Unit 5 Reveal Grade 4

Content Area: **Math**
Course(s): **Math**
Time Period: **December**
Length: **2 weeks**
Status: **Published**

Unit Overview

UNIT 5 PLANNER

Numbers and Number Patterns

PACING: 10 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener	IgNITE! What's in a Spiral	Explore number patterns using spirals, rectangles, and the Fibonacci sequence.				
5-1	Understand Factors of a Number	Students use their understanding of multiplication to determine all factor pairs of a whole number.	Students name all the factor pairs of a whole number using the modal *can*.	Students recognize personal strengths through thoughtful self-reflection.	5-1	Math Terms factor factor pairs
Math Probe	Factors	Gather data on students' understandings of finding factors of a number.				
5-2	Understand Prime and Composite Numbers	Students identify a whole number as prime or composite based on the number of factor pairs it has.	Students describe the process of identifying a whole number as prime or composite using the active and passive voice.	Students collaborate with peers and contribute to group effort to achieve a collective mathematical goal.	5-2	composite number factor pairs prime number
5-3	Understand Multiples	Students determine whether a whole number is a multiple of a given number.	Students discuss whether a whole number is a multiple of a given number using modals of possibility.	Students exchange ideas for mathematical problem-solving with a peer, listening attentively and providing thoughtful and constructive feedback.	5-3	factor multiple product
5-4	Number or Shape Patterns	Students recognize, extend, and describe a number or shape pattern.	Students explain how to find a number or shape pattern using the target language *repeat* and *grow*.	Students demonstrate thoughtful reflection through identifying the causes of challenges and successes while completing a mathematical task.	5-4	pattern pattern rule sequence
5-5	Generate a Pattern	Students generate a number or shape pattern from a given rule.	Students articulate how to generate a number or shape pattern using present tense verbs.	Students develop and execute a plan, including selecting tools for mathematical problem solving.	5-5	pattern rule term
5-6	Analyze Features of a Pattern	Students identify and explain features of a number or shape pattern.	Students discuss features of a number or shape pattern using descriptive adjectives, including *striped*, *solid*, and *checkered*.	Students reflect on and describe the logic and reasoning used to make a mathematical decision or conclusion.	5-6	pattern rule sequence term
Unit Review Fluency Practice						
Unit Assessment Performance Task						

Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities

LESSON 5-1

Understand Factors of a Number

Learning Targets

- I can multiplicatively decompose a number into two factors, called factor pairs.
- I can explain how to find all factor pairs of a number.

Standards ◆ Major ▲ Supporting ● Additional

Content

△ **4.OA.B.4** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Math Practices and Processes

MPP Model with mathematics.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use their understanding of multiplication to determine all the factor pairs of a whole number.	• Students name all the factor pairs of a whole number using the modal con. • To support sense-making and maximize meta-awareness, ELs participate in MLR 8: Discussion Supports and MLR 6: Three Reads.	• Students recognize personal strengths through thoughtful self-reflection.

Coherence

Previous	Now	Next
• Students fluently multiplied and divided within 100 (Grade 3). • Students solved multiplicative comparison problems using multiplication and division (Unit 4).	• Students determine all the factor pairs of a whole number.	• Students multiply a multi-digit number by a one-digit number using place value and properties of operations (Unit 6). • Students find the greatest common factor of two whole numbers (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students extend their understanding of multiplication to decompose a number into pairs of factors. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop proficiency in finding all factor pairs of a number.	• Students apply their knowledge of factor pairs to solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 5-2

Understand Prime and Composite Numbers

Learning Target

- I can identify a whole number as prime or composite based on the number of factor pairs it has.

Standards ◆ Major △ Supporting ○ Additional

Content

△ **4.OA.B** Gain familiarity with factors and multiples.

△ **4.OA.B.4** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Math Practices and Processes

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students identify a whole number as prime or composite based on the number of factor pairs it has.	• Students describe the process of identifying a whole number as prime or composite using the active and passive voice. • To optimize output, ELs participate in MLR7: Compare and Connect.	• Students collaborate with peers and contribute to group effort to achieve a collective mathematical goal.

