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Soldering Is Easy!

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Pioneer of **VR** (in the mid-1980s)
Founding mentor at **HAX** (1st and biggest hardware accelerator)
Co-founder of **Noisebridge** (San Francisco hackerspace)

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CORNFIELD ELECTRONICS
useful electronics for a better world

Learn To Solder

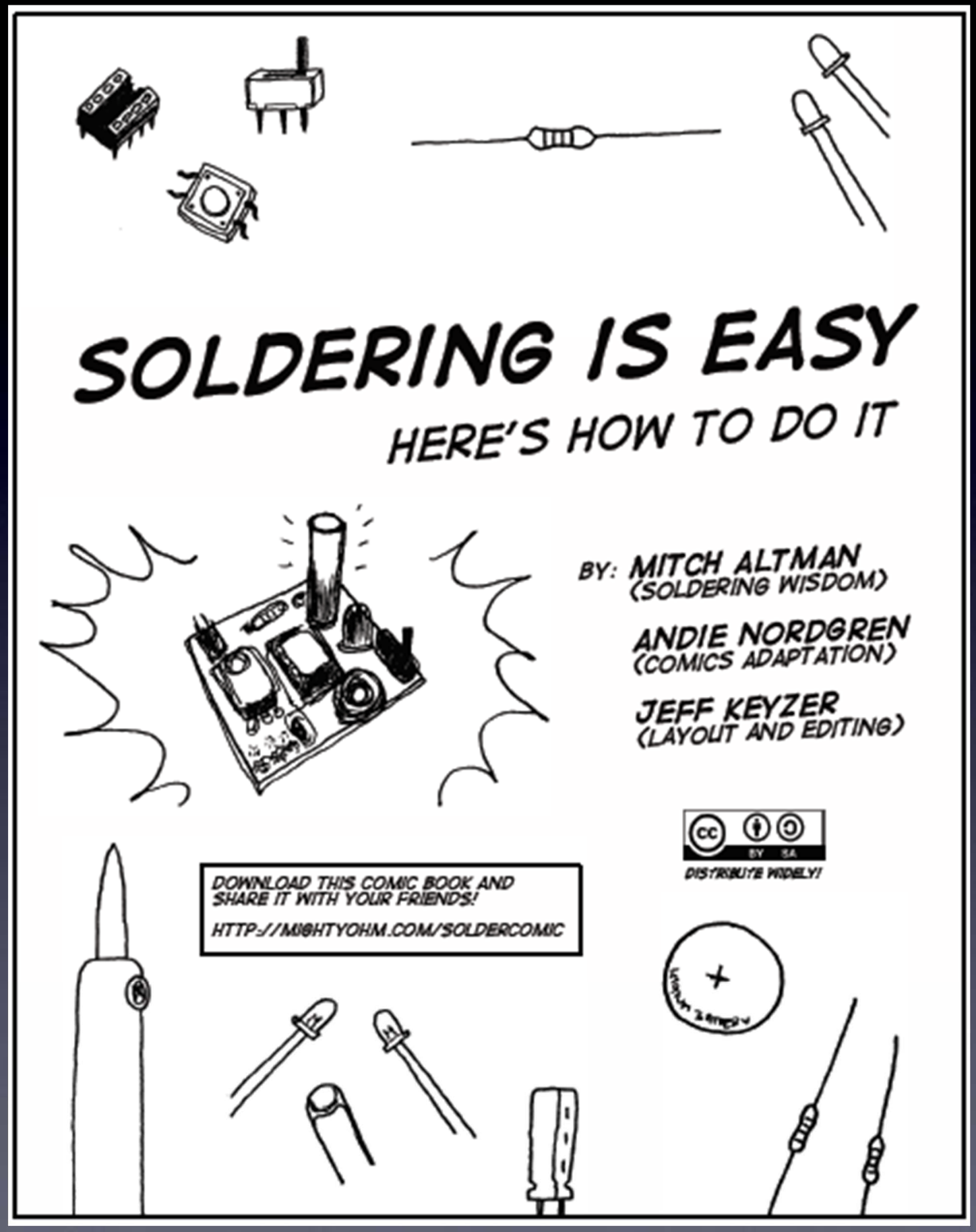
The following photos will
show you how to solder.

But feel free to download
the “Soldering Is Easy” comic book
for free!

