UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

عام الأسرة
YEAR OF FAMILY
55
UAE

نحن الإمارات
WE THE UAE 2031

Mathematics Grade 12Adv

Bridge

Distance Learning

Supporting continuity of learning during Distance instruction.

Note: This guidance is to be implemented for a period of two weeks from the date of issue, unless otherwise directed by the Ministry of Education.

Certified
This document is certified by the Ministry of Education

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

Purpose and Core Principles

Purpose:

- Provide guidance for teachers to support Distance learning over the next four weeks.
- Ensure learning continuity aligned with Comprehensive Curriculum Guides (CCGs).
- Supporting growth-appropriate teaching for students in mathematics.
- Provide a clear structure for online lesson planning and weekly learning.

Core Principles:

- Keep lessons short, interactive, and engaging.
- Focus on core learning outcomes.
- Balance live education with hands-on activities at home.
- Encourage sharing, navigation, and discussion.
- Maintain a routine that supports student well-being and continuity of learning.

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

Structure of an Online Lesson

Weekly Instruction Structure

Subject	Cycle	Grade	Stream	Number of Periods
Mathematics	3	12	Advanced	6

Planning Considerations

When planning the week, teachers should ensure that learning includes opportunities for:

- **Conceptual understanding through visual models and representations**.
- **Problem-solving tasks.**
- **Exploration of different strategies**.
- **Short collaborative activities or think–pair–share discussions** to compare solution strategies.
- **Students sharing their mathematical reasoning or solutions with the class.**
- **Class discussion and reflection** on patterns, relationships, and efficient strategies.
- **Integration of values such as perseverance, cooperation, and responsibility during mathematical discussions.**

These elements help maintain engagement and support deeper mathematical understanding during the learning process.

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

Teaching and Learning Delivery Model

Learning should include a balance of live interaction, independent practice, and hands-on activities.

Live Instruction

- Short live lessons with the teacher.
- Explanation of new concepts.
- Questions and discussion.
- Check for understanding.

Independent Learning

- Reading and practice activities.
- Digital tasks.
- Watching recorded explanations.
- Reflection or short recorded responses.

Offline and Hands-On Learning

- Creative tasks and projects.
- Drawing, writing, or building models.
- Physical activity or real-life exploration.

***Note**: The delivery approach recommended by the Curriculum Team for each lesson, whether **live**, **independent**, or **offline/hands-on**, is intended solely to guide implementation and does not imply that the lesson is excluded from assessment.*

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

Preparing for online learning

The first week should focus on helping students become comfortable with online learning before introducing new academic content.

Focus

- Helping students become familiar with the online platform.
- Establishing simple routines and expectations.
- Practicing how students participate during online lessons.
- Building confidence speaking and interacting online.
- Creating a positive and supportive classroom environment.

Suggested Activities

- Attendance procedures.
- Virtual Think-Pair-Share.
- Multi-Modal Modeling.
- Error Analysis & Critique.
- Virtual Gallery Walks.

Teacher Guidance

Keep activities short, interactive, and enjoyable.

The goal of this week is to build routines and engagement, so students are ready for structured learning in the following weeks.

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

Monitoring Learning and Providing Feedback

In Distance learning for **cycle three** students, teachers monitor learning through **interaction, observation, and simple evidence of participation**, rather than relying only on written assignments.

Approach	What Teachers Look For	Example	Providing Feedback
Observation during live sessions	Students explain methods, justify procedures, and interpret results using accurate mathematical vocabulary and representations.	Student explains how the slope of a graph represents rate of change in a given context.	"Your explanation is mathematically sound. Can you extend your response by interpreting what the rate means in the context?"
Observation during live sessions	Students demonstrate understanding through algebraic work, graphs, tables, geometric arguments, or technology-supported representations.	Student solves a system of equations and explains why the point of intersection represents the solution.	"Good work. You found the solution correctly. Now justify why this ordered pair satisfies both equations."
Observation during live sessions	Students defend conclusions, analyze errors, or compare methods through discussion and short written reasoning.	Student identifies an error in simplifying an expression and explains the correct process.	"Excellent analysis. You identified the mistake clearly. Can you compare this incorrect method with the correct one?"
Observation during live sessions	Families may support only with logistics when needed, while students independently present evidence of thinking and completion.	Student uploads a short response explaining the steps used to solve a modelling or statistics task.	"The response shows clear reasoning. Strengthen it further by including a final interpretation or conclusion."

