Division

Partial Quotients

Question: 550 ÷ 15

Sample Solutions:

15⌊550	
-150	10
400	
-150	10
250	
-150	10
100	
-30	2
70	
-30	2
40	
-30	2
10	**36 r 10**

15⌊550	
-300	20
250	
-150	10
100	
-75	5
25	
-15	1
10	**36 r 10**

15⌊550	
-450	30
100	
-90	6
10	**36 r 10**

Multiplying Up

Question: 550 ÷ 15

Sample Solution:

15 x 10 = 150
15 x 10 = 150
15 x 10 = 150 } 450

15 x 2 = 30] 480

15 x 2 = 30] 510

15 x 2 = 30] 540

15 x 36 = 540 + 10

550 ÷ 15 = 36 r 10

15 x 20 = 300
15 x 10 = 150
15 x 5 = 75

15 x 1 = 15
15 x 36 = 540

550 ÷ 15 = 36 r 10

15 x 30 = 450
15 x 6 = 90
15 x 36 = 540

550 ÷ 15 = 36 r 10

These strategies should be discovered, explored, and modeled by the students

Multiplication

Making Landmark or Friendly Numbers

Question: 9 x 29

Sample Solutions:

9 x 30 = 270 "that's one group of 9 too much, so. . ."
270 – 9 = 261
Or
9 x 25 = 225 "because 8 25's is 200, so 1 more 25 is 225"
9 x 2 = 18
9 x 2 = 18 and 18 + 18 = 36. 225 + 36 = 261

Partial Products

Question: 4 x 115

Sample Solution:

4 x 115 = 4 x 100 + 4 x 10 + 4 x 5

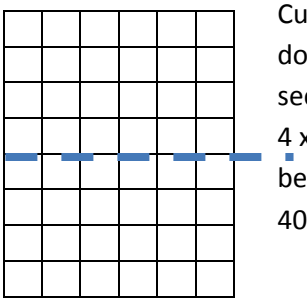
4 x 100 = 400
4 x 10 = 40
4 x 5 = 20
400 + 40 + 20 = 460

	100	10	5
4	4 x 100 = 400	4 x 10=40	4 x 5=20

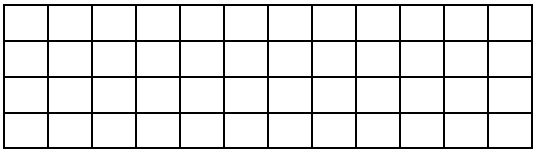
Doubling and Halving

Question: 8 x 6

Sample Solution: Doubling and Halving can help students relate facts that they are unsure of to facts with which they are fluent.



Cut the 8 x 6 array in half on the dotted line. Move the bottom section to the top right to make a 4 x 12 array. I know that's 48 because 4 x 10 = 40 and 4 x 2 = 8. 40 + 8 = 48



Breaking Factors into Smaller Factors

Question: 8 x 25

Sample Solution:

8 = 2 x 4
25 x 4 = 100
100 x 2 = 200, so 8 x 25 = 200

	25
4	4 x 25 = 100
4	4 x 25 = 100

These strategies should be discovered, explored, and modeled by the students