(In many different languages.)

download for free at:
http://mightyohm.com/soldercomic

Learn To Solder



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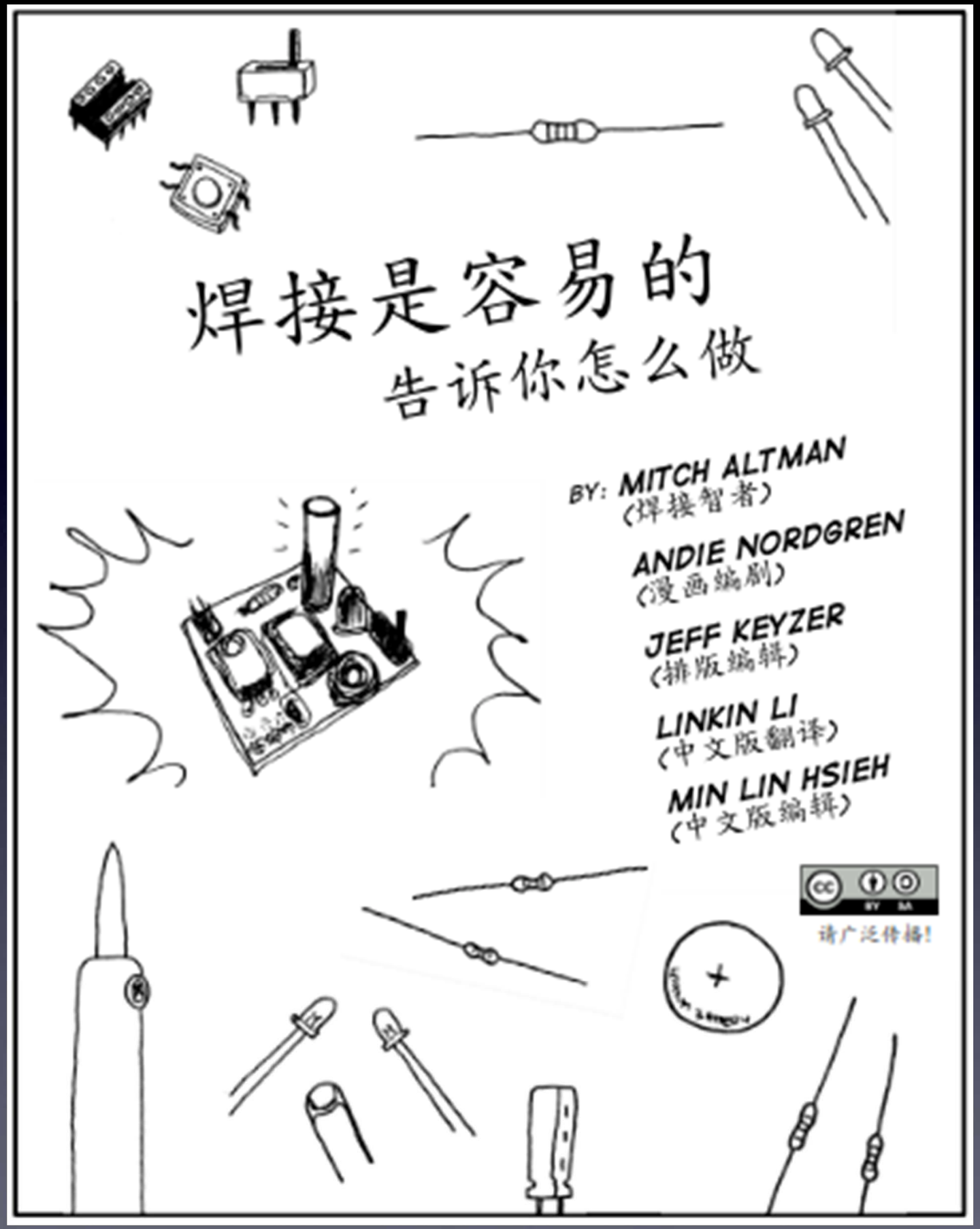

