# Unit 8: Graphs, Patterns, and Geometry

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

## UNIT RATIONALE

Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicated how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and yl-coordinate).

## ESSENTIAL QUESTIONS

- How can I describe and identify a point in a coordinate system?
- How can I graph points on a coordinate grid and interpret the coordinate values?
- How can I l use coordinate graphing to represent and solve problems?
- How can I use two rules to generate numerical patterns and identify the relationship between the corresponding terms in the patterns?
- How can I form ordered pairs from two numerical patterns and graph the ordered pairs on a coordinate grid?

## STANDARDS

## NEW JERSEY STUDENT LEARNING STANDARDS: CONTENT AREA

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| MATH.5.G.A.1 | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., $x$-axis and $x$-coordinate, $y$-axis and $y$-coordinate). |
| MATH.5.G.A.2 | Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. |

## NEW JERSEY STUDENT LEARNING STANDARDS: CAREER READINESS, LIFE LITERACIES AND KEY SKILLS

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| TECH.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). |

## NEW JERSEY STUDENT LEARNING STANDARDS: COMPUTER SCIENCE AND DESIGN THINKING

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| CS.3-5.8.2.5.ED.3 | Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task. |

## PRE-ASSESSMENTS

Module 19 "Are You Ready" (TM pg. 472)

Module 20 "Are You Ready" (TM pg. 496)

## INSTRUCTIONAL PLAN

### MODULE 19

# Module 19: Graphs and Patterns

### LESSON 19.2

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 19.2 We are learning to graph points on a coordinate grid and interpret the coordinate values. |
| **Student Learning Strategies** | • graph points on a coordinate grid.<br>• interpret coordinate values of points in context. |
| **Success Criteria** | I can graph a point on a coordinate grid and interpre |

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| | the coordinate values. |
| **Formative Assessment (drives instructional decisions)** | Turn and Talk (pgs. 477, 478, & 479)<br>Check Understanding ( pg. 479)<br>Exit Ticket (TM pg. 480) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. 477B)<br>**Mini-Lesson:** Spark Your Learning (TM pg. 477D)<br>Build Understanding (p. 478) Step It Out (p. 479)<br>**Guided Practice:** Check Understanding (pg. 479)<br>**Independent Practice:** On Your Own (pg. 480)<br>Exit Ticket (TM pg. 480)<br><br>Teacher Resources Into Math Teacher Edition Module 19 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 477C) |

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| MA.5.G.A | Graph points on the coordinate plane to solve real-world and mathematical problems. |
| MA.5.G.A.1 | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., $x$-axis and $x$-coordinate, $y$-axis and $y$-coordinate). |

## LESSON 19.3

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 19.3 We are learning to use coordinate graphing to represent and solve problems. |
| **Student Learning Strategies** | • Interpret points on a coordinate grid in context.<br>• Solve problems using points on a coordinate grid. |
| **Success Criteria** | I can use coordinate graphing to represent and solve problems. |
| **Formative Assessment (drives instructional** | Turn and Talk (pgs. 481-482) |

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| **decisions)** | Check Understanding ( pg. 483)<br>Exit Ticket (TM pg. 484) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. 481B)**Mini-Lesson:** Spark Your Learning (TM pg. 481D)<br>Step It Out (p. 481-482)**Guided Practice:** Check Understanding (pg. 483)**Independent Practice:** On Your Own (pg. 484)<br>Exit Ticket (TM pg. 484)<br><br>Teacher Resources Into Math Teacher Edition Module 19 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 481C) |

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| MA.5.G.A | Graph points on the coordinate plane to solve real-world and mathematical problems. |
| MA.5.G.A.1 | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., $x$-axis and $x$-coordinate, $y$-axis and $y$-coordinate). |

## LESSON 19.4

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 19.4 We are learning to use two rules to generate numerical patterns and identify the relationship between the corresponding terms in the patterns. |
| **Student Learning Strategies** | • generate two numerical patterns given two rules.<br>• find a relationship between corresponding terms of the two numerical patterns. |
| **Success Criteria** | I can use two rules to generate numerical patterns, write ordered pairs using corresponding terms and identify a relationship between them. |
| **Formative Assessment (drives instructional decisions)** | Turn and Talk (pgs. 485-486)<br>Check Understanding ( pg. 486) |

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| | Exit Ticket (TM pg. 488) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. 485B)**Mini-Lesson:** Spark Your Learning (TM pg. 485D)<br>Step It Out (p. 485-486)**Guided Practice:** Check Understanding (pg. 487)**Independent Practice:** On Your Own (pg. 488)<br>Exit Ticket (TM pg. 488)<br><br>Teacher Resources Into Math Teacher Edition Module 19 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 485C) |

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| MA.5.G.A | Graph points on the coordinate plane to solve real-world and mathematical problems. |
| MA.5.G.A.1 | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., $x$-axis and $x$-coordinate, $y$-axis and $y$-coordinate). |
| TECH.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). |

## LESSON 19.5

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 19.5 We are learning to form ordered pairs from two numerical patterns and graph the ordered pairs on a coordinate grid. |
| **Student Learning Strategies** | • form ordered pairs from two numerical patterns.<br>• graph ordered pairs that were formed from numerical patterns. |
| **Success Criteria** | I can write and graph ordered pairs on a coordinate gride using two numerical patterns. |
| **Formative Assessment (drives instructional decisions)** | Turn and Talk (pgs. 489-490)<br>Check Understanding ( pg. 491) |

