Unit 14 Reveal Grade 5

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

Unit overview

UNIT 14 PLANNER
Algebraic Thinking

PACING: 10 days

LESSON	MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener IGNITE 5-4-3-2-1 Challenge Students explore how expressions can be interpreted in different ways.					
14-1 Write Numerical Expressions	Students write numerical expressions to represent calculations that are described using written statements.	Students explain how to write numerical expressions to represent a given word problem using *should*, *could*, and *use*.	Students exchange ideas for completing a mathematical task with a peer and reflect on the value of their similarities and differences.	14-1	Math Terms expression grouping symbol numerical expressio parentheses
14-2 Interpret Numerical Expressions	Students interpret numerical expressions without evaluating the expression.	Students discuss interpreting numerical expressions without evaluating the expression using *similar*, *different*, and *notice*.	Students recognize and respond appropriately to the emotions of others during collaborative math work.	14-2	expression grouping symbol numerical expressio parentheses
14-3 Evaluate Numerical Expressions	Students use the order of operations to evaluate numerical expressions.	Students talk about using the order of operations to evaluate numerical expressions using the verb *help*.	Students demonstrate self-discipline through working through distractions to complete a mathematical task.	14-3	evaluate order of operations
Math Probe Order of Operations Students identify which operation in an expression should be performed first.					
14-4 Numerical Patterns	Students generate two numerical patterns that follow two given rules. Students identify relationships between corresponding terms in the generated number patterns.	Students discuss the relationships between corresponding terms in the generated number patterns using the verbs *represent* and *determine*.	Students exercise creativity by solving a problem using more than one approach.	14-4	corresponding term numerical pattern rule (of a pattern)
14-5 Relate Numerical Patterns	Students use a table to arrange corresponding terms of two numerical patterns. Students describe the relationship between corresponding terms in two numerical patterns.	Students discuss relationships between corresponding terms in two numerical patterns using the verbs *identify* and *use*.	Students self-motivate and sustain engagement to work independently to complete a challenging mathematical task.	14-5	corresponding term numerical pattern rule (of a pattern)
14-6 Graphs of Numerical Patterns	Students plot ordered pairs consisting of the corresponding terms from two numerical patterns.	Students explain how to plot ordered pairs consisting of the corresponding terms from two numerical patterns using *can* and *should*.	Students discuss alternative strategies/methods for solving a mathematical problem and the value of flexible mathematical thinking.	14-6	corresponding term numerical pattern
Unit Review **Fluency Practice**					
Performance Task **Unit Assessment**					

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Enduring Understandings

See Above.

Essential Questions

See Above.

Instructional Strategies and Learning Activities

LESSON 14-1

Write Numerical Expressions

Learning Target

- I can write numerical expressions to represent calculations that are described using written statements.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **5.OA.A** Write and interpret numerical expressions.

○ **5.OA.A.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

○ **5.OA.A.2** Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

Math Practices and Processes

MPP Attend to precision.

Focus

Content Objective	Language Objectives	SEL Objective
• Students write numerical expressions to represent calculations that are described using written statements.	• Students explain how to write numerical expressions to represent a given word problem using *should*, *could*, and *use*. • To support optimizing output, ELs participate in MLR1: Stronger and Clearer Each Time.	• Students exchange ideas for completing a mathematical task with a peer and reflect on the value of their similarities and differences.

Coherence

Previous	Now	Next
	• Students write numerical expressions to represent calculations that are described using written statements.	• Students interpret numerical expressions without evaluating the expression (Unit 14). • Students write, read, evaluate, and generate and identify equivalent expressions in which letters stand for numbers (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of expressions as they begin to notice equations are two connected expressions.	• Students build procedural skill when interpreting numerical expressions. *Procedural Skill & Fluency is not a specific element of rigor for this standard.*	• Students apply understanding of numerical expressions when interpreting problems. *Application is not a specific element of rigor for this standard.*

LESSON 14-2

Interpret Numerical Expressions

Learning Target

- I can interpret numerical expressions without evaluating them.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **5.OA.A** Write and interpret numerical expressions.

