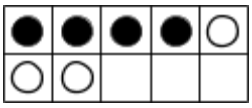
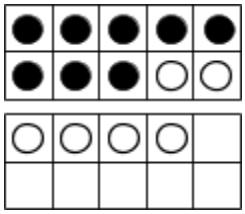
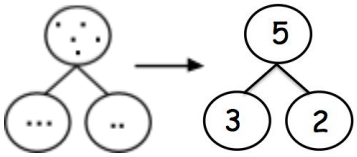
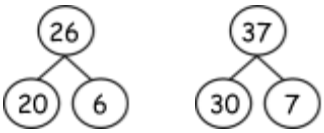
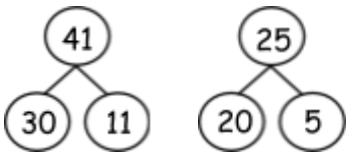
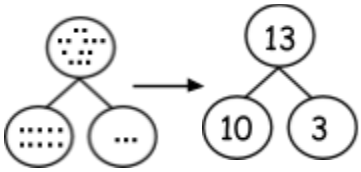
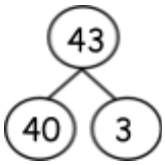
Visual Models:
Addition and Subtraction
Kindergarten – Grade 2

<table>
<tr><th></th><th>Kindergarten</th><th>Grade 1</th><th>Grade 2</th></tr>
<tr><td rowspan="2">Ten Frame</td><td colspan="2"> 
4 and 3 make 7
7 decomposes into 4 and 3
4 + 3 = 7 7 – 3 = 4
3 + 4 = 7 7 – 4 = 3</td><td rowspan="2"></td></tr>
<tr><td colspan="2"> 
8 and 6 make 14
A 10 and 4 more make 14
14 decomposes into 8 and 6
14 decomposes into 10 and 4
8 + 6 = 14 14 – 6 = 8
6 + 8 = 14 14 – 8 = 6</td></tr>
<tr><td rowspan="2">Number Bond</td><td> 
3 and 2 make 5
5 decomposes into 3 and 2
3 + 2 = 5 5 – 2 = 3
2 + 3 = 5 5 – 3 = 2</td><td>Doubles Doubles +1

6 + 6 = 12 6 + 7 = 13
6 + 6 + 1 = 13
12 - 6 = 6 13 – 6 = 7
13 – 7 = 6</td><td rowspan="2">Decompose by Place Value
26 + 37
 
20 + 30 = 50
6 + 7 = 13
50 + 13 = 63
41 - 25
 
11 – 5 = 6
30 – 20 = 10
6 + 10 = 16</td></tr>
<tr><td>Place Value
 
10 and 3 make 13
13 decomposes into 10 and 3
10 + 3 = 13 13 – 10 = 3
3 + 10 = 13 13 – 3 = 10</td><td>Place Value
 
40 and 3 make 43
43 decomposes into 40 and 3
40 + 3 = 43 43 – 40 = 3
3 + 40 = 43 43 – 3 = 40</td></tr>
</table>

This chart shows some examples of how visual models may be used, and is not an exhaustive list.

