

# Activity Worksheet: It's all about Hex

## Challenge 1: Hex to Denary

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

4 [4]	10 [16]	A [10]	F [15]
14 [20]	2B [43]	1F [31]	FF [255]

Working out:

## Challenge 2: Hex to Binary

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

8 [1000]	4 [0100]	A [1010]	F [1111]
12 [0001 0010]	1B [0001 1011]	6A [0110 1010]	90 [1001 0000]

Working out:

## Challenge 3: Binary to Hex

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

0010 [2]	0100 [4]	1100 [C]	1111 [F]
1010 0101 [A5]	1011 0001 [B1]	0110 1011 [6B]	1110 1111 [EF]

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	
<b>Answer:</b>			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 [6]

10 [A]

15 [F]

22 [16]

36 [24]

98 [62]

128 [80]

160 [A0]

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.

$1 + 2 [3]$

$5 + 5 [A]$

$7 + 8 [F]$

$1 + A [B]$

$F + F [1E]$

$10 + 10 []$

$10 + F [1F]$

$12 + 1A [2C]$

Working out: