# CHALLENGE ONE
# MICRO:BIT SIMULATOR

## PLUGGED ACTIVITY

### Hour of code 7-13ᵀᴴ December, 2020
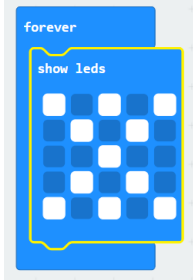
**Target Audience:** Primary aged students          **Time:** 30-60 minutes

1. Students work in pairs to build a flashing coloured Christmas symbol.
2. First investigate how LED's work though https://youtu.be/qqBmvHD5bCw
3. Go to https://makecode.microbit.org and follow these steps to code LED's.
4. From the Basic block list select 'show leds' and place it in the 'forever' block.
5. Select different LED lights to create a picture or letters to represent Christmas.
6. See if you can make your different pictures scroll through flashing on and off using more 'show led' blocks like at https://youtu.be/FoecIhNJ6Tg
7. Can you use the repeat block?   Share your creations with the class.

NOTE: Let the students try a range of different pictures. What will you create?

A tree, a star, a candy cane, a bauble, a bell, a snowflake, a present, an angel!

Why not print the words MERRY CHRISTMAS! Or HO, HO, HO

### Learn

Many things work through the use of digital systems using LED's like flashing Christmas lights. This activity starts with a simple block turning LED lights on. The students can then be challenged to develop a range of images and program the lights to turn on and off to display Christmas symbols.

### Variations

- Scroll letters instead of pictures to display a Christmas message
- Create more than one symbol and scroll through the pictures
- Build a sequence of flashing images

### Key Learnings

**Digital Systems:** Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (ACTDIK007)

**Algorithms:** Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)

**Implementation:** Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input (ACTDIP020)

**Computational Thinking:** A problem solving process to break down into small manageable chunks.