

Activity Worksheet: It's all about Hex

Challenge 1: Hex to Denary

Can you convert the following **Hex** values to **Denary**?

4	10	A	F
14	2B	1F	FF

Working out:

Challenge 2: Hex to Binary

Can you convert the following **Hex** values to **Binary**?

8	4	A	F
12	1B	6A	90

Working out:

Challenge 3: Binary to Hex

Can you convert the following **Binary** values to **Hex**?

0010	0100	1100	1111
1010 0101	1011 0001	0110 1011	1110 1111

Working out:

Extension Task

Challenge 4: Denary to Hex

To convert a denary number to hex:

1. Divide the denary number by 16
2. Write down the remainder and convert it to hexadecimal
3. Divide the result again by 16
4. Repeat step 2 and 3 until the result is 0

For example, to convert the denary number **188**:

Divide by 16	Result	Remainder	Remainder (in Hex)	
188 / 16 =	11	12		C
11 / 16 =	0	11	B	
Answer:			B	C

Calculating the remainder.

If using a calculator the remainder can be calculated using the following method:

Divide the denary number by 16. For example: **141 / 16 = 8.8125**

Subtract the whole number from your answer: **8.8125 - 8 = 0.8125**

Multiply what's left by 16: **0.8125 x 16 = 13**

Thus giving you a remainder of: **13**

Tip: If you are finding this too difficult, you can convert the denary number to binary first and then convert the answer to binary to hex.

Can you convert the following **Denary** values to **Hex**?

6	10	15	22
36	98	128	160

Working out:

Challenge 5: Hex Addition

Can you add the following hex numbers?

Hint: Add them together by first converting them to binary and then converting them back to hex. You must show your working out.

$1 + 2$

$5 + 5$

$7 + 8$

$1 + A$

$F + F$

$10 + 10$

$10 + F$

$12 + 1A$

Working out: