quadrilateral with one with perpendicular sides. e) A quadrilateral with neither.  Ask - Do all quadrilaterals have 4 equal sides? - Can a quadrilateral have right angles but no parallel sides? - Where do you see quadrilaterals in your surroundings?	Say: 🗨️ You will work in pairs. Each pair receives quadrilateral cards.  Square  Rhombus  Rectangle  Trapezoid  Irregular quadrilateral  Parallelogram You will investigate quadrilaterals and discover: a) Which shapes have parallel sides b) Which shapes have perpendicular sides. c) Which shapes have both parallel and perpendicular sides. d) Which shapes have neither. Ask - Can a quadrilateral have parallel sides but no right angles? - What makes a rectangle different from a parallelogram? - Why is listening important in group investigations?

Classify Polygons



	Beyond Mastery
Activity Title	Eco-Friendly Home Design
Type of the Activity	Project-Based Investigation
Summary of Activity	Say: 🗣️ You are UAE Sustainable Architects. Your will design an eco-friendly home using quadrilateral reasoning. Your design must include a) at least 4 different quadrilaterals. b) Clearly identified parallel and perpendicular sides. Explain why each quadrilateral was chosen. Connect shape properties to sustainability (strength, space, light, energy). Ask If a window in the design has only one pair of parallel sides, what shape could it be? If a solar panel frame in the design has 4 right angles and opposite sides equal, what quadrilateral is it? If a shape in the house has 2 pairs of parallel sides and no right angles, what could it be? How do shape choices affect energy efficiency?

Classify Triangles



Learning Objectives		
By the end of the lesson, students will be able to use side lengths and angle size to classify triangles.		
Towards Mastery	Mastery	Beyond Mastery
- Students can recognize and identify triangles in pictures and models. - Students can identify basic properties such as number of sides, angles, and side lengths with guidance. - Students can sort triangles by visible features (same sides or angles) with teacher support.	- Students can independently identify side lengths and angle sizes of triangles. - Students can accurately classify triangles based on side lengths (equilateral, isosceles, scalene) and angles (acute, right, obtuse).	- Students can apply their understanding of triangle properties to solve real-world or classification problems. - Students can compare and justify how different triangles are similar or different using properties. - Students can draw triangles that meet given side or angle conditions.
Misconceptions and Notes		
Students may identify an equilateral triangle as an isosceles triangle.		
Basic Mathematical Skills		
Skill One	Skill Two	
Recognize basic side length features (same or different sides). Recognize basic angle sizes (right angle vs not a right angle).	Classify triangles by angle size (acute, right, obtuse) Classify triangles by side lengths (equilateral, isosceles, scalene).	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Geometry
Standards
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
SMPs
MP 3
Key Vocabulary
Acute triangle, equilateral triangle, isosceles triangle, obtuse triangle, right triangle, scalene triangle

Unit 14 - Lesson 8 - Checkpoint

Classify Triangles



Towards Mastery	Mastery	Beyond Mastery
- Circle the correct answer. A triangle with one right angle is called a: a) Acute triangle b) Scalene triangle c) Right triangle d) Equilateral triangle - Match the triangles to their correct descriptions. Has one right angle (90°) Has three angles less than 90°. Has one angle greater than 90°. Has three equal sides. Has at least two equal sides. Has no equal sides. - Draw a triangle that is acute and scalene.	- Fill in the blanks: A triangle with three equal sides is called a _____ A triangle with no equal sides is called a _____ - Match the triangles to their correct names. Right Triangle Acute Triangle Obtuse Triangle Equilateral Triangle Isosceles Triangle Scalene Triangle - Think Deeper: <i>Can a triangle be both <u>right</u> and <u>isosceles</u>? Explain.</i>	- Complete the sentences below. A triangle with one angle greater than 90° is _____ A triangle with three angles less than 90° is _____ - Match the triangle to its description. Then explain why it fits. 1) Acute Isosceles Triangle 2) Right Scalene Triangle 3) Obtuse Isosceles Triangle a) Has one right angle and no equal sides. b) Has one obtuse angle and two equal sides. c) Has three angles less than 90° and two equal sides. - Put on your thinking cap! <i>Can a triangle be equilateral and obtuse? Why or why not?</i>

