

Flashlight Morse Code

Description

Use light to communicate a special message to a friend. Grab a flashlight and head into the dark to send your secret in Morse code.

Instructions

1. With your friend, learn how to use the Morse code alphabet with light.
 - a. It is made up of dots and dashes.
 - b. When using light, dots are transmitted by a quick flash of light.
 - c. Dashes are transmitted by a flash of light that is about three times as long as a dot flash.
 - d. After each letter, you should pause for about the length of a dash.
 - e. After each word, you should pause about the length of two dashes.
 2. Practice using Morse code with light by making simple words. It can be tricky!
 3. When you are ready, sit across from your friend in a dark room or yard. Make sure that each of you has a paper, pencil, flashlight, and the Morse code alphabet.
 4. Try sending a question to your friend using flashlight Morse code.
 5. As you transmit each letter, your friend should write it down on the paper so they can read your message.
 6. When you are finished, wait for your friend to respond.
 7. As they transmit each letter to you, write it down on the paper, just as they did. Once all the letters are sent, you'll be able to read your friend's response.
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Materials Needed

- Two flashlights
- A friend
- Morse code alphabet for each friend
- Paper for each friend
- A pencil for each friend
- Darkness

Why is this a great thing to do?

This activity allows children to learn that communication does not always have to be verbal. It encourages teamwork and gives them an opportunity to bond with their friends.

Expands the idea of communication.

Most people think of communication as the ability to verbally express oneself to others. Using light in place of verbal communication allows your child to see that there are other forms of communication that are as effective as speaking or writing.

Encourages teamwork.

Part of being a team player is the ability to work and communicate with others effectively. In this activity, it is important for participants to follow the guidelines of Morse code so they can understand and be understood. Performing the tasks at a rate that allows sufficient time for comprehension and being patient with each other are two key components of teamwork.

Promotes bonding between friends.

Doing special activities together is part of the fun of being with friends. By studying Morse code and using it to pass messages to each other, children are given the opportunity to deepen their friendship even further.

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Make STEM Connections

Help your child develop a more in-depth understanding of how light can be used to communicate.

Catch fireflies.

Fireflies are flying beetles that use light to communicate. They use their light with each other to find mates, and their light also serves as a warning to predators that they do not taste good. Gently catch a firefly and watch it light up. What do you think it is trying to tell you?

Tour a lighthouse.

Lighthouses are tall buildings on the coast that use light to guide ships safely near shore. Lighthouses are also used to help sailors with navigation. Most lighthouses today are run electronically, but many years ago a lightkeeper was responsible for sending short codes to ships using light. Why do you think this is important?

Check out an emergency vehicle.

Fire trucks, ambulances, and police cars are all emergency vehicles. Their purpose is to help people as soon as possible. The lights on top of the vehicles communicate with other drivers by telling them to get out of the way quickly. Take an up-close look at an emergency vehicle. What color are the lights? Why?

Next Generation Science Standards (NGSS) Correlation

1-PS4-4: Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

By sending messages through light, your child is demonstrating they are able to communicate over "long" distances (even if they're just on the other side of the room.) This activity could be extended by having your kids clap out Morse code to send messages through sound as well.

Talking Tips

"What problems did you encounter when you tried using flashlight Morse code? How can those problems be solved?"

"What is a benefit of being able to communicate with light?"

"Can you think of certain occasions when it might be handy to know how to send and receive Morse code with light?"

Tips & Extensions

It may be helpful for beginners to write out the series of dots and dashes before they start. As they begin to remember the patterns for each letter, they will better be able to translate words directly into code without this step.

If turning a flashlight on and off repeatedly is cumbersome, use a piece of cardboard or another opaque object to block the light at its source.

Morse code can also be transmitted with sound. Dots are short blips of sound, while dashes are slightly longer blips. Try using a piano or other instrument to transmit a Morse code message using sound.

Can you send a Morse code message by squeezing your friend's hand or tapping their leg? Use a quick squeeze or tap for a dot and a longer one for a dash.