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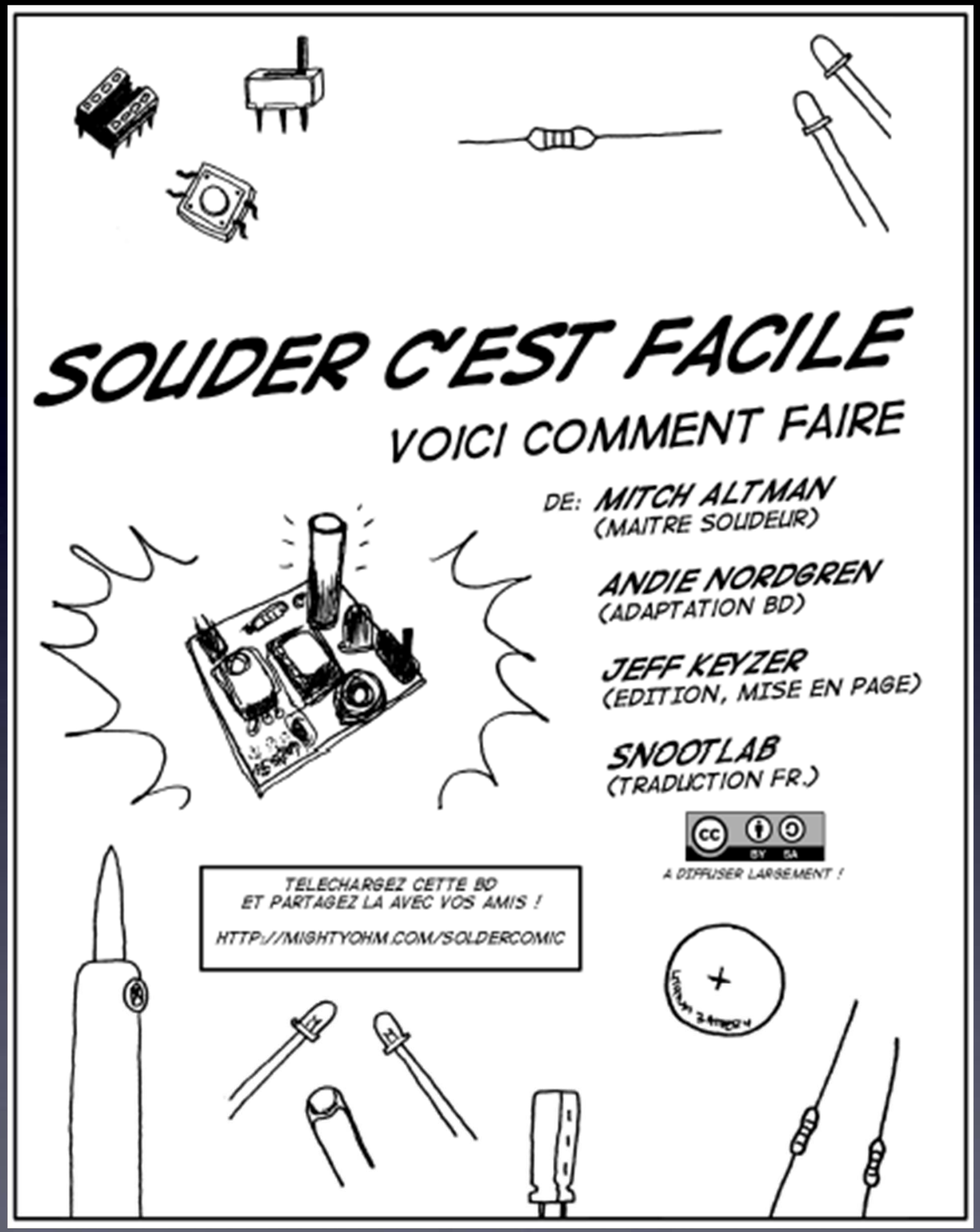

