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
	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

[1]For 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.

The steps in this routine are adapted from the [Principles for the Design of Mathematics Curricula: Promoting](#) [Language and Content Development](#).

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
I know ___X___ = ___ because ___ / ___ = ___
(For example: "I know 5 multiplied by 3 equals 15 because I know 15 divided by 3 equals 5.")
I 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 15.")

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.

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

1. 5 * 3 = ___
2. 1 • 5 = ___
3. 9 × 5 = ___
4. 9 × 3 = ___
5. 4 • 8 = ___
6. 8 * 3 = ___
7. 8 × 2 = ___
8. 10 • 4 = ___
9. 7 * 5 = ___
10. 1 × 10 = ___
11. 81 / 9 = ___
12. 5 * 4 = ___
13. 9 × 7 = ___
14. 5 • 6 = ___
15. 7 * 4 = ___
16. 6 × 9 = ___
17. 10 • 8 = ___
18. 2 * 6 = ___

19. 2)‾6
20. 10 ÷ 5 = ___
21. 4 / 2 = ___
22. 40 ÷ 5 = ___
23. 18 / 9 = ___
24. 21 ÷ 7 = ___
25. 36 / 9 = ___
26. 16 ÷ 2 = ___
27. 5)‾15
28. 90 ÷ 9 = ___
29. 35 ÷ 5 = ___
30. 0 / 10 = ___
31. $\frac{45}{5}$ = ___
32. 18 / 2 = ___
33. 9)‾72
34. 25 ÷ 5 = ___
35. 63 / 9 = ___
36. 12 / 2 = ___

37. 9)‾27
38. $\frac{24}{6}$ = ___
39. 8 ÷ 2 = ___
40. 9 ÷ 9 = ___
41. 50 / 5 = ___
42. 2)‾20
43. 54 ÷ 9 = ___
44. 10)‾10
45. $\frac{15}{3}$ = ___
46. 10 • 6 = ___
47. 20 ÷ 10 = ___
48. $\frac{70}{10}$ = ___
49. 5)‾30
50. 80 / 10 = ___
51. $\frac{72}{9}$ = ___
52. 20 / 5 = ___
53. 2)‾14
54. 60 ÷ 10 = ___

55. 8 * 5 = ___
56. 4 × 3 = ___
57. 3 × 2 = ___
58. 8 × 3 = ___
59. 3 • 3 = ___
60. 7 * 3 = ___
61. 0 * 9 = ___
62. 2 * 4 = ___
63. 5 • 10 = ___
64. 4 × 9 = ___
65. 7 • 2 = ___
66. 10 * 3 = ___
67. 7 × 10 = ___
68. 3 * 6 = ___
69. 4 * 4 = ___
70. 2 • 0 = ___
71. 7 * 4 = ___
72. 10 × 10 = ___

Name _____   **Date** _____

▶ 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.

3×2

Hint:
What is 2×3?

$3 \cdot 3$

$3 * 4$

Hint:
What is $4 * 3$?

3×5

Hint:
What is 5×3?

3×6

Hint:
What is 6×3?

$3 \cdot 7$

Hint:
What is $7 \cdot 3$?

$3 * 8$

Hint:
What is $8 * 3$?

3×9

Hint:
What is 9×3?

4×2

Hint:
What is 2×4?

$4 \cdot 3$

Hint:
What is $3 \cdot 4$?

$4 * 4$

4×5

Hint:
What is 5×4?

4×6

Hint:
What is 6×4?

$4 \cdot 7$

Hint:
What is $7 \cdot 4$?

$4 * 8$

Hint:
What is $8 * 4$?

4×9

Hint:
What is 9×4?

$3\overline{)15}$

Hint: What is
☐ × 3 = 15?

$3\overline{)12}$

Hint: What is
☐ × 3 = 12?

$3\overline{)9}$

Hint: What is
☐ × 3 = 9?

$3\overline{)6}$

Hint: What is
☐ × 3 = 6?

$3\overline{)27}$

Hint: What is
☐ × 3 = 27?