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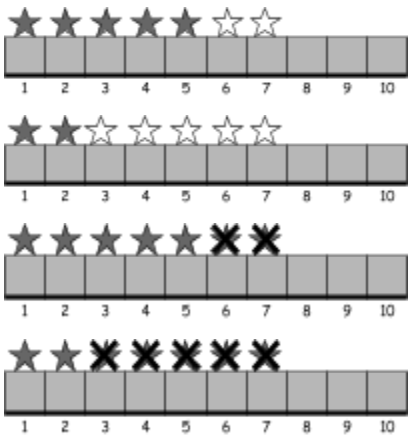
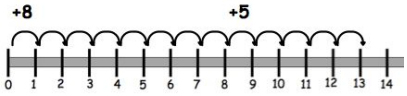
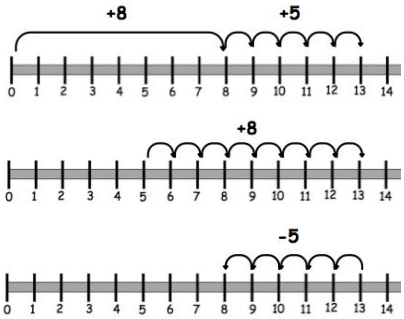
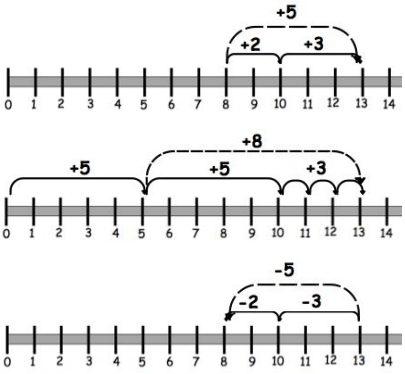
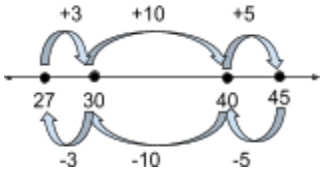
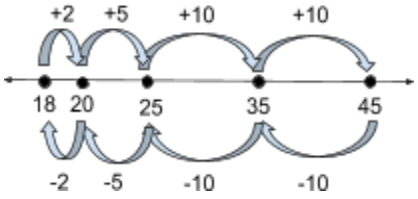
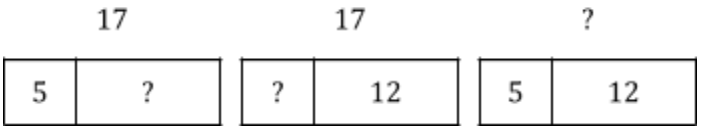
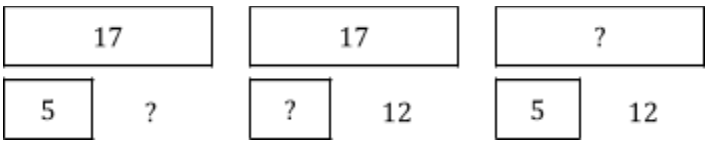
Visual Models:
Addition and Subtraction
Kindergarten – Grade 2

	Kindergarten	Grade 1	Grade 2
Number Line	 5 + 2 = 7 2 + 5 = 7 7 - 2 = 5 7 - 5 = 2	**Count All**  **Count On**  **Make a 10**  8 + 5 = 13 5 + 8 = 13 13 - 8 = 5 13 - 5 = 8	**Add/Subtract in Chunks** (Open Number Line)   27 + 18 = 45 18 + 27 = 45 45 - 27 = 18 45 - 18 = 27
Tape Diagram		 5 + ___ = 17 17 - 5 = ___ ___ + 12 = 17 17 - __ = 12 5 + 12 = ___ __ - 5 = 12 **Comparison**  5 + ___ = 17 17 - 12 = ___ ___ + 12 = 17 17 - __ = 12 5 + 12 = ___ __ - 5 = 12	

