Beckfoot

Subject: Computing	Topic: Data Representation	Year Group: 8

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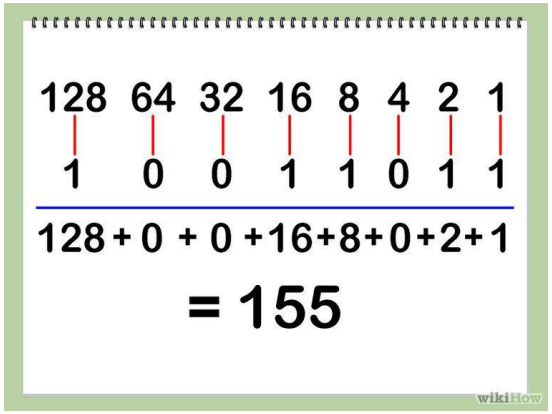
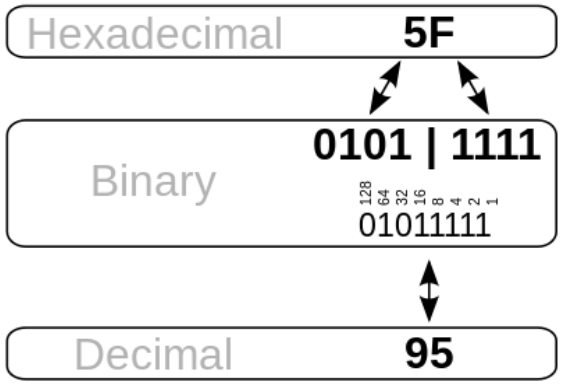
Converting between Bases

1 Binary to Denary



Write the column values out above your binary number. Only add the column value where the binary number is one.

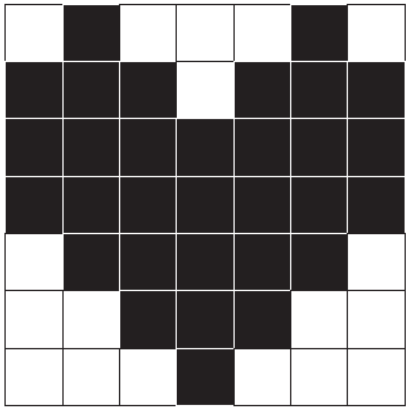
2 Binary to Hexadecimal



Each hex character is equal to a binary nibble, join the two nibbles together to make your binary number.

Binary Bitmap Images

1



Each square is referred to as a pixel. Each pixel can either be on or off. If the pixel is blank usually you would say the value of this pixel is 0 and if the pixel is black then the value of this pixel is 1. Can you work out the binary combination for the image above?

Adding Binary

1 Rules for adding binary:

0 + 0 = 0
0 + 1 = 1
1 + 1 = 10
1 + 1 + 1 = 11

Key Vocabulary

1	Storage Capacity	Bit – A single binary digit e.g. 0 or 1
		Nibble – Four binary digits e.g. 1011
		Byte – Eight binary digits e.g. 00110101
2	Binary	This numbering system only uses two digits: 0 which means off and 1 which means on.
3	Denary	This numbering system uses ten digits: 0-9.
4	Hexadecimal	This numbering system uses sixteen characters: 0-9 and the A-F
5	Overflow	When adding binary numbers together if your answer results with more than 8 bits an overflow has occurred. e.g. 1 11101011