



Marietta City Schools  
District Unit Planner

*Fourth Grade*

<b>Unit Name</b>	<i>Unit 2: Exploring Real Life Phenomena through Patterning and Algebraic Reasoning</i>	<b>Unit duration (Days)</b>	3-4 weeks
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[GA K-12 Standards](#)

*Previously, students have explored growing and repeating patterns of 1s, 5s, and 10s and shapes, as well as patterns in addition, subtraction, multiplication, and division. In this unit, students will be building on this understanding to generate number and shape patterns that follow a rule, as well as exploring factor pairs and prime and composite numbers.*

**4.PAR.3 Generate and analyze patterns, including those involving shapes, input/output diagrams, factors, multiples, prime numbers, and composite numbers.**

- **4.PAR.3.1** Generate both number and shape patterns that follow a provided rule.
- **4.PAR.3.2** Use input-output rules, tables, and charts to represent and describe patterns, find relationships, and solve problems
- **4.PAR.3.3** Find factor pairs in the range 1–100 and find multiples of single-digit numbers up to 100.
- **4.PAR.3.4** Identify composite numbers and prime numbers and explain the relationship between them.

**4.MDR.6: Measure time and objects that exist in the world to solve real-life, mathematical problems and analyze graphical displays of data to answer relevant questions.**

- **4.MDR.6.2** Ask questions and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.

**4.MP.1-8 Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals. (It is important to note that MPs 1, 3 and 6 should support the learning in every lesson.)**

- **MP.1** Make sense of problems and persevere in solving them.
- **MP.2** Reason abstractly and quantitatively.
- **MP.3** Construct viable arguments and critique the reasoning of others.
- **MP.4** Model with mathematics.
- **MP.5** Use appropriate tools strategically.
- **MP.6** Attend to precision.
- **MP.7** Look for and make use of structure.
- **MP.8** Look for and express regularity in repeated reasoning.

*The [Framework for Statistical Reasoning](#) and the [Mathematical Modeling Framework](#) should be taught throughout the units. The [K-12 Mathematical Practices](#) should be evidenced at some point throughout each unit depending on the tasks that are explored. It is important to note that MPs 1, 3 and 6 should support the learning in every lesson.*

<b>Essential Questions</b>
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- What does it mean to factor?
- What is the difference between a prime and a composite number?
- What are multiples?
- How is skip counting related to identifying multiples?
- What is the difference between a factor and a product?
- How do we know if a number is prime or composite?
- How will diagrams help us determine and show the products of two-digit numbers?
- What patterns do I notice when I am multiplying whole numbers that can help me multiply more efficiently?
- What is a sensible answer to a real problem?
- How can we use patterns to solve problems?

<b>Tier II Vocabulary Words-</b> High Frequency Multiple Meaning	<b>Tier III Vocabulary Words-</b> Subject/ Content Related Words
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Generate, identify, display, analyze, measure

Additive pattern, composite, factor, input, multiple, numerical pattern, output, pattern, pattern rule, prime, shape pattern, Term (sometimes referred to as stage or element)  
[K-12 Mathematics Glossary](#)

<b>Assessments</b>
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**Formative Assessment(s):**

- [MCS K-5 Activity & Assessment Collection](#)
- MIP Formative Assessment p. 30 (Exploring Multiples)
- MIP Formative Assessment p. 33 (Exploring Factors)
- MIP Formative Assessment p. 38 (Prime/Composite)
- 4.PAR.3.1 & 3.4 MCS Mini Assessment
- 4.PAR.3.4 MCS Mini Assessment
- 4.PAR.3.1 MCS Mini Assessment

**Summative Assessment:**

- [Unit 2 Summative Assessment](#)
- Unit 2 Blueprint

*It is the responsibility of each schools' grade level PLC to identify appropriate instructional lessons and resources, based on data and student needs, using the suggested  **pacing duration**. The following learning tasks have been vetted to align to the standards included in this unit. The GA Dept. of Education strongly recommends that any additional tasks, resources, and/or assessments used for instruction should be vetted using the [Quality Assurance Rubric](#), to ensure alignment to the state standards.*

Objective or Content	Learning Experiences		Differentiation Considerations
<b>4.PAR.3</b> Generate and analyze patterns, including those involving	<b><u>GA DOE Learning Plans</u></b>  <b><u>Reasoning with Shape Patterns</u></b> <i>In this learning plan, students will explore, analyze, and extend</i>	<b><u>MCS Curriculum Resources</u></b>  <b><u>SAVVAS enVision Topic 7: Factors and Multiples</u></b> <i>Students focus on understanding the meaning of factors and</i>	<b><u>GADOE Intervention Tasks</u></b>  <a href="#">Beep to 10</a> : Recall multiplication to 10 x 10, and