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Addition and Subtraction
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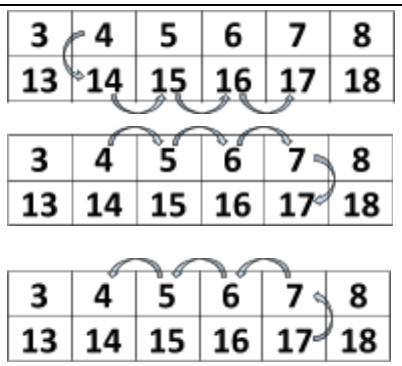
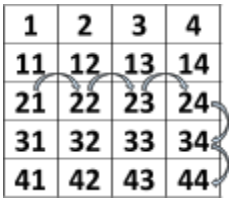
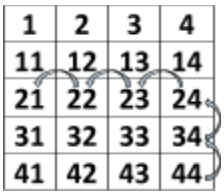
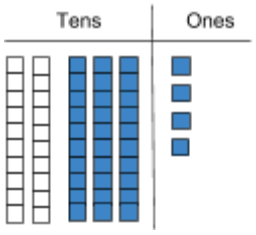
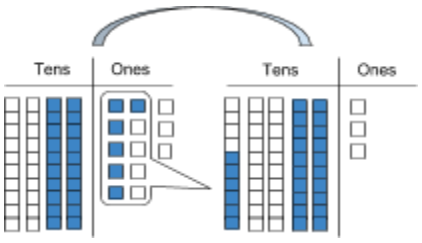
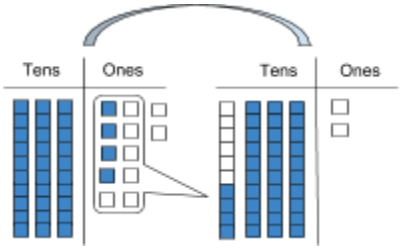
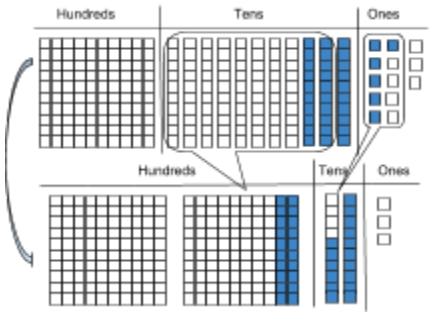
	Kindergarten	Grade 1	Grade 2
Hundreds Chart		 4 + 13 = 17 13 + 4 = 17 17 - 4 = 13 *17 - 13 = 4*	 21 + 23 = 44 23 + 21 = 44 44 - 21 = 23 44 - 23 = 21 
Base Ten Blocks		 34 + 20 = 54 20 + 34 = 54 54 - 20 = 34 *54 - 34 = 20*	 26 + 27 = 53 27 + 26 = 53 53 - 27 = 26 53 - 26 = 53
		 34 + 8 = 42 8 + 34 = 42 42 - 8 = 34 *42 - 34 = 8*	 187+36 = 223 36+187 = 223 223-187 = 36 223-36 = 187

Equations in *italics* are part of the "fact family" for the model shown, so students may be able solve them using this information. However based on the CCSS-M, they are beyond the indicated grade level expectations.

This chart shows some examples of how visual models may be used, and is not an exhaustive list.

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Visual Models:
Addition and Subtraction
Kindergarten – Grade 2

Connection to Algorithms: Addition (Grade 3-4)

Place value drawing for all methods

General methods for 2- and 3-digit numbers

D.
456
+ 167
500
110
13
623

E.
456
+ 167
623

F.
5 6
456
+ 167
623

G.
1 1
456
+ 167
623

Methods E, F, and G generalized to 6-digit numbers

E.
456,789
+ 167,189
623,978

F.
5 6 8 9
456,789
+ 167,189
623,978

G.
1 1 1 1
456,789
+ 167,189
623,978

Note: Methods E, F and G are all variations in the standard algorithm, but Method E is conceptually clearer and easier.

Fuson, Karen C. and Beckmann, Sybilla. *Standard Algorithms in the Common Core State Standards.* NCSM Journal. Fall/Winter 2012-2013.
https://www.mathedleadership.org/docs/resources/journals/NCSMJournal_ST_Algorithms_Fuson_Beckmann.pdf

