BEGINNER PROGRAMMING LESSON

EV3 Classroom:

Displaying Text and Graphics

By Sanjay and Arvind Seshan
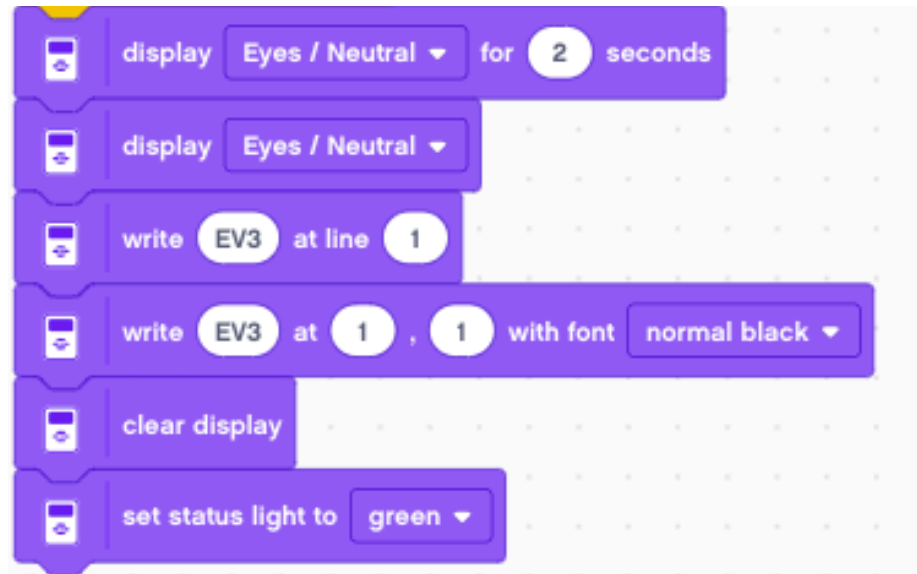
LESSON OBJECTIVES

1. Learn to use the Display Block to display text and images

2. Understand why the Display Block can be useful in programming
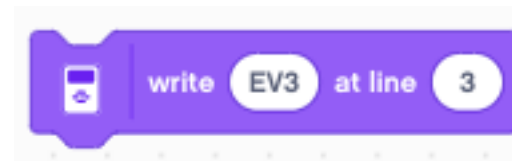
DISPLAY TAB

- The Display Block can show information and pictures on the screen

- You can control the location and size of text

- You can also change the color of the EV3 lights

- You can use this same block to display sensor readings and instructions

MORE ON DISPLAY BLOCKS

Line mode (Easier to use, only works for text mode)

- 12 lines of 10 pixels each
- Normal characters are 1 line tall
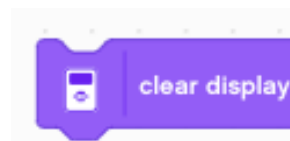- Large characters are 2 lines tall

Pixel mode (Use for displaying images or text)

- 178 pixels left and right
- 128 pixels up and down

Notes:

- Blocks will write over each other use Clear Display block to clear screen
- The two display writes shown above are equivalent

