



Try This at Home: Codemaking and Encryption

In today's digital-dependent world, information is constantly moving through cyberspace. Secret data and personal information can be at risk as hackers try to break into private computer networks. Computer experts use codes and encryption to protect sensitive data and to thwart cyberspies. Only those who are supposed to have access to the data know the key to unlock the codes. You can use codes, too, to send a secret message to a friend. Here are four fun ways to encode your words. Be sure your friend knows the key to unlock the message. As a bonus, we've included a fun way to define an easy-to-remember secure digital password.

Nautical Alphabet Flags

Sailors and sea captains all over the world understand the meaning of these flags. Strung together, the flags can spell words like the name of the boat. Individually, most of the flags have special meanings. For example, the flag for the letter "O" also means "Man overboard!"



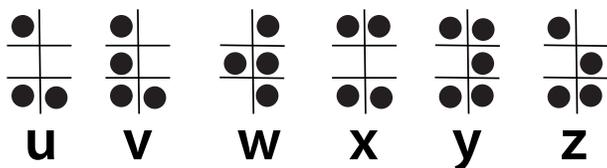
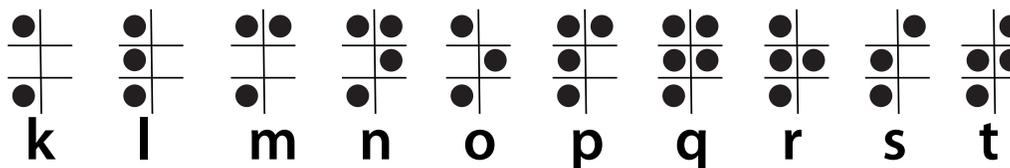
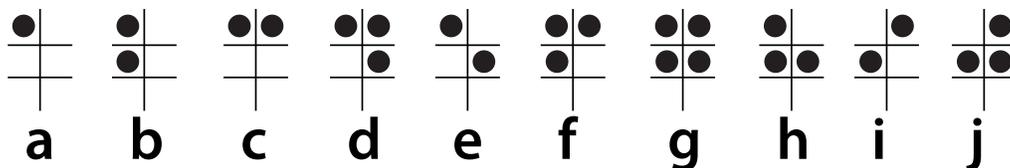
Use the key below to draw your name in the boxes provided.

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Braille

Braille is a special alphabet developed to allow blind people to read. Usually, Braille is “printed” as raised dots on the paper. The reader feels the dots with his fingertips and reads each letter by touch. Each letter is represented by a pattern of dots in a 2-by-3 matrix. You can write a word in the style of Braille using pencil and paper. How could you make your own touchable Braille words?



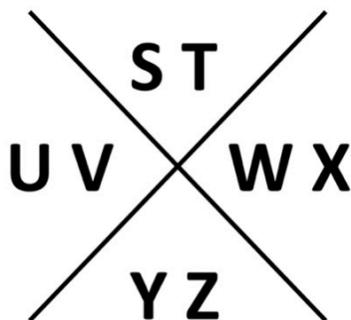
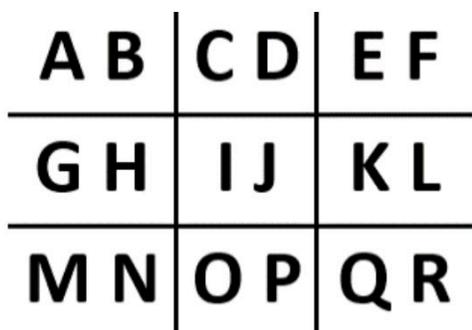
Write your name in Braille:



Pigpens

Pigpen code was developed a long time ago as a way for members in the same club to keep their club's records private. It starts with two "keys," special designs that include all the letters of the alphabet. The keys determine a symbol for each letter of the alphabet. Your friend must have the same keys in order to decode your pigpen message.

KEYS:

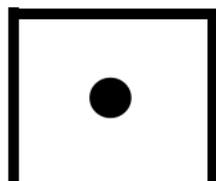


The code symbol for each letter is determined by the border around the letter in the key design. If the letter is the second one in the space of the key, add a dot to the code. For example:

A =



P =



T =



Can you decode this message?



Very good job!

Write your name in Pigpen code here:

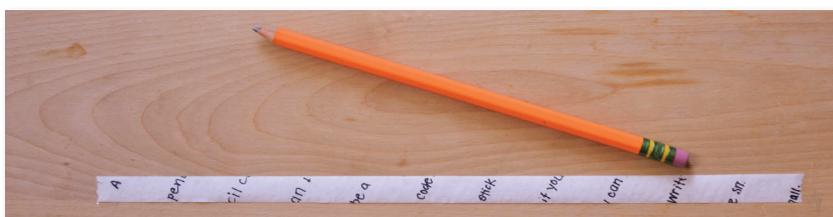
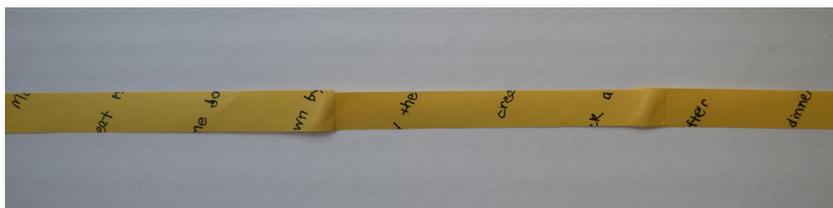


Code Sticks

To make a code stick, wrap a long strip of paper around a stick. Write your message all the way down the paper while it is wrapped around the stick. Unwrap the paper. Your message will look like nonsense unless the paper is wrapped around the stick. Be sure your friend has the same size stick in order to decode your message!

A broom handle makes a good code stick.

You can use a pencil as a code stick if you can write very small.



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Make a Secure Password

Just about every digital system requires a password for access. We need to create passwords for social media, email, games, online shopping and banking sites, mobile apps, and more. The most secure passwords are complex and secret so only the owner can figure them out. Often, a system requires a mix of upper- and lowercase letters, numbers, and special characters in the password. But it can be hard to devise a secure password that is also easy to remember. Here is a fun and effective technique for creating a strong password.



1. Determine the minimum and maximum number characters and the types of characters required in your password.
2. Write a sentence that makes sense to you using the required elements.
3. Use the first character of each word in the sentence to build your password.

For example: A system requires a password with a minimum of 6 characters, both upper- and lowercase letters, and numbers. Claire plays softball on the Lakers and wears number 4. It is easy for her to remember that “Claire wears number 4 on the Lakers”. Her password is:

Cwn4otL (from the sentence, “Claire wears number 4 on the Lakers”)

Another example: A different system requires an 8-character password, including at least one special character. Bill has two cats. He will always remember their names, Muffin and Maggie. Bill’s password is:

M2canM&M (from the sentence, “My 2 cats are named Muffin & Maggie”)

Try it yourself!

Write a sentence in the space below. You could write about a toy, your favorite teacher, a good book, your best friend. It doesn’t even have to make sense! As long as it’s easy for you to remember.

Circle the first character of each word/number in your sentence. Write your new password here:

To be super secure, don’t use your birthday, street address, telephone number, or social security number in your password. And don’t write your real passwords near your computer or in your phone.