

sedoc terces

descorteces

Using codes

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

Using codes

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'

Using codes

What data on a computer might we want to keep a secret?

- passwords
- credit card details
- bank accounts
- addresses
- health information
- e-mails or other private messages

To keep data secret we need to use codes.

Using codes

When we turn **data** into a code we use a **cipher** to write the data in the code. This **encrypts** the data.

Data which is **encrypted** can't be read unless you know the code.

Encrypting data helps keep it secret.

The **cipher** is the key to understanding the code. When you use the cipher to reveal the actual message you **decrypt** the code.

Using codes

This type of cipher is a **substitution cipher**.

A symbol or letter is substituted in place of the letter we want to encode.

a	b	c	d	e	f	g	h	i	j	k	l	m
☉	♌	♍	♎	♏	♐	♑	♒	♓	✋	er	&	●
n	o	p	q	r	s	t	u	v	w	x	y	z
■	□	◻	◻	◻	◆	◆	◆	◆	◆	⊗	⊠	⌘

Secret codes

Substitution ciphers are easy to use but they aren't very secure.

Given enough time, it's easy to break a substitution cipher code, especially if you have a clue about what might be in the code.

Secret codes - Exercise A

You know that I sent a message to Mr Sorrento about Year 8. Can you decode it?

ni hliivmgl, bvzi 8 ziv evib xovevi glwzb

Secret codes - Exercise A

ni hliivmgl, bvzi 8 ziv evib xovevi glwzb

a	b	c	d	e	f	g	h	i	j	k	l	m
z	y	x	w	v	u	t	s	r	q	p	o	n

n	o	p	q	r	s	t	u	v	w	x	y	z
m	l	k	j	i	h	g	f	e	d	c	b	a

Secret codes - algorithms

When you use a cipher, you use an **algorithm** to decode the message.

a	b	c	d	e	f	g	h	i	j	k	l	m
☉	♌	♍	♎	♏	♐	♑	♒	♓	✋	er	&	●
n	o	p	q	r	s	t	u	v	w	x	y	z
■	□	◻	◻	◻	◆	◆	◆	◆	◆	⊗	⊠	⌘

Secret codes - Exercise B

a) Decode the message using the cipher



a	b	c	d	e	f	g	h	i	j	k	l	m
6	o	m	2	3	♂	♂	wavy	hand	er	&	●	○
n	o	p	q	r	s	t	u	v	w	x	y	z
■	□	◻	◻	◻	◆	◆	◆	◆	◆	⊗	△	⌘

b) Write down an **algorithm** to explain how you decoded the message step by step

Secret codes - Extension

Create your own **cipher** using letters or symbols

Use your cipher to write a set of secret messages to someone else

See how long it takes them to **decrypt** the messages