Unit 14 Lesson 8 - Support Activities

Classify Triangles

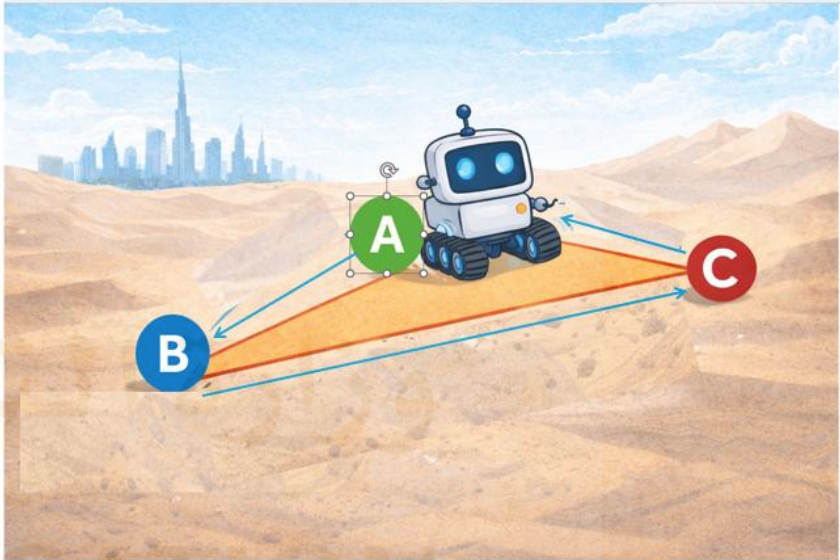


	Towards Mastery	Mastery															
Activity Title	Triangle Attributes Hunt	Geometry Challenge															
Type of the Activity	Guided Investigation	Three-in-a-Row Game															
Summary of Activity	Say: 🗣️ You will work in pairs, examine each triangle card carefully and complete the attribute boxes: <table><tr><td>No right angles</td><td>Parallel sides</td><td>Perpendicular sides</td></tr><tr><td>Same length for all sides</td><td>Same size for all angles</td><td>More than one right angle</td></tr><tr><td>More than one obtuse angle</td><td>More than one acute angle</td><td>Foldable into two equal halves</td></tr></table> Ask Complete one sentence: I noticed that some triangles... I noticed that all triangles... I noticed that no triangles...	No right angles	Parallel sides	Perpendicular sides	Same length for all sides	Same size for all angles	More than one right angle	More than one obtuse angle	More than one acute angle	Foldable into two equal halves	Say: 🗣️ You will listen to the clues I'll read. You must: <u>first</u>, identify the triangle type, <u>next</u>, justify your answer using properties, <u>if</u> correct you claim the square. <table><tr><td>Right Triangle</td><td>Acute Triangle</td><td>Obtuse Triangle</td></tr><tr><td>Scalene Triangle</td><td>Isosceles Triangle</td><td>Equilateral Triangle</td></tr></table> This triangle has angles 40°, 60°, 80°. This triangle has two equal sides and one 100° angle. I have no equal sides and one angle greater than 90°. All my angles are less than 90° and equal. This triangle has two equal sides and one 120° angle. A falcon wing forms a triangle with angles 30°, 60°, and 90°. Ask Can a triangle be both right and isosceles? Explain with an example. Why can't a triangle have two obtuse angles? If a triangle has one obtuse angle, what must be true about the other two angles? Does every triangle have at least one acute angle? Explain.	Right Triangle	Acute Triangle	Obtuse Triangle	Scalene Triangle	Isosceles Triangle	Equilateral Triangle
No right angles	Parallel sides	Perpendicular sides															
Same length for all sides	Same size for all angles	More than one right angle															
More than one obtuse angle	More than one acute angle	Foldable into two equal halves															
Right Triangle	Acute Triangle	Obtuse Triangle															
Scalene Triangle	Isosceles Triangle	Equilateral Triangle															

Classify Triangles



	Beyond Mastery
Activity Title	Robot Navigation Challenge
Type of the Activity	Problem Solving Activity
Summary of Activity	Say: 🗣️ You will work in groups to solve the problem below. Amna programs a robot to travel from Point A → Point B → Point C. The robot's path forms an isosceles triangle. The distance from Point A to Point C is the shortest side. Draw the triangle and label it correctly. What can you conclude about the distances from: 1) Point A to Point B? Explain 2) Point B to Point C? Explain Ask Decide if: <u>always true</u>, <u>sometimes true</u>, or <u>never true</u>. "In an isosceles triangle, the unequal side is the shortest side." If a teammate disagrees with your reasoning, how should you respond? How might triangle properties help in drone navigation in the UAE?



