Codes and computers

We know that:

- computers are important
- computers **store and process data**
- all data ends up as **numbers**
- all **data** ends up as **binary** (0s and 1s)

So letters, for example, have to become numbers

Codes and computers

115 101 099 114 101 116 032
099 111 100 101 115

Codes and computers

115 101 099 114 101 116 032
099 111 100 101 115

This is ASCII code – the way that a computer stores each key you press on a keyboard

Codes and computers

115 101 099 114 101 116 032

099 111 100 101 115

This is ASCII code – the way that a computer stores each key you press on a keyboard
099 is the letter ‘c’

Codes and computers

ASCII is **A**merican **S**tandard **C**ode for **I**nformation **E**xchange

- first used 1963 for teleprinter machines
- standard American English keyboard characters only
- has 128 different characters
- includes keyboard commands that don't print – space, new line, new paragraph, quit etc...

Codes and computers

Codes and computers

What characters are on your keyboard that aren't on this one?

Those characters are **not** available in ASCII code

Codes and computers

ASCII Code Representation

32	[space]	48	0	64	@	80	P	96	`	112	p
33	!	49	1	65	A	81	Q	97	a	113	q
34	"	50	2	66	B	82	R	98	b	114	r
35	#	51	3	67	C	83	S	99	c	115	s
36	$	52	4	68	D	84	T	100	d	116	t
37	%	53	5	69	E	85	U	101	e	117	u
38	&	54	6	70	F	86	V	102	f	118	v
39	'	55	7	71	G	87	W	103	g	119	w
40	(	56	8	72	H	88	X	104	h	120	x
41	)	57	9	73	I	89	Y	105	i	121	y
42	*	58	:	74	J	90	Z	106	j	122	z
43	+	59	;	75	K	91	[	107	k	123	{
44	,	60	<	76	L	92	\	108	l	124	|
45	-	61	=	77	M	93	]	109	m	125	}
46	.	62	>	78	N	94	^	110	n	126	~
47	/	63	?	79	O	95	_	111	o	127	[backspace]

Codes and computers

IMPORTANT

“s” (lowercase) is 115

“S” (uppercase) is 083

When computers look at words they think “s” and “S” are different things

Codes and computers

Tasks:

1. What does ASCII stand for?
2. Explain how ASCII codes works
3. Why was ASCII code needed?
4. Write your name out using ASCII code

084 104 105 115 032 105 115 032
097 032 118 101 114 121 032 101
097 115 121 032 099 111 100 101
032 116 111 032 098 114 101 097
107 032 098 101 099 097 117 115
101 032 116 104 101 032 099 105
112 104 101 114 032 105 115 032
112 117 098 108 105 099 097 108
108 121 032 107 110 111 119 110
046