



# Virtual STEAM

## Science

### Light Signal Challenge

**Goal:** I can communicate with a flashlight.

**Science Indicator:** SC.1.2.1.D Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance

#### Materials:

- 1 - Flashlight
- Morse Code Handout
- Morse Code Translator  
<https://morsecode.world/international/translator.html>
- How to use Morse Code  
<https://www.youtube.com/watch?v=KXt0LK3MMm8>



#### Book Extension:

[As Easy as Morse: Memorize the Morse Code using Fun Illustrations](#)  
by Sanyukta Bhatnagar

#### Ignite Our Future Connection:

- **Positivity** - is looking towards the good side of things, having a good attitude. Lessons include training our brains to be more positive so we can always look at the bright side of life.

#### Instructions:

1. Watch YouTube Video for background knowledge:  
<https://youtu.be/Er0IHIXVCIE>



2. On a sheet of paper, create your flashlight code that you will use to communicate with your friend by turning the flashlight on and off. You can use Morse code as an example, but make sure your friend understands how to read the code.
3. Share your code with your friend.
4. Write the message that you want your friend to translate on paper.
5. Translate that into your light signal code.





6. Without talking, turn your flashlight on and off so that your friend can write down the code.
7. Your friend then needs to translate that code back to words and read the message to you.
8. If unsuccessful, check your code to make sure it matches what you wanted to say. Check to see if your friend wrote down the code correctly and if your friend translated it correctly.
9. If successful, try a more difficult code for your friend to translate.

10. Document the challenge using video, photos, drawings, etc.
11. Have fun!

### Extension Activity:

- What improvements could you make on your own code? What worked well, what would you change?

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

