

Helping Students With Math Fact Fluency

Cover-Copy-Compare

What is Cover-Copy-Compare? Cover-Copy-Compare (CCC) is a research-based strategy (i.e., promising practice) for building fluency with math facts. It incorporates the four elements of effective fluency practice: modeling, multiple opportunities to respond, immediate feedback to reinforce correct solutions, and an appropriate ratio of known to unknown facts.

Cover-Copy-Compare
<ul style="list-style-type: none"> • Step One: Student looks at first fact and solution on the practice sheet.
<ul style="list-style-type: none"> • Step Two: Student covers the fact and solution.
<ul style="list-style-type: none"> • Step Three: Student writes the fact and solution on the space provided on the answer sheet.
<ul style="list-style-type: none"> • Step Four: Student uncovers the fact and solution and compares to what was written.
<ul style="list-style-type: none"> • Step Five: If incorrect, the student crosses out the error and begins again with the first step for the incorrect fact and solution.
Watch it! https://youtu.be/3zuLiFlxTbE?t=2216 (36:56-39:00)

Why should I use CCC? CCC is a purposeful fluency-building activity intended to address skill deficits in computational fluency. Computational fluency is linked to stronger estimation skills, more accurate complex computation, and improved word problem solving. CCC is an individualized instructional practice that is both feasible for classroom implementation and can inform data-based instruction.

How is it different from other common instructional practices?

Typical fluency-building strategies often lack key elements that are supported by research to build fluency. This is because typical fluency instruction often lacks sufficient response opportunities, is

missing performance feedback component, assigns only unknown facts to students, or is not targeted, focusing on mass practice instead.

What are students expected to learn? Students will be able to learn new facts and maintain previously learned facts.

What should I avoid when using CCC? Maintain an appropriate ratio of known to unknown facts to avoid student frustration.

Who can this help? CCC can support students with learning disabilities, students with attention deficits, or any student who needs to increase their computational fluency.

How do I teach this?

What should I do?	What does this look like?																																																																																																														
<p>Select facts for practice.</p>	<p>Assess student performance with a pretest of basic facts using flash cards. Present the cards in random order. Facts answered correctly in under 2 seconds are <i>fluent</i>. Facts answered correctly in more than 2 seconds are <i>known</i>. Facts that are incorrect or that students cannot answer are <i>unknown</i>. Each student receives a set of fluent, known, and unknown facts on cards.</p>																																																																																																														
<p>Create CCC practice sheets.</p>	<p>Select nine known, one unknown, and two to five fluent facts to include on a practice sheet. Maintain a 9:1 ratio of known to unknown facts, while including repetition of the unknown fact.</p> <p style="text-align: center;">Cover-Copy-Compare Practice Sheet</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left;">Name: Gianna E</th> <th colspan="2" style="text-align: right;">Date:</th> </tr> <tr> <th style="width: 5%;"></th> <th style="width: 25%;">Fact</th> <th style="width: 25%;"></th> <th style="width: 15%;">Write</th> <th style="width: 30%;">Repeat</th> </tr> </thead> <tbody> <tr><td>1.</td><td>(unknown)</td><td>$3 \times 12 = 36$</td><td></td><td></td></tr> <tr><td>2.</td><td>(known 1)</td><td>$3 \times 3 = 9$</td><td></td><td></td></tr> <tr><td>3.</td><td>(unknown)</td><td>$3 \times 12 = 36$</td><td></td><td></td></tr> <tr><td>4.</td><td>(known 2)</td><td>$3 \times 4 = 12$</td><td></td><td></td></tr> <tr><td>5.</td><td>(fluent 1)</td><td>$3 \times 1 = 3$</td><td></td><td></td></tr> <tr><td>6.</td><td>(unknown)</td><td>$3 \times 12 = 36$</td><td></td><td></td></tr> <tr><td>7.</td><td>(known 3)</td><td>$3 \times 6 = 18$</td><td></td><td></td></tr> <tr><td>8.</td><td>(known 4)</td><td>$3 \times 7 = 21$</td><td></td><td></td></tr> <tr><td>9.</td><td>(fluent 2)</td><td>$3 \times 2 = 6$</td><td></td><td></td></tr> <tr><td>10.</td><td>(unknown)</td><td>$3 \times 12 = 36$</td><td></td><td></td></tr> <tr><td>11.</td><td>(known 5)</td><td>$3 \times 8 = 24$</td><td></td><td></td></tr> <tr><td>12.</td><td>(known 6)</td><td>$9 \times 3 = 27$</td><td></td><td></td></tr> <tr><td>13.</td><td>(known 7)</td><td>$4 \times 3 = 12$</td><td></td><td></td></tr> <tr><td>14.</td><td>(fluent 3)</td><td>$3 \times 5 = 15$</td><td></td><td></td></tr> <tr><td>15.</td><td>(unknown)</td><td>$3 \times 12 = 36$</td><td></td><td></td></tr> <tr><td>16.</td><td>(known 8)</td><td>$4 \times 4 = 16$</td><td></td><td></td></tr> <tr><td>17.</td><td>(known 9)</td><td>$4 \times 6 = 24$</td><td></td><td></td></tr> <tr><td>18.</td><td>(fluent 4)</td><td>$3 \times 10 = 30$</td><td></td><td></td></tr> <tr><td>19.</td><td>(unknown)</td><td>$3 \times 12 = 36$</td><td></td><td></td></tr> <tr><td>20.</td><td>(fluent 5)</td><td>$3 \times 11 = 33$</td><td></td><td></td></tr> </tbody> </table>	Name: Gianna E			Date:			Fact		Write	Repeat	1.	(unknown)	$3 \times 12 = 36$			2.	(known 1)	$3 \times 3 = 9$			3.	(unknown)	$3 \times 12 = 36$			4.	(known 2)	$3 \times 4 = 12$			5.	(fluent 1)	$3 \times 1 = 3$			6.	(unknown)	$3 \times 12 = 36$			7.	(known 3)	$3 \times 6 = 18$			8.	(known 4)	$3 \times 7 = 21$			9.	(fluent 2)	$3 \times 2 = 6$			10.	(unknown)	$3 \times 12 = 36$			11.	(known 5)	$3 \times 8 = 24$			12.	(known 6)	$9 \times 3 = 27$			13.	(known 7)	$4 \times 3 = 12$			14.	(fluent 3)	$3 \times 5 = 15$			15.	(unknown)	$3 \times 12 = 36$			16.	(known 8)	$4 \times 4 = 16$			17.	(known 9)	$4 \times 6 = 24$			18.	(fluent 4)	$3 \times 10 = 30$			19.	(unknown)	$3 \times 12 = 36$			20.	(fluent 5)	$3 \times 11 = 33$		
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<p>Teach students the CCC procedure.</p>	<p> Model the CCC process and provide students opportunities to practice it. It is essential that students practice CCC correctly. Students need to know the CCC procedure to complete the activity independently</p>																																																																																																														
<p>Implement CCC practice and monitor student progress.</p>	<p>Use CCC three to four times a week for 5–10 minutes each. Monitor fluency every four sessions with a fluency probe, using the same format, directions, timing, and scoring for each probe. Display data using a chart and discuss with individual students.</p>																																																																																																														