



Rule
Book

Overview

Pass Words is an educational Print and Play (PnP) party game designed to help teach the fundamentals and act as a jumping off point for cryptography and encryption. The game is made to be played in classrooms with a teacher acting as Game Master who oversees the play and rules.

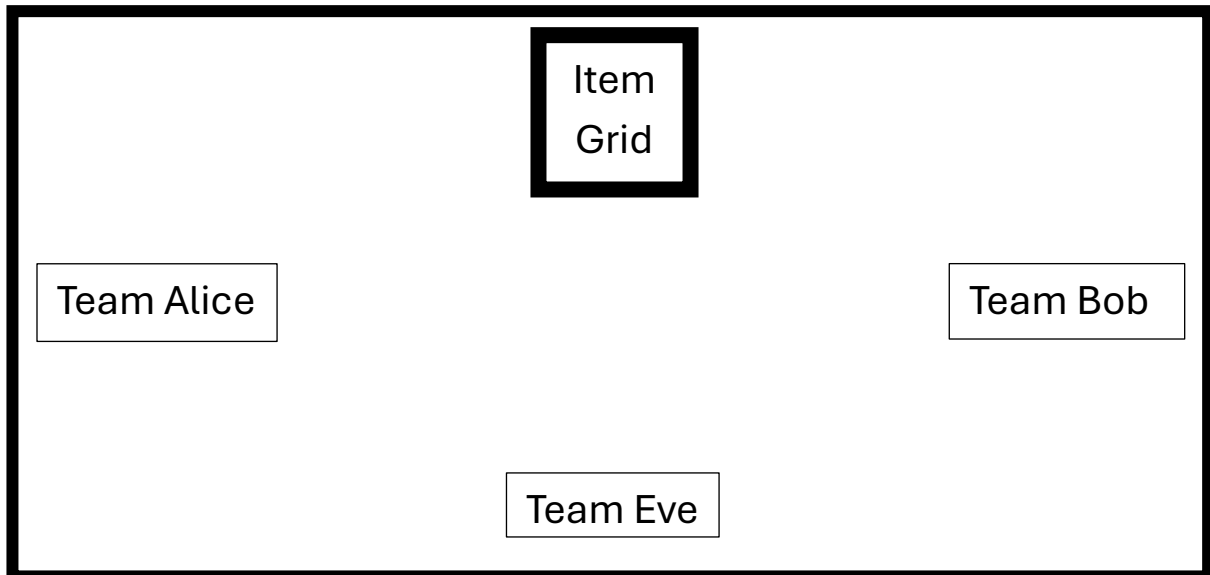
While the game is designed for this environment, there are optional rules to play without a Game Master for groups outside of a classroom for a more casual yet educational experience. Other optional rules are included (see **Optional Rules** below) once players have become accustomed to the rules

Pass Words works best in groups where the players know one another and are looking for a fun and casual game.

Set Up

First read, print and assemble the **Print and Play** document as instructed and gather 36 distinct knick-knacks to use as game pieces (See **Item Examples** below) or use the optional printable item tokens.

Select a Game Master and then split the rest of the players into the 3 teams and arrange the play space as such.



Each team will need to be separated so they can whisper without the other teams hearing.

The Game Master should arrange the knick-knack game pieces on the Item Grid so that each item has its own square (and number) on the grid and place the dice next to the grid. A score sheet should be set up with every player having their own score.

Give each player a pen and give each Team a stack paper to use.

From here the Game Master will run the game and read the rest of the rules.

Overview

Team Alice will attempt to pass along an encrypted message to Team Bob to signal a random item from the grid. Team Eve will try to intercept this message. The goal of Team Alice is to encrypt the message such that

Team Bob can understand it, but Team Eve cannot. In between rounds, the Game Master can teach different techniques to help stimulate creativity and learning.

Learning Objectives

As the game continues players will come up with strategies to encode information so that it cannot be intercepted by Team Eve.

- **Understand** and **apply** common hand encryption methods (Caesar, Pigpen)
- **Create** or **Modify** methods to encode messages utilizing prior knowledge (Languages, inside knowledge, references, Steganography)

Throughout the game Team Eve will begin to spot weaknesses in different methods and be able to make more educated guesses even at a disadvantage.

- **Evaluate** and **analyse** different encoding methods and their weaknesses (Lack of Padding, Character Frequency)

Members of Team Bob will learn the advantages of being able to pass along information as players move from Team Alice to Team Bob between Rounds.

Learning tip: If players are not passing along information in play after a couple of rounds, the Game Master should mention this as a strategy between rounds (See the **Teaching between Rounds** Section below)

- **Recognise** and **apply** how a secret 'key' can be used to encrypt data from interceptors

Once players have some experience, Team Eve may feel they are at a disadvantage. At this point the Game Master should teach the context section rounds (See **Context and Further Learning** below)

- **Illustrate** how and why modern encryption is secure

Step By Step

Step 1 – A player from Team Alice will come up to the Item grid and roll a die privately for themselves and the Game Master. This roll will determine the column on the item grid. Repeat for a second roll for a row of the Item grid. The item corresponding to the row and column is selected as Team Alice's Secret Item. Make sure both the Game Master and player know the selected item.

Step 2 – The Player returns to Team Alice and tells their team what their secret item is. A 2-minute timer is started, and Team Alice must write a clue to hint at which of the 36 items is the selected secret item.

