# MATH FACT INTERVIEW GUIDE

# MMSD FACT INTERVIEW GUIDE

| THE JOURNEY TO FLUENCY | USING THE FACT INTERVIEWS |
|---|---|
| In administering the fact interview, you are assessing three things: number relationship strategies, accuracy and automaticity. | In administering the fact interview, you are responsible for discovering and documenting **how a child is thinking** which gives you important data for instructional planning. In scoring the fact interview, use the following basic codes to indicate accuracy, automaticity, and number relationship strategies. |
| 1. **NUMBER RELATIONSHIP STRATEGIES**: The student does not rely on counting strategies.<br><br><u>Moves beyond counting strategies</u><br><br>Understanding how to use counting strategies creates initial access to mathematical problem solving for children. Whether they are counting all, counting on, counting back, or skip counting, children can initially use counting strategies to confidently solve problems. However, ultimately counting is inefficient. More importantly, continued use of counting strategies delays number development. Thus, with math facts, an important goal is to move students beyond using counting strategies prior to fluency practice.<br><br>*Caution: If students practice math facts through drill when counting is the only strategy available, they often simply get faster at counting. Instead, it is important for teachers to provide students with opportunities to investigate and think about number relationships prior to fluency work.*<br><br><u>Uses number relationship strategies</u><br><br>Thinking about number relationships and the meaning of operations is an integral part of mathematics, and math fact study is one of the first areas that we encourage students to explore number relationships and practice using them.<br><br>Relational thinking strategies with math facts include: part-part-whole relationships (e.g., 2 and 3 are parts of 5); composing and decomposing strategies to work to, from and through 5 and 10 (e.g., for 13-5, I think 13-3 and then 10-2 to get to 8); the use of doubles or other known facts to derive new facts (e.g., for 4x6, I think 2x6 plus another 2x6); and compensating strategies (for 9x5, I think 10x5 minus 5). We also expect students to apply an informal understanding of the commutative property, the distributive property, and the relationship between different operations. | **NUMBER RELATIONSHIP STRATEGIES**<br><br>**C** A **C** is used to indicate that the student used counting strategies rather than number relationship strategies to get an answer. (See explanation to the left.)<br><br>Placing the **C** above the directly above number from which the child counted on gives additional information for instruction.<br><br>You may write notes indicating the student's way of counting or thinking in the space after the answer.<br><br>\| <u>Problem</u> \| Sample counting strategy (C) \| Sample number relationship strategy (no C) \|<br>\| 1 + 8 \| 2, 3, 4… \| next number \|<br>\| 5 - 4 \| f (fingers) \| parts of 5 \|<br>\| 11 - 7 \| 8, 9, 10, 11 \| (7 + 3) + 1 \|<br>\| 4 x 6 \| 6, 12, 18, 24 \| (2 x 6) x 2 \| |
| 2. **ACCURACY**: The student's answers are accurate. | **ACCURACY**<br><br>$\overline{\#}$ Place a line above the student's answer if it is *incorrect*. |
| 3. **AUTOMATICITY**: The student requires minimal thinking time, typically 3 seconds or less. The 3-second expectation may be extended for learners who require extended language processing time. | **AUTOMATICITY**<br><br>● Place a dot after the answer if students take longer than the expected minimal thinking time. (See explanation to the left.) |

**Conducting the fact interview:**

The teacher begins by administering grade level fact interviews. Adjustments to more or less advanced interviews should be made based on the level of fluency demonstrated by the student. Interview procedures:

