

# Lesson Plan for Activity Encoding/Decoding Messages

**Subject:** Encoding/Decoding Messages

**Concept or Skill Focus:** Using cyphers to communicate

**Goal:** To learn how to encode and decode messages with cyphers

**Length of Lesson:** 45 minutes

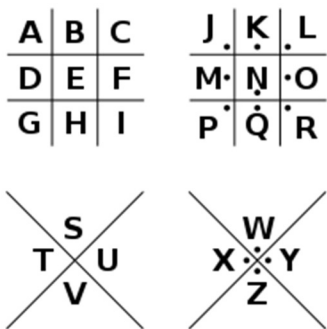
**Objectives/Outcomes:**

- Students will learn about encryption and different ways to encrypt their own messages.

**Materials**

- Paper
- Pencils / Pens
- Cypher Wheels
- Scissors
- Brad metal paper fasteners

**Cypher Examples:**



Pig Pen Cipher

	1	2	3	4	5	6
1	A	B	C	D	E	F
2	G	H	I	J	K	L
3	M	N	O	P	Q	R
4	S	T	U	V	W	X
5	Y	Z	0	1	2	3
6	4	5	6	7	8	9

Number Grid Cypher

**Activities and Time Line (Introduction, Middle, Conclusion)**

1. Introduction

- Talk about what encryption is, and how it is used in the world to help protect secret data. Explain how encryption works: someone can encode a message using a specific key or code, and only someone with the code that matches up can decode the message. Give some simple examples of codes that could be used: Pig Pen Cypher, Alpha-Numeric Cypher, Number-Grid Cypher, etc.*

2. Let students encrypt their own messages using the cyphers shown.

3. Exchange papers with other students and try to decrypt each other's messages

### Pigpen Decryption Key

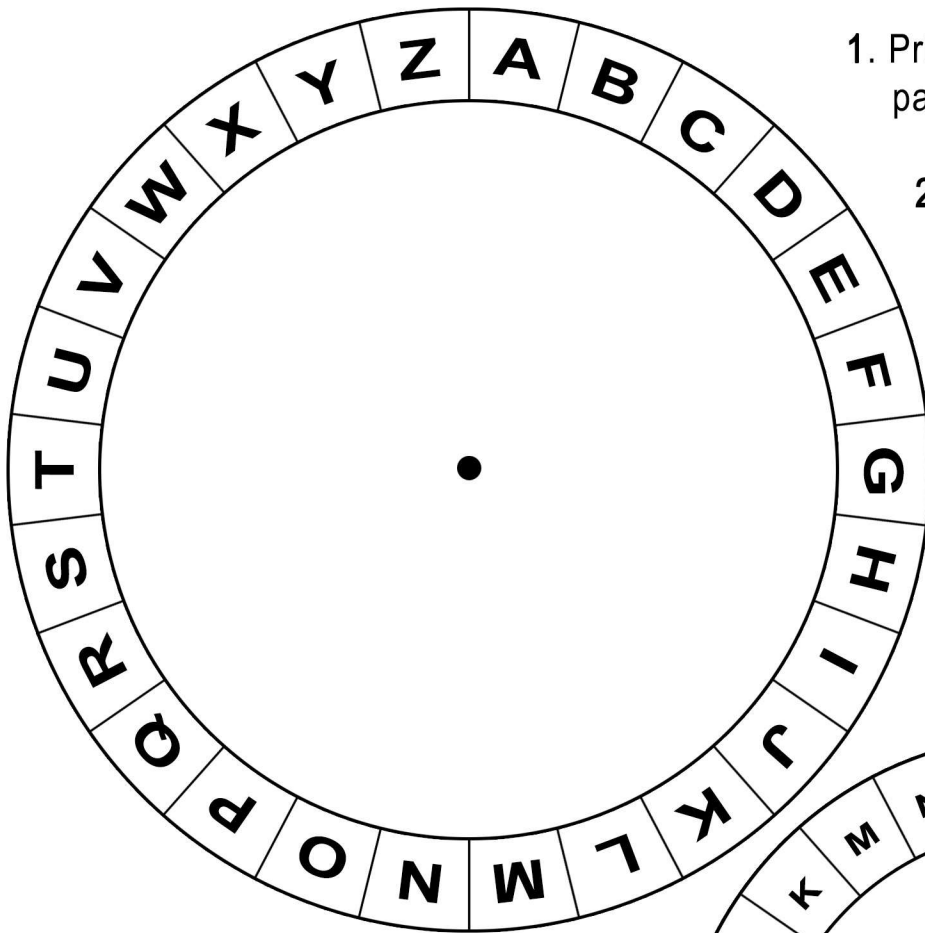
A	B	C	J.	K.	L.
D	E	F	M.	N.	O.
G	H	I	P.	Q.	R.
<del>S</del>			<del>W</del>		
<del>T</del>		<del>U</del>		<del>X.</del>	
<del>V</del>		<del>Y</del>		<del>Z</del>	