○ **5.OA.A.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

○ **5.OA.A.2** Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

Math Practices and Processes

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students interpret numerical expressions without evaluating the numerical expression.	• Students discuss interpreting numerical expressions without evaluating the numerical expression using *similar, different,* and *notice.* • To support maximizing linguistic and cognitive meta-awareness, ELs participate in MLR5: Co-Craft Questions and Problems.	• Students recognize and respond appropriately to the emotions of others during collaborative math work.

Coherence

Previous	Now	Next
• Students wrote numerical expressions to represent calculations that are described using written statements (Unit 14).	• Students interpret numerical expressions without evaluating the numerical expression.	• Students use the order of operations to evaluate numerical expressions (Unit 14). • Students write, read, evaluate, and generate and identify equivalent expressions in which letters stand for numbers (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop their understanding for how a numerical expression can represent the relationship between several values in a real-world context.	• Students gain proficiency as they practice interpreting numerical expressions. *Procedural Skill & Fluency is not a specific element of rigor for this standard.*	• All of the numerical expressions are interpreted within a real-world context. *Application is not a specific element of rigor for this standard.*

LESSON 14-3

Evaluate Numerical Expressions

Learning Target

- I can use the order of operations to evaluate numerical expressions.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **5.OA.A** Write and interpret numerical expressions.

○ **5.OA.A.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

Math Practices and Processes

MPP Use appropriate tools strategically.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use the order of operations to evaluate numerical expressions.	• Students talk about using the order of operations to evaluate numerical expressions using the verb *help*. • To support optimizing output, ELs participate in MLR7: Compare and Connect	• Students demonstrate self-discipline through working through distractions to complete a mathematical task.

Coherence

Previous	Now	Next
• Students interpreted numerical expressions without evaluating the numerical expression (Unit 14).	• Students use the order of operations to evaluate numerical expressions.	• Students generate two numerical patterns using rules and identify apparent relationships between corresponding terms in the patterns (Unit 14).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students gain understanding that not following an order will produce contradictory answers, but using the order of operations consistently produces a single value for a numerical expression.	• Students gain fluency and skill with the order of operations and handling grouping symbols as they follow the steps repeatedly with support throughout the lesson.	• Several of the numerical expressions are presented in a real-world context. *Application is not a specific element of rigor for this standard.*

LESSON 14-4

Numerical Patterns

Learning Targets

- I can generate two numerical patterns using two given rules.
- I can identify relationships between corresponding terms in the generated number patterns.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **5.OA.B** Analyze patterns and relationships.

○ **5.OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students generate two numerical patterns that follow two given rules. • Students identify relationships between corresponding terms in the generated number patterns.	• Students discuss relationships between corresponding terms in number patterns using the verbs *represent* and *determine*. • To support sense-making, ELs participate in MLR2: Collect and Display.	• Students exercise creativity by solving a problem using more than one approach.

Coherence

Previous	Now	Next
• Students generated a number or shape pattern that follows a given rule and identified apparent features of the pattern that were not explicit in the rule itself (Grade 4). • Students used the order of operations to evaluate numerical expressions (Unit 14).	• Students generate two numerical patterns using rules and identify apparent relationships between corresponding terms in the patterns.	• Students use a table to assist them in finding an apparent relationship between corresponding terms in two numerical patterns (Unit 14). • Students represent and analyze quantitative relationships between dependent and independent variables (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of algebra as they use expressions to identify relationships between corresponding terms.	• Students build proficiency with generating patterns using pattern rules to extend patterns and find corresponding terms.	• Students apply understanding of patterns to solve problems. *Application is not a specific element of rigor for this standard.*

LESSON 14-5

Relate Numerical Patterns

Learning Targets

- I can arrange corresponding terms in two numerical patterns in a table.
- I can describe a relationship between corresponding terms in two numerical patterns.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **5.OA.B** Analyze patterns and relationships

○ **5.OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

Math Practices and Processes

MPP Look for and make use of structure.

Focus

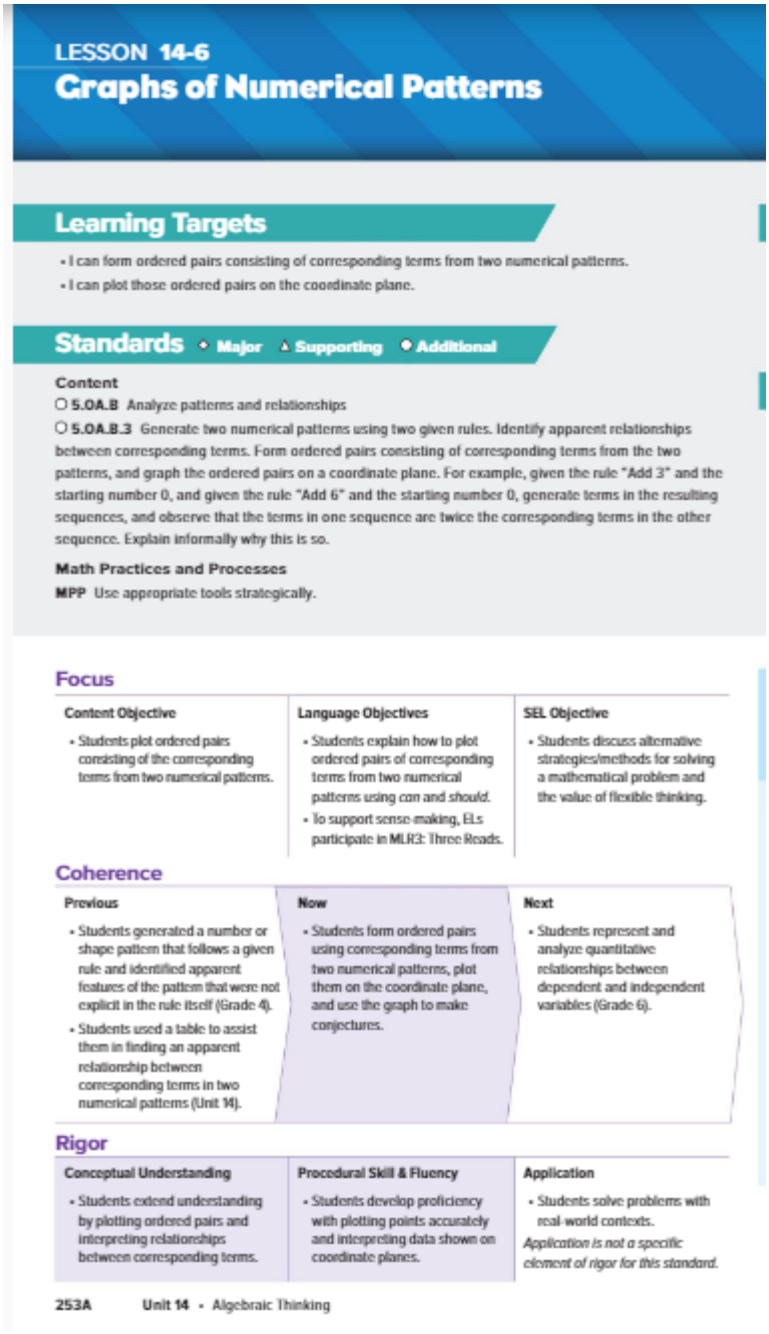
Content Objectives	Language Objectives	SEL Objective
• Students use a table to arrange corresponding terms in two numerical patterns. • Students describe a relationship between corresponding terms in two numerical patterns.	• Students discuss relationships between corresponding terms in two numerical patterns using the verbs *identify* and use. • To support optimizing output, students participate in MLR4: Info Gap.	• Students self-motivate and sustain engagement to work independently to complete a challenging mathematical task.

Coherence

Previous	Now	Next
• Students generated a number or shape pattern that follows a given rule and identified apparent features of the pattern that were not explicit in the rule itself (Grade 4). • Students generated two numerical patterns using rules and identified apparent relationships between corresponding terms in the patterns (Unit 14).	• Students use a table to assist them in finding an apparent relationship between corresponding terms in two numerical patterns.	• Students form ordered pairs using corresponding terms from two numerical patterns, plot them on the coordinate plane, and use the graph to make conjecture (Unit 14). • Students represent and analyze quantitative relationships between dependent and independent variables (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build understanding of algebra as they use expressions to describe relationships between corresponding terms.	• Students build proficiency with using pattern rules to extend patterns and find corresponding terms.	• Students apply understanding of patterns to solve problems. *Application is not a specific element of rigor for this standard.*



LESSON 14-6

Graphs of Numerical Patterns

Learning Targets

- I can form ordered pairs consisting of corresponding terms from two numerical patterns.
- I can plot those ordered pairs on the coordinate plane.

