Multiplication and Division Fluency Set of Tasks

Sample task from achievethecore.org

Task by Karen Fuson, annotation by Student Achievement Partners

GRADE LEVEL Third

IN THE STANDARDS 3.OA.C.7

WHAT WE LIKE ABOUT THIS TASK

Mathematically:

- Part of a carefully considered progression toward fluency and memory with single-digit products (3.OA.C.7).
- Multiplication and division equations are mixed together to reinforce the relationship between them (3.OA.B.6).
- Randomness of equations ensures students are mindful when answering.
- Explicitly makes the relationship between multiplication and division clear (3.OA.B.6).
- Connects to the Commutative property of multiplication (3.OA.B.5).

In the classroom:

- Offers one of the many opportunities for students to practice their facts to ensure fluency.
- May be tailored to include sets of numbers other than those represented here.
- Represents multiplication and division with a variety of symbols.
- Allows for both individual and paired work.
- Builds fluency in an engaging way.
- Contains blank cards for students to use.

This task was designed to include specific features that support access for all students and align to best practice for English Language Learner (ELL) instruction. Go here to learn more about the research behind these supports. This lesson aligns to ELL best practice in the following ways:

- Provides opportunities for students to practice and refine their use of mathematical language.
- Allows for whole class, small group, and paired discussion for the purpose of practicing with mathematical concepts and language.
- Includes a mathematical routine that reflects best practices to supporting ELLs in accessing mathematical concepts.

MAKING THE SHIFTS

	Focus	Belongs to the Major Work ² of third grade
Ø	Coherence	Develops fluencies that students will rely on in subsequent grades as they multiply and divide multi-digit whole numbers, multiply and divide fractions and decimals, and work with equivalent ratios as preparation for understanding proportional relationships
	Rigor ³	Conceptual Understanding: not targeted in this set of tasks Procedural Skill and Fluency: primary in this set of tasks Application: not targeted in this set of tasks

¹For more information read Shifts for Mathematics.

² For more information, see Focus in Grade Three.

³ Tasks will often target only one aspect of rigor.

INSTRUCTIONAL ROUTINE

The steps in this routine are adapted from the <u>Principles for the Design of Mathematics Curricula: Promoting Language and Content Development.</u>

Engage students in the Discussion Supports Mathematical Language Routine as they work through the High Card Wins game. This will invite all students to participate in the conversations and support rich, inclusive discussions.

Discussion between students during the game should include references to the relationship between multiplication and division and/or the properties of operations which are both important understandings along the path to fluency with multiplication. In other words, as students are playing the game they should justify their answer based on another fact that they know.

While introducing the activity, the teacher may want to model how the game is played. Students should also get to practice expected phrases through a choral response and use the following sentence frames as they play the game.

Display the sentence frame samples and reference them during the introduction and modeling of the game
knowX = because / =
For example: "I know 5 multiplied by 3 equals 15 because I know 15 divided by 3 equals 5.")
know X = because I know
For example: "I know 5 multiplied by 3 equals 15 because I know 5 times 2 equals 10 plus one more 5 equals
L5.")

LANGUAGE DEVELOPMENT

Ensure students have ample opportunities in instruction to read, write, speak, listen, and understand the mathematical concepts that are represented by the following terms and concepts:

- Product
- Multiplication
- Equals
- Division

Students should engage with these terms and concepts in the context of mathematical learning, not as a separate vocabulary study. Students should have access to multi-modal representations of these terms and concepts, including: pictures, diagrams, written explanations, gestures, and sharing of non-examples. These representations will encourage precise language, while prioritizing students' articulation of concepts. These terms and concepts should be reinforced in teacher instruction, classroom discussion, and student work.

ELLs may need support with the following vocabulary words during the classroom discussion:

- Shuffle
- Deal
- Evenly
- Stacks

ADDITIONAL THOUGHTS

Reaching fluency in single-digit multiplications and related divisions takes time and practice. Students will need many opportunities and varying activities to develop fluency with single-digit multiplication and division. See here for more grade 3 fluency activities.

For more on how students can gain fluency in multiplication and division in grade 3, read pages 25–27 of the progression document, *K Counting and Cardinality; K–5 Operations and Algebraic Thinking* (the section titled "Levels in problem representation and solution"), available on www.achievethecore.org/progressions.

