

Numbers to bits

Problem 1 Blown to bits

Find the binary numbers corresponding to the decimal numbers below.

Go through the multipliers from left to right. If a multiplier needs to be included in the sum, set the corresponding binary digit to 1 and proceed with the number that remains.

Here is an **example**:

Decimal number >	Binary number				
	16	8	4	2	1
13	1	1	0	1	
	5	1		0	

Now, try these on your own:

Decimal numbers >	Binary numbers				
	16	8	4	2	1
16					
19					
23					
30					

Problem 2 Counting in binary

Fill in the table below with the binary representation of each number in the sequence.

You don't have to convert each individual number into binary. Instead, think about which binary digits need to be 'flipped' in a number, in order to produce the next one.

The first three lines have been completed as an example.

Decimal numbers	Binary numbers				
	16	8	4	2	1
1					1
2				1	0
3				1	1
4					
5					
6					
7					
8					
9					
10					
11					

Explorer task

If you have finished these problems and there is still time remaining, ask your teacher to assign an explorer task to you.

This resource is available online at nccce.io/rep1-4-a4-w. Resources are updated regularly – please check that you are using the latest version.

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