- ☑ Find a place where you and the student can sit next to each other.
- ☑ Have a student copy of the interview in front of the student and a teacher copy in front of you.
- ☑ Say: ***"Please keep your hands above the table. I can learn about your math thinking if I can see when and how you use your fingers to help you."***
- ☑ Say: ***"Look at each equation. All you have to say out loud is the number that goes on each line."***
- ☑ Say: ***"Begin here,"*** (point to the equation at the top of the column on the left) ***and go down the column."***
- ☑ Do not read the equation aloud. If the student reads the equation aloud, you might want to remind him/her that the only thing he/she needs to say out loud is the number that goes on the line. Reading the entire equation can be very tiring for the student!
- ☑ Write the number the student says on the line in each equation.
- ☑ Use the coding system (see the coding responses for each interview) to indicate the student's strategies.
- ☑ Abandon the interview if you become confident that the student does not have the thinking strategies required for a majority of the equations on the test.
- ☑ If a student is using more than 3-4 seconds of thinking time, watch the student very carefully. If you can determine that he/she is using a counting strategy (mouthing numbers, nodding, tapping a foot, moving fingers slightly), code it as a counting on strategy.
- ☑ If a student consistently responds within 3-4 seconds and you see no indications of a counting strategy, stop at specific facts and ask how he/she is thinking about the numbers to be able to compute so quickly. If he/she shares a counting strategy, note it with a code (see the coding guides).
- ☑ If he/she explains the use of a doubles or another known fact, a decomposing strategy, a compensating strategy, or various strategies for multiplication and division, write the expression that indicates the student's thinking above the equation.
- ☑ Finish the interview by saying, ***"Thank you for sharing your thinking with me."***
- ☑ Count all the facts that meet the following three criteria: accuracy, automaticity and number relationship strategies. In other words, count the responses that received no codes as defined in the coding responses at the bottom of each teacher copy.

## MMSD FACT INTERVIEWS

## Developmental Level and 2012-2013 Report Card Benchmarks

| Develop-mental Level | Kindergarten End of Year Proficiency | 1st Grade End of Year Proficiency | 2nd Grade End of Year Proficiency | 3rd Grade End of Year Proficiency | 4th Grade End of Year Proficiency |
|---|---|---|---|---|---|
| 3 | ADDITION within 5 (Score 20/20) | | | | |
| | SUBTRACTION within 5 (Score 20/20) | | | | |
| | | ADDITION within 5, doubles to 5+5, +1 and 1+ (Score 20/20) | | | |
| 4 | | ADDITION within 10 (Score 20/20) | | | |
| 5 | | SUBTRACTION within 10 (Score 20/20) | ADDITION within 20 (Score 20/20) | | |
| 6 | | | SUBTRACTION within 20 (Score 10-19/20) | MULTIPLICATION 0s, 1s, 2s, 10s, 5s (Score 20/20) | |
| 7 | | | SUBTRACTION within 20 (Score 20/20) | MULTIPLICATION 0s, 1s, 2s, 10s, 5s, **3s, 4s** (Score 20/20) | |
| 8 | | | | MULTIPLICATION 6s, 7s, 8s, 9s (Score 10-19/20) | |
| 9 | | | | MULTIPLICATION 6s, 7s, 8s, 9s (Score 20/20) | |
| | | | | MULTIPLICATION within 100 (Score 40/40) | |
| 10 | | | | *DIVISION within 100 (Score 20-39/40) | |
| 11 | | | | | *DIVISION within 100 (Score 40/40) |

* CCSS expect 3rd graders to be fluent with division facts using strategies such as the relationship between multiplication and division. MMSD measures accomplishment of this standard using a score of 20-39/40 on the division fact interview. MMSD's further expectation is that 4th graders earn a score of 40/40 at a speed demonstrating fluency.