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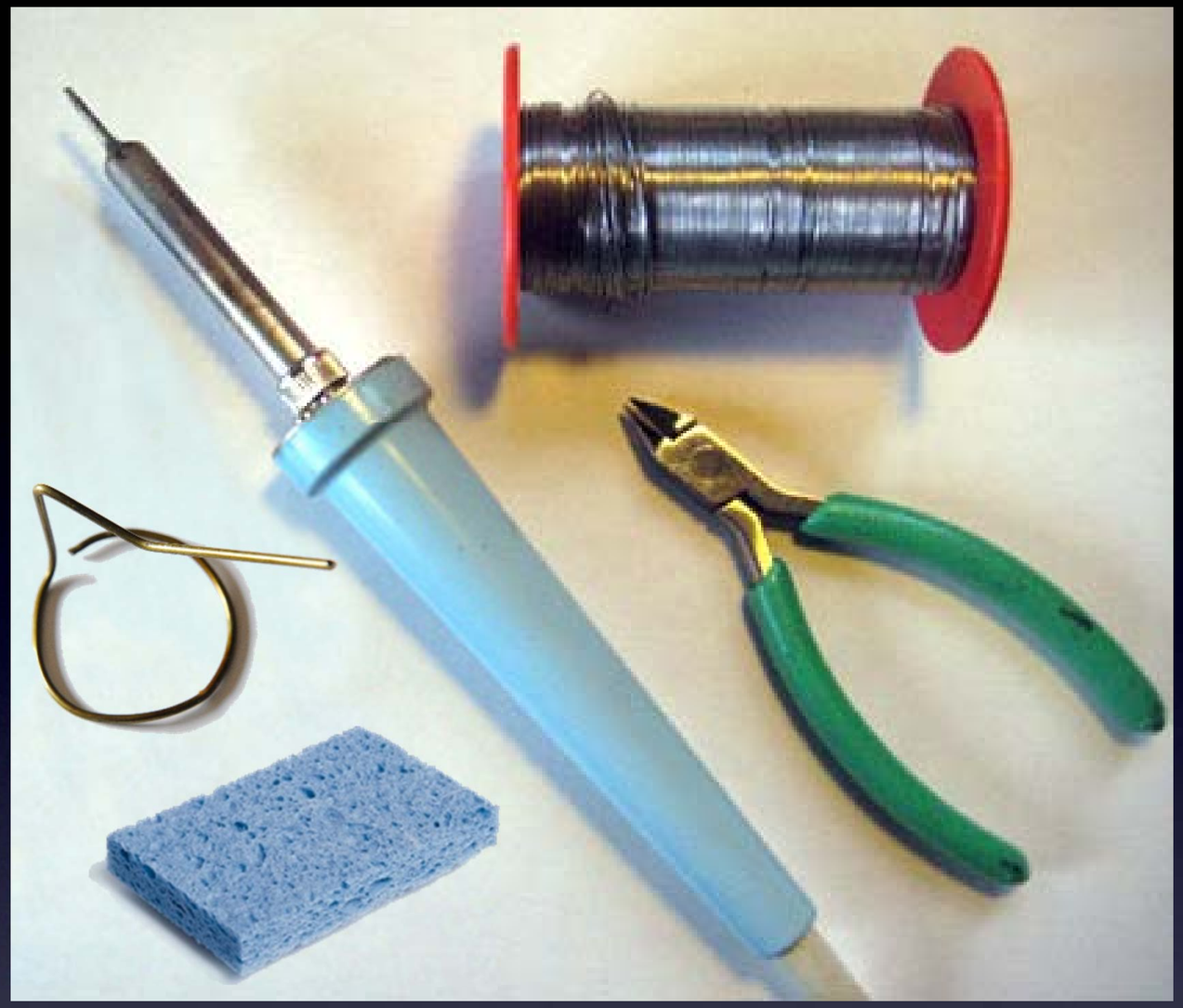
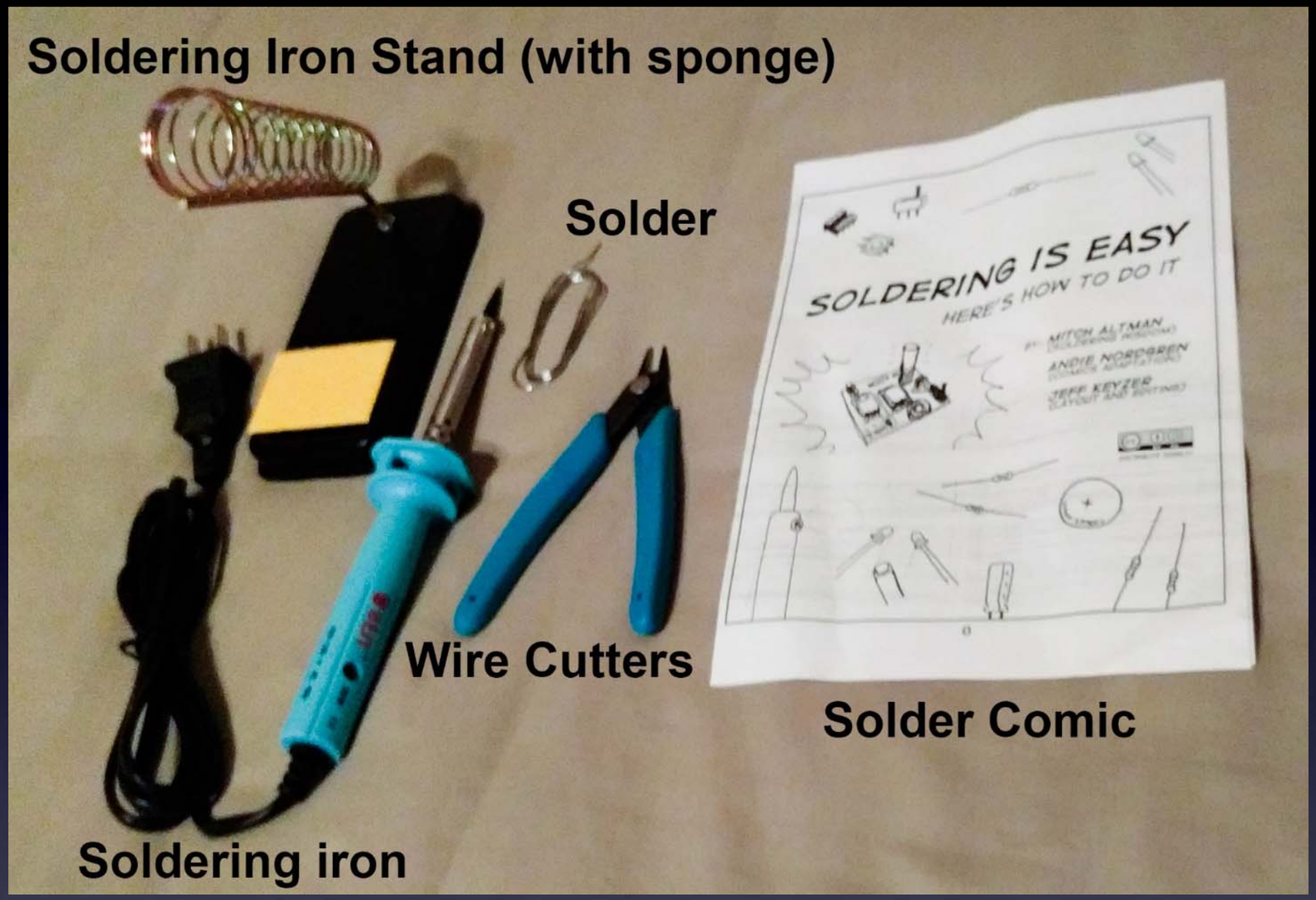