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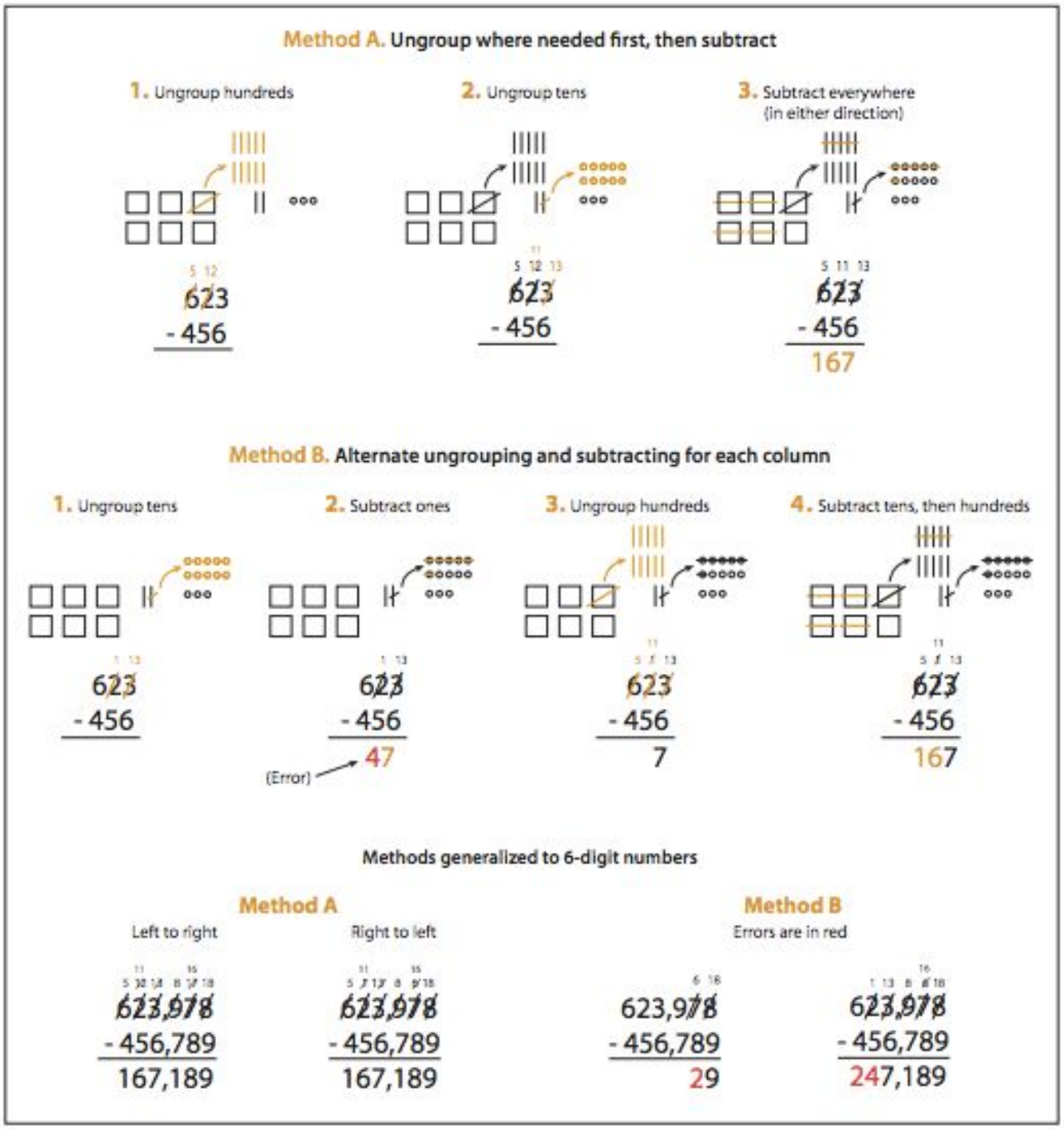
Visual Models:
Addition and Subtraction
Kindergarten – Grade 2

Connection to Algorithms: Subtraction (Grade 3-4)



Fuson, Karen C. and Beckmann, Sybilla. *Standard Algorithms in the Common Core State Standards.* NCSM Journal. Fall/Winter 2012-2013. https://www.mathedleadership.org/docs/resources/journals/NCSMJournal_ST_Algorithms_Fuson_Beckmann.pdf

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