Coherence

Previous	Now	Next
• Students learned how to fluently multiply and divide within 100 (Grade 3). • Students learned how to find all the factor pairs of a whole number (Unit 5).	• Students use their understanding of factor pairs to identify a number as prime or composite.	• Students find multiples of whole numbers (Unit 5). • Students find the greatest common factor and least common multiple of two whole numbers (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use their knowledge of factor pairs to develop an understanding of prime and composite numbers.	• Students develop proficiency with identifying whole numbers as prime or composite. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their knowledge of prime and composite numbers to solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 5-3

Understand Multiples

Learning Target

- I can find multiples of a whole number in the range 1–100.

Standards ◆ Major ▲ Supporting ● Additional

Content

△ **4.OA.B** Gain familiarity with factors and multiples.

△ **4.OA.B.4** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Math Practices and Processes

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students determine whether a whole number is a multiple of a given number.	• Students discuss whether a whole number is a multiple of a given number using modals of possibility. • To support sense-making and cultivate conversation, ELs participate in MLR2: Collect and Display and MLR7: Compare and Connect.	• Students exchange ideas for mathematical problem-solving with a peer, listening attentively and providing thoughtful and constructive feedback.

Coherence

Previous	Now	Next
• Students represented multiplication as equal groups (Grade 3). • Students decomposed numbers into factors and factor pairs (Unit 5).	• Students apply their understanding of multiplication to find multiples of numbers. • Students identify the relationship between a number and the multiples of its factors.	• Students multiply numbers by multiples of 10, 100, and 1,000 (Unit 6). • Students apply their understanding of multiplication to multiply and divide fractions (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students extend their understanding multiplication to determine the multiples of a number.	• Students develop proficiency with finding multiples of whole numbers. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of multiples to solve problems with real-world contexts involving factors and multiples. *Application is not a targeted element of rigor for this standard.*

LESSON 5-4

Number or Shape Patterns

Learning Target

- I can recognize, extend, and describe a number or shape pattern.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **4.OA.C** Generate and analyze patterns.

○ **4.OA.C.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Math Practices and Processes

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students recognize, extend, and describe a number or shape pattern.	• Students explain how to find a number or shape pattern using the target language *repeat* and *grow*. • To maximize meta-awareness, ELs participate in MLR 5: Co-Craft Problems.	• Students demonstrate thoughtful reflection through identifying the causes of challenges and successes while completing a mathematical task.

Coherence

Previous	Now	Next
• Students identified and explained arithmetic patterns (Grade 3). • Students determined similarities in groups of numbers (Unit 5).	• Students recognize and describe number or shape patterns. • Students extend number or shape patterns based on a pattern rule.	• Students generate a pattern from a pattern rule (Unit 5). • Students generate numerical patterns from two rules and identify relationships between corresponding terms (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students reason about shape and number patterns to identify a pattern rule.	• Students use a pattern rule to extend a pattern.	• Students analyze number and shape patterns in a real-world context. *Application is not a targeted element of rigor for this standard.*

LESSON 5-5

Generate a Pattern

Learning Target

- I can generate a number or shape pattern from a given rule.

Standards ◆ Major ▲ Supporting ■ Additional

Content

○ **4.OA.C** Generate and analyze patterns.

○ **4.OA.C.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Math Practices and Processes

MPP Look for and express regularity in repeated reasoning.

