

UNIT 2

Go with the Electron Flow

Daily Required Materials

- Teacher/students HP Stream & projector
- BasicBoards
- Student handouts
- Student notebooks

Lesson 2.1 Introducing the BasicBoard

Additional Materials

- Investigate the structure and function of the AppBoard, BasicBoard, and a breadboard.
- Learn the process of using the HP Stream to send signals to the BasicBoard.

- Refer to daily required material

Lesson 2.2 BasicBoard Anatomy

Additional Materials

- Use a digital multimeter to make electronic measurements.
- Use the concept of electrical resistance to investigate the structure of a breadboard.
- Explain the function of a breadboard based on gathered evidence.

- Blank breadboards
- Digital multimeters
- Multimeter probes (1 black and 1 red)
- 2 sets of alligator clips
- 1 wire stripper
- Wire as needed (approximately 10 cm)

Lesson 2.3 Powering the BasicBoard

Additional Materials

- Use a digital multimeter to make electronic measurements.
- Explain how voltage measurements can be used to trace communication signals between the computer and the BasicBoard.
- Explore the precision and accuracy limits of digital multimeter measurements due to human error and mechanical uncertainty.

- Digital multimeters
- Multimeter probes (with alligator clip and wire extensions)

Lesson 2.4 Digital Pins and LEDs

Additional Materials

- Measure voltage and resistance in circuits that include LEDs and resistors
- Identify the function of resistors and LEDs
- Recognize the structure of LEDs

- Digital multimeters
- Multimeter probes (with alligator clip and wire extensions)

Lesson 2.5 Logo Programming

Additional Materials

- Measure voltage and resistance in circuits that include LEDs and resistors
- Identify the function of resistors and LEDs
- Recognize the structure of LEDs

- Refer to daily required material

Lesson 2.6 Let There Be Light!

Additional Materials

- Use diagrams as visual instructions for adding two additional LED circuits to the BasicBoard.
- Write uLogo code to turn on the two additional LEDs on the BasicBoard.

- 1 Blue LED
- 1 Green LED
- Two 330 Ω resistors
- 1 wire stripper
- Wire as needed

Lesson 2.7 Blinking LEDs

- Use the Logo words repeat and wait to create blinking light patterns
- Create and solve blinking light puzzles with fellow classmates

- Refer to daily required material

Lesson 2.8 Coded Communications

- Write a Morse Code communication program in Logo
- Test and refine a Logo program based on peer feedback
- Present your Morse Code communication device with a demonstration and explanation

- Refer to daily required material