## Addition within 5

Student: _____

| | |
|---|---|
| 5 + 0 = ____ | 2 + 2 = ____ |
| 3 + 1 = ____ | 2 + 1 = ____ |
| 1 + 0 = ____ | 4 + 0 = ____ |
| 0 + 1 = ____ | 4 + 1 = ____ |
| 0 + 4 = ____ | 0 + 0 = ____ |
| 1 + 2 = ____ | 0 + 2 = ____ |
| 1 + 4 = ____ | 2 + 0 = ____ |
| 0 + 5 = ____ | 1 + 3 = ____ |
| 1 + 1 = ____ | 3 + 2 = ____ |
| 0 + 3 = ____ | 2 + 3 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 3

**CODING responses**

- # Incorrect (not accurate)
- • Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.
- **C** Counting (not using number relationship strategies)


## Addition within 5

Student: _____

| | |
|---|---|
| 5 + 0 = ____ | 2 + 2 = ____ |
| 3 + 1 = ____ | 2 + 1 = ____ |
| 1 + 0 = ____ | 4 + 0 = ____ |
| 0 + 1 = ____ | 4 + 1 = ____ |
| 0 + 4 = ____ | 0 + 0 = ____ |
| 1 + 2 = ____ | 0 + 2 = ____ |
| 1 + 4 = ____ | 2 + 0 = ____ |
| 0 + 5 = ____ | 1 + 3 = ____ |
| 1 + 1 = ____ | 3 + 2 = ____ |
| 0 + 3 = ____ | 2 + 3 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 3

**CODING responses**

- # Incorrect (not accurate)
- • Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.
- **C** Counting (not using number relationship strategies)

## Subtraction within 5

Student: _____

| | |
|---|---|
| 1 – 1 = ____ | 4 – 2 = ____ |
| 5 – 0 = ____ | 5 – 4 = ____ |
| 2 – 0 = ____ | 4 – 4 = ____ |
| 2 – 1 = ____ | 5 – 5 = ____ |
| 3 – 1 = ____ | 3 – 0 = ____ |
| 4 – 0 = ____ | 3 – 2 = ____ |
| 2 – 2 = ____ | 5 – 2 = ____ |
| 1 – 0 = ____ | 4 – 1 = ____ |
| 5 – 1 = ____ | 4 – 3 = ____ |
| 3 – 3 = ____ | 5 – 3 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 3

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)


## Subtraction within 5

Student: _____

| | |
|---|---|
| 1 – 1 = ____ | 4 – 2 = ____ |
| 5 – 0 = ____ | 5 – 4 = ____ |
| 2 – 0 = ____ | 4 – 4 = ____ |
| 2 – 1 = ____ | 5 – 5 = ____ |
| 3 – 1 = ____ | 3 – 0 = ____ |
| 4 – 0 = ____ | 3 – 2 = ____ |
| 2 – 2 = ____ | 5 – 2 = ____ |
| 1 – 0 = ____ | 4 – 1 = ____ |
| 5 – 1 = ____ | 4 – 3 = ____ |
| 3 – 3 = ____ | 5 – 3 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 3

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

## Addition within 5, doubles to 5+5, +1 and 1+

Student: _____

| | |
|---|---|
| 1 + 2 = ____ | 1 + 4 = ____ |
| 5 + 1 = ____ | 1 + 3 = ____ |
| 3 + 1 = ____ | 1 + 7 = ____ |
| 2 + 2 = ____ | 8 + 1 = ____ |
| 1 + 5 = ____ | 3 + 3 = ____ |
| 7 + 1 = ____ | 1 + 8 = ____ |
| 9 + 1 = ____ | 1 + 6 = ____ |
| 4 + 1 = ____ | 4 + 4 = ____ |
| 3 + 2 = ____ | 4 + 0 = ____ |
| 5 + 5 = ____ | 2 + 3 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 3

**CODING responses**

| | |
|---|---|
| $\overline{\#}$ | Incorrect (not accurate) |
| • | Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time. |
| **C** | Counting (not using number relationship strategies) |