Important:
Use solder WITH lead (Pb) !!
Unleaded solder
has very poisonous fumes!

The tools you'll need:

- soldering Iron (35W or less)
- solder (60/40 Sn/Pb, rosin core, 0.031" diameter or less)
- soldering iron stand
- cellulose kitchen sponge *(not plastic!)*
- *small* wire cutter



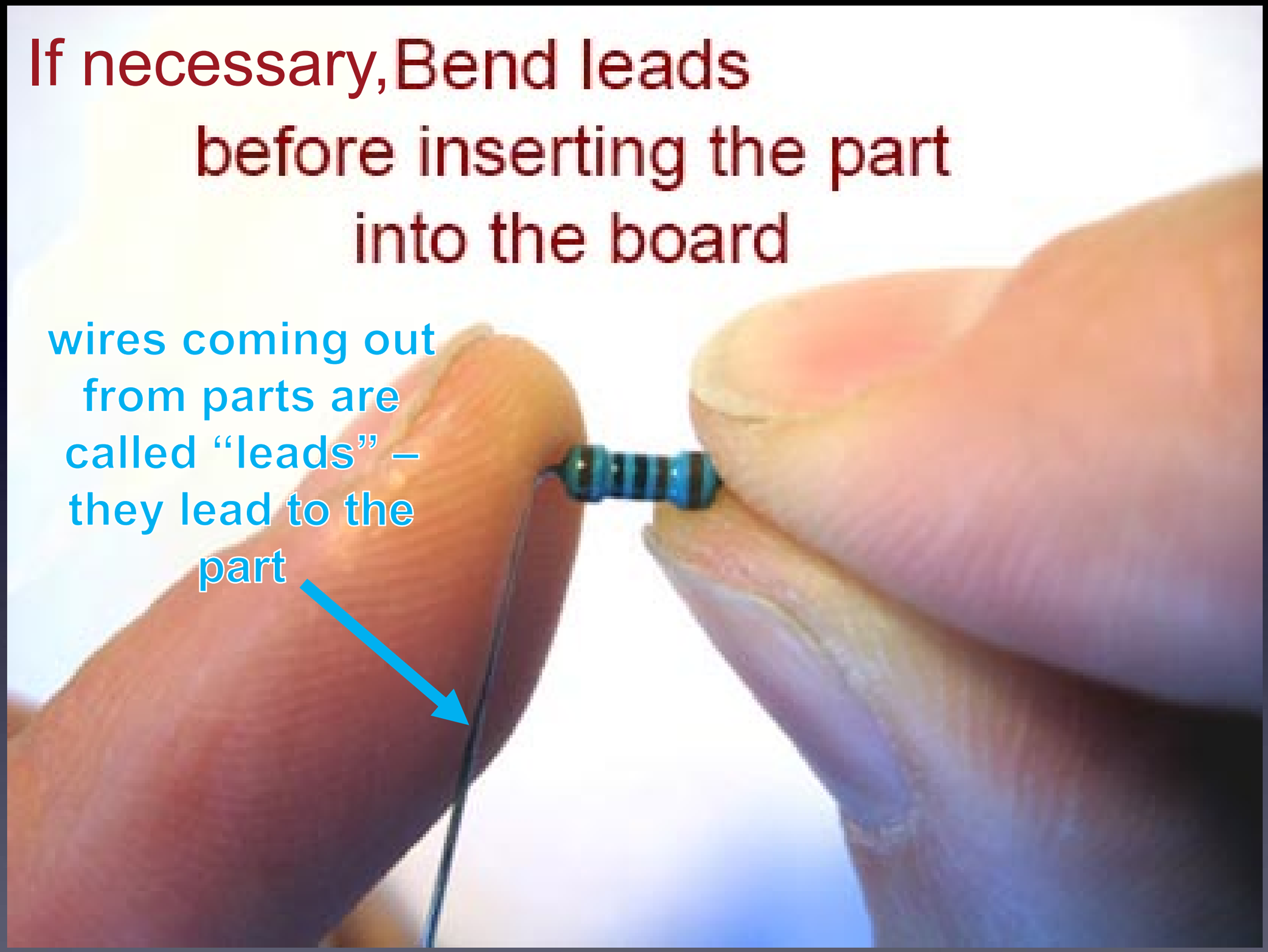
These are available at:
https://CornfieldElectronics.com