Unit 14 - Lesson 9 - Overview

Understand Line Symmetry



Learning Objectives		
By the end of the lesson, students will be able to 1) Recognize a line of symmetry for a 2-dimensional figure as a line that divides a figure into matching parts. 2) Explain how to find lines of symmetry on 2-dimensional figures.		
Towards Mastery	Mastery	Beyond Mastery
- Students can recognize shapes that look the same on both sides. - Students can fold or use mirrors to identify matching halves of simple figures with guidance. - Students can identify a possible line of symmetry in basic shapes or pictures with teacher support.	- Students can independently identify lines of symmetry in two-dimensional figures. - Students can accurately draw lines of symmetry that divide figures into matching parts. - Students can explain how the line creates two equal, matching halves using models or diagrams.	- Students can apply their understanding of symmetry to solve real-world or design problems. - Students can determine and justify the number of lines of symmetry in complex figures.
Misconceptions and Notes		
Students may think that any line drawn across a shape is a line of symmetry. Students may think that symmetry means same size pieces, not same shape and size. Students may think that symmetry lines must be up-and-down only.		
Basic Mathematical Skills		
Skill One	Skill Two	
Recognize a line of symmetry in simple 2-dimensional figures	Identify shapes that have matching halves	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Geometry
Standards
4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
SMPs
MP 3
Key Vocabulary
Line of symmetry Symmetrical

Understand Line Symmetry



Towards Mastery	Mastery	Beyond Mastery
- Is the dotted line a line of symmetry? Circle the correct answer. - Does a rectangle have a line of symmetry? Draw to show. - How many line of symmetry are shown on the equilateral triangle?	- In the figure below, which of the following is a line of symmetry? - Circle the shape that can make the figure below symmetrical. Explain how you know. - Which of the alphabet stickers can be folded in half so both sides match exactly?	- Which shapes are symmetrical? Choose all answers that apply. - Does a pentagon with equal side lengths have a line of symmetry? Explain - Write down a real-world object that has the stated lines of symmetry. Draw to show your thinking. 0 lines of symmetry 1 line of symmetry 2 lines of symmetry 3 lines of symmetry 4 lines of symmetry

Understand Line Symmetry

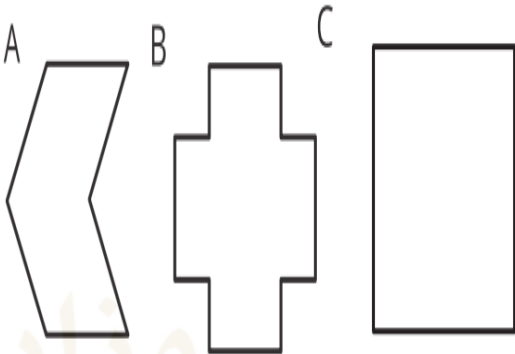


	Towards Mastery	Mastery
Activity Title	Perfect Matches	In Search of Symmetry
Type of the Activity	Hands-on Activity	Sort, Compare & Debate
Summary of Activity	Say: 🇲🇪 You will work in pairs to solve the problem. Safiya has pieces of paper in different shapes. She folds each piece of paper once, creating two smaller parts. Your will find out which folding lines create perfect matches and explain why. a b c d e f g h Folding line is a line of symmetry Folding line is a line of symmetry Ask What do you think a line of symmetry means? What must happen when you fold along a symmetry line? Why does the letter “C” not have a vertical line of symmetry?	Say: 🇲🇪 Each shaded triangle is half of a whole figure that has a line of symmetry shown by the dashed line. Noora drew in some segments to show the missing half of each figure. a) Do you agree that the dashed line is a line of symmetry for each figure Clare completed? Explain b) If you disagree, show a way to complete the drawing so the dashed line is a line of symmetry. Ask How can you check your drawing without folding the paper? Why must corresponding points be the same distance from the line of symmetry? Can you complete the figure in more than one way so that the dashed line is still a line of symmetry?