$3\overline{)24}$

Hint: What is
☐ × 3 = 24?

$3\overline{)21}$

Hint: What is
☐ × 3 = 21?

$3\overline{)18}$

Hint: What is
☐ × 3 = 18?

$4\overline{)20}$

Hint: What is
☐ × 4 = 20?

$4\overline{)16}$

Hint: What is
☐ × 4 = 16?

$4\overline{)12}$

Hint: What is
☐ × 4 = 12?

$4\overline{)8}$

Hint: What is
☐ × 4 = 8?

$4\overline{)36}$

Hint: What is
☐ × 4 = 36?

$4\overline{)32}$

Hint: What is
☐ × 4 = 32?

$4\overline{)28}$

Hint: What is
☐ × 4 = 28?

$4\overline{)24}$

Hint: What is
☐ × 4 = 24?

Product Cards: 3s, 4s

2×2

$2 \cdot 3$

Hint:
What is $3 \cdot 2$?

$2 * 4$

Hint:
What is $4 * 2$?

2×5

Hint:
What is 5×2?

2×6

Hint:
What is 6×2?

$2 \cdot 7$

Hint:
What is $7 \cdot 2$?

$2 * 8$

Hint:
What is $8 * 2$?

2×9

Hint:
What is 9×2?

5×2

Hint:
What is 2×5?

$5 \cdot 3$

Hint:
What is $3 \cdot 5$?

$5 * 4$

Hint:
What is $4 * 5$?

5×5

5×6

Hint:
What is 6×5?

$5 \cdot 7$

Hint:
What is $7 \cdot 5$?

$5 * 8$

Hint:
What is $8 * 5$?

5×9

Hint:
What is 9×5?

$2\overline{)10}$	$2\overline{)8}$	$2\overline{)6}$	$2\overline{)4}$
Hint: What is □ × 2 = 10?	Hint: What is □ × 2 = 8?	Hint: What is □ × 2 = 6?	Hint: What is □ × 2 = 4?
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$2\overline{)18}$	$2\overline{)16}$	$2\overline{)14}$	$2\overline{)12}$
Hint: What is □ × 2 = 18?	Hint: What is □ × 2 = 16?	Hint: What is □ × 2 = 14?	Hint: What is □ × 2 = 12?
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$5\overline{)25}$	$5\overline{)20}$	$5\overline{)15}$	$5\overline{)10}$
Hint: What is □ × 5 = 25?	Hint: What is □ × 5 = 20?	Hint: What is □ × 5 = 15?	Hint: What is □ × 5 = 10?
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$5\overline{)45}$	$5\overline{)40}$	$5\overline{)35}$	$5\overline{)30}$
Hint: What is □ × 5 = 45?	Hint: What is □ × 5 = 40?	Hint: What is □ × 5 = 35?	Hint: What is □ × 5 = 30?
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Product Cards: 2s, 5s, 9s

9×2

Hint:
What is 2×9?

$9 \cdot 3$

Hint:
What is $3 \cdot 9$?

$9 * 4$

Hint:
What is $4 * 9$?

9×5

Hint:
What is 5×9?

9×6

Hint:
What is 6×9?

$9 \cdot 7$

Hint:
What is $7 \cdot 9$?

$9 * 8$

Hint:
What is $8 * 9$?

9×9

$\times$

$\cdot$

$*$

$\times$

$\times$

$\cdot$

$*$

$\times$

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

$9\overline{)45}$ $9\overline{)36}$ $9\overline{)27}$ $9\overline{)18}$

Hint: What is
$\square \times 9 = 45$?

Hint: What is
$\square \times 9 = 36$?

Hint: What is
$\square \times 9 = 27$?

Hint: What is
$\square \times 9 = 18$?

$9\overline{)81}$ $9\overline{)72}$ $9\overline{)63}$ $9\overline{)54}$

Hint: What is
$\square \times 9 = 81$?

Hint: What is
$\square \times 9 = 72$?

Hint: What is
$\square \times 9 = 63$?

Hint: What is
$\square \times 9 = 54$?

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

Product Cards: 2s, 5s, 9s