Source: https://www.wonderopolis.org/wonder/can-you-solve-a-caesar-cipher

Would you know what to do with a message that read, "Dwwdfn dw gdzq"? How about "Uhwuhdw"? Do those make any sense to you? No? Of course not! They were written using a Caesar Cipher.

The Caesar Cipher is a basic technique for encryption. It substitutes certain letters of the alphabet for others so that words aren't immediately recognizable. Named for Julius Caesar, a Roman emperor who used it, the Caesar Cipher is also called the Caesar Shift or Shift Cipher.

How does a Caesar Cipher work? It's easier than you might think! To encrypt a message, you start by listing the letters of the alphabet. Then, you'll list the letters again right next to the first list. But first, you decide on a shift value. The shift value determines which letter the second list starts with.

For example, the messages above were written with a shift value of three. That means, instead of starting the second list with the letter "A," we shifted down three letters, to the letter "D." It looked like this:

A   D

B   E

C   F

D   G

...and so on.

Once you've listed the alphabet a second time, you're ready to write messages. Each time you would use a letter on the left list, you substitute the letter on the right. So you would substitute "D" for "A," "E" for "B," and so on for the rest of the alphabet.

So, in this example, "Dwwdfn dw gdzq" means "Attack at dawn." Can you figure out what "Uhwuhdw" is? That's right, it means "Retreat"! Early Caesar Cipher messages were used often by ancient militaries. These are messages they could have actually sent!

Today, the Caesar Cipher has another use. If you use the Internet at home or school, you already know that people send a lot of information over the Internet every day. And plenty of that information—like passwords, social security numbers, and debit card numbers—need to be kept safe. This is done using encryption.

The Caesar Cipher is just one method of encryption, and it's a fairly simple one. Websites responsible for personal data use much more advanced encryption techniques. However, young programmers often learn the basics of encryption using the Caesar Cipher.

The Caesar Cipher might be a pretty basic encryption technique, but it's still fun to use! Do you have any secret messages to send? How long do you think it would take someone to crack a Caesar Cipher? Give it a try! You never know what sensitive information you may need to protect.

Take the Wonder Word Challenge – Match the term on the left to its definition on the right.

Advanced	farther along in physical or mental development
Cipher	a system of to change information from one form to another especially to hide its meaning
Data	a way of carrying out a particular task, especially the execution or performance of an artistic work or a scientific procedure
Encryption	a message written in a secret code
Technique	information

Student Activity

Are you ready…? Make sure that you complete following activities with a friend or family member at home or electronically, if possible. Please write these questions on a separate sheet of paper and list your answers.

1. Develop your own Caesar Cipher with a friend or family member. Practice passing secret messages back and forth. How long does it take to communicate in this way? Does it get easier with practice? Talk about the advantages and disadvantages of Caesar Ciphers.

2. Why is encryption important today? Talk with an adult friend or family member about what personal information they might have on the Internet. How is it kept safe? Is it encrypted? What are the dangers of failing to protect information like passwords or credit card numbers?

3. Imagine that someone has asked you why encryption is important. What would you tell them? Write a letter or email explaining what encryption is and why it's helpful. Explain what kind of information should be encrypted. Talk specifically about what could happen if your information is not encrypted while on the internet.