Date

► Checkup B: 2s, 5s, 9s, 3s, 4s, 1s, 0s

38.
$$\frac{24}{6} =$$

$$3.9 \times 5 =$$

$$4.9 \times 3 =$$

4.
$$9 \times 3 =$$
 22. $40 \div 5 =$ **40.** $9 \div 9 =$ **...**

$$40.9 \div 9 =$$

24.
$$21 \div 7 =$$
 42. $2)\overline{20}$

7.
$$8 \times 2 =$$
 ___ **25**. $36 / 9 =$ ___ **43**. $54 \div 9 =$ ___ **61**. $0 * 9 =$ ___

8.
$$10 \cdot 4 =$$
 26. $16 \div 2 =$ **44.** $10)10$

45.
$$\frac{15}{3} =$$

28.
$$90 \div 9 =$$
 46. $10 \cdot 6 =$ **64.** $4 \times 9 =$ **...**

29.
$$35 \div 5 =$$
 47. $20 \div 10 =$ **65.** $7 \cdot 2 =$ **...**

48.
$$\frac{70}{10} =$$

13. 9 × 7 = ___ 31.
$$\frac{45}{5}$$
 = ___

31.
$$\frac{45}{5} =$$

51.
$$\frac{72}{9} =$$

36.
$$12/2 =$$
 54. $60 \div 10 =$ 72. $10 \times 10 =$ ___



▶ Play a Game

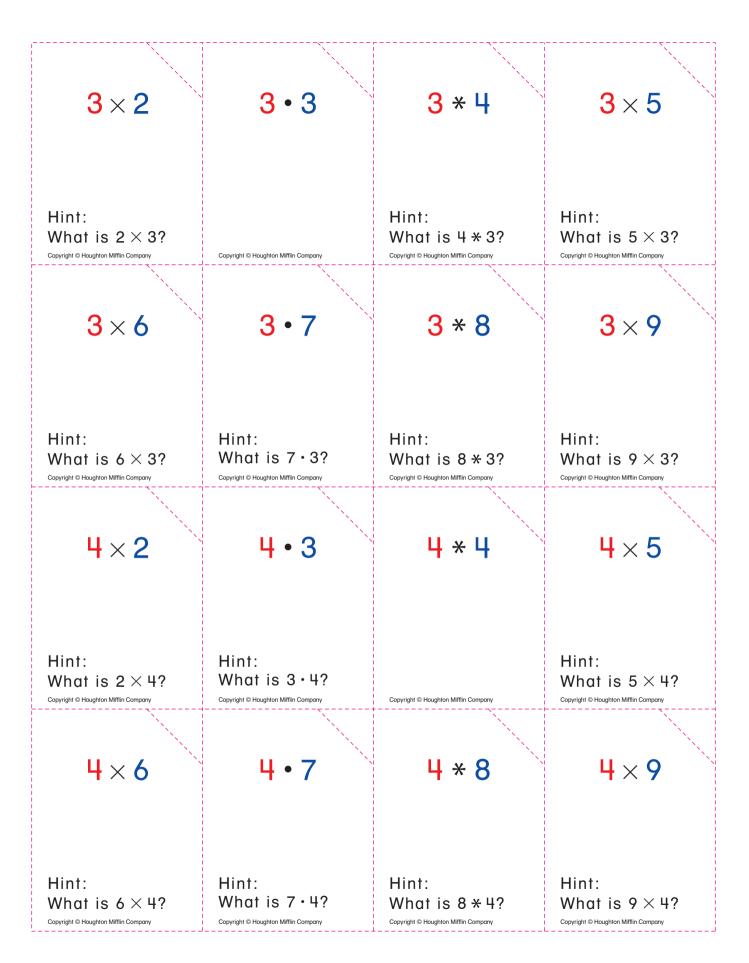
Play High Card Wins with your partner.

Rules for High Card Wins

Number of players: 2

What you will need: Product Cards: 2s, 3s, 4s, 5s, 9s

- 1. Shuffle the cards. Deal all the cards evenly between the two players.
- 2. Players put their stacks in front of them, multiplication side up.
- **3.** Each player takes the top card from his or her stack and puts it multiplication side up in the center of the table.
- **4.** Each player says the answer and then turns the card over to check. Then do one of the following:
 - If one player says the wrong answer, the other player takes both cards and puts them at the bottom of his or her pile.
 - If both players say the wrong answer, both players take back their cards and put them at the bottom of their piles.
 - If both players say the correct answer, the player with the higher product takes both cards and puts them at the bottom of his or her pile. If the products are the same, the players set the cards aside and play another round. The winner of the next round takes all the cards.
- 5. Play continues until one player has all the cards.

