

# CODES AND CIPHERS

A **code** is a method of sending messages in which a *word, number or symbol* has a set meaning. It may or may not be secret. George Washington used a spy system during the American Revolution in which special *numbers* were used for words. Each spy had a code book! *War* was 680, *was* was 681, *will* was 683 and *with* was 684.

A **cipher** is a method of sending messages in which the meaning is secret. Every *letter* has its own symbol, e.g. TOFFEE = VQHHGG.

1. Use: 

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B

  
 (a) to encipher: TWO IS THE ONLY EVEN PRIME NUMBER.

(b) to decipher:   
 VJG USWCTG TQQV QH PKPG KU VJTGG.

2. A *backward cipher* has the alphabet written backwards.

(a) Complete: 

A	B	C	D	E	F	G	H	I	J	K	L	M	_____
Z	Y	X	W	V	U	T	_____	_____	_____	_____	_____	_____	_____

(b) Encipher: PRODUCT MEANS MULTIPLY.

(c) Decipher:   
 Z ISLNYFH RH Z KZIZOOVOLTIZN.

3. A *substitution cipher* uses a *key word* that is written first, followed by the remainder of the alphabet *in order, omitting* the letters of the key word.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
G	R	E	M	L	I	N	S	A	B	C	D	F	H	J	K	O	P	Q	T	U	V	W	X	Y	Z

(a) Decipher:   
 TSL FJQT EJFFJH QUPHGFL AH TSL   
 WJPDM AQ ESGHN.

(b) Think of your own *key word*, making sure all the letters are *different*. Now complete:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

(c) Make up a short mathematical sentence of 5-6 words. Encipher it.

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4. A *number box cipher* uses a pair of numbers to name a letter. Because "J" is not used much, it is placed in the square with "I". Always go *across* first, then *up*, e.g. A is 1-1 or 11, B is 2-1 (21), H is 3-2....

5	V	W	X	Y	Z
4	Q	R	S	T	U
3	L	M	N	O	P
2	F	G	H	I	K
1	A	B	C	D	E
	1	2	3	4	5

Encipher:   
 THE TAJ MAHAL IS AT AGRA IN INDIA.

**Research**  
 Investigate other forms of codes and ciphers.