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) 
\[
\begin{array}{c}
\text{M} \quad \text{E} \\
\text{E} \quad \text{E} \\
\text{E} \quad \text{E} \\
\text{M} \quad \text{E}
\end{array}
\]

(b) 
\[
\begin{array}{c}
\text{O} \quad \text{K} \quad \text{O} \quad \text{L} \\
\text{K} \quad \text{O} \quad \text{L} \quad \text{K} \\
\text{O} \quad \text{K} \quad \text{O} \quad \text{L}
\end{array}
\]
2. Encode the following messages using the Pigpen cipher:

(a) GOOD AFTERNOON

(b) SMELLY CAT

(c) HAPINESS
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?
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.*)