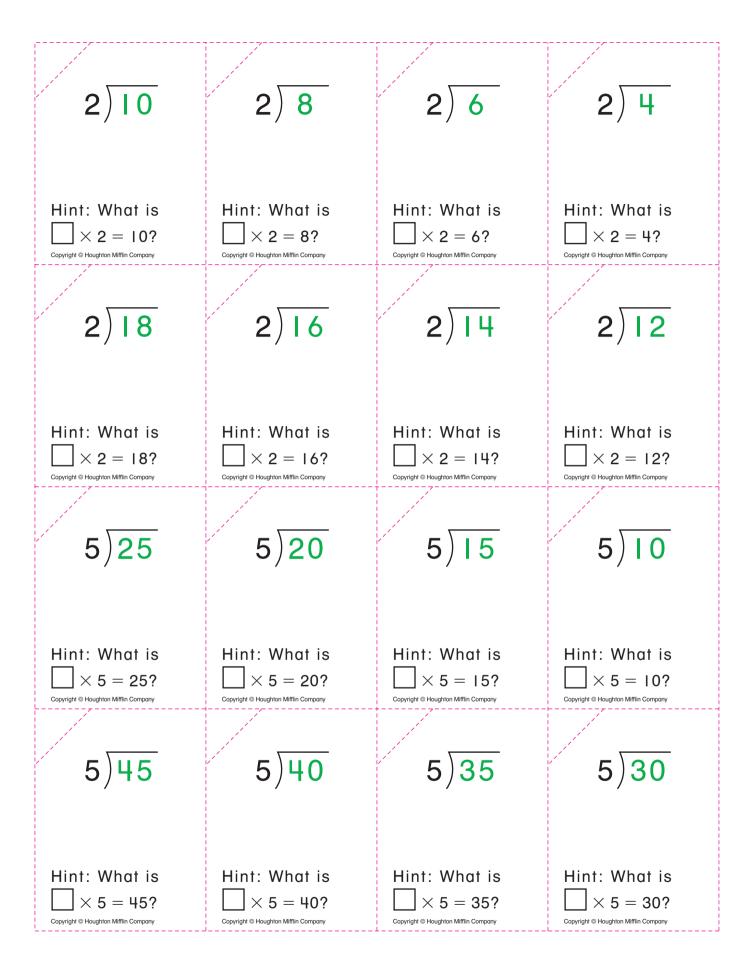


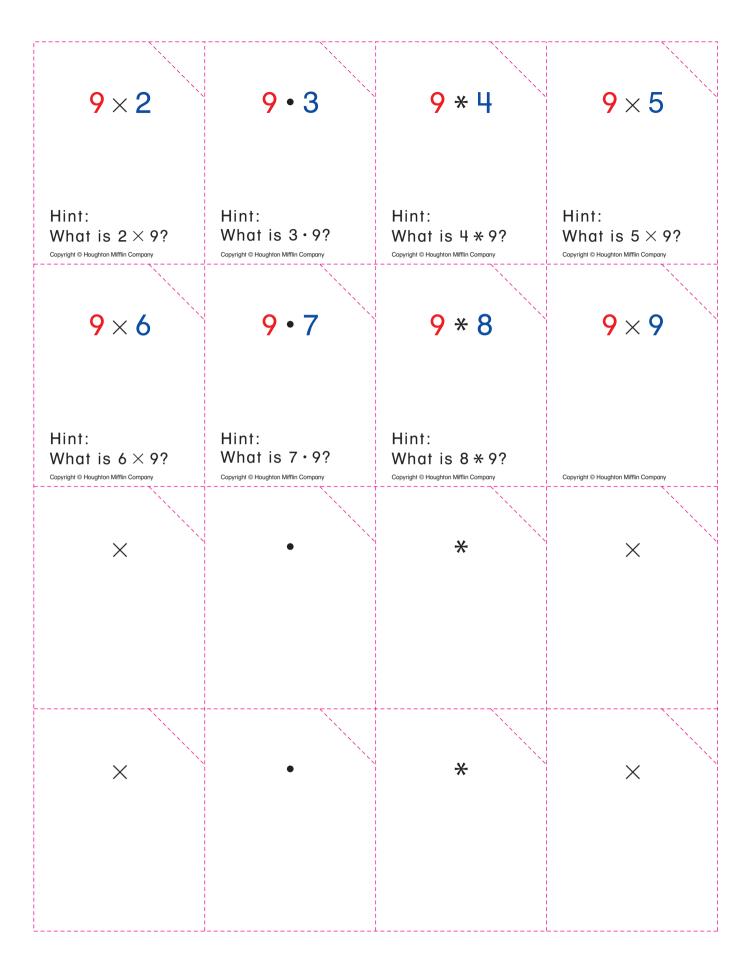
UNIT 1 LESSON 7 Product Cards: 3s, 4s 25