Step 3 – After the time is up, the Game Master takes the clue to Team Eve, and a 1-minute timer is started. In this time, they may make a copy of the clue but are not allowed to alter the original. They may discuss and begin deciphering the clue.

Step 4 – After the timer is up, the Game Master takes the original clue to Team Bob, and a 2-minute timer is started. In this time Team Eve and Bob must decipher

Team Alice's clue. In this time, any member of Team Eve or Bob may go and look at the item grid.

Step 5 – After the timer is up, Team Eve must submit a guess to the Game Master in written form with both a name and the number of the item and then a member of Team Bob can come up to the Item Grid and announce their guess. If Team Bob's guess is correct, and Team Eve's guess is incorrect, all members of Team Alice and Bob gain a point. If Team Eve intercepts and guesses correctly, only members of Team Eve gain a point even if Team Bob is correct. If both guesses are incorrect members of Team Eve are still awarded a point.

Learning Tip: The Game Master can ask a player with a correct guess or a member of Team Alice what their thinking was with their clue. This can help disseminate learning between students.

Step 6 – Each player will move one space such that one player from Team Alice moves to Team Bob, one from Team Bob to Team Eve and one from Team Eve to Alice.

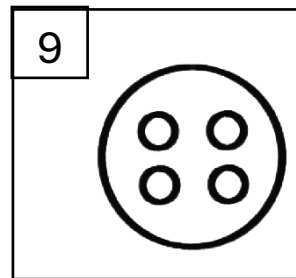
From here, the Game Master can explain some strategies (see **Teaching between Rounds** below) if players are struggling and repeat from step 1 to play another round.

Goal – If players are still learning keep playing, Pass Words doesn't have any strict ending but if you would like a distinct winner, play first to 6 points for a game to last approximately 1 hour.

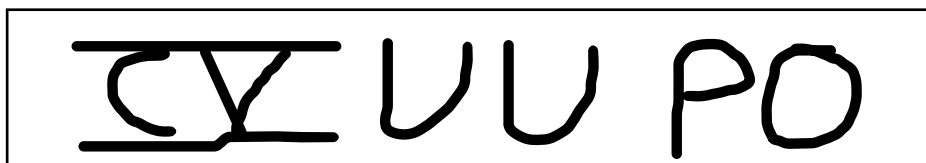
Play Example

If players are struggling with the rules or game, follow this example.

A player from Team Alice comes up to the game board and rolls a 3 and then a 2. This corresponds to space 9 on the grid which contains a Button.

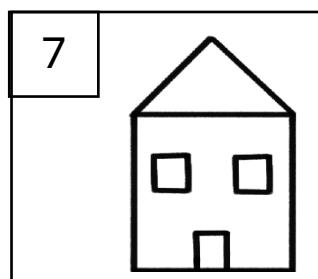


When they return to their team, a 2-minute timer is started. They come up with this clue.



Team Eve sees this clue for one minute and makes a copy until the messages is passed to Team Bob

Then both Team Eve and Bob have 2 minutes to look at the item grid and make a guess. Team Bob spots that CV translates to 105 from roman numerals and then a Caesar shift of -1 converts CV UU PO to BUTTON. Team Eve doesn't solve this and guesses the House on space 7 as it has 5 letters.



So, members of Team Alice and Bob gain a point while Team Eve do not.

Rule-Breaking

Pass Words is designed to reward out of the box thinking. As such, players finding ways to win that may feel like a breaking of the rules are allowed. This includes:

- Using tools on the internet to translate and encode/decode messages (other languages, Morse code, ASCII)
- Communication during the decryption part of the round if it is public (sign language, extra hints, clues)
- Trading information between rounds as players move between teams (private keys, strategies)

Unless a strategy is dominating every round of play, outside the box thinking should be rewarded but feel free to ban a strategy as the Game Master after its use to keep gameplay fresh.

Teaching Between Rounds

Between rounds it can be useful to explain the strategies players are using to help those struggling with the game. This can be done by getting winning players to explain their ideas and methods or by introducing the ideas as the Game Master. Simple encryption methods like Pig Pen and Caesar Shift are useful for beginners, but this can be tailored to fit the skill of the players.

Context and Further Learning

After the game it can be helpful to explain how modern computer encryption means that encrypted data is very secure. While this game doesn't cover computer encryption and its methods, introducing context can be a great way to branch from this game into more learning about encryption and data protection.

Item Examples

Here is a list of examples of items to use:

- Pebble
- Paper Clip
- Wooden Block
- Shapes
- Cork
- Keys
- Die
- Toy Blocks
- Pen
- Rubber band
- Domino
- Chip
- Hair tie
- Figurine
- Game pieces (Chess)
- Letter Blocks
- Battery
- Magnet
- Compass
- Glue stick

Feel free to add items that are alike to one another, as long as they have one unique trait like 2 different coloured pens. This can increase the difficulty for Team Alice and Bob as players need to communicate more information.

Optional Rules

1. Team Chuck – A second team of interceptors can be added with the same rules as Team Eve to make space for more players.
2. Restrictions – A winning player can suggest a restriction to play for next round. No letters, No drawings, No talking etc. Rules like these can really push players to think outside the box and come up with new methods of play. Either let these restrictions last one round or stack up for an extra challenge.
3. No Game Master – Write down the selected hidden item each round and keep it hidden from the rest of the players. This rule is designed for groups already with experience of the game.