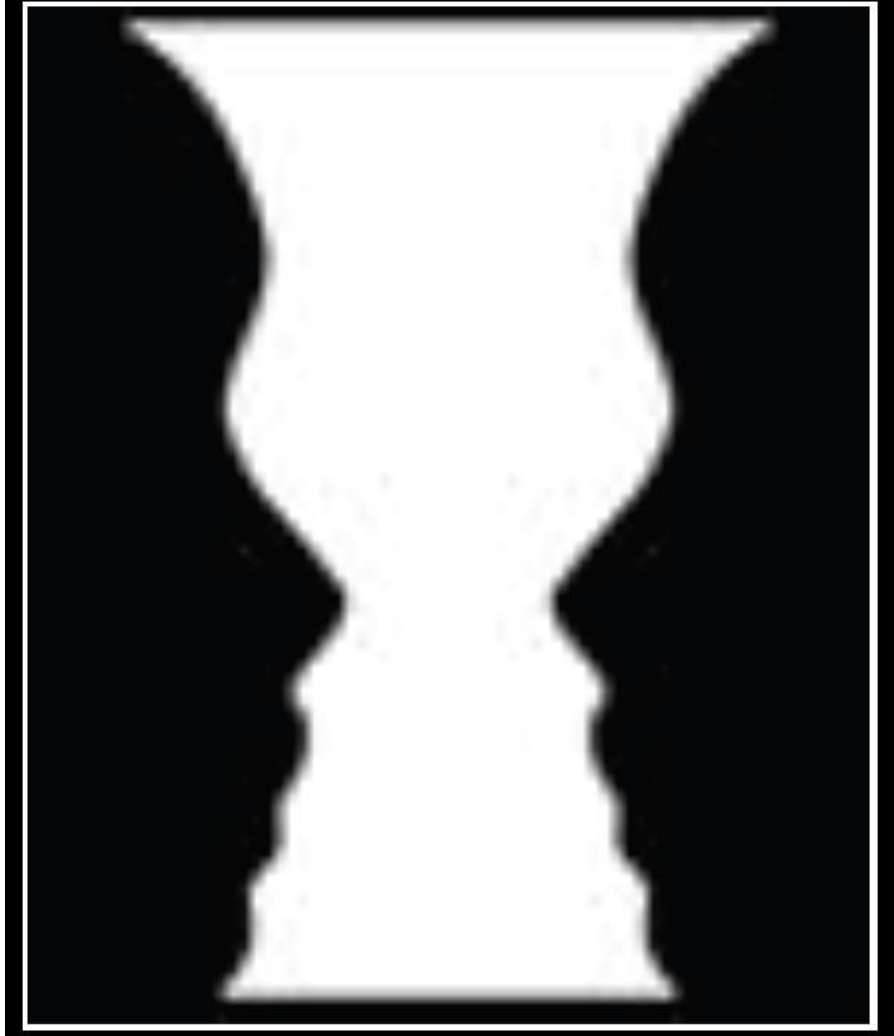


Name \_\_\_\_\_

Date: \_\_\_\_\_

## Warm-Up: What do you see?



# Early Elementary Circle Week 1:

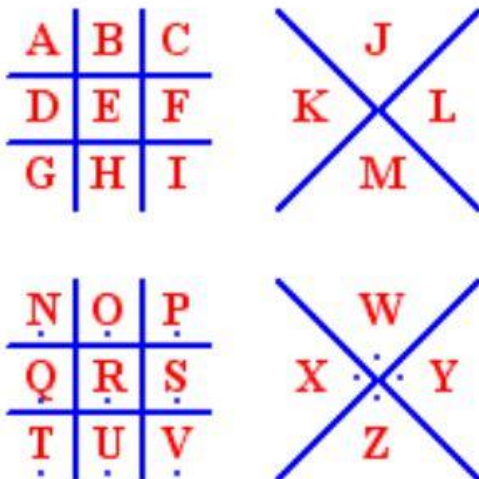
## Introduction to Ciphers

### I. Pigpen Cipher

Here is the picture for the pigpen cipher. We will start by figuring out what symbol corresponds to each letter.