<p>shapes, input/output diagrams, factors, multiples, prime numbers, and composite numbers.</p>	<p><i>shape patterns. Students will generate growing shape patterns that follow a rule and explain why a pattern will continue to develop as it does. Use input-output tables and charts to represent patterns, find relationships and solve authentic problems. (Suggested Time Frame: 1-2 Days)</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Teacher Guidance</a></li> <li>• <a href="#">Student Reproducibles</a></li> <li>• <a href="#">Blackline Masters</a></li> </ul> <p><b><u>Reasoning with Shape and Numerical Patterns</u></b>  <i>In this learning plan, students will explore, analyze, and extend growing and numerical patterns and use input-output tables and charts to represent patterns, find relationships and solve authentic problems. (Suggested Time Frame: 1-2 Days)</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Teacher Guidance</a></li> <li>• <a href="#">Student Reproducibles</a></li> </ul> <p><b><u>Factors and Multiples Part 1</u></b>  <i>In this learning plan students will find factor pairs for a whole number in the range of 1-100 and recognize that a whole number is a multiple of each of its factors. (Suggested Time Frame: 1-2 Days)</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Teacher Guidance</a></li> <li>• <a href="#">Student Reproducibles</a></li> </ul> <p><b><u>Factors and Multiples Part 2</u></b>  <i>In this learning plan, students will extend or complete a pattern limited to eight terms using a given rule. Students will connect each term in a growing or shrinking numeric pattern with its term number and identify features of a pattern that are not explicit in the rule itself. (Suggested Time Frame: 1-2 Days)</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Teacher Guidance</a></li> <li>• <a href="#">Student Reproducibles</a></li> </ul> <p><b><u>Prime and Composite Part 1</u></b>  <i>In this learning plan, students will explore prime and composite numbers, and explain the relationship between them. (Suggested Time Frame: 2-3 Days)</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Teacher Guidance</a></li> </ul>	<p><i>multiples by building on students' understanding of multiplication. The concepts of prime and composite numbers are developed through an understanding of factors.</i></p> <ul style="list-style-type: none"> <li>• Lesson 7-1: Understand Factors</li> <li>• Lesson 7-2: Factors</li> <li>• Lesson 7-4: Prime and Composite Numbers</li> <li>• Lesson 7-5: Multiples</li> <li>• Topic 7 3-Act Task</li> </ul> <p><b><u>MIP Module: 2 Exploring, Factors, Multiples and Prime Numbers</u></b>  <i>Students explore the meaning of multiples and factors through investigations and discussions.</i></p> <ul style="list-style-type: none"> <li>• Exploring Multiples p. 29-30</li> <li>• Multiples on a Hundreds Chart p. 30-31</li> <li>• Exploring Factors p. 31-33</li> <li>• Multiples vs Factors p. 33-34</li> <li>• Comparing Multiples and Factors p. 34-35</li> <li>• Multiplies On a Hundreds Chart p. 35</li> <li>• Eliminate It! p. 35</li> <li>• Exploring Prime and Composite Numbers p. 36-38</li> <li>• Factor play p. 36</li> <li>• Talk About It/Write About It p. 36</li> </ul> <p><b><u>SAVVAS enVision Topic 14: Algebra: Generate and Analyze Patterns</u></b>  <i>Students will generate and analyze number and shape patterns.</i></p> <ul style="list-style-type: none"> <li>• Lesson 14-1: Number Sequences</li> <li>• Lesson 14-2: Number Rules</li> <li>• Lesson 14-3: Patterns: Repeating Shapes</li> </ul>	<p>the corresponding division facts.</p> <p><a href="#">Knock 'Em Down</a>: Recall multiplication to 10 x 10, and the corresponding division facts.</p> <p><a href="#">Paper Planes</a>: Plan and conduct investigations using the framework for statistical reasoning.</p>
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<p><b>4.MDR.6:</b>  Measure time and objects that exist in the world to solve real-life, mathematical problems and analyze graphical displays of data to answer relevant questions.</p>	<p><b>Statistical Reasoning with Patterns</b>  <i>In this learning plan, students consider a real-world situation collecting and analyzing data, using the data to help make decisions. (Suggest Time Frame: 4-5 Days)</i></p> <ul style="list-style-type: none"> <li>• <a href="#">Teacher Guidance</a></li> <li>• <a href="#">Student Reproducibles</a></li> </ul>	<p><b>SAVVAS enVision Topic 7 &amp; 14</b>  <i>Students will use repeated reasoning to generalize how to solve problems that are similar.</i></p> <ul style="list-style-type: none"> <li>• Lesson 7-3: Problem Solving: Repeated Reasoning</li> </ul> <p><i>Students will use patterns to help solve problems.</i></p> <ul style="list-style-type: none"> <li>• Lesson 14-4: Problem Solving: Look for Use and Structure</li> </ul>	
<b>Content Resources</b>			
<p><b>MCS Links:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">MCS Math Curriculum Map</a></li> <li>• <a href="#">MCS Math Instructional Framework</a></li> </ul> <p><b>GA DOE Links:</b>  Access all GADOE Curriculum Resources at the following site: <a href="#">GaDOE Inspire</a>.</p>		<p><b>Additional Resources:</b></p> <ul style="list-style-type: none"> <li>• For further instructional supports see pages 18 -22 of the <a href="#">GADOE Unit 2 Planner</a></li> <li>• Estimation Activities/<a href="#">Estimation 180</a></li> <li>• <a href="#">Which One Doesn't Belong?</a></li> <li>• <a href="#">Same or Different?</a></li> <li>• <a href="#">Splat!</a></li> <li>• <a href="#">Splat - Fruit Splat Multiples Game</a></li> <li>• <a href="#">XtraMath - Fact Fluency</a></li> <li>• <a href="#">Splash Learn - Prime and Composite Games</a></li> <li>• <a href="#">Splash Learn - Number Patterns</a></li> </ul>	