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| | Exit Ticket (TM pg. 492) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. 489B)**Mini-Lesson:** Spark Your Learning (TM pg. 489D)<br>Step It Out (p. 489-490)**Guided Practice:** Check Understanding (pg. 491)**Independent Practice:** On Your Own (pg. 492)<br>Exit Ticket (TM pg. 492)<br><br>Teacher Resources Into Math Teacher Edition Module 19 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 489C) |

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|---|---|
| MA.5.G.A | Graph points on the coordinate plane to solve real-world and mathematical problems. |
| MA.5.G.A.1 | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., $x$-axis and $x$-coordinate, $y$-axis and $y$-coordinate). |
| CS.3-5.8.2.5.ED.3 | Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task. |

**MODULE 20**

# Module 20:  Identify and Classify Polygons

**LESSON 20.2**

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 20.2  WE are learning to classify and draw triangles using their attributes. |
| **Student Learning Strategies** | • classify triangles by the number of congruent sides and their angle measures.<br>• observe that the attributes used to classify triangles into one category are also present ir all subsets of that category. |

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| | • identify multiple categories into which the same triangle can be classified. |
| **Success Criteria** | I can classify triangles. |
| **Formative Assessment (drives instructional decisions)** | Turn and Talk (pgs. 501-502)<br>Check Understanding ( pg. 503)<br>Exit Ticket (TM pg. 504) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. 501B)<br>**Mini-Lesson:** Spark Your Learning (TM pg. 501D)<br>Build Understanding (Pg. 502) Step It Out (Pg. 503)<br>**Guided Practice:** Check Understanding (pg. 503)<br>**Independent Practice:** On Your Own (pg. 504)<br>Exit Ticket (TM pg. 500)<br><br>Teacher Resources Into Math Teacher Edition Module 20 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 501C) |

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| MA.5.G.B | Classify two-dimensional figures into categories based on their properties. |
| MA.5.G.B.3 | Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. |

## LESSON 20.1

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 20.1 We are learning to identify and classify polygons. |
| **Student Learning Strategies** | • classify polygons by their attributes, including their number of sides, angles, and vertices.<br>• observe that the attributes used to group polygons into a specific category are also present in all subsets of that category.<br>• classify polygons as regular or not regular based on their angle measures and side lengths. |

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| **Success Criteria** | I can identify and classify polygons. |
| **Formative Assessment (drives instructional decisions)** | Turn and Talk (pgs. 497, 498, & 499)<br>Check Understanding ( pg. 499)<br>Exit Ticket (TM pg. 500) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. 497B)**Mini-Lesson:** Spark Your Learning (TM pg. 497D)Build Understanding (Pgs. 498-499<br>**Guided Practice:** Check Understanding (pg. 499)**Independent Practice:** On Your Own (pg. 500<br>Exit Ticket (TM pg. 500)<br><br>Teacher Resources Into Math Teacher Edition Module 20 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 497C) |

MA.5.G.B Classify two-dimensional figures into categories based on their properties.

## LESSON 20.3

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 20.3 We are learning to classify and organize quadrilaterals. |
| **Student Learning Strategies** | • observe that attributes used to classify quadrilaterals into one category as also present in all subcategories of the category.<br>• classify the same figures in different ways based on different definitions for certain categories. |
| **Success Criteria** | I can classify and compare quadrilaterals. |
| **Formative Assessment (drives instructional decisions)** | Turn and Talk (pgs. 505-506)<br>Check Understanding ( pg. 507)<br>Exit Ticket (TM pg. 508) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. |

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| | 505B)**Mini-Lesson:** Spark Your Learning (TM pg. 505D)<br>Build Understanding (Pg. 506) Step It Out (Pg. 507)**Guided Practice:** Check Understanding (pg. 507)**Independent Practice:** On Your Own (pg. 508<br>Exit Ticket (TM pg. 508)<br><br>Teacher Resources Into Math Teacher Edition Module 20 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 505C) |

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| MA.5.G.B | Classify two-dimensional figures into categories based on their properties. |
| MA.5.G.B.3 | Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. |

## LESSON 20.4

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| **Student Learning Intentions (SLI) WALT: (We are learning to…)** | 20.4 We are learning to compare and classify two-dimensional figures using Venn diagrams. |
| **Student Learning Strategies** | • classify two-dimensional figures using Venn diagrams.<br>• compare two-dimensional figures. |
| **Success Criteria** | I can compare and classify two-dimensional figures using Venn diagrams. |
| **Formative Assessment (drives instructional decisions)** | Turn and Talk (pgs. 509-510)<br>Check Understanding ( pg. 511)<br>Exit Ticket (TM pg. 512) |
| **Activities and Resources** | **Warm Up:** Activate Prior Knowledge (TM pg. 509B)**Mini-Lesson:** Spark Your Learning (TM pg. 509D)<br>Build Understanding (Pg. 510) Step It Out (Pg. 511)**Guided Practice:** Check Understanding (pg. 511)**Independent Practice:** On Your Own (pg. 512<br>Exit Ticket (TM pg. 512) |

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| | Teacher Resources Into Math Teacher Edition Module 20 & Online Resources |
| **Suggested Modifications** | Plan for Differentiated Instruction (TM pg. 509C) |

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| MA.5.G.B.3 | Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. |
| MA.5.G.B.4 | Classify two-dimensional figures in a hierarchy based on properties. |

## REFLECTIONS

## INTERDISCIPLINARY CONNECTIONS: NEW JERSEY STUDENT LEARNING STANDARDS FOR ELA, SOCIAL STUDIES, SCIENCE AND/OR MATHEMATICS

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| 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.RF.5.4.A | Read grade-level text with purpose and understanding. |
| LA.W.5.2.D | Use precise language and domain-specific vocabulary to inform about or explain the topic. |