## Addition within 5, doubles to 5+5, +1 and 1+

Student: _____

| | |
|---|---|
| 1 + 2 = ____ | 1 + 4 = ____ |
| 5 + 1 = ____ | 1 + 3 = ____ |
| 3 + 1 = ____ | 1 + 7 = ____ |
| 2 + 2 = ____ | 8 + 1 = ____ |
| 1 + 5 = ____ | 3 + 3 = ____ |
| 7 + 1 = ____ | 1 + 8 = ____ |
| 9 + 1 = ____ | 1 + 6 = ____ |
| 4 + 1 = ____ | 4 + 4 = ____ |
| 3 + 2 = ____ | 4 + 0 = ____ |
| 5 + 5 = ____ | 2 + 3 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 3

**CODING responses**

| | |
|---|---|
| $\overline{\#}$ | Incorrect (not accurate) |
| • | Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time. |
| **C** | Counting (not using number relationship strategies) |

## Addition within 10

Student: _____

| | |
|---|---|
| 1 + 7 = ____ | 3 + 4 = ____ |
| 4 + 2 = ____ | 2 + 6 = ____ |
| 3 + 3 = ____ | 5 + 4 = ____ |
| 6 + 2 = ____ | 2 + 7 = ____ |
| 4 + 6 = ____ | 3 + 7 = ____ |
| 2 + 4 = ____ | 4 + 5 = ____ |
| 3 + 5 = ____ | 4 + 3 = ____ |
| 4 + 4 = ____ | 5 + 5 = ____ |
| 3 + 6 = ____ | 6 + 4 = ____ |
| 6 + 3 = ____ | 2 + 8 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 4

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)


## Addition within 10

Student: _____

| | |
|---|---|
| 1 + 7 = ____ | 3 + 4 = ____ |
| 4 + 2 = ____ | 2 + 6 = ____ |
| 3 + 3 = ____ | 5 + 4 = ____ |
| 6 + 2 = ____ | 2 + 7 = ____ |
| 4 + 6 = ____ | 3 + 7 = ____ |
| 2 + 4 = ____ | 4 + 5 = ____ |
| 3 + 5 = ____ | 4 + 3 = ____ |
| 4 + 4 = ____ | 5 + 5 = ____ |
| 3 + 6 = ____ | 6 + 4 = ____ |
| 6 + 3 = ____ | 2 + 8 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 4

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

## Subtraction facts within 10

Student: _____

| | |
|---|---|
| 10 – 6 = ____ | 6 – 3 = ____ |
| 8 – 4 = ____ | 9 – 4 = ____ |
| 10 – 7 = ____ | 7 – 4 = ____ |
| 8 – 5 = ____ | 9 – 3 = ____ |
| 9 – 8 = ____ | 9 – 6 = ____ |
| 9 – 7 = ____ | 8 – 3 = ____ |
| 8 – 6 = ____ | 8 – 8 = ____ |
| 10 – 4 = ____ | 10 – 3 = ____ |
| 10 – 8 = ____ | 9 – 5 = ____ |
| 7 – 5 = ____ | 6 – 4 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 5

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)


## Subtraction facts within 10

Student: _____

| | |
|---|---|
| 10 – 6 = ____ | 6 – 3 = ____ |
| 8 – 4 = ____ | 9 – 4 = ____ |
| 10 – 7 = ____ | 7 – 4 = ____ |
| 8 – 5 = ____ | 9 – 3 = ____ |
| 9 – 8 = ____ | 9 – 6 = ____ |
| 9 – 7 = ____ | 8 – 3 = ____ |
| 8 – 6 = ____ | 8 – 8 = ____ |
| 10 – 4 = ____ | 10 – 3 = ____ |
| 10 – 8 = ____ | 9 – 5 = ____ |
| 7 – 5 = ____ | 6 – 4 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 5

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

## Addition within 20

Student: _____

| | |
|---|---|
| 9 + 4 = ____ | 6 + 8 = ____ |
| 9 + 9 = ____ | 5 + 7 = ____ |
| 9 + 8 = ____ | 6 + 9 = ____ |
| 7 + 4 = ____ | 5 + 6 = ____ |
| 3 + 9 = ____ | 8 + 7 = ____ |
| 8 + 8 = ____ | 7 + 8 = ____ |
| 4 + 8 = ____ | 6 + 6 = ____ |
| 5 + 9 = ____ | 6 + 7 = ____ |
| 3 + 8 = ____ | 7 + 9 = ____ |
| 7 + 7 = ____ | 5 + 8 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 5

