PARTIAL QUOTIENTS DIVISION

134 ÷ 6 = ?

6 | 1 3 4		First, "Partial Quotients" looks a lot like long division when it is set up. The only difference is the line running down the right side of the problem.

Students begin by making an educated guess as to how many 6's "fit" into 134. They make this guess based on their knowledge of extended facts and multiplication facts. They should pick "easy numbers" (#'s ending in 0 or known "memory" facts.)

They may start with: 6 x 20, 6 x 10, 6 x 5, 6 x 2, etc. In this example, I have chosen to start with 6 x 10…

1	6 | 1 3 4 10	I put the 10 (of 6 x 10) just below the dividend, to the right of the Partial Quotients line (PQ)
2	6 | 1 3 4 6 0 | 10	I multiply 6 x 10 and place the answer under the dividend.
3	6 | 1 3 4 - 6 0 | 10 7 4	I subtract 134 - 60 and get 74.
4	6 | 1 3 4 - 6 0 | 10 7 4 10	Now, using other numbers ending in 0 or known facts, I ask how many times will 6 "fit" into 74. Again, I may choose 10 times, because I know this will work (I just did it!). I place the 10 just below the 74 on the right side of the PQ line.
5	6 | 1 3 4 - 6 0 | 10 7 4 - 6 0 | 10 1 4	I multiply 6 x 10 and place the answer under the divisor. I subtract 74 - 60 and get 14.

6

```
6 | 1  3  4
    -  6  0 | 10
    ---------
       7  4
    -  6  0 | 10
    ---------
       1  4
          2 |
```

Once again, I ask, how many 6's will "fit" into 14. I know two 6's will give me 12… I write my 2 just below the other two partial quotients…

7

```
6 | 1  3  4
       6  0 | 10
    ---------
       7  4
       6  0 | 10
    ---------
       1  4
       1  2 |  2
    ---------
          2 |
```

I multiply 2 x 6 and put the answer (12) under the divisor. I subtract 14 - 12 and get 2.

8

```
          2  2   R  2
6 | 1  3  4
    -  6  0 | 10
    ---------
       7  4
    -  6  0 | 10
    ---------
       1  4
    -  1  2 |  2
    ---------
          2 |
```

6 will not "fit" into 2, so... To get the final answer, I add up all the partial products (10 + 10 + 2 = 22) and write it above the entire problem. The remainder of 2 also gets placed near the final quotient!

The following 2 examples show 2 alternative ways to solve 134 ÷ 6:

```
6 | 1  3  4
       3  0 |  5
    ---------
    1  0  4
       2  4 |  4
    ---------
          8  0
       3  0 |  5
    ---------
          5  0
       3  0 |  5
    ---------
          2  0
       1  8 |  3
    ---------
             2
```

```
6 | 1  3  4
       1  2  0 | 20
    ---------
             1  4
             1  2 |  2
    ---------
                2
```

Here are 2 possible ways to solve the problem 272 ÷ 8 = ?

```
             3  4
8 | 2  7  2
    -  8  0 | 10
    ---------
    1  9  2
    -  8  0 | 10
    ---------
    1  1  2
    -  8  0 | 10
    ---------
       3  2
       3  2 |  4
    ---------
             0
```

```
             3  4
8 | 2  7  2
    1  6  0 | 20
    ---------
    1  1  2
          4  0 |  5
    ---------
             7  2
             7  2 |  9
    ---------
                0
```