WRITE AT COORDINATES WITH FONT BLOCK

Step 1:
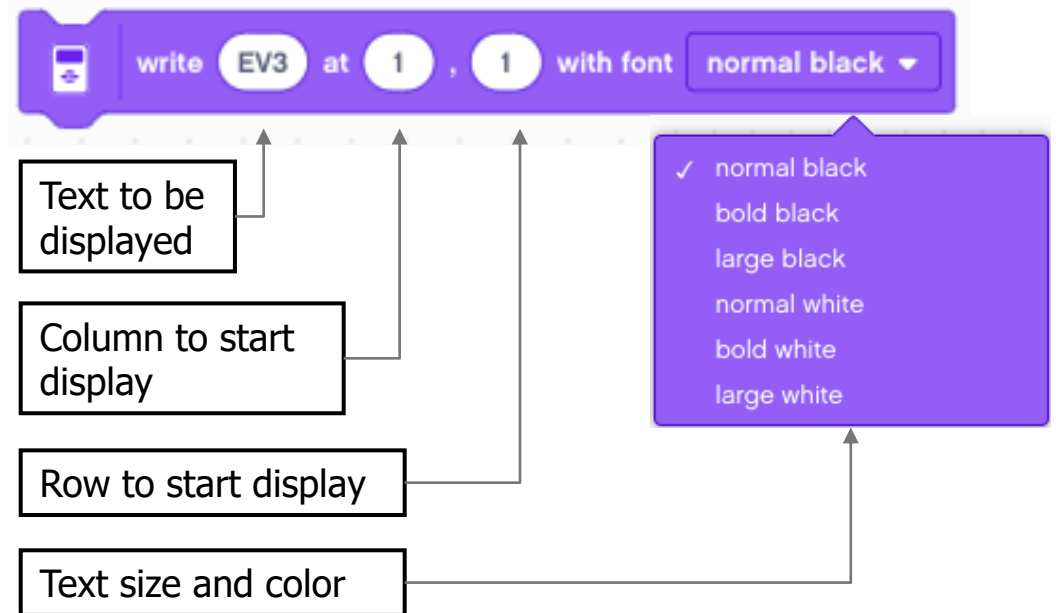Pick Display Text Block on right

Step 2:
Use the box on the left to enter the text you want to display

Step 3:
The two boxes in the middle give the x and y coordinates where the text will be drawn. The top left of the screen is (0,0).

Step 1:
Pick the font to use

write EV3 at 1 , 1 with font normal black ▾

Text to be displayed

Column to start display

Row to start display

Text size and color

✓ normal black
bold black
large black
normal white
bold white
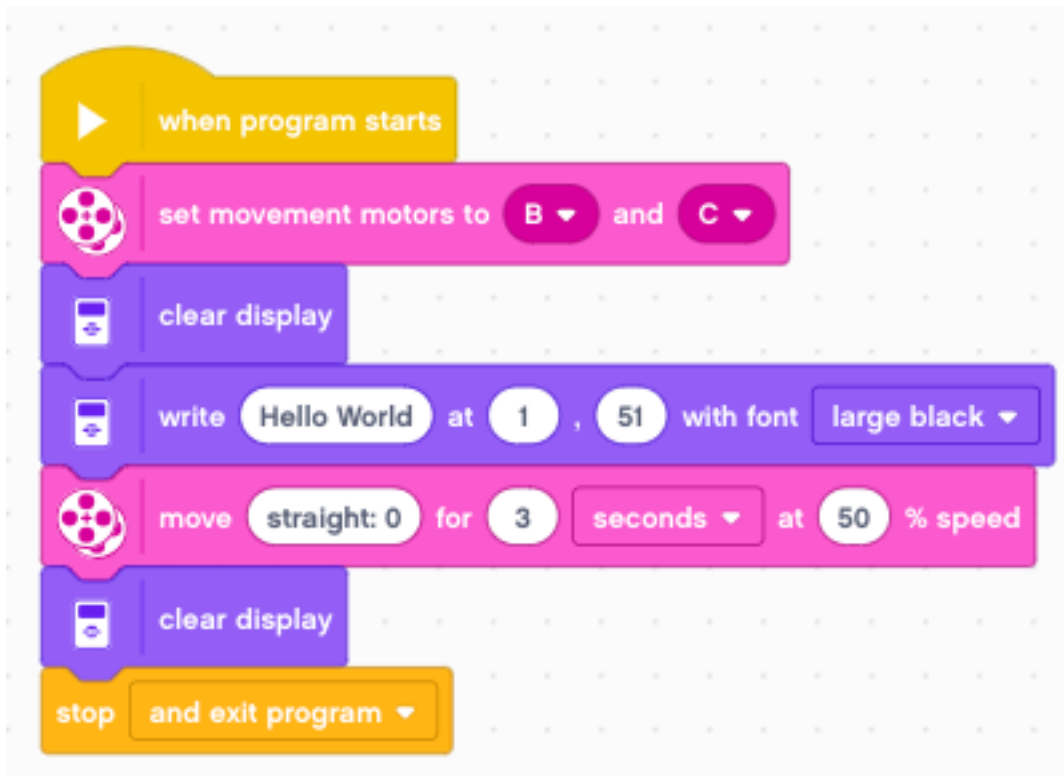large white

DISPLAY BLOCK CHALLENGE 1

Can you write a program to display text in the middle of the screen?