**CODING responses**

# Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)


## Addition within 20

Student: _____

| | |
|---|---|
| 9 + 4 = ____ | 6 + 8 = ____ |
| 9 + 9 = ____ | 5 + 7 = ____ |
| 9 + 8 = ____ | 6 + 9 = ____ |
| 7 + 4 = ____ | 5 + 6 = ____ |
| 3 + 9 = ____ | 8 + 7 = ____ |
| 8 + 8 = ____ | 7 + 8 = ____ |
| 4 + 8 = ____ | 6 + 6 = ____ |
| 5 + 9 = ____ | 6 + 7 = ____ |
| 3 + 8 = ____ | 7 + 9 = ____ |
| 7 + 7 = ____ | 5 + 8 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent for DG Level 5

**CODING responses**

# Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

## Subtraction within 20

Student: _____

| | |
|---|---|
| 12 – 6 = ____ | 14 – 8 = ____ |
| 12 – 8 = ____ | 15 – 7 = ____ |
| 11 – 5 = ____ | 15 – 8 = ____ |
| 11 – 8 = ____ | 18 – 9 = ____ |
| 16 – 9 = ____ | 14 – 7 = ____ |
| 11 – 7 = ____ | 13 – 9 = ____ |
| 12 – 3 = ____ | 17 – 8 = ____ |
| 13 – 6 = ____ | 14 – 9 = ____ |
| 13 – 5 = ____ | 12 – 7 = ____ |
| 16 – 7 = ____ | 17 – 9 = ____ |

Recorder: _____ Date: _____ Score: _____ /20

❑ 10–19/20 Fluent DG Level 6
❑ 20/20 Fluent DG Level 7

**CODING responses**

| | |
|---|---|
| # | Incorrect (not accurate) |
| • | Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time. |
| **C** | Counting (not using number relationship strategies) |


## Subtraction within 20

Student: _____

| | |
|---|---|
| 12 – 6 = ____ | 14 – 8 = ____ |
| 12 – 8 = ____ | 15 – 7 = ____ |
| 11 – 5 = ____ | 15 – 8 = ____ |
| 11 – 8 = ____ | 18 – 9 = ____ |
| 16 – 9 = ____ | 14 – 7 = ____ |
| 11 – 7 = ____ | 13 – 9 = ____ |
| 12 – 3 = ____ | 17 – 8 = ____ |
| 13 – 6 = ____ | 14 – 9 = ____ |
| 13 – 5 = ____ | 12 – 7 = ____ |
| 16 – 7 = ____ | 17 – 9 = ____ |

Recorder: _____ Date: _____ Score: _____ /20

❑ 10–19/20 Fluent DG Level 6
❑ 20/20 Fluent DG Level 7

**CODING responses**

| | |
|---|---|
| # | Incorrect (not accurate) |
| • | Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time. |
| **C** | Counting (not using number relationship strategies) |

## Multiplication 0s, 1s, 2s, 10s, 5s

Student: _____

| | |
|---|---|
| 5 x 0 = ____ | 10 x 8 = ____ |
| 1 x 6 = ____ | 5 x 1 = ____ |
| 5 x 4 = ____ | 0 x 8 = ____ |
| 3 x 5 = ____ | 8 x 5 = ____ |
| 9 x 10 = ____ | 5 x 2 = ____ |
| 9 x 5 = ____ | 6 x 2 = ____ |
| 2 x 8 = ____ | 6 x 5 = ____ |
| 8 x 2 = ____ | 5 x 6 = ____ |
| 5 x 10 = ____ | 7 x 2 = ____ |
| 7 x 5 = ____ | 5 x 5 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent DG Level 6