Learn To Solder

The following photos will
show you how to solder a resistor.

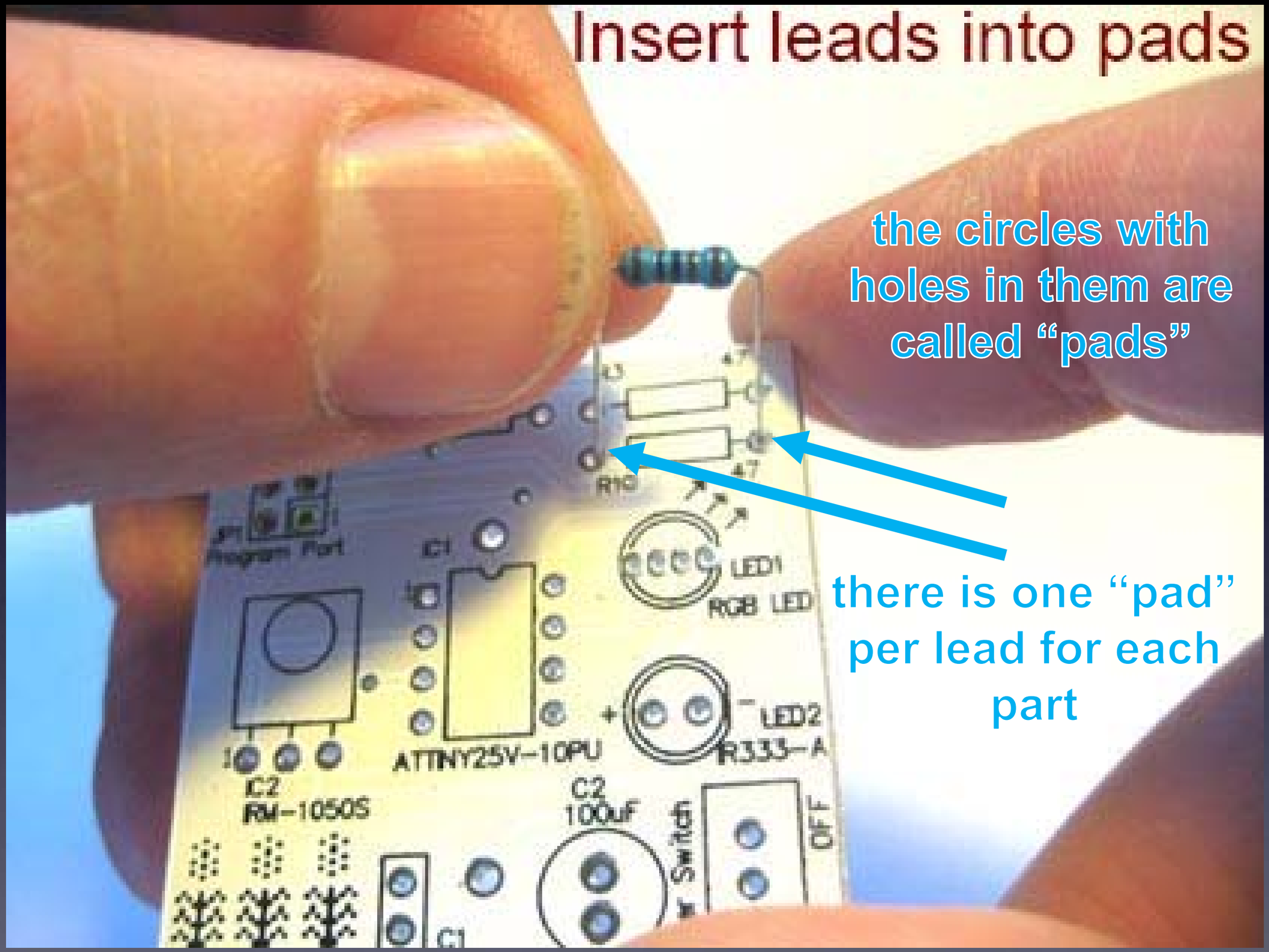
There are no resistors in some kits.
But the soldering procedure is the
same for all parts.

