Unit 6: Multiply Decimals

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

UNIT RATIONALE

In this unit, students will extend their knowledge of place value to decimals, including decimals to the thousandths place. They also extend their work and understanding of powers of ten, exploring the patterns in the placement of decimal points as decimals are multiplied by powers of 10. They use visual models, place-value strategies, and the properties of operations to find the products of decimals and whole numbers. They learn how and when to include zeros in products when multiplying decimals, and they assess the reasonableness of decimal products.

ESSENTIAL QUESTIONS

- How can I use decimal multiplication patterns?
- How can I multiply whole numbers?
- How can I multiply decimals?

STANDARDS

NEW JERSEY STUDENT LEARNING STANDARDS: CONTENT AREA

MATH.5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
MATH.5.NBT.B	Perform operations with multi-digit whole numbers & with decimals to hundredths
MATH.5.NBT.B.5	With accuracy and efficiency, multiply multi-digit whole numbers using the standard algorithm.
MATH.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

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

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

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 15: Multiply Decimals and Whole Numbers, "Are You Ready" (pg 368)

Module 16: Multiply Decimals, "Are You Ready" (pg 400)

INSTRUCTIONAL PLAN

MODULE 15

Module 15.1 Understand Decimal Multiplication Patterns

LESSON 15.1

Student Learning Intentions (SLI) **WALT: (We are learning to…)**	15:1 We are learning to multiply by powers of 10.
Student Learning Strategies	• Attend to precision. • Look for and make use of structure. • Look for and express regularity in repeated reasoning.

Success Criteria	I can multiply decimals by powers of 10 that are both greater than and less than 1.
Formative Assessment (drives instructional decisions)	Turn and Talk (pgs. 369, 370 & 371) Check Understanding (pg. 372) Exit Ticket (TM pg. 374)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 369) **Mini-Lesson:** Spark Your Learning (TM pg. 369) Build Understanding (p. 370-372) **Guided Practice:** Check Understanding (pg. 372) **Independent Practice:** On Your Own (pg. 374) Exit Ticket (TM pg. 374) Teacher Resources Into Math Teacher Edition Module 15 & Online Resources
Suggested Modifications	Plan For Differentiated Instruction (TM pg 369C)

MA.5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
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 15.2

Student Learning Intentions (SLI) WALT: (We are learning to…)	We are learning to represent the multiplication of whole numbers and decimals less than 1.
Student Learning Strategies	Use visual models to multiply decimals and whole numbers.
Success Criteria	I can represent the product of a decimal less than

	one and a whole number using a visual model.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg. 375) Check Understanding (pg. 377) Exit Ticket (TM pg. 378)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 375B) **Mini-Lesson:** Spark Your Learning (TM pg. 375) Build Understanding (p. 376-377) **Guided Practice:** Check Understanding (pg. 378) **Independent Practice:** On Your Own (pg. 378) Exit Ticket (TM pg. 378) Teacher Resources Into Math Teacher Edition Module 15 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 375C)

MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
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.

LESSON 15.3

Student Learning Intentions (SLI) WALT: (We are learning to…)	15.3 We are learning to assess the reasonableness of the product of a decimal less than 1 and a whole number.
Student Learning Strategies	Assess the reasonableness of the product of a decimal less than 1 and a whole number.
Success Criteria	I can assess the reasonableness of the product of a decimal less than one and a whole number.
Formative Assessment (drives instructional decisions)	Turn and Talk (pgs. 379, 380, & 381) Check Understanding (pg. 381) Exit Ticket (TM pg. 382)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 379B) **Mini-Lesson:** Spark Your Learning (TM pg. 379D) Build Understanding (p. 379)Step It Out (pg. 381)

	Guided Practice: Check Understanding (pg. 381) **Independent Practice:** On Your Own (pg. 382) Exit Ticket (TM pg. 382) Teacher Resources Into Math Teacher Edition Module 15 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 379C)

MA.5.NBT.A.3	Read, write, and compare decimals to thousandths.
MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

LESSON 15.4

Student Learning Intentions (SLI) WALT: (We are learning to…)	15.4 We are learning to multiply a decimal and whole number using properties and place value.
Student Learning Strategies	• Multiply decimals by one-digit whole numbers by using partial products. • Multiply decimals by one-digit whole number by using place value and properties of operations.
Success Criteria	I can multiply a decimal by a 1-digit number using the Distributive Property, partial products, and an area model.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg. 383, 384, & 385) Check Understanding (pg. 385) Exit Ticket (TM pg. 385)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 383B) **Mini-Lesson:** Spark Your Learning (TM pg. 383D) Step It Out (pg. 383, 384, & 385) **Guided Practice:** Check Understanding (pg. 385) **Independent Practice:** On Your Own (pg. 386-388) Exit Ticket (TM pg. 388) Teacher Resources Into Math Teacher Edition Module 15 & Online

	Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 383C)

MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

LESSON 15.5

Student Learning Intentions (SLI) WALT: (We are learning to…)	15.5 We are learning to multiply decimals by 2-digit whole numbers.
Student Learning Strategies	• Multiply decimals by 2-digit whole numbers by using area models. • Multiply decimals by 2-digit whole numbers by using place value and properties of operations.
Success Criteria	I can use an area model and place-value patterns to multiply a decimal by a 2-digit whole number.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg.389-390) Check Understanding (pg. 390) Exit Ticket (TM pg. 392)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 389B) **Mini-Lesson:** Step It Out (pg. 389-390) **Guided Practice:** Check Understanding (pg. 390) **Independent Practice:** On Your Own (pg. 391-392 Exit Ticket (TM pg. 392) Teacher Resources Into Math Teacher Edition Module 15 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 389C)

MA.5.NBT.B	Perform operations with multi-digit whole numbers and with decimals to hundredths.
MA.5.NBT.B.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

LESSON 15.6

Student Learning Intentions (SLI) WALT: (We are learning to…)	15.6 We are learning to solve multiplication problems using bar models.
Student Learning Strategies	• solve multistep problems involving multiplication by using bar models.
Success Criteria	I can use a bar model to solve a multistep problem that uses multiplication.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg.393-394) Check Understanding (pg. 395) Exit Ticket (TM pg. 396)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 393B) **Mini-Lesson:** Step It Out (pg. 393-394)**Guided Practice:** Check Understanding (pg. 395)**Independent Practice:** On Your Own (pg. 396) Exit Ticket (TM pg. 396) Teacher Resources Into Math Teacher Edition Module 15 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 393C)

MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

MODULE 16

Module 16: Multiply Decimals

LESSON 16.1

Student Learning Intentions (SLI) WALT: (We are learning to…)	16.1 We are learning to use a visual model to multiply decimals.
Student Learning Strategies	• multiply decimals using a visual model.
Success Criteria	I can find the product of two decimals to the tenths place by using a visual model.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg.401-402) Check Understanding (pg.403) Exit Ticket (TM pg 404)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 401B) **Mini-Lesson:** Spark Your Learning (TM pg. 401D) Build Your Understanding (pg.402-403) **Guided Practice:** Check Understanding (pg.403) **Independent Practice:** On Your Own (pg.404) Exit Ticket (TM pg.404) Teacher Resources Into Math Teacher Edition Module 16 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 401C)

MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

LESSON 16.2

Student Learning Intentions (SLI) WALT: (We are learning to…)	16.2 We are learning to place the decimal point in decimal multiplication.
Student Learning Strategies	• learn how to place the decimal point in

	decimal multiplication.
Success Criteria	I can multiply two decimal numbers by applying an understanding of place value.
Formative Assessment (drives instructional decisions)	Turn and Talk (pg.405, 406, & 407)) Check Understanding (pg.407) Exit Ticket (TM pg 408)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 405B) **Mini-Lesson:** Spark Your Learning (TM pg. 405D) Build Your Understanding (pg.406) Step It Out (pg. 407) **Guided Practice:** Check Understanding (pg.407)**Independent Practice:** On Your Own (pg.408) Exit Ticket (TM pg.408) Teacher Resources Into Math Teacher Edition Module 16 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 405C)

MA.5.NBT.A	Understand the place value system.
MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

LESSON 16.3

Student Learning Intentions (SLI) WALT: (We are learning to…)	16.3 We are learning about multiplying decimals with zeros in the product.
Student Learning Strategies	• multiply decimals with zero in the product.
Success Criteria	I can write the correct number of zeros in the produc of two decimal numbers.
Formative Assessment (drives instructional	Turn and Talk (pg.409-410))

decisions)	Check Understanding (pg.411) Exit Ticket (TM pg 412)
Activities and Resources	**Warm Up:** Activate Prior Knowledge (TM pg. 409B) **Mini-Lesson:** Step It Out (pgs.409-410) **Guided Practice:** Check Understanding (pg.411) **Independent Practice:** On Your Own (pg.412) Exit Ticket (TM pg.412) Teacher Resources Into Math Teacher Edition Module 16 & Online Resources
Suggested Modifications	Plan for Differentiated Instruction (TM pg. 409C)

MA.5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
MA.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

REFLECTIONS

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

LA.RF.5.4.A	Read grade-level text with purpose and understanding.
LA.W.5.1.B	Provide logically ordered reasons that are supported by facts and details from text(s), quote directly from text when appropriate.
LA.W.5.2.D	Use precise language and domain-specific vocabulary to inform about or explain the topic.