EV3 Classroom: Displaying Text and Graphics

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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
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

- when program starts
- set movement motors to B and C
- clear display
- write Hello World at 1, 51 with font large black
- move straight: 0 for 3 seconds at 50% speed
- clear display
- stop and exit program
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!
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!
CHALLENGE 3 SOLUTION

Motor On
- Start moving straight: 0 at 20% speed

Display Blocks
- Display Eyes / Bottom left ▼ for 2 seconds
- Display Eyes / Bottom right ▼ for 2 seconds
- Display Eyes / Bottom left ▼ for 2 seconds
- Display Eyes / Bottom right ▼ for 2 seconds

Motor Off
- Stop moving
- Stop and exit program
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

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