Part 0: Caesar Ciphers

Caesar Ciphers are a shift cipher. This means we are going to encrypt messages by shifting the alphabet along and replacing the letters to make our secret message.

This is what the alphabet would look like if we shifted it left by 3 letters:

We don't want some of our letters falling off the end so we wrap them around.

We call this a 'key' of 3 as we have shifted the alphabet by 3 letters.

Another great way to represent this is in a circle! That does the wrapping for us!

Encrypting

To **encrypt** a message we replace a green letter with the matching purple letter:

GPN → JSQ

Decrypting

To **decrypt** a message we take a purple letter and replace it with the matching green letter:

FRGH → CODE

Task 0.1: Encrypting and decrypting messages

Using the rotated wheel above can you encrypt and decrypt these messages?

Encrypt

SECRET → _ _ _ _ _ _

CIPHER → _ _ _ _ _ _

Decrypt

FUDFN → _ _ _ _ _

FDHVDU → _ _ _ _ _ _

Cipher Wheels

Sometimes we want to use **different keys**. So we want a different amount of rotation. We've given you a **cipher wheel** that lets you do this rotation!

Grab your cipher wheel! You can rotate the inner wheel to try different shifts. **Let's try it!**

Task 0.2: Encrypt with a key of 10!

Let's try using a different key. **Let's try 10**. Rotate your inner cipher wheel 10 to the left so the **green A** lines up with the **purple K**. **Encrypt** this message:

MYSTERY → _ _ _ _ _ _ _

Hint : remember you are **encrypting** this message so start with the green letter on the outside wheel and replace it with the matching purple letter on the inside wheel.

Task 0.3: Encrypt with a key of 24!

Let's try a **key of 24**. Rotate your inner cipher wheel 24 spots to the left. **Encrypt** this message (you can ignore spaces):

GPN IS GREAT → _ _ _ _ _ _ _ _ _ _ _

Task 0.4: Decrypt with a key of 7!

Try a **key of 7**. Rotate your inner cypher wheel 7 spots to the left. **Decrypt** this message:

JYFWAVNYHWOF → _ _ _ _ _ _ _ _ _ _ _ _

Hint : remember you are **decrypting** this message so start with the purple letter on the inner wheel and replace it with the matching green letter on the outer wheel.

Task 0.5: Decrypt with a key of 11!

Try a **key of 11**. Rotate your inner cipher wheel 11 spots to the left. **Decrypt** this message:

DATY ESP HSPPW → _ _ _ _ _ _ _ _ _ _ _

Part 6: Let's Get Cracking!

Task 6.1: Make a Secret Code!

Before we can crack some codes, we need an encrypted message to decrypt.

Use your program to get an encrypted message that we can decrypt (don't forget to write down the key you used!!)
Fill in the table below on your Workbook Activity Sheet so that we can decrypt it later!

Original Message	Key	Encrypted Message

Working out space