

Breadboard

Create circuits on the **Breadboard** and observe **current flow**

Main Menu
 Slide Builder (B) Save Load Settings zView Exit Import (O) Activity Gallery (A)

Camera Navigation
 Reset View (R)
 Rotate *Counterclockwise*
 Change View
 Rotate *Clockwise*

Schematic View

Toolbar
 Move
 Draw
 Text
 Line

Inventory

- Batteries
- Wires
- Resistors
- Lights
- Motors
- Switches

Notebook

Welcome to Franklin's Lab A3!

Models' Context Menu

- ✂ Cut
- 📄 Copy
- 🗑 Delete
- 🔒 Lock in Place
- ⊕ Flip Polarity
- 🔧 Workbench
- ⚠ Break

Multimeter

V 1.50 V
 A 499.44 mA
 Ω 3.00 Ω
 W 749.15 mW

Breadboard

Nameplate
 AA Battery

Reset Scene Undo Redo Cut Copy Paste Clear All Delete
Edit Bar

Current Flow

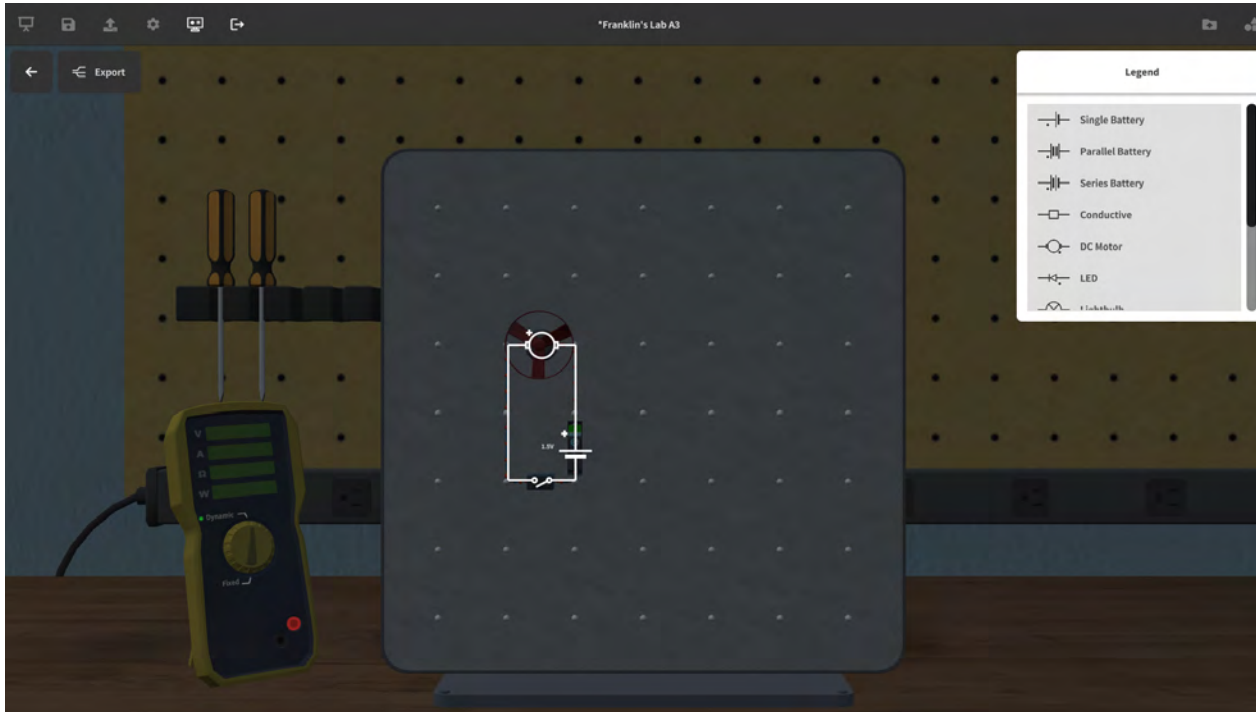
High Low

Hover over models and see readings on the **Multimeter**



Schematic View

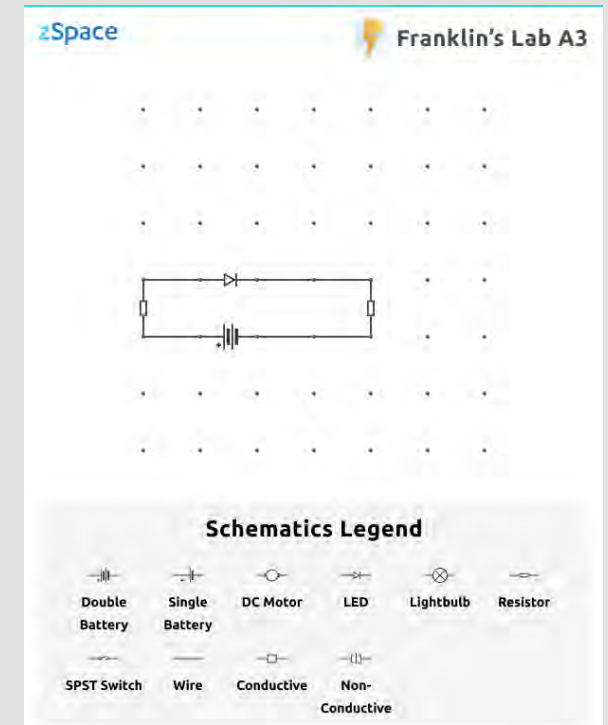
Select this button while in the Breadboard scene to see a 2D diagram, or schematic, of your circuit



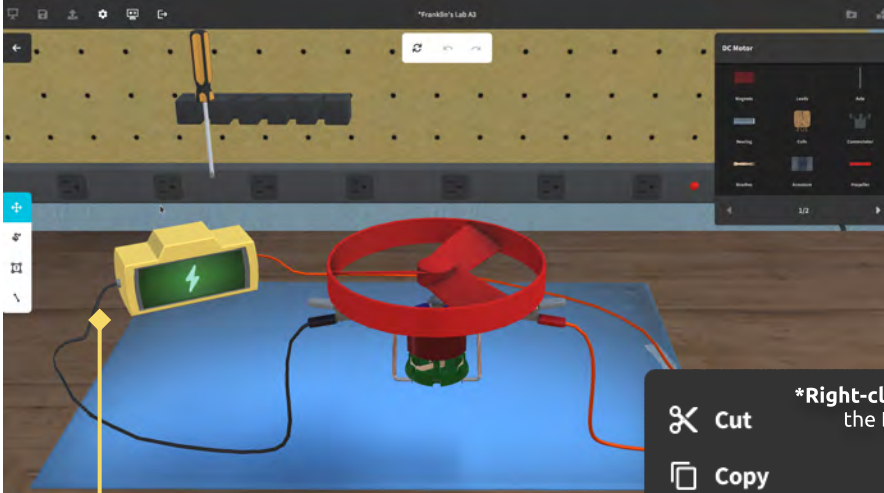
Export Schematic (as .PDF)

 **Export**

Export your schematic to print and share with others





Workbench



Select **Workbench** from the Context Menu to fix broken models








Tester

 Fixed

 Broken