Understand Line Symmetry



	Beyond Mastery
Activity Title	Just Keep Folding!
Type of the Activity	What do you Notice? What do you Wonder?
Summary of Activity	Say: 🗣️ You will work in small groups to solve the problem. Fatima is experimenting with symmetry folding. She is folding paper of different shapes along their lines of symmetry. She keeps folding each one until the folded shape has no more lines of symmetry. Your will help Fatima figure out how many folds she can make for each shape. You will predict before folding: a) Which shape do you think can be folded the most times? Why? b) Which shape might stop first? Why? Ask 1) How many times can she fold each shape before she can no longer continue? 2) What do you notice about each folded shape when it can no longer be folded? 4) Where do we see symmetry in UAE? 3) How does symmetry create beauty and balance in UAE buildings?



Draw Lines of Symmetry



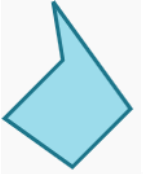
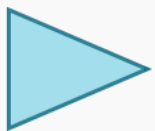
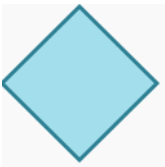
Learning Objectives		
By the end of the lesson, students will be able to 1) Draw multiple lines of symmetry on 2-dimensional figures 2) Identify attributes of 2-dimensional figures that are symmetrical.		
Towards Mastery	Mastery	Beyond Mastery
- Students can draw lines of symmetry that divide figures into matching parts, but may need teacher support. - Students can identify lines of symmetry in basic shapes or pictures with teacher support.	- Students can independently identify lines of symmetry in two-dimensional figures. - Students can accurately draw lines of symmetry that divide figures into matching parts. - Students can explain how the line creates two equal, matching halves using models or diagrams.	- Students can apply their understanding of symmetry to solve real-world or design problems. - Students can determine and justify the number of lines of symmetry in complex figures. - Students can create shapes to meet given symmetry conditions and explain their reasoning.
Misconceptions and Notes		
Students may think that shapes with more sides automatically have more lines of symmetry. Students may draw symmetry lines that are slightly off, not truly dividing the shape evenly.		
Basic Mathematical Skills		
Skill One	Skill Two	
Recognize matching halves.	Draw lines of symmetry independently	
Resources		
Grade 4 Reveal Math Course 2, Teacher Edition e-Book, Volume 2 IXL		

Domain
Geometry
Standards
4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
SMPs
MP 7
Key Vocabulary
Line of symmetry Symmetrical

Unit 14 - Lesson 10 - Checkpoint

Draw Lines of Symmetry

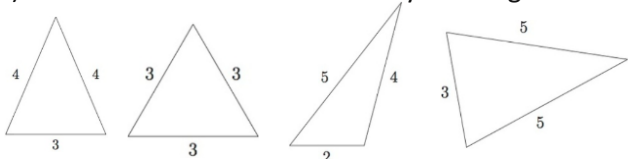
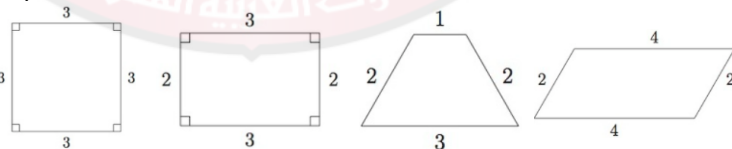
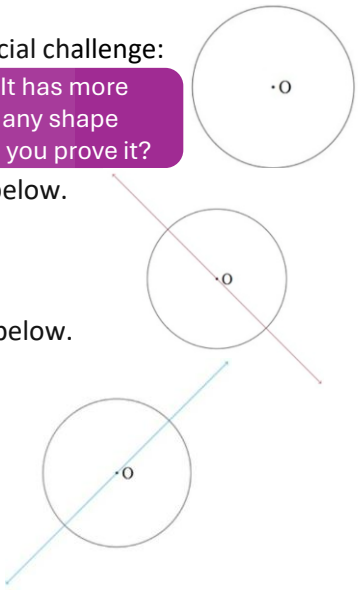