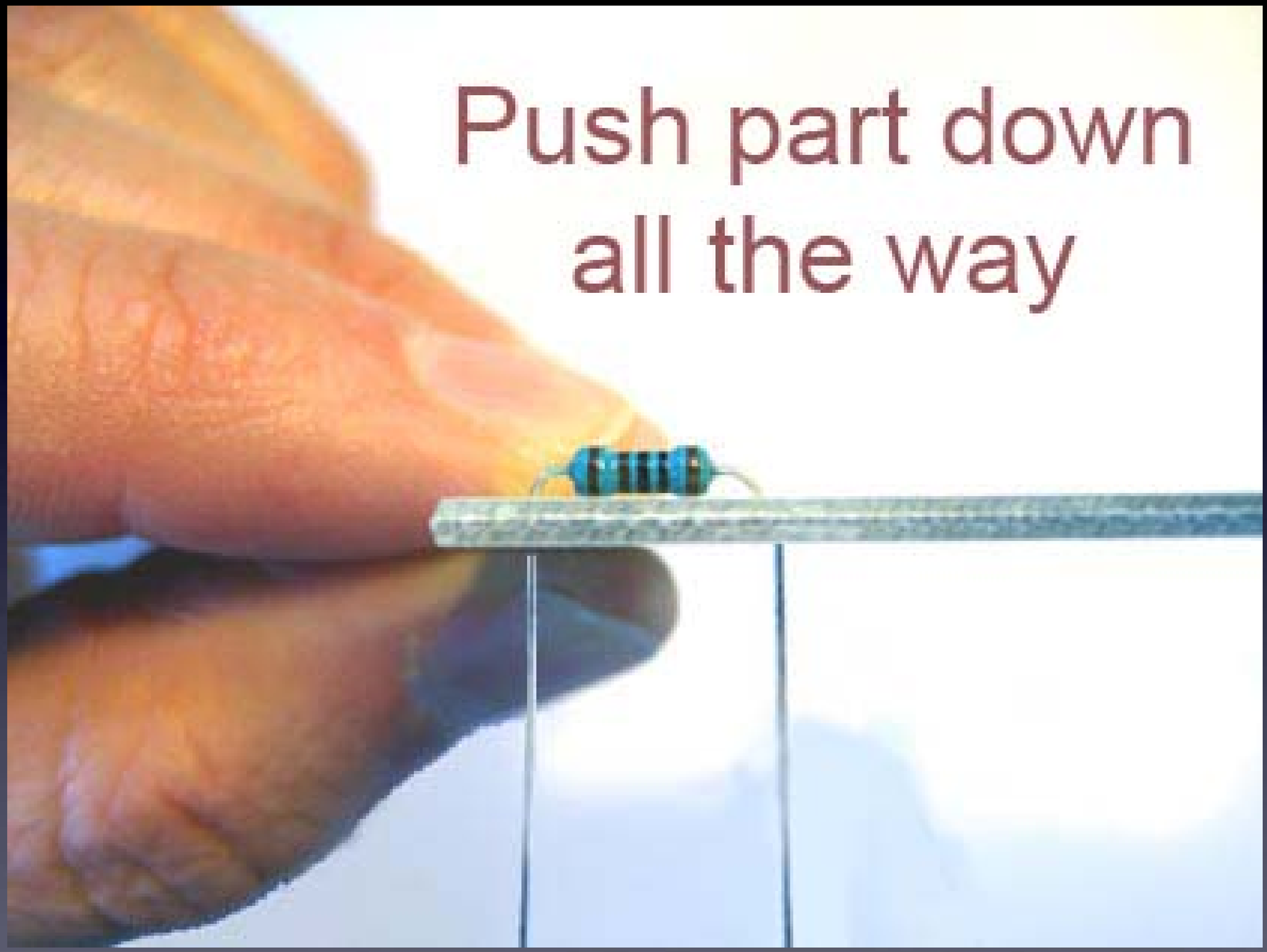
Most kits have resistors, like this part:

