Shift Cipher

Overview: Shift ciphers were used by Julius Caesar in Roman times. The key is a number which tells you how many letters you'll shift the alphabet. These are fairly simple to encode and decode. However, you have to be extra careful when encoding because mistakes can throw off the decoding process.

Materials

- Pencil
- Paper

Activity: First you need a shift key. Let's pick a number: 4. (You'll give your friend the shift key when you also give them the message so that they can decode it easily.) This means that the alphabet will shift by 4 units. For instance, A will be shifted to W; J will be shifted to F and so on. The table below shows two alphabets: The top is the original alphabet before the shift, and the bottom is the one you'll use when you write the message.

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

Now come up with a message. I've got one: "BEN HAS BIG TOES"

To encode the message, find the "B" on the top alphabet, drop down and find the shifted letter under the "B." Did you find an "X?" Perfect.

What letter is going to be replacing the "E?" Find "A."

"N" is replaced with a "J"… and so forth until you encode the entire message to read:

XAJ DWO XEC PKAO

But remember, we like to group the letters into groups of 5 to throw off snoopers from our trail, so make the message look more like this:

XAJDW OXECP KAOXZ

In order to get the message decoded, give your buddy the shift key and stand back.

Now it's your turn! Work out the exercises below. (You'll find answers at the back of this book.)

Exercises

Use the key shift number 4 on the letters of alphabet to code or decode the following:

Encode the following statement:

1. OUR SCHOOL WAS THE BEST
2. I WAS THE BEST IN MATHEMATICS
3. I AM THREE FEET TALL
4. OUR SCHOOL HAS GOOD TEACHERS
5. COME TO MY RESCUE

Decode the following:

6. SAWNA HAWRE JCXQZ
7. SDWQE OQDAM PAOQE KJXQZ
8. LHAWO AYKIA QKZWU
9. EWIKJ IUSWU
10. ODAEO WCKKZ OEJCA NMXQZ

Answers to Exercises: Shift Cipher

1. KPNOY DKKHS WOQDA XAOQZ
2. ESWOQ DAXAO QEJIW QDAIW QEYOZ
3. EWIQD NAABA AAQOQ WHHXZ
4. KPNOYD KKHDW OCKKZ QAWYD ANOXZ
5. YKIAQ KIUNA OMPAZ
6. WE ARE LEAVING
7. WHAT IS THE QUESTION
8. PLEASE COME TODAY
9. I AM ON MY WAY
10. SHE IS A GOOD SINGER