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)


## Multiplication 0s, 1s, 2s, 10s, 5s

Student: _____

| | |
|---|---|
| 5 x 0 = ____ | 10 x 8 = ____ |
| 1 x 6 = ____ | 5 x 1 = ____ |
| 5 x 4 = ____ | 0 x 8 = ____ |
| 3 x 5 = ____ | 8 x 5 = ____ |
| 9 x 10 = ____ | 5 x 2 = ____ |
| 9 x 5 = ____ | 6 x 2 = ____ |
| 2 x 8 = ____ | 6 x 5 = ____ |
| 8 x 2 = ____ | 5 x 6 = ____ |
| 5 x 10 = ____ | 7 x 2 = ____ |
| 7 x 5 = ____ | 5 x 5 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent DG Level 6

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

## **Multiplication** 0s, 1s, 2s, 10s, 5s, **3s, 4s**

Student: _____

| | |
|---|---|
| 0 x 3 = ____ | 1 x 4 = ____ |
| 2 x 4 = ____ | 5 x 8 = ____ |
| 3 x 3 = ____ | 5 x 4 = ____ |
| 4 x 6 = ____ | 4 x 4 = ____ |
| 3 x 2 = ____ | 7 x 4 = ____ |
| 3 x 7 = ____ | 6 x 3 = ____ |
| 4 x 3 = ____ | 9 x 4 = ____ |
| 3 x 4 = ____ | 8 x 3 = ____ |
| 3 x 10 = ____ | 4 x 8 = ____ |
| 3 x 9 = ____ | 10 x 4 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent DG Level 7

**CODING responses**

# Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)


## **Multiplication** 0s, 1s, 2s, 10s, 5s, **3s, 4s**

Student: _____

| | |
|---|---|
| 0 x 3 = ____ | 1 x 4 = ____ |
| 2 x 4 = ____ | 5 x 8 = ____ |
| 3 x 3 = ____ | 5 x 4 = ____ |
| 4 x 6 = ____ | 4 x 4 = ____ |
| 3 x 2 = ____ | 7 x 4 = ____ |
| 3 x 7 = ____ | 6 x 3 = ____ |
| 4 x 3 = ____ | 9 x 4 = ____ |
| 3 x 4 = ____ | 8 x 3 = ____ |
| 3 x 10 = ____ | 4 x 8 = ____ |
| 3 x 9 = ____ | 10 x 4 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 20/20 Fluent DG Level 7

**CODING responses**

# Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

## Multiplication 6s, 7s, 8s, 9s

Student: _____

| | |
|---|---|
| 6 x 6 = ____ | 9 x 9 = ____ |
| 8 x 7 = ____ | 7 x 6 = ____ |
| 9 x 4 = ____ | 9 x 7 = ____ |
| 7 x 7 = ____ | 6 x 7 = ____ |
| 6 x 9 = ____ | 8 x 9 = ____ |
| 7 x 9 = ____ | 9 x 6 = ____ |
| 8 x 4 = ____ | 7 x 5 = ____ |
| 8 x 8 = ____ | 9 x 8 = ____ |
| 6 x 8 = ____ | 7 x 4 = ____ |
| 8 x 6 = ____ | 7 x 8 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 10–19/20 Fluent DG Level 8 ❑ 20/20 Fluent DG Level 9

**CODING responses**

# Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)


## Multiplication 6s, 7s, 8s, 9s

Student: _____

| | |
|---|---|
| 6 x 6 = ____ | 9 x 9 = ____ |
| 8 x 7 = ____ | 7 x 6 = ____ |
| 9 x 4 = ____ | 9 x 7 = ____ |
| 7 x 7 = ____ | 6 x 7 = ____ |
| 6 x 9 = ____ | 8 x 9 = ____ |
| 7 x 9 = ____ | 9 x 6 = ____ |
| 8 x 4 = ____ | 7 x 5 = ____ |
| 8 x 8 = ____ | 9 x 8 = ____ |
| 6 x 8 = ____ | 7 x 4 = ____ |
| 8 x 6 = ____ | 7 x 8 = ____ |

