Designing and planning out a solution in an organised way.

unnecessary information from a problem to make it easier to

Breaking a difficult problem down into easy to manage

A 2 digit number system used by computers which uses the

A 10 digit number system used

A 16 digit number system used

by humans which uses the

by humans which uses the

digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 and the letters A, B, C, D, E, F

An error when the computer tries put a bigger number in a

A single letter, number or a punctuation such as !, ?.

A group of characters such as

ASCII, extended ASCII and

Unicode.

digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

smaller number of bits.

Removing all of the

A binary unit - 0 or 1.

diaits 0 and 1.

solve.

steps.

Name

Abstraction

Decomposition

Data Representation

Autumn Term

Bit

Binary

Denary

Hexadecimal

Overflow error

Character

Characterset

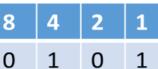
Computational Thinking



Picture This...

Converting a Hexadecimal number to a denary number. 0x56

Step 1: Place the hex number above the nibbles.



 8
 4
 2
 1

 0
 1
 1
 0

Step 2: Put the nibbles together to make a byte.

128	64	32	16	8	4	2	1
0	1	0	1	0	1	1	0

Step 3: Add the placeholder values up where there is a 1.

Binary		Hex	Decimal	
	0000	0	0	
	0001	1	1	
	0010	2	2	
	0011	3	3	
	0100	4	4	
	0101	5	5	
	0110	6	6	
	0111	7	7	
	1000	8	8	
	1001	9	9	
	1010	A	10	
	1011	В	11	
	1100	С	12	
	1101	D	13	
	1110	E	14	
	1111	F	15	

Use this table to help with your conversions.



Questions

- Which number system is used by a computer. Explain why this is?
- What is it called when a computer tries to put a bigger number into a smaller space?
- 3. What is it called when you break a problem down into smaller steps?
- 4. Why do we use hexadecimal numbers?
- Convert the following hex numbers to binary. 0c56, 0x7e, 0x6d, 0x3e, 0xA9, 0xBB, 0xCF, 0xFF
- 6. Convert the following hex numbers to denary. 0xe3, 0xd4, 0xe2,0xfd,0x2d

Deeper Learning...

Char	Binary	Нех	Denary
В	01000010	42	66
b	01100010	62	98
3	00110011	33	51



Activity - Write out your name in using binary code, then convert that code to Hex.