Standards ◆ Major ▲ Supporting ● Additional

Content

○ **5.OA.B** Analyze patterns and relationships

○ **5.OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.

Math Practices and Processes

MPP Use appropriate tools strategically.

Focus

Content Objective

- Students plot ordered pairs consisting of the corresponding terms from two numerical patterns.

Language Objectives

- Students explain how to plot ordered pairs of corresponding terms from two numerical patterns using *can* and *should*.
- To support sense-making, ELs participate in MLR3: Three Reads.

SEL Objective

- Students discuss alternative strategies/methods for solving a mathematical problem and the value of flexible thinking.

Coherence

Previous

- Students generated a number or shape pattern that follows a given rule and identified apparent features of the pattern that were not explicit in the rule itself (Grade 4).
- Students used a table to assist them in finding an apparent relationship between corresponding terms in two numerical patterns (Unit 14).

Now

- Students form ordered pairs using corresponding terms from two numerical patterns, plot them on the coordinate plane, and use the graph to make conjectures.

Next

- Students represent and analyze quantitative relationships between dependent and independent variables (Grade 6).

Rigor

Conceptual Understanding

- Students extend understanding by plotting ordered pairs and interpreting relationships between corresponding terms.

Procedural Skill & Fluency

- Students develop proficiency with plotting points accurately and interpreting data shown on coordinate planes.

Application

- Students solve problems with real-world contexts.

Application is not a specific element of rigor for this standard.

Integration of Career Readiness, Life Literacies and Key Skills

9.4.8.CI.1	Assess data gathered on varying perspectives on causes of climate change (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple potential solutions (e.g., RI.7.9, 6.SP.B.5, 7.1.NH.IPERS.6, 8.2.8.ETW.4).
9.2.5.CAP.1	Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
9.2.5.CAP.2	Identify how you might like to earn an income.
9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries.
9.2.5.CAP.4	Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
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).
9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1).
9.4.8.CT.3	Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome.
9.4.8.DC.2	Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).
9.1.2.PB.2	Explain why an individual would choose to save money.
9.4.8.DC.4	Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences.
9.4.8.DC.5	Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
9.4.8.DC.8	Explain how communities use data and technology to develop measures to respond to effects of climate change (e.g., smart cities).
9.4.8.GCA.1	Model how to navigate cultural differences with sensitivity and respect (e.g., 1.5.8.C1a).
9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
9.4.8.IML.2	Identify specific examples of distortion, exaggeration, or misrepresentation of information.
9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
9.4.8.IML.4	Ask insightful questions to organize different types of data and create meaningful visualizations.
9.4.8.IML.5	Analyze and interpret local or public data sets to summarize and effectively communicate the data.
9.4.8.IML.7	Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a, 1.4.8.CR2a, 2.1.8.CHSS/IV.8.AI.1, W.5.8, 6.1.8.GeoSV.3.a, 6.1.8.CivicsDP.4.b, 7.1.NH. IPRET.8).
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.
9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.
9.4.8.TL.6	Collaborate to develop and publish work that provides perspectives on a real-world problem.

Technology and Design Thinking

8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
	Data can be organized, displayed, and presented to highlight relationships.
8.1.5.DA.1	Collect, organize, and display data in order to highlight relationships or support a claim.
8.1.5.DA.3	Organize and present collected data visually to communicate insights gained from different views of the data.
8.1.5.DA.4	Organize and present climate change data visually to highlight relationships or support a claim.

Interdisciplinary Connections

LA.RI.5.1	Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.RI.5.2	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
LA.RI.5.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
LA.RI.5.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
LA.RI.5.5	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
LA.RI.5.6	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
LA.RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
LA.RI.5.8	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
LA.RI.5.9	Integrate and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.
LA.RI.5.10	By the end of year, read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed.
LA.W.5.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
LA.SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
LA.L.5.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.5.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

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:

Use Differentiation guide in Teacher's manual for each unit

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:

End of 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 Observations

Checklists

Questions and Discussions

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

5.OA.A.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.A.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.
5.OA.B.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.