5	2×5	2 * 4	2 • 3	2×2
i	Hint: What is $5 imes 2'$	Hint: What is 4 * 2?	Hint: What is 3 · 2?	
	Copyright © Houghton Mifflin Company	Copyright © Houghton Mifflin Company 2 * 8	Copyright © Houghton Mifflin Company 2 • 7	Copyright © Houghton Mifflin Company
< 2?	Hint: What is 9 $ imes$ 2'	Hint: What is 8 * 2?	Hint: What is 7·2?	Hint: What is 6 × 2?
	Copyright © Houghton Mifflin Company	Copyright © Houghton Mifflin Company 5 ★ 4	Copyright © Houghton Mifflin Company	Copyright @ Houghton Mifflin Company
		Hint:	Hint:	Hint:
	Copyright @ Houghton Mifflin Company	Copyright © Houghton Mifflin Company	Copyright © Houghton Mifflin Company	Copyright © Houghton Mifflin Company
4.50	Hint:	Hint:	Hint:	Hint:
9 < 2 mpany 9	Hint: What is 9×2 Copyright @ Houghton Mifflin Company 5×5 Copyright @ Houghton Mifflin Company	Hint: What is 8 * 2? Copyright © Houghton Mifflin Company 5 * 4 Hint: What is 4 * 5? Copyright © Houghton Mifflin Company	Hint: What is 7 · 2? Copyright © Houghton Mifflin Company 5 • 3 Hint: What is 3 · 5? Copyright © Houghton Mifflin Company 5 • 7	Hint: What is 6×2 ? Copyright $@$ Houghton Mifflin Company 5×2 Hint: What is 2×5 ? Copyright $@$ Houghton Mifflin Company 5×6

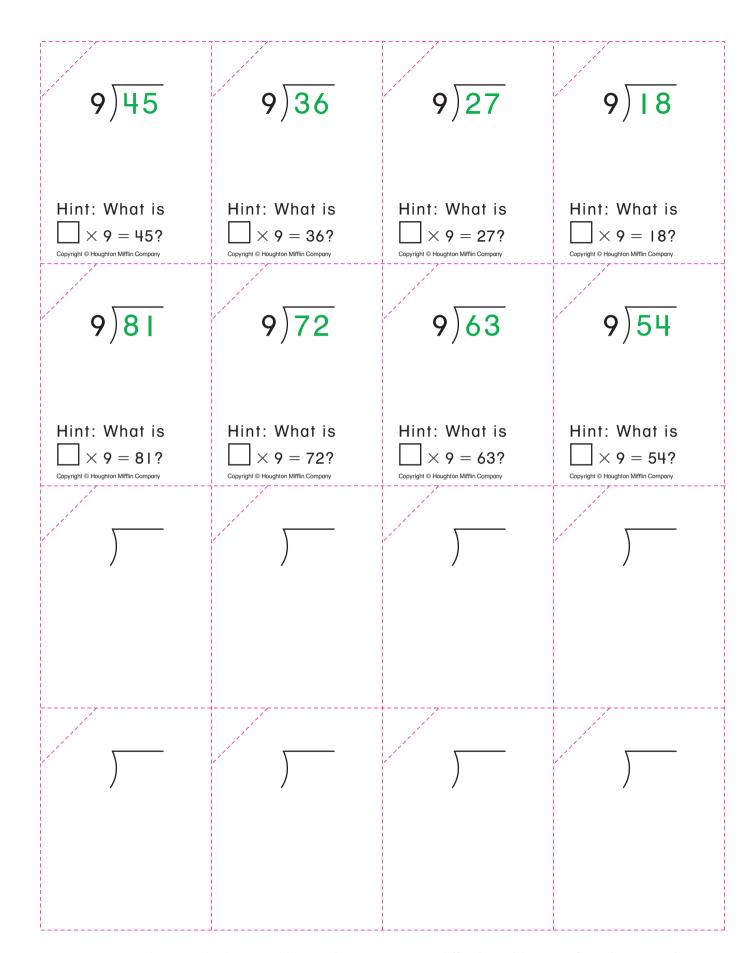
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You can write any numbers on the last 8 cards. Use them to practice difficult problems or if you lose a card.

UNIT 1 LESSON 3 Product Cards: 2s, 5s, 9s 13



You can write any numbers on the last 8 cards. Use them to practice difficult problems or if you lose a card.

14 UNIT 1 LESSON 3 Product Cards: 2s, 5s, 9s