- Display "Hello World"

Make the display block run for 3 seconds

Can you also move while doing this?
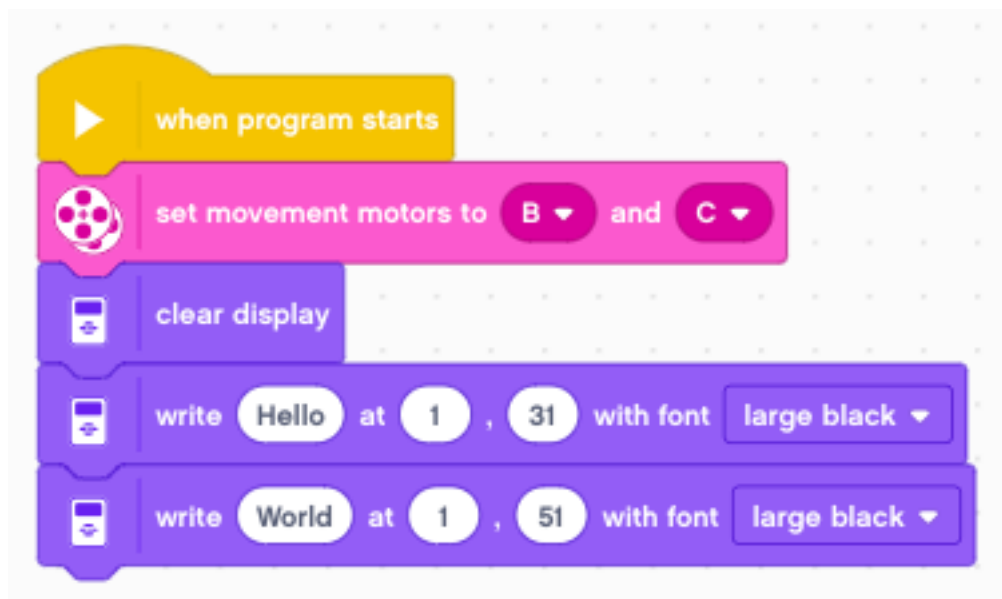
CHALLENGE 1 SOLUTION

CHALLENGE 2: TWO LINES OF TEXT

Now what if you want "Hello" to appear on one line and "World" to appear on the next line?

Hint: You will use two display blocks and don't clear the screen on the second display block otherwise the first word will disappear!
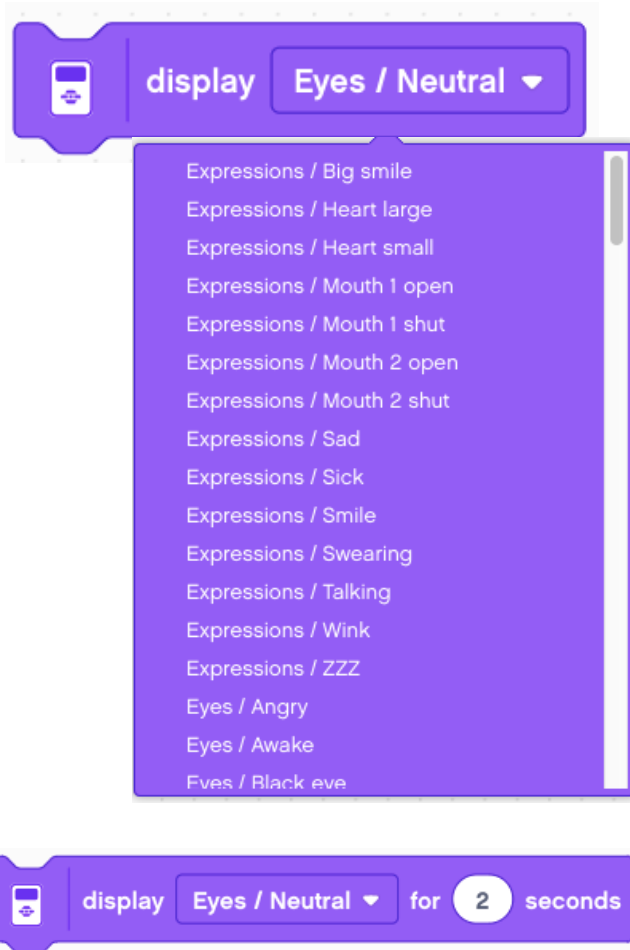
CHALLENGE 2 SOLUTION

when program starts

set movement motors to B and C

clear display

write Hello at 1 , 31 with font large black

write World at 1 , 51 with font large black

Note that we don't clear the screen after the display blocks and there is no End Program block. As a result, the message will be left on the screen.

