Activity 1:
Multiplication Facts
and Factors

Sally and Sam are in Year 8. They had been working on number facts. Their teacher told them they would now be looking at some patterns ... the **multiplication facts** that they had learned.

1. The teacher wrote quickly on the board, and asked Sam to fill in this **multiplication grid**. One number was already done for ..n, t. show 2 x 3 = 6. Can you fill in the rest of the numbers? (The answers are on the next page.)
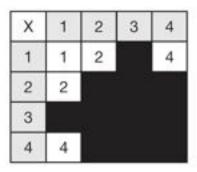
X	1	2	?	4
1				
2			6	
4				

Can y.. find some **number facts** to do with 1, 2, 4, and 8? You can see a lot of other "times tables", too, but just look at these for now.

1 x 1 = 1		
1 x 2 = 2	2 x 1 = 2	
1 x 4 = 4	2 x 2 = 4	4 x 1 = 4
	2 x 4 = 8	4 x 2 = 8

X	1	2	3	4
1	1	2	3	4
2	2	4	6	8
3	3	6	9	12
4	4	8	12	16

This is the correct answer to question 1.

You can see this even better on the **multiplication grid** if we "black out" some of the squares.

X	1	2	3	4
1	1	2	■	4
2	2	■	■	■
3	■	■	■	■
4	4	■	■	■

"One Times" Table

1 x 1 = 1		
1 x 2 = 2	2 x 1 = 2	
1 x 4 = 4		4 x 1 = 4

X	1	2	3	4
1	1	2	■	
2	2	4	■	8
3	■	■	■	
4	4	8	■	

Now the "two times" table and the "four times" table appears

1 x 1 = 1		
1 x 2 = 2	2 x 1 = 2	
1 x 4 = 4	2 x 2 = 4	4 x 1 = 4
	2 x 4 = 8	4 x 2 = 8

Sally and Sam's teacher asked them to imagine a "wall" whose "bricks" made up the number facts. She called this a **factor wall**.

She started off the **factor wall** for them with a base of 8 units. The patterns in the factor wall match what we have seen in the **multiplication grid**. You will also be able to see some of the "times tables".

1	1	1	1	1	1	1	1
2		2		2		2	
4				4			
8							

The **factor** wall is showing **multiplication** and **division** by 1, 2, 4, and 8.

Factors

A **factor** is a whole number that divides exactly into another number. We see factors in the "times tables" all of the time. Because 4 <u>divides exactly</u> into 8, **4 is a factor of 8**. The "times tables" **equation 2 × 4 = 8** is another way to write this.

1	1	1	1	1	1	1	1
2		2		2		2	
4				4			
8							

2. Can you find more multiplication facts in the wall? Write them here.

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_____

_____

3. You can also to write your "times tables" equations as "divided-by statements".

8 ÷ 2 = 4 is an **equation** that is in the same "fact family" as **2 × 4 = 8**.

Eight **divided by 2** is equal to 4, so 2 and 4 are **factors** of 8.

Now find some of the "**divided by**" equations.

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