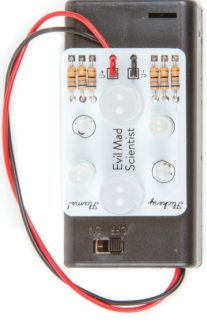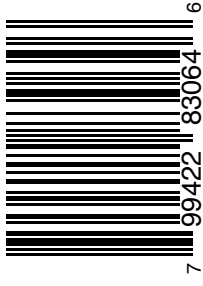# LED Flickery Flame Soldering Kit

– With Yellow and Red LEDs –

A fun and easy kit to make an elegant little flickering LED flame for your decorations, models, luminarias, props, and more. Requires soldering and 2 AA batteries.
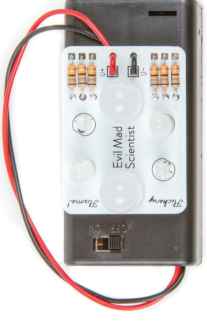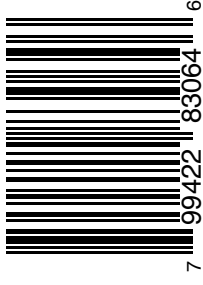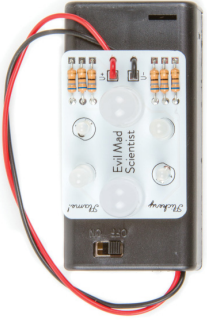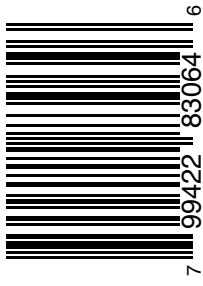
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Evil Mad Scientist
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Model 071

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Humans: contact@evilmadscientist.com

Rev A, December 2014

Another fine kit from
Evil Mad Scientist

Kit Contents:
· Flickery Flame Circuit Board
· 6 Candle Flicker LEDs (assorted yellow and red)
· 6 Resistors (68 ohm)
· 2 x AA Battery holder with cover and switch
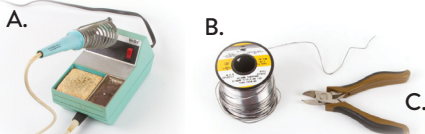· Velcro dot
· Assembly instructions

How to Build your Flickery Flame Soldering Kit!

0. Gather required tools and materials
1. One at a time, solder the six resistors in locations **R1** through **R6** on the circuit board. All six resistors are the same. Resistors do not have a fixed orientation; either lead (wire) can go in either hole. If you're new to soldering, follow along with our soldering tips (yes, pun intended) in the next section.
2. One at a time, solder the six LEDs in the locations numbered simply **1** through **6** on the circuit board. **Orientation matters:** The long lead goes in the "squared" hole in each location.
3. Pull the red wire of the battery holder up through the *unmarked hole next to* **V+**, and the black wire up through the *unmarked hole next to* **V-**. Loop the wires back down: Red to V+ and black to V-. Solder both wire ends in place, and pull the extra slack back through the unmarked holes.

4. Optional step: Affix the Velcro dot to the empty circle on the bottom of the circuit board, and to (for example) the battery box.
5. Install the batteries, and switch it on. Switch it off later, to save batteries.

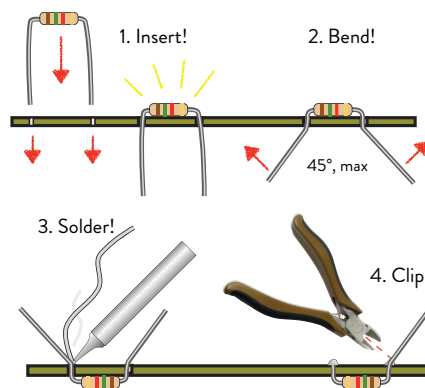### Required Tools and Materials: (not included with kit)

A. Soldering iron. Recommended: 25-50 W pencil type, e.g., Weller WLC100
B. Solder. Recommended: Rosin-core, 0.020 - 0.035" dia.
C. Small "flush" wire clippers. E.g., Sears Craftsman #45660
D. Batteries (not shown!): Two AA cells, alkaline preferred

Basics: How to Solder Components to a Circuit board

0. For resistors, pre-bend the leads as shown.
1. Insert a component at its given location. Push it down gently, flush to the board.
2. Gently bend its leads out, up to 45°, to hold it in place while you solder.
3. One at a time, from the back side, solder the leads of the component to the circuit board.

