4 Math Unit 05: Numbers and Number Patterns

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 2**
Length: **10 days**
Status: **Published**

Unit Overview

Numbers and Number Patterns

In this unit, students will use their understanding of multiplication to decompose a number into factor pairs. They use a systematic approach to find all factor pairs of a whole number. They recognize that factor pairs of a number can be used to classify a number as prime or composite. They explore the relationship between factors and multiples and use this relationship to determine multiples of a given number.

Students examine shape and number patterns and write pattern rules to describe the patterns. they recognize that patterns behave in different ways and understand how the pattern rule dictates what a pattern looks like. Students use pattern rules to extend and generate a sequence of numbers or shapes. They will use their understanding of factors, multiples, and arithmetic patterns to analyze patterns and explain feature of the pattern that are not clearly stated in the pattern rule.

Students will extend their understanding of multiplication, division, and arithmetic patterns learned in previous grades. These include:

- **Find Factor Pairs and Multiples:** Students find factor pairs and multiples and understand the relationship between factors and multiples.
- **Identify Prime and Composite Numbers:** Students use understanding of factor pairs to identify prime and composite numbers.
- **Describe, Extend, and Analyze Patterns:** Students use a pattern rule to describe and extend a number or shape pattern. they also identify features of the pattern not explicitly stated in the rule.

What Students Are Learning

- Students use their understanding of multiplication to find all the factor pairs of a number.
- Students use their understanding of factor pairs to identify a number as prime or composite.
- Students use their understanding of multiplication to find multiples of a number. They understand the relationship between factors and multiples.
- Students use a pattern rule to describe number or shape patterns that repeat or grow. They generate and extend patterns based on a pattern rule and analyze the patterns, identifying features of the pattern that are not stated in the rule.

Number Routines

- What's Another Way to Write It?
- Find a Pattern, Make a Pattern
- Can You Make the Number?
- Notice & Wonder
- Which Doesn't Belong?

Standards

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.
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.

Materials

Core Materials:

Reveal Math

5.1 Understand Factors of a Number

5.2 Understand Prime and Composite Numbers

5.3 Understand Multiples

5.4 Number or Shape Patterns

5.5 Generate a Pattern

5.6 Analyze Features of a Pattern

Supplemental Materials:

- ST Math
- Happy Numbers
- 3 Act Lessons
- Building Fact Fluency Kit
- Brainingcamp Manipulatives
- Nearpod Lessons
- Brainpop Resources
- Online Resources

Technology

DA	Data & Analysis
	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.
	Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.
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.
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Assessment

Formative Assessment

- Unit Readiness Diagnostics
- Lesson Checks
- Exit Tickets
- Teacher Observation

Summative Assessment

- Unit Assessment Performance Task
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

Accommodations & Modifications

Special Education

Differentiated Instruction			
Accommodate Based on Students Individual Needs: Strategies			
Time/General • Extra time for assigned tasks • Adjust length of assignment • Timeline with due dates for reports and projects • Communication system between home and school • Provide lecture notes/outline	**Processing** • Extra response time • Have students verbalize steps • Repeat, clarify, or reword directions • Mini-breaks between tasks • Provide a warning for transitions • Reading partners	**Comprehension** • Precise step-by-step directions • Short manageable tasks • Brief and concrete directions • Provide immediate feedback • Small group	**Recall** • Teacher-made checklist • Use visual graphic organizers • Reference resources to promote independence • Visual and verbal reminders

		instruction • Emphasize multi-sensory learning	• Graphic organizers
Assistive Technology • Computer/whiteboard • Tape recorder • Spell-checker • Audio-taped books	**Tests/Quizzes/Grading** • Extended time • Study guides • Focused/chunked tests • Read directions aloud	**Behavior/Attention** • Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback	**Organization** • Individual daily planner • Display a written agenda • Note-taking assistance • Color code materials

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

RI.CI.4.2	Summarize an informational text and interpret the author's purpose or main idea citing key details from the text.
ETS1.B	Developing Possible Solutions Testing a solution involves investigating how well it performs under a range of likely conditions.

Career Readiness, Life Literacies & Key Skills

9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
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.
9.4.5.CT	Critical Thinking and Problem-solving The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.
9.4.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).

9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
9.1.5.FI	Financial Institutions
	People can choose to save money in many places such as home in a piggy bank, bank, or credit union.
9.1.5.FI.1	Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.

Career Ready Practices

STEM CAREER: Astronomer What's an Astronomer? Student talks about the work of astronomers. Student explains how to use patterns to track the phases of the moon.

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.