### Morse Code Decryption Key

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

# Decoder Wheel Activity: Random Alphabet Version

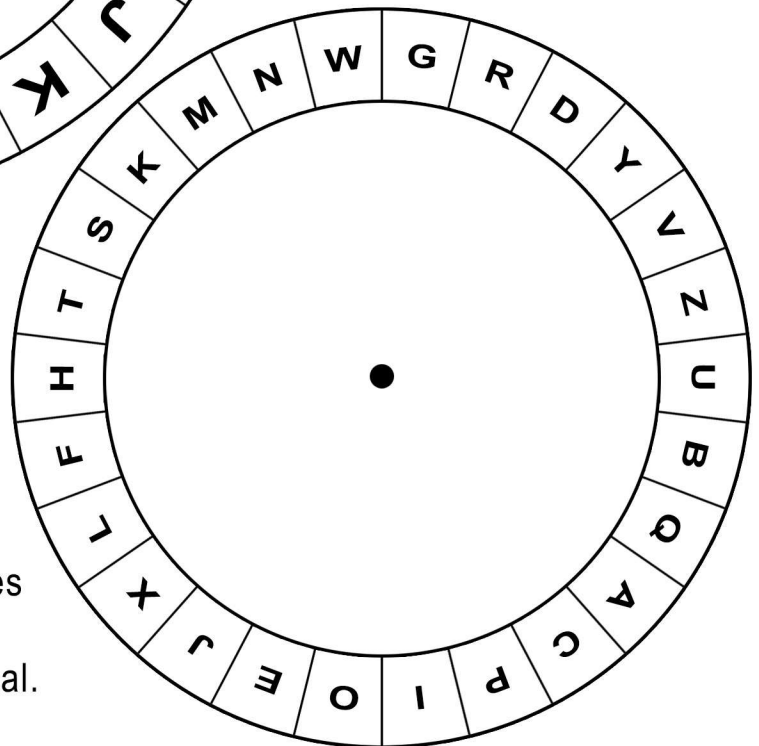
Create and decipher secret codes with your friends!



1. Print this page on heavy stock paper (& another for a friend)!
2. Cut out the two circles.
3. Center the small circle on top of the larger circle & secure through the center with a paper fastener or small nut & bolt.

