Grade 6 Mathematics – Unit 2: Numeracy

Phoenixville Area School District

Stage 1 Desired Results

PA Core Standards:

M06.A-N.1.1 Solve real-world and mathematical problems involving division of fractions.

M06.A-N.2.1 Compute with multi-digit numbers using the four arithmetic operations with or without a calculator.

M06.A-N.2.2 Apply number theory concepts (specifically, factors and multiples).

PSSA Assessment Anchors:

M06.A-N.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

M06.A-N.2 Compute with multi-digit numbers and find

Transfer

TRANSFER GOALS

Students will be able to independently use their learning to…

- *Number Sense:* Develop a sound foundation to demonstrate the value of numbers by describing their various representations, relationships, and patterns.
- *Fluency:* Demonstrate automatic recall of addition, subtraction, multiplication, and division of rational numbers.

Meaning

UNDERSTANDINGS

Students will understand that…

- Mathematical ideas must be communicated clearly in written, visual, or oral form.
- The most appropriate way to solve a problem or represent a quantity depends on the situation, calculations may be done using; mental math or paper and pencil calculations using a variety of mathematically sound algorithms.
- Mathematicians flexibly use symbols, numbers, words, and visual representations while maintaining the integrity of the relationship between quantities.

ESSENTIAL QUESTIONS

Students will keep considering...

- Have I sufficiently supported my answer and shown my work?
- How do figures/quantities/numbers/ operations relate to one another?
- When is it appropriate to use estimation? What would be a reasonable answer?

Knowledge and Skills Acquisition

KNOWLEDGE

Students will know…

- Division of fractions by fractions can be displayed algebraically using: (a/b) ÷ (c/d) = (a/b) × (d/c) = ad/bc
- Order of operations can be followed using PEMDAS
- Greatest Common Factor (GCF) and Lowest Common Multiple (LCM) can be found for two integers using the ladder
- GCF can be used with the distributive property to take an expression to an equivalent form

SKILLS

Students will be skilled at…

- Computing quotients of fractions (including mixed numbers) and solving word problems involving division of fractions by fractions.
- Solving problems involving operations (+, –, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems without a calculator.
- Finding the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12 when utilizing the ladder strategy.

common factors and multiples.	VOCABULARY • Additive Inverse • Distributive Property • Exponent • Factor • GCF (Greatest Common Factor) • LCM (Lowest Common Multiple) • Multiple • Order of Operations	• Applying the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor. Example: Express 36 + 8 as 4(9 + 2).

Stage 2 – Evidence

Code A/M/T	Evaluative Criteria	Assessment Evidence	
A/M/T Acquisition Meaning Making Transfer	*What criteria will be used in each assessment to evaluate attainment of the desired results?*	PERFORMANCE TASK(S) *Students will demonstrate understanding (meaning making and transfer) through complex performance by...* **Cup of Rice** This task involves the application of division of fractions and use of mathematical language. • ***Goal:*** Your task is to figure out which is the correct quotient. • ***Role/Audience:*** You are a nutritional specialist advising a client. • ***Situation/Product:*** You will use both verbal and written forms to explain the solution. • ***Success Criteria:*** Your solution must include a visual model and explanation.	Differentiation Considerations: Partial credit is provided to students that demonstrate steps even if their answer is not correct. The assessment can be read to students. Encouragement is given to highlight certain instructions. Use of interactive notebook can be used for students with learning issues.
A/M/T Acquisition Meaning Making Transfer	*What criteria will be used in each assessment to evaluate attainment of the desired results?*	OTHER EVIDENCE **[Unit Test]** • [Multiple Choice] • [True/False] • [Matching] • Describe the strategy you use to divide fractions. • Explain two ways a factor is different from a multiple. • When following PEMDAS, what would you do when faced with both multiplication and division in a problem?	Differentiation Considerations: Questions testing similar skills are modified. Work needs to be shown. Advanced students can write high level sentences utilizing math vocabulary and include examples when responding to the written responses. Partial credit is provided to students that demonstrate steps even if their answer is not correct. The assessment can be read to students. Encouragement is given to highlight certain instructions.