Focus

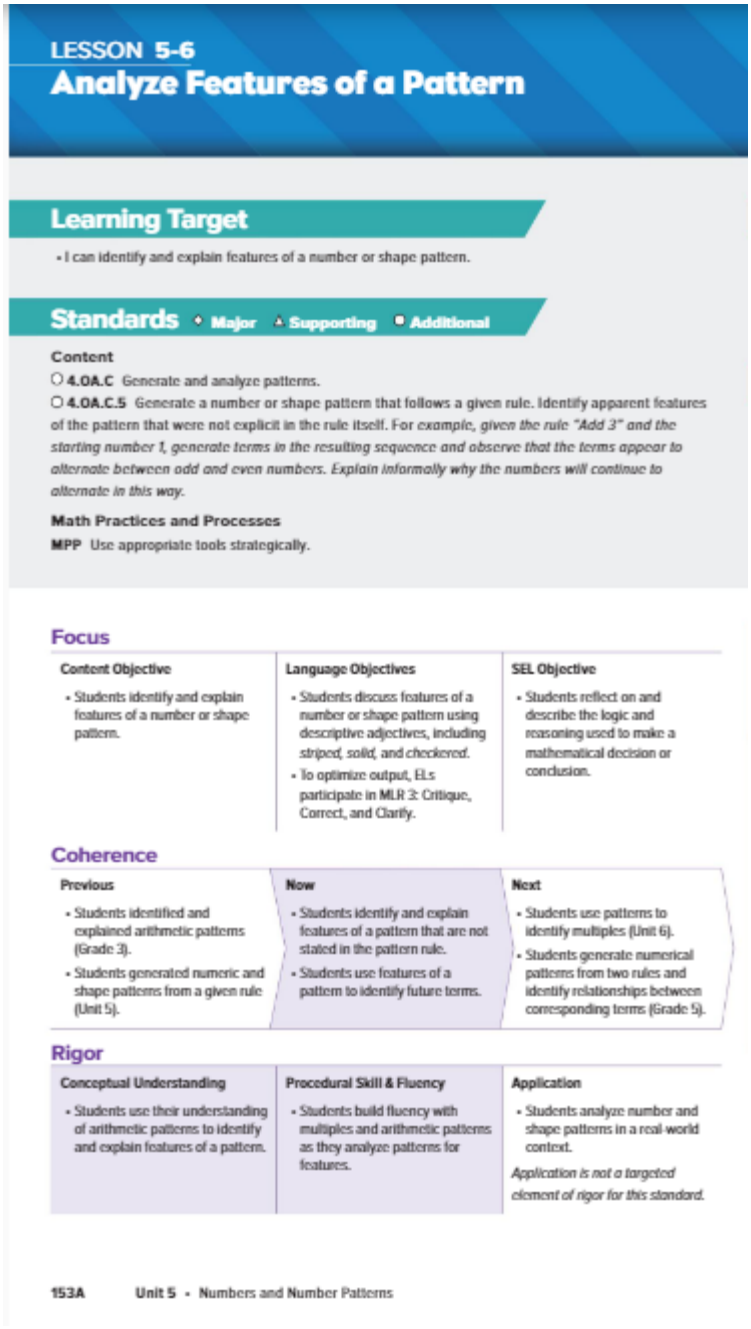
Content Objective	Language Objectives	SEL Objective
• Students generate a number or shape pattern from a given rule.	• Students articulate how to generate a number or shape pattern using present tense verbs. • To support sense-making, ELs participate in MLR 8: Discussion Supports and MLR6: Three Reads.	• Students develop and execute a plan, including selecting tools for mathematical problem solving.

Coherence

Previous	Now	Next
• Students identified and explained arithmetic patterns (Grade 3). • Students recognized, described, and extended numeric and shape patterns (Unit 5).	• Students generate a pattern from a given rule.	• Students identify features of a pattern not explicitly stated in the rule (Unit 5). • Students generate numerical patterns from two rules and identify relationships between corresponding terms (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use their understanding of numeric and shape patterns to generate a pattern from a given rule.	• Students develop proficiency in generating a pattern based on a given rule.	• Students generate number and shape patterns in a real-world context. *Application is not a targeted element of rigor for this standard.*



LESSON 5-6

Analyze Features of a Pattern

Learning Target

- I can identify and explain features of a number or shape pattern.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **4.OA.C** Generate and analyze patterns.

○ **4.OA.C.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For *example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Math Practices and Processes

MPP Use appropriate tools strategically.

Focus

Content Objective	Language Objectives	SEL Objective
• Students identify and explain features of a number or shape pattern.	• Students discuss features of a number or shape pattern using descriptive adjectives, including *striped, solid,* and *checkered.* • To optimize output, ELs participate in MLR 3: Critique, Correct, and Clarify.	• Students reflect on and describe the logic and reasoning used to make a mathematical decision or conclusion.