3A. The tip of your iron needs to be shiny (tinned) for soldering to work well. If it isn't, melt fresh solder against the tip and quickly swipe it clean against a wet sponge.

3B. Place the solder against the joint that you wish to connect.
3C. Touch the iron to the solder and joint for about one second. Count it out: "one thousand one."
3D. The solder should wick in and leave a shiny, wet-looking joint. If not, let cool and try again.

4. From the bottom side, clip the excess leads. Clip close to the board, but not so close that you're clipping the board itself.
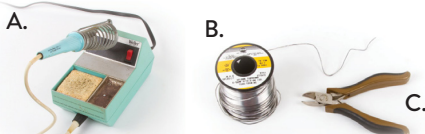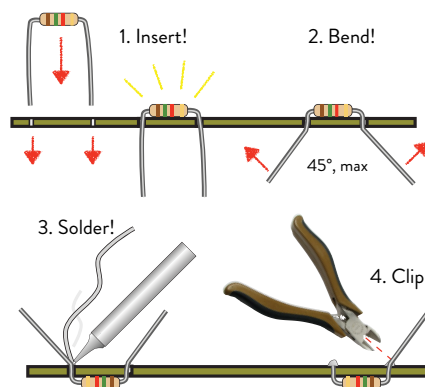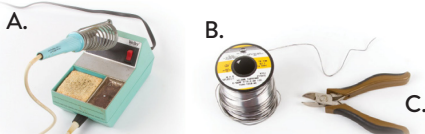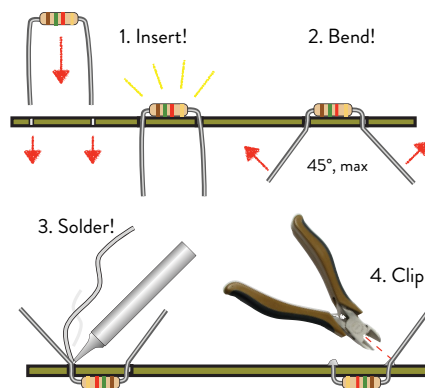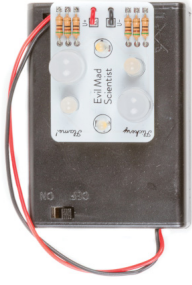

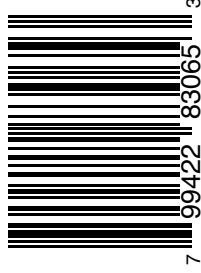1. Insert! 2. Bend! 45°, max 3. Solder! 4. Clip!

LED Flickery Flame Soldering Kit

– With White and Warm White LEDs –

A fun and easy kit to make an elegant little flickering LED flame for your decorations, models, luminarias, props, and more. Requires soldering and 3 AA batteries.
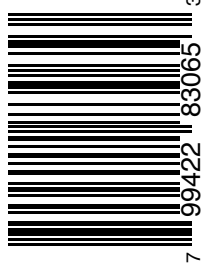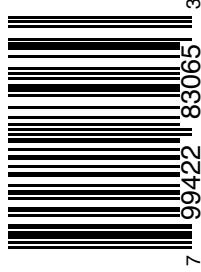
✳ Evil Mad Scientist
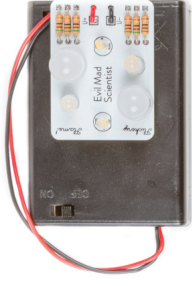
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Rev A, December 2014

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Another fine kit from

✳ Evil Mad Scientist

Kit Contents:
· Flickery Flame Circuit Board
· 6 Candle Flicker LEDs (assorted white and warm white)
· 6 Resistors (68 ohm)
· 3 x AA Battery holder with cover and switch
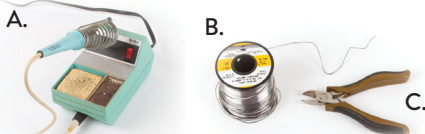· Velcro dot
· Assembly instructions

How to Build your Flickery Flame Soldering Kit!

0. Gather required tools and materials
1. One at a time, solder the six resistors in locations **R1** through **R6** on the circuit board. All six resistors are the same. Resistors do not have a fixed orientation; either lead (wire) can go in either hole. If you're new to soldering, follow along with our soldering tips (yes, pun intended) in the next section.
2. One at a time, solder the six LEDs in the locations numbered simply **1** through **6** on the circuit board.
Orientation matters: The long lead goes in the "squared" hole in each location.
3. Pull the red wire of the battery holder up through the *unmarked hole next to* **V+**, and the black wire up through the *unmarked hole next to* **V-**. Loop the wires back down: Red to V+ and black to V-. Solder both wire ends in place, and pull the extra slack back through the unmarked holes.

