

Grade 2- Fact Fluency to 20

Operations and Algebraic Thinking Report Card Standard

Add and subtract within 20

2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

Purpose: To assess students' fluency (accuracy, efficiency, and flexibility) for addition and subtraction facts within 20.

Research From the [Progressions for the Common Core State Standards \(2011\)](#)

"...experiences students have with addition and subtraction culminate in Grade 2 with students becoming fluent in single-digit additions and their related subtractions using the mental Level 2 and 3 strategies as needed." (18-19)

Methods used for solving single-digit addition and subtraction problems

Level 1. Direct Modeling by Counting All or Taking Away. Represent situation or numerical problem with groups of objects, a drawing, or fingers. Model the situation by composing two addend groups or decomposing a total group. Count the resulting total or addend.

Level 2. Counting On. Embed an addend within the total (the addend is perceived simultaneously as an addend and as part of the total). Count this total but abbreviate the counting by omitting the count of this addend; instead, begin with the number word of this addend. Some method of keeping track (fingers, objects, mentally imaged objects, body motions, other count words) is used to monitor the count.

For addition, the count is stopped when the amount of the remaining addend has been counted. The last number word is the total. For subtraction, the count is stopped when the total occurs in the count. The tracking method indicates the difference (seen as an unknown addend).

Level 3. Convert to an Easier Problem. Decompose an addend and compose a part with another addend.

See "[Appendix: Methods for solving single-digit addition and subtraction problems](#)"

"the important press towards fluency should also allow students to fall back on earlier strategies when needed...this is not a matter of instilling facts divorced from their meanings, but rather as an outcome of a multi-year process that heavily involves the interplay of practice and reasoning." (19)

Grade 2 Basic Fact Fluency Progression

2015-2016

Time Frame	Facts To Assess	Number of Facts	Cumulative Fact Total
September	+1, +2, and Make Ten	Total-22 1s-10 2s-9 Make Ten-3	22
October	-1, -2, Subtraction Make Ten	Total-35 1s-15 2s-11 Make Ten-9	57
November	Plus 10 Combos, Subtraction Plus 10	Total-21 Addition-7 Subtraction-14	78
December	Doubles and Near Doubles Addition	Total-14 Doubles-8 Near Doubles-6	92
January-February	Doubles and Near Doubles Subtraction	Total-19 Doubles-7 Near Doubles-12	111
March	Plus 9 Combos and Remaining	Total-13	124
April	Subtraction 9 Combos and Remaining	Total-26	150
May-June	Maintenance		150
		Total for Year-150	150

Materials Needed

- [Appropriate Fact Checklists](#)
- [Student Fluency Profile Form](#)
- [Interviews](#)
- [Flashcards](#)
- [End of Year Assessment](#)
- [Student Data](#)

Teacher directions

1. Assessments must be administered one on one.
2. Show student fact card. Student tell you the fact, but student should be able to solve with a strategy within 5 seconds. If a student takes longer than 5 seconds, it should not be counted as a known fact.
 - a. Students who count on fingers for any fact would be considered not “fluent” and will need strategy work for those facts.
 - b. Students who “count on” or “count back” for any facts other than 1s or 2s, would be considered “not fluent” and will need strategy work for those facts.
3. Teachers should make two piles - Known Facts and Unknown Facts. Unknown facts become strategy work and need to be assessed again.
4. The last two cards of the set should be the “Flexibility, Efficiency and Accuracy” Check cards. Follow the directions on the rubric and score .
5. Teacher checks off known facts.
6. If a student does not have at least 80% of a fact strategy group mastered, they should not be assessed on the next strategy group. However, they should be reassessed on the strategy group they are working on and that number of facts would be entered for their new data.

Example:

Anita and Joe both had less than 80% mastery of the facts for the District Benchmark Strategy Group in September.

Anita is still working on this group of facts during October, so her teacher is not going to assess her on October’s District Benchmark Strategy Group because September’s expectation is foundational to October. Her teacher is assuming that she has 0 of the 35 new facts assessed in October. Her teacher did note that she has made progress as evidenced by reassessing the September Strategy Group. The teacher does not change September’s data, but puts this number in the October column to show that Anita has mastered 21 of the expected 57 facts for October.

District Monthly Benchmark	September	October
Strategy Group	+1, +2, Make Ten	-1, -2, Make Ten Subtraction
Students	n/22	n/57
Anita A.	7	15
Joe B.	10	49

In October, when Joe’s teacher reassessed him on his facts from the September Strategy group he had over 80% mastery. His teacher then assessed him on the District Benchmark Strategy Group for October, and entered the new number of facts known.

7. Once students have mastered a complete set of facts, they have met the benchmark and can be pushed to next set (small group, differentiation)
 - **Note:** *However, if a student is missing a few facts from a set, he/she should be pushed to the next set, but those facts become part of the next fact set - "Facts I'm working on."*

End of Year Assessment:

1. To be given in January, April, and June.
2. Assessment is untimed.