Coherence

Previous	Now	Next
• Students identified and explained arithmetic patterns (Grade 3). • Students generated numeric and shape patterns from a given rule (Unit 5).	• Students identify and explain features of a pattern that are not stated in the pattern rule. • Students use features of a pattern to identify future terms.	• Students use patterns to identify multiples (Unit 6). • Students generate numerical patterns from two rules and identify relationships between corresponding terms (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use their understanding of arithmetic patterns to identify and explain features of a pattern.	• Students build fluency with multiples and arithmetic patterns as they analyze patterns for features.	• Students analyze number and shape patterns in a real-world context. *Application is not a targeted element of rigor for this standard.*

Integration of Career Readiness, Life Literacies and Key Skills

9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
9.1.2. FI.1	Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards).

9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.1.2.FP.1	Explain how emotions influence whether a person spends or saves.
9.1.2.FP.3	Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society).
9.4.2.DC.3	Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).
9.1.2.PB.1	Determine various ways to save and places in the local community that help people save and accumulate money over time.
9.1.2.PB.2	Explain why an individual would choose to save money.
9.4.2.DC.6	Identify respectful and responsible ways to communicate in digital environments.
9.4.2.DC.7	Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).
9.4.2.TL.2	Create a document using a word processing application.
9.4.2.TL.5	Describe the difference between real and virtual experiences.
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).
9.4.2.TL.7	Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2).

Technology and Design Integration

8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
8.1.2.DA.3	Identify and describe patterns in data visualizations.
8.1.2.DA.4	Make predictions based on data using charts or graphs.
8.1.2.AP.4	Break down a task into a sequence of steps.
8.1.2.AP.5	Describe a program's sequence of events, goals, and expected outcomes.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.

Interdisciplinary Connections

LA.RI.4	Reading Informational Text
LA.RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
LA.RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
LA.RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
LA.RI.4.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.

LA.RI.4.8	Explain how an author uses reasons and evidence to support particular points in a text.
LA.RI.4.9	Integrate and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) information from two texts on the same topic in order to write or speak about the subject knowledgeably.
LA.SL.4	Speaking and Listening
LA.SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
LA.SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally).
LA.SL.4.3	Identify the reasons and evidence a speaker provides to support particular points.
LA.SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Differentiation

- Understand that gifted students, just like all students, come to school to learn and be challenged.
- Pre-assess your students. Find out their areas of strength as well as those areas you may need to address before students move on.
- Consider grouping gifted students together for at least part of the school day.
- Plan for differentiation. Consider pre-assessments, extension activities, and compacting the curriculum.
- Use phrases like "You've shown you don't need more practice" or "You need more practice" instead of words like "qualify" or "eligible" when referring to extension work.
- Encourage high-ability students to take on challenges. Because they're often used to getting good grades, gifted students may be risk averse.

- **Definitions of Differentiation Components**:

    - Content – the specific information that is to be taught in the lesson/unit/course of instruction.
    - Process – how the student will acquire the content information.
    - Product – how the student will demonstrate understanding of the content.
    - Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:



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Modifications and Accommodations

Refer to QSAC EXCEL SMALL SPED ACCOMMOCATIONS spreadsheet in this discipline.

Modifications and Accommodations used in this unit:

Benchmark Assessments

Benchmark Assessments are given periodically (e.g., at the end of every quarter or as frequently as once per month) throughout a school year to establish baseline achievement data and measure progress toward a standard or set of academic standards and goals.

Schoolwide Benchmark assessments:

Aimsweb benchmarks 3X a year

Linkit Benchmarks 3X a year

DRA

Additional Benchmarks used in this unit:

Reveal Unit assessments

Formative Assessments

Assessment allows both instructor and student to monitor progress towards achieving learning objectives, and can be approached in a variety of ways. **Formative assessment** refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

Formative Assessments used in this unit:

Teacher observation

Checklists

Questioning and Discussion

Quizzes

Summative Assessments

summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches.

Summative assessments for this unit:

End of Unit assessments

Instructional Materials

See above

Standards

MA.4.OA.B.4	Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
MA.4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.