4. Optional step: Affix the Velcro dot to the empty circle on the bottom of the circuit board, and to (for example) the battery box.
5. Install the batteries, and switch it on. Switch it off later, to save batteries.

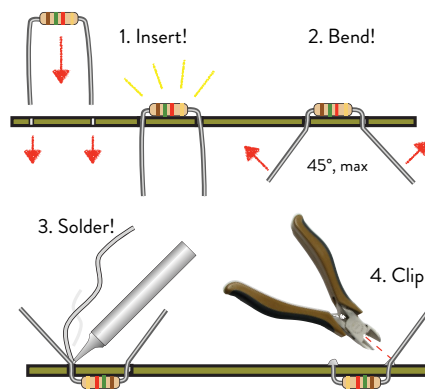### Required Tools and Materials: (not included with kit)

A. Soldering iron. Recommended: 25-50 W pencil type, e.g., Weller WLC100
B. Solder. Recommended: Rosin-core, 0.020 - 0.035" dia.
C. Small "flush" wire clippers. E.g., Sears Craftsman #45660
D. Batteries (not shown!): Three AA cells, alkaline preferred

Basics: How to Solder Components to a Circuit board

0. For resistors, pre-bend the leads as shown.
1. Insert a component at its given location. Push it down gently, flush to the board.
2. Gently bend its leads out, up to 45°, to hold it in place while you solder.
3. One at a time, from the back side, solder the leads of the component to the circuit board.

> **3A.** The tip of your iron needs to be shiny (tinned) for soldering to work well. If it isn't, melt fresh solder against the tip and quickly swipe it clean against a wet sponge.

3B. Place the solder against the joint that you wish to connect.
3C. Touch the iron to the solder and joint for about one second. Count it out: "one thousand one."
3D. The solder should wick in and leave a shiny, wet-looking joint. If not, let cool and try again.

4. From the bottom side, clip the excess leads. Clip close to the board, but not so close that you're clipping the board itself.
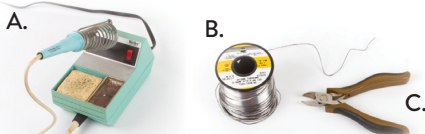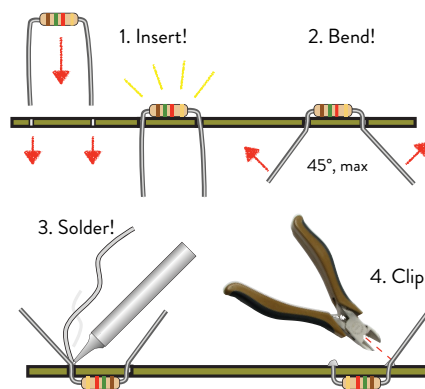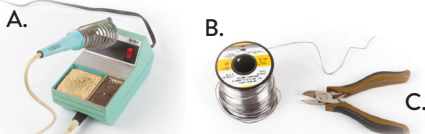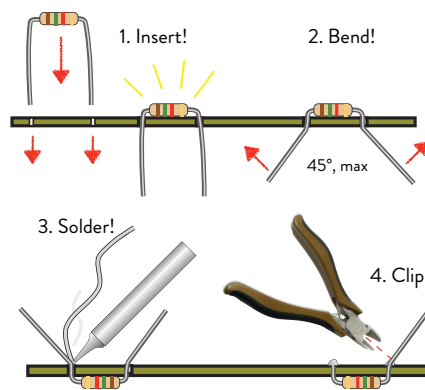

1. Insert! 2. Bend! 45°, max
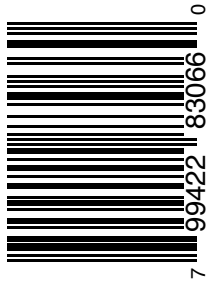3. Solder! 4. Clip!

Psychedelic Flame LED Soldering Kit

– With 6 Color-Changing & Flashing RGB LEDs –

A fun and easy kit to make a colorful blinking, fading, and flashing LED light show for your raves, models, luminarias, props, and more. Requires soldering and 3 AA batteries.

