



Observation Tools for Selection of Strategies

Tool 15 from *Math Fact Fluency*

About Observation as Assessment Tools:

Observation tools can tell a story about a student's thinking. For example, you may see a small group of students find $3 + 4$, $6 + 7$, and $9 + 8$. One student might use Near Doubles for all three facts, while another student might just know $3 + 4$, use Near Doubles for $6 + 7$, and use Pretend-a-10 for $9 + 8$.

What does this tell you about these students?

- You know the first student can apply Near Doubles (Phase 2) and you will be able to know if she can apply it within 3 seconds (Phase 3).

How will you know if she has developed additional strategies?

- You might continue to listen to see what other cards are drawn, or you might lean in and ask the student, "How would you solve $4 + 8$?" as this fact is more efficiently solved by Making 10 or Pretend-a-10.

What does this tell you about the second student?

- You can see that the second student can select appropriate strategies and demonstrate flexibility based on whether she has answered the question correctly, and how easily she found it, you also know her accuracy and efficiency.

In other words, ***through observation, you can assess all 4 components of fluency.***

Observation tools are very flexible in terms of what is recorded within the cells. Options for this type of observation chart include the following:

- Frequency of selection (flexibility, strategy selection). Tally each time the strategy is appropriately chosen.
- Effective use of strategy (accuracy/efficiency). Use a check mark for using a strategy accurately or a star for being accurate and automatic.
- Specific facts/fact sets (strategy selection/automaticity). Record the facts for which the student uses each strategy. For example, if a student uses Near Double to solve $9 + 8$, write " $9 + 8$ " in the Near Doubles column. Add a star if it given within 3 seconds.

As you are listening to students think aloud as they play games, you will hear and see them solve various facts. As you record student strategies, you will get a sense of which ones they choose and whether they can appropriately apply them. Students need to use strategies proficiently enough to solve derived fact sets efficiently and flexibly without resorting to counting.



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Observation Tool for Addition Strategy Selection

Options for Recording-

Frequency = Tally Mark

Accuracy = \surd

Accurate and Automatic (within 3 seconds) = *

Specific Fact = write the fact in the appropriate column, add star if given within 3 seconds

Students	Foundational Fact (Known)	Near Doubles	Making 10	Pretend-a-10	Other



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Observation Tool for Subtraction Strategy Selection

	Options for Recording- Frequency = Tally Mark Accuracy = √ Accurate and Automatic (within 3 seconds) = * Specific Fact = write the fact in the appropriate column, add star if given within 3 seconds				
Students	Counting Up/Back	Think Addition	Down over 10	Up over 10	Take from 10



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Observation Tool for Multiplication Strategy Selection

Options for Recording-
 Frequency = Tally Mark
 Accuracy = \checkmark
 Accurate and Automatic (within 3 seconds) = *
 Specific Fact = write the fact in the appropriate column, add star if given within 3 seconds

Students	Foundational Fact (known)	Doubling	Adding a Group	Subtracting a Group	Near Square	Break Apart	Other (e.g., skip Counting)