Towards Mastery	Mastery	Beyond Mastery
- Does a rectangle have a line of symmetry? Draw to show. - Which shape has more lines of symmetry, the square or rhombus?  - How can you draw 4 or more lines of symmetry on the heptagon shown. 	- Draw the lines of symmetry in each figure below.  - A triangle has 3 lines of symmetry. What triangle is that? Draw to show. - How many lines of symmetry does each figure below have?  ☐  ☐  ☐  ☐  ☐  ☐  ☐  ☐  ☐	- Which shapes are symmetrical? Choose all answers that apply. Show the lines of symmetry  - Complete the figure to make a symmetrical figure.  - Aisha says all triangles are symmetrical. Do you agree? Why or why not? - What figure has an infinite number of lines of symmetry? Explain.

Unit 14 Lesson 10 - Support Activities

Draw Lines of Symmetry



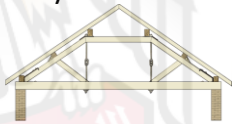
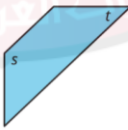
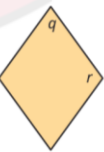
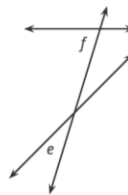
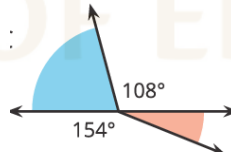
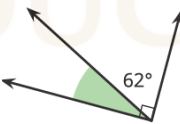
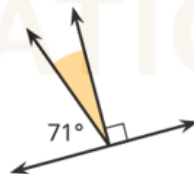
	Towards Mastery	Mastery	Beyond Mastery
Activity Title	Triangle Symmetry Lab	Quadrilaterals Symmetry Lab	Does a Circle have Symmetry? How many are there?
Type of the Activity	Guided Investigation Activity	Peer Check Activity	Connect–Extend–Challenge
Summary of Activity	Say: 🗨️ Four triangles are shown with different side lengths. Your challenge is to investigate: a) How many lines of symmetry does each triangle have? b) Where are those lines located by drawing?  Predict how many lines of symmetry it has, before you investigate. Ask Does every triangle have at least one line of symmetry? Which triangle type has: a) 0 lines of symmetry? b) 1 line of symmetry? c) 3 lines of symmetry? Explain why an equilateral triangle cannot have 4 lines of symmetry?	Say: 🗨️ Below are pictures of four quadrilaterals: a square, a rectangle, a trapezoid and a parallelogram. You will predict and investigate: a) How many lines of symmetry does each figure have? b) Where are those lines located?  You will share your work with a partner and verify the correctness of each solution. Ask Does every quadrilateral have at least one line of symmetry? Why or why not? Why does a square have more lines of symmetry than a rectangle? How is a parallelogram different from a rectangle when thinking about symmetry? If your partner disagrees with your answer, how should you respond?	Say: 🗨️ Mr. Khaled gives you a special challenge: This circle has a secret. It has more lines of symmetry than any shape you've studied so far. Can you prove it?  1) Aisha drew the picture below. Is Aisha correct? 2) Adam drew the picture below. Is Adam correct? Ask Why must every line of symmetry of a circle pass through the center? How many lines of symmetry does a circle have? Explain Explain why each line of symmetry divides the circle in half.

Unit 14 – Did You Get it?

Geometric Figures



This section aims to assess how well students have mastered the module objectives upon completion of the module.

Question Number	Question	DOK Level	Standard	SMPs
1	Identify each angle as acute, right, obtuse, or straight.   	1	4.MD.C.5	2, 6
2	Here is a drawing of the structure of a roof. Find as many acute and obtuse angles as you can in the drawing. Use an “A” to label acute angles, a square ($\square$) for right angles, and an “O” for obtuse angles. 	2	4.MD.C.5	4, 6, 7
3	Use a protractor to measure the labeled angles in each figure.   	2	4.MD.C.6	5, 6
4	Which shapes have sides that are perpendicular to one another? Explain how you know the sides are perpendicular. 	3	4.G.A.1	3, 7
5	Find the measurement of each shaded angle. Show how you know.    	3	4.MD.C.7	1, 3, 7, 8