The Large font is 20 pixels tall. Spacing the y coordinate from 31 to 51 ensure that the characters do not overwrite each other.

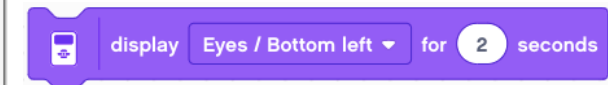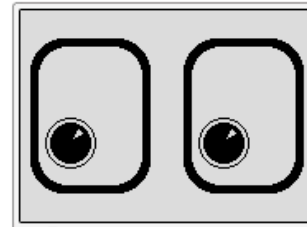# DISPLAYING AN IMAGE
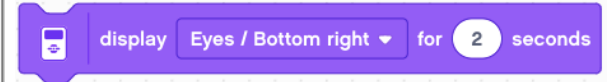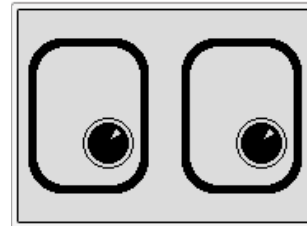

Step 1:
Pick Display Image Block

Step 2:
Use the entry box to pick the image you want to display

The Display Image for Seconds block will display the image for the requested seconds before moving to the next block.
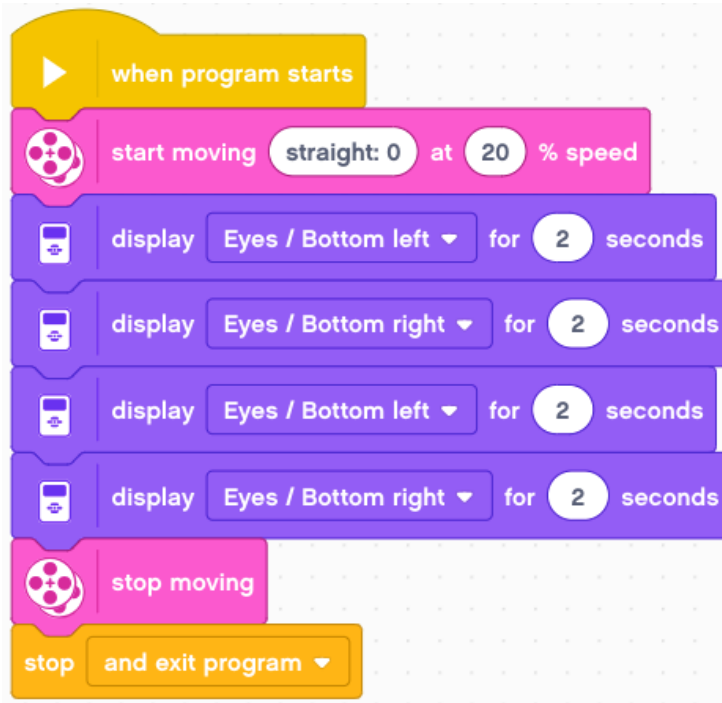
DISPLAY BLOCK CHALLENGE 3

Can you display eyes on the screen while moving? Alternate eyeballs that look left and right.

- Use the Display Image for Seconds and Motor On blocks

- Feel free to have fun with this challenge and make it yours!

display | Eyes / Bottom right ▾ | for 2 seconds

display | Eyes / Bottom left ▾ | for 2 seconds

CHALLENGE 3 SOLUTION

Motor On

Display
Blocks

Motor Off

DISCUSSION GUIDE

Why might you want to know how to use the display block?

- You might want to know what the sensor value your robot is seeing
- You might have to program a robot to stop when the robot reaches a red line but it stops before
  - Does the robot see the same thing you see?
  - You can display the value on the screen and check

It's a great debugging tool. You can learn more about debugging code in one of our Intermediate lessons.

CREDITS

- **This tutorial was created by Sanjay Seshan and Arvind**

- **More lessons are available at www.ev3lessons.com**