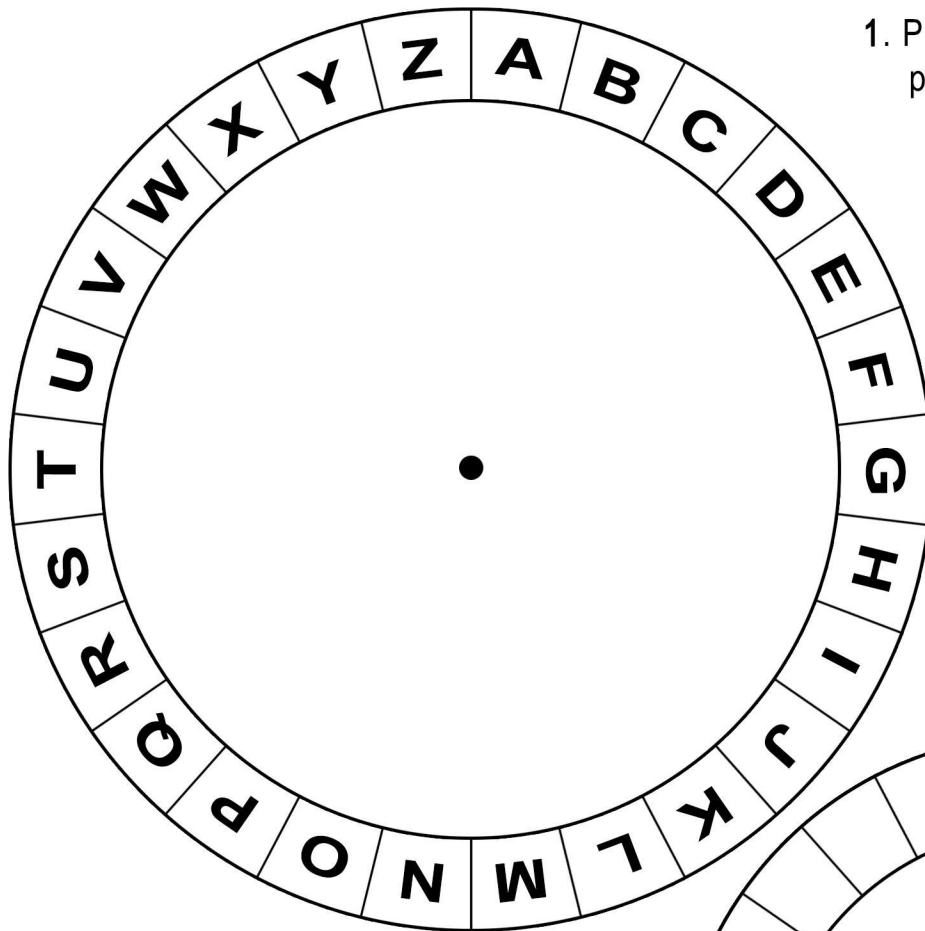
## How it Works

Select a key combination by lining up any letter on the larger dial with a letter of your choice on the inner dial. Tell your friend which two letters you lined up & once their dial is set to match you can write & decipher messages by using the letters on the inner dial in place of the real letters on the outer dial. (more detailed instructions in the post)

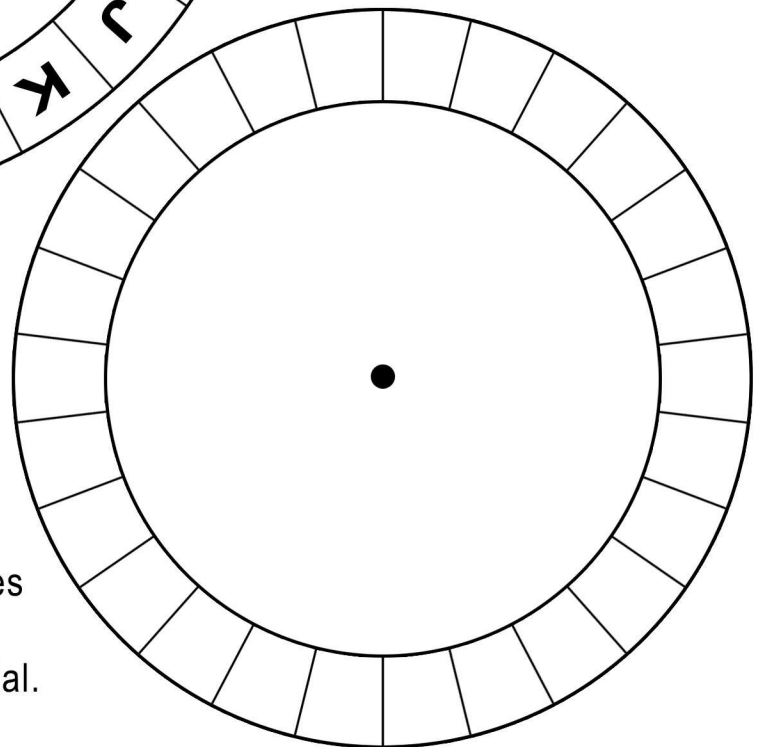


# Decoder Wheel Activity: Custom Code Version

Create and decipher secret codes with your friends!



1. Print this page on heavy stock paper (& another for a friend)!
2. Create matching symbols or letters in the blanks of each of your small wheels.
3. Cut out the two circles.
4. Center the small circle on top of the larger circle & secure through the center with a paper fastener or small nut & bolt.



## How it Works

Select a key combination by lining up any letter on the larger dial with a symbol of your choice on the inner dial. Tell your friend which two you lined up & once their dial is set to match you can write & decipher messages by using the symbols on the inner dial in place of the real letters on the outer dial. (more detailed instructions in the post)