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

Grade 12 (Advanced)

Term 3 Overview of Learning

Unit Number	Unit Name	Week	Number of Periods per Lesson	Lesson Number	Lesson Name	Learning Outcomes	Delivery Model
C5	Integration	1	6	1	Antiderivatives	Find the antiderivative of a given function	**Live Instruction**
						Understand the notion of indefinite integral as finding an antiderivative	**Live Instruction**
						Compute straightforward indefinite integrals	**Live Instruction**
		2	2	2	Sums and Sigma Notation	Estimate the area under a curve on a given interval using rectangles	**Live Instruction**
			4	3	Area Under a Curve and Integration	Estimate the area under a curve on a given interval using rectangles	**Live Instruction**
						Compute the area under a curve using summations and limits	**Live Instruction**

*Note: The delivery approach recommended by the Curriculum Team for each lesson, whether **live**, **independent**, or **offline/hands-on**, is intended solely to guide implementation and does not imply that the lesson is excluded from assessment.*

MINISTRY OF EDUCATION

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

Grade 12 (Advanced)

Term 3 Overview of Learning

Unit Number	Unit Name	Week	Number of Periods per Lesson	Lesson Number	Lesson Name	Learning Outcomes	Delivery Model
C5	Integration	3	6	4	The Definite Integral	Understand the notion of a definite integral	**Live Instruction**
						Compute a definite integral using Riemann sums	**Live Instruction**
						Find the area under a curve on a given interval using Riemann sums	**Live Instruction**
						Learn the properties of definite integrals	**Live Instruction**
						Apply the Integral Mean Value Theorem	**Live Instruction**
		4	6	5	The Fundamental Theorem of Calculus	Learn the Fundamental Theorem of Calculus (Part I) and use it to compute various definite integrals	**Live Instruction**
						Learn the Fundamental Theorem of Calculus (Part II) and use it to compute derivatives of functions defined as definite integrals	**Live Instruction**
						Write the equation of a tangent line at a given point to a function defined as a definite integral	**Live Instruction**

*Note: The delivery approach recommended by the Curriculum Team for each lesson, whether **live**, **independent**, or **offline/hands-on**, is intended solely to guide implementation and does not imply that the lesson is excluded from assessment.*

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

Distance Lesson Plan Exemplar

Relate Fractions to Division	Lesson name	Divide Fractions	Unit name	3	Term	Bridge	Curriculum	5	Grade

1. Learning Outcomes

- I can represent the quotient of a division equation as a fraction or mixed number.
- I can explain why the quotient of a division equation can always be expressed as a fraction.
- I can explain why division of whole numbers can be written as a multiplication expression.

2. Introduction

1. Number Routine: Is the value of the expression greater than, or less than $\frac{1}{2}$? How do you know?
   A. $\frac{4}{8}+\frac{3}{10}$ B. $\frac{1}{4}+\frac{1}{5}$
2. The teacher presents a simple sharing situation and asks students how division can describe the situation. The teacher then guides students to notice that division can also be written as a fraction and explains that today they will explore how fractions and division are connected.

Vocabulary

- Denominator
- Dividend
- Divisor
- Numerator
- Quotient

3. Explore

- The teacher presents the scenario: *"A farmer pours 5 gallons of water equally into 4 buckets."* The teacher asks students how they can determine how much water will be in each bucket and encourages them to represent the situation with a drawing, model, or equation.
- The teacher asks guiding questions such as: *"What operation helps us share equally?"* and *"How can we show this division as a fraction?"* while recording different student strategies on the board.
- Students work in pairs to model the situation using drawings or fraction strips, showing how 5 gallons can be shared equally among 4 buckets.
- Students explain their thinking by connecting the division expression $5 \div 4$ to the fraction $\frac{5}{4}$ and discuss how the quotient can also be written as the mixed number $1\frac{1}{4}$.

4. Practice & Independent Work

- The teacher assigns independent practice through the LMS, a short worksheet from ALEKS Platform, asking students to solve division situations and write the quotient as a fraction or mixed number.
- The teacher monitors students' progress in real time through the digital platform, reviews student responses, provides written or verbal feedback, and highlights common errors during the session.
- Students work independently online to solve the assigned problems, writing division expressions as fractions or mixed numbers and showing their steps as per to the questions.
- Students submit their work digitally and share or explain one solution in the chat or discussion board, comparing strategies with classmates and reflecting on how division can be represented as a fraction.

Common Misconceptions

1. Students may initially be confused as the amount they are dividing is less than the amount they are dividing by. Remind them that they can still write a division equation or fraction that is equal to a number less than 1.

5. Suggested resources

- I know it
- Khan Academy
- IXL

6. Conclusion & Exit Ticket

- The teacher summarizes the key idea that division can be written as a fraction and reviews one or two examples with the class. The teacher then assigns a short digital Exit Ticket through the LMS.
- Students complete the Exit Ticket independently online, solving problems that connect division expressions to fractions and simple word problems.
- Students submit their responses digitally and complete a short self-reflection (confidence check) about their understanding of how division can be represented as a fraction.

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