Recorder: _____ Date: _____ Score: _____ /20 ❑ 10–19/20 Fluent DG Level 8 ❑ 20/20 Fluent DG Level 9

**CODING responses**

# Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

# Multiplication within 100

Student: _____

| | | | |
|---|---|---|---|
| 8 x 2 = ____ | 5 x 9 = ____ | 7 x 6 = ____ | 9 x 6 = ____ |
| 9 x 3 = ____ | 4 x 9 = ____ | 9 x 9 = ____ | 6 x 9 = ____ |
| 8 x 3 = ____ | 3 x 6 = ____ | 9 x 7 = ____ | 6 x 8 = ____ |
| 6 x 4 = ____ | 4 x 5 = ____ | 7 x 5 = ____ | 7 x 4 = ____ |
| 7 x 3 = ____ | 8 x 5 = ____ | 8 x 9 = ____ | 7 x 8 = ____ |
| 5 x 6 = ____ | 5 x 5 = ____ | 6 x 6 = ____ | 7 x 9 = ____ |
| 5 x 7 = ____ | 4 x 8 = ____ | 8 x 7 = ____ | 8 x 4 = ____ |
| 4 x 7 = ____ | 9 x 5 = ____ | 9 x 4 = ____ | 8 x 8 = ____ |
| 3 x 8 = ____ | 4 x 6 = ____ | 6 x 7 = ____ | 9 x 8 = ____ |
| 6 x 10 = ____ | 10 x 7 = ____ | 7 x 7 = ____ | 8 x 6 = ____ |

Recorder: _____ Date: _____ Score: _____ /40 ❑ 40/40 Fluent DG Level 9

**CODING responses**

\# Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)

# Division within 100

Student: _____

| | | | |
|---|---|---|---|
| 10 ÷ 2 = ____ | 45 ÷ 5 = ____ | 18 ÷ 6 = ____ | 45 ÷ 9 = ____ |
| 20 ÷ 4 = ____ | 12 ÷ 3 = ____ | 28 ÷ 7 = ____ | 36 ÷ 9 = ____ |
| 25 ÷ 5 = ____ | 16 ÷ 4 = ____ | 32 ÷ 8 = ____ | 48 ÷ 8 = ____ |
| 18 ÷ 2 = ____ | 24 ÷ 4 = ____ | 56 ÷ 8 = ____ | 42 ÷ 7 = ____ |
| 5 ÷ 5 = ____ | 18 ÷ 3 = ____ | 56 ÷ 7 = ____ | 64 ÷ 8 = ____ |
| 16 ÷ 2 = ____ | 30 ÷ 5 = ____ | 42 ÷ 6 = ____ | 72 ÷ 8 = ____ |
| 35 ÷ 5 = ____ | 28 ÷ 4 = ____ | 27 ÷ 9 = ____ | 63 ÷ 7 = ____ |
| 15 ÷ 5 = ____ | 21 ÷ 3 = ____ | 54 ÷ 6 = ____ | 81 ÷ 9 = ____ |
| 24 ÷ 3 = ____ | 32 ÷ 4 = ____ | 36 ÷ 6 = ____ | 48 ÷ 6 = ____ |
| 36 ÷ 4 = ____ | 27 ÷ 3 = ____ | 40 ÷ 8 = ____ | 54 ÷ 9 = ____ |

Recorder: _____ Date: _____ Score: _____ /40 ❑ 20–39/40 Fluent DG Level 10 ❑ 40/40 Fluent DG Level 11

**CODING responses**

$\overline{\#}$ Incorrect (not accurate)

• Longer than 3 seconds (not automatic); the 3-second expectation may be extended for learners who require extended language processing time.

**C** Counting (not using number relationship strategies)