*Example: What do  you think means?*

Answer: \_\_\_\_\_



1. Decode the following messages that were written using the

Pigpen cipher:

(a)

⌈┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋  
⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋

(b)

⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋  
⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋ ⌋┘└┘⌋

2. Encode the following messages using the Pigpen cipher:

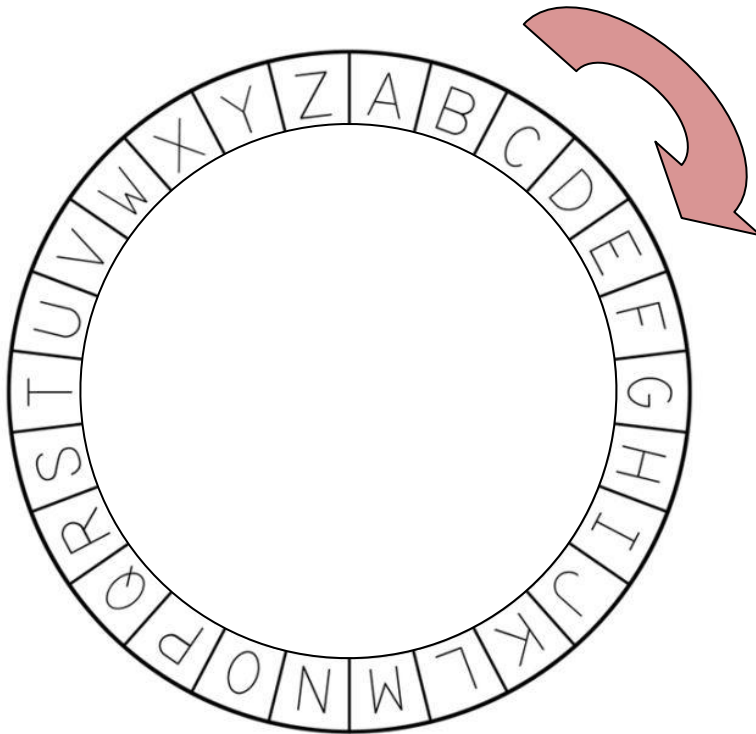
(a) G O O D A F T E R N O O N

(b) S M E L L Y C A T

(c) H A P P I N E S S

## II. Caesar Cipher/Shift Cipher

To encode a message in Caesar Cipher, “shift” a letter clockwise by a given number of spots.



*Example: Encrypt the letter L with a shift of 5. What is the encrypted letter?*

*Answer:* \_\_\_\_\_

1. Let's shift by 5. Encrypt the following letters:

- L

- X

- B

2. Let's shift by 3. Encrypt the following letters:

- L

- X

- B

3. Encrypt the word "COOKIE" with a shift of 2. (*Hint: the shift is the same for each letter*).

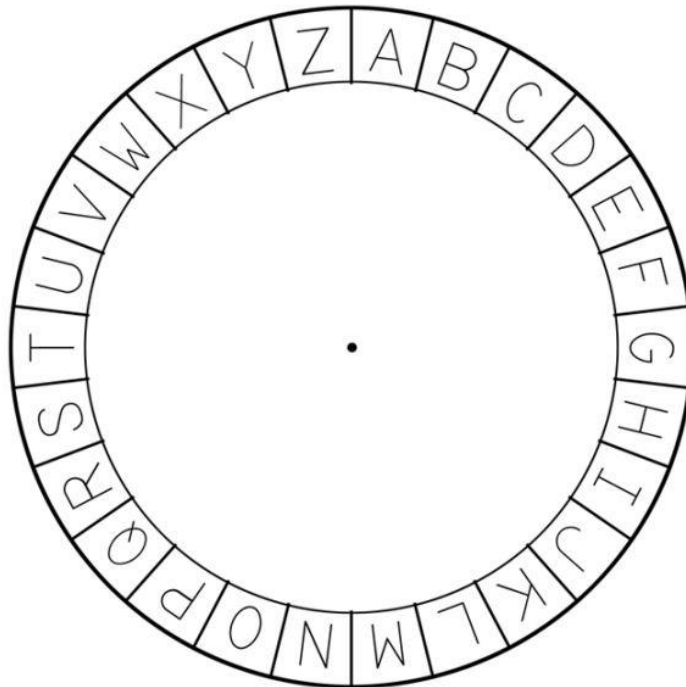
4. Encrypt the word "BAGEL" with a shift of 3.

5. Let's shift by 3. Decode the word "JODVV". (*Hint: If you encrypt the word by going clockwise 3 spaces, what direction should you go to decode the message?*)

6. Let's shift by 2. Decode the word "UEKGPEG".



7. There is a shift that exists such that decoding the letter “A” gives the same result as encrypting the letter “A”. What is this shift? What is the letter that results?



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Homework Week 1: Introduction to Ciphers

1. Finish the parts of the packet that you haven't finished.
2. Write your own message. Encode the message using the Caesar cipher with a shift of 3.

3. Mary tried to write a word in Pigpen cipher, but she made a mistake. Can you circle which letter is wrong and fix it? What is the correct word in English?

*(Hint: try to translate the coded message first.)*