Use the **Tester** in the Workbench to determine whether a model is broken or fixed

Context Menu

-  Cut
-  Copy
-  Delete
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-  Flip Polarity
-  Workbench
-  Break

**Right-click while at the Breadboard*

Breakable Models

Select **Break** from the Context Menu to break models and later take them to the Workbench

AA Battery



Break

Discharge Battery

Compress Lead

SPST Switch



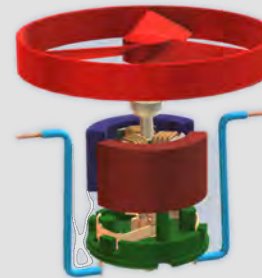
Break

Bend Contact

Bend Connection Pin

Damage Spring

DC Motor



Break

Remove Magnet

Damage Bearing

Bend Brushes

Bend Lead

Bend Coil

Franklin's Lab A3

Reference Sheet - AP129

Keyboard Shortcuts



Edit Tools

Ctrl-Z - Undo
Ctrl-Y - Redo
Ctrl-X - Cut
Ctrl-C - Copy
Ctrl-V - Paste

Multi-Select

Shift/ or Ctrl - Hold down and select models

Main Menu

A - Activity Gallery
B - Slide Builder
O - Import
Esc - Exit Application

Toolbar

M - Move
D - Draw
T - Text
L - Line

Camera Navigation

R - Reset View
(+) - Zoom In
(-) - Zoom Out

Flip through Notebook Pages / Flip through Slide Builder

Right Arrow - Next
Left Arrow - Previous

Text Formatting

Ctrl-B - Bold
Ctrl-I - Italics
Ctrl-U - Underline
Ctrl-K - Link Text

Stylus, Trackpad, and Mouse Interactions