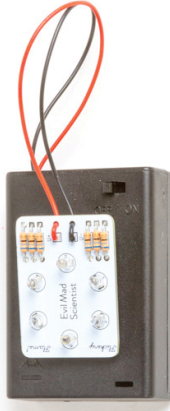## Evil Mad Scientist

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Model 073

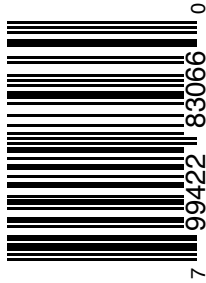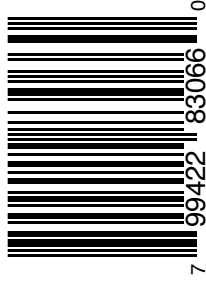7 99422 83066 0

Another fine kit from

Evil Mad Scientist

Kit Contents:
· Flickery Flame Circuit Board
· 6 RGB LEDs with built in fading/blinking circuit
· 6 Resistors (68 ohm)
· 3 x AA Battery holder with cover and switch
· Velcro dot
· Assembly instructions

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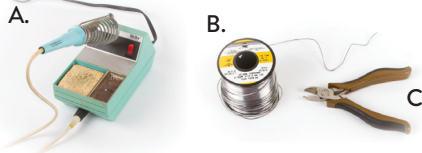
How to Build your Psychedelic Flame Soldering Kit!

0. Gather required tools and materials
1. One at a time, solder the six resistors in locations **R1** through **R6** on the circuit board. All six resistors are the same. Resistors do not have a fixed orientation; either lead (wire) can go in either hole. If you're new to soldering, follow along with our soldering tips (yes, pun intended) in the next section.
2. One at a time, solder the six LEDs in the locations numbered simply **1** through **6** on the circuit board.
Orientation matters for LEDs: The long lead goes in the "squared" hole in each location.
3. Pull the red wire of the battery holder up through the *unmarked hole next to* **V+**, and the black wire up through the *unmarked hole next to* **V-**. Loop the wires back down: Red to V+ and black to V-. Solder both wire ends in place, and pull the extra slack back through the unmarked holes.

4. Optional step: Affix the Velcro dot to the empty circle on the bottom of the circuit board, and to (for example) the battery box.
5. Install the batteries, and switch it on. Switch it off later, to save batteries.

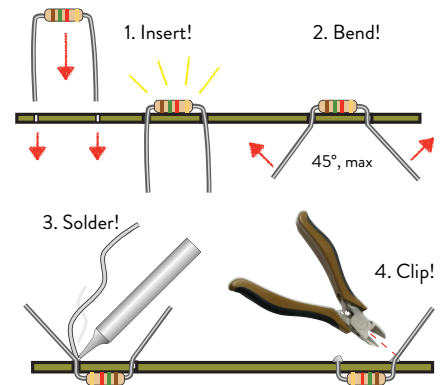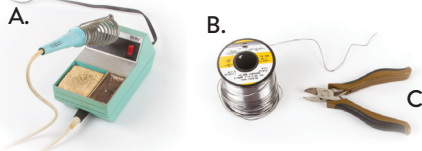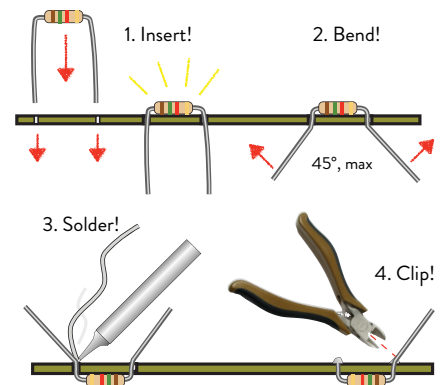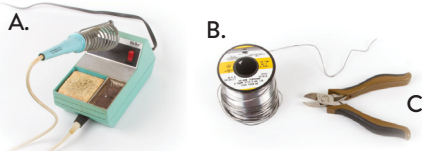### Basics: How to Solder Components to a Circuit board

0. For resistors, pre-bend the leads as shown.
1. Insert a component at its given location. Push it down gently, flush to the board.
2. Gently bend its leads out, up to 45°, to hold it in place while you solder.
3. One at a time, from the back side, solder the leads of the component to the circuit board.

3A. The tip of your iron needs to be shiny (tinned) for soldering to work well. If it isn't, melt fresh solder against the tip and quickly swipe it clean against a wet sponge.

3B. Place the solder against the joint that you wish to connect.
3C. Touch the iron to the solder and joint for about one second. Count it out: "one thousand one."
3D. The solder should wick in and leave a shiny, wet-looking joint. If not, let cool and try again.

4. From the bottom side, clip the excess leads. Clip close to the board, but not so close that you're clipping the board itself.

1. Insert!   2. Bend!
45°, max
3. Solder!
4. Clip!