Chapter 1 sec 3

Multiplying whole numbers:
Solar pictures

Another way to find the total?

Multiplication is just repeated addition
Example: 4 + 4 + 4 + 4 + 4

4(5)
20

Write multiplication
Dot, parentheses

Mult 1

Difficult?
Times tables

1	x	9	=	0	9	1	x	8	=	0	8	1	x	7	=	0	7
2	x	9	=	1	8	2	x	8	=	1	6	2	x	7	=	1	4
3	x	9	=	2	7	3	x	8	=	2	4	3	x	7	=	2	1
4	x	9	=	3	6	4	x	8	=	3	2	4	x	7	=	2	8
5	x	9	=	4	5	5	x	8	=	4	0	5	x	7	=	3	5
6	x	9	=	5	4	6	x	8	=	4	8	6	x	7	=	4	2
7	x	9	=	6	3	7	x	8	=	5	6	7	x	7	=	4	9
8	x	9	=	7	2	8	x	8	=	6	4	8	x	7	=	5	6
9	x	9	=	8	1	9	x	8	=	7	2	9	x	7	=	6	3
10	x	9	=	9	0	10	x	8	=	8	0	10	x	7	=	7	0

down and up double 4 by 2 double 4 2 by 3

Multiply by hand works for 6 x 6 to 10 x 10
6 x 7

6th and 7th touch
touching and below 3, add 0 so 30
above 4 and 3 so multiply 4 x 3 = 12
Add together 30 + 12 = 42

46 4 tens 6 ones
x 7 7 ones
28 tens 42 ones
4 tens 2 ones
32 tens 2 ones
3 hundred 2 tens
3 2 2 answer

More information:
http://www.basic-mathematics.com/multiplying-whole-numbers.html

9 times by fingers
Put hands in front and number fingers 1 to 10, from left to right.
9 x 3, Put the third finger down. Fingers on left, 10 digits, fingers on the right ones digit.
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Distributive property

$$\begin{array}{r} 42 \\ \times\ 23 \\ \hline \end{array} \qquad \begin{array}{r} 42 \\ 20 \\ \hline 840 \\ 966 \end{array} \quad + \quad \begin{array}{r} 42 \\ 3 \\ \hline +\ 126 \end{array}$$

Area Model
42 x 23

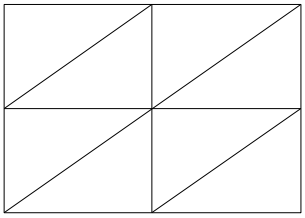
	42
20	840
3	126

	40	2
20		
3		

Napier Bones
John Napier
1550 – 1617
Scottish Scholar

47 x 23

Rectangle with diagonals



Half and double

8 x 6	389 x 24
4 x 12	
2 x 24	
1 x 48	