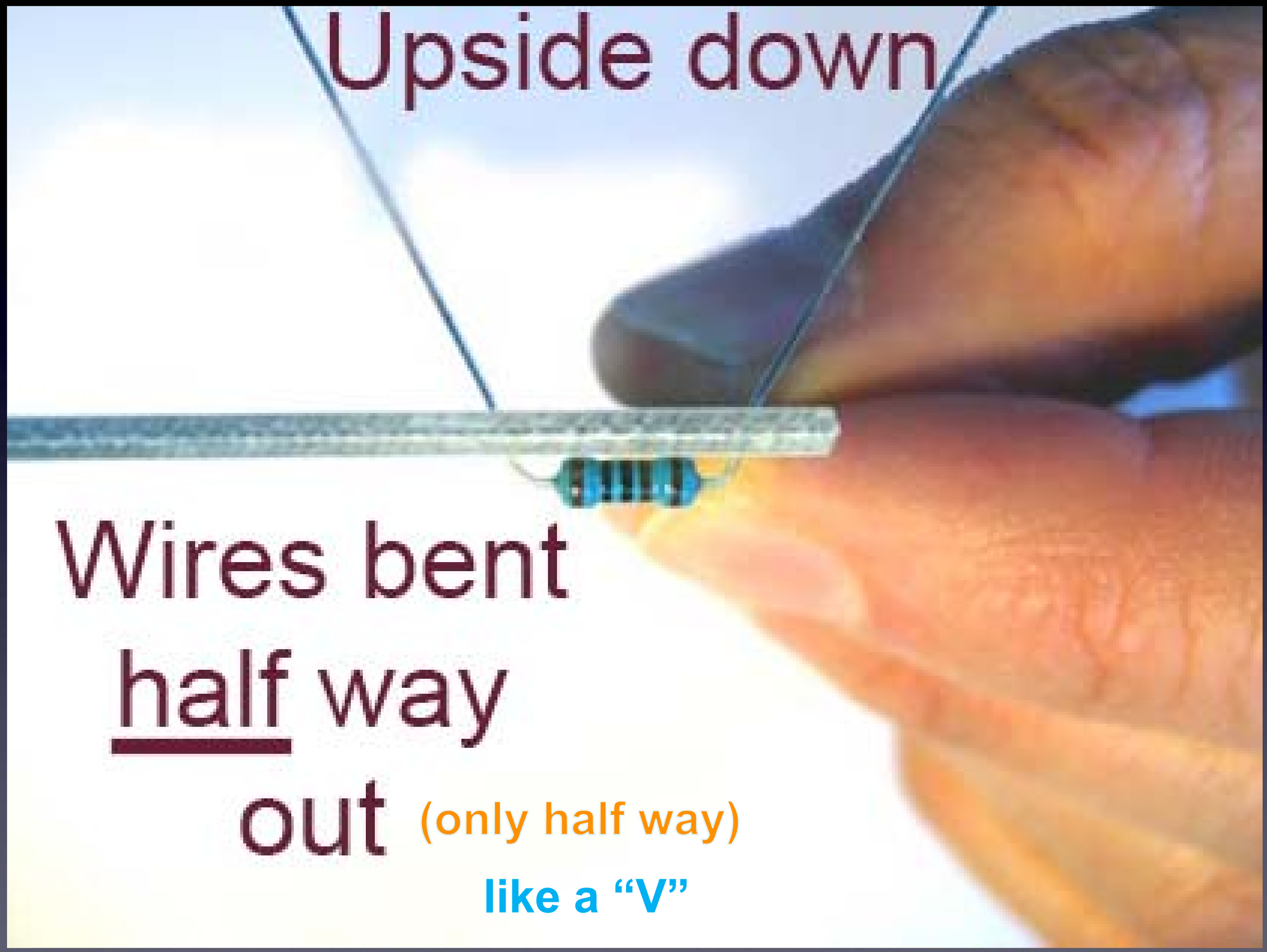


Most kits have resistors, like this part:

this is how a resistor will look *before* inserting it into the board


Insert leads into pads
the circles with holes in them are called “pads”
there is one “pad” per lead for each part
R10
47
LED1
RGB LED
IC1
ATTINY25V-10PU
LED2
R333-A
IC2
RM-1050S
C2
100uF
C1
OFF


Push part down
all the way



so that the part won’t fall out while soldering it

How to hold a soldering iron

(Like a pencil – held from underneath)

Important

The perfect kind of solder for electronics:

60/40 rosin core,

(63/37 is also good)

0.031” (0.7mm) diameter (or smaller)

Important:

Use solder WITH lead (Pb) !!
lead-free solder
has very poisonous fumes!

3 Safety Tips…

Safety Tip #1:

Hot !!

(When you touch the tip,
you *will* let go quickly every time!)

Safety Tip #2:

Lead (Pb) is toxic

But it easily washes off your hands with soap and water

Safety Tip #3:

(coming soon)

2 secrets to good soldering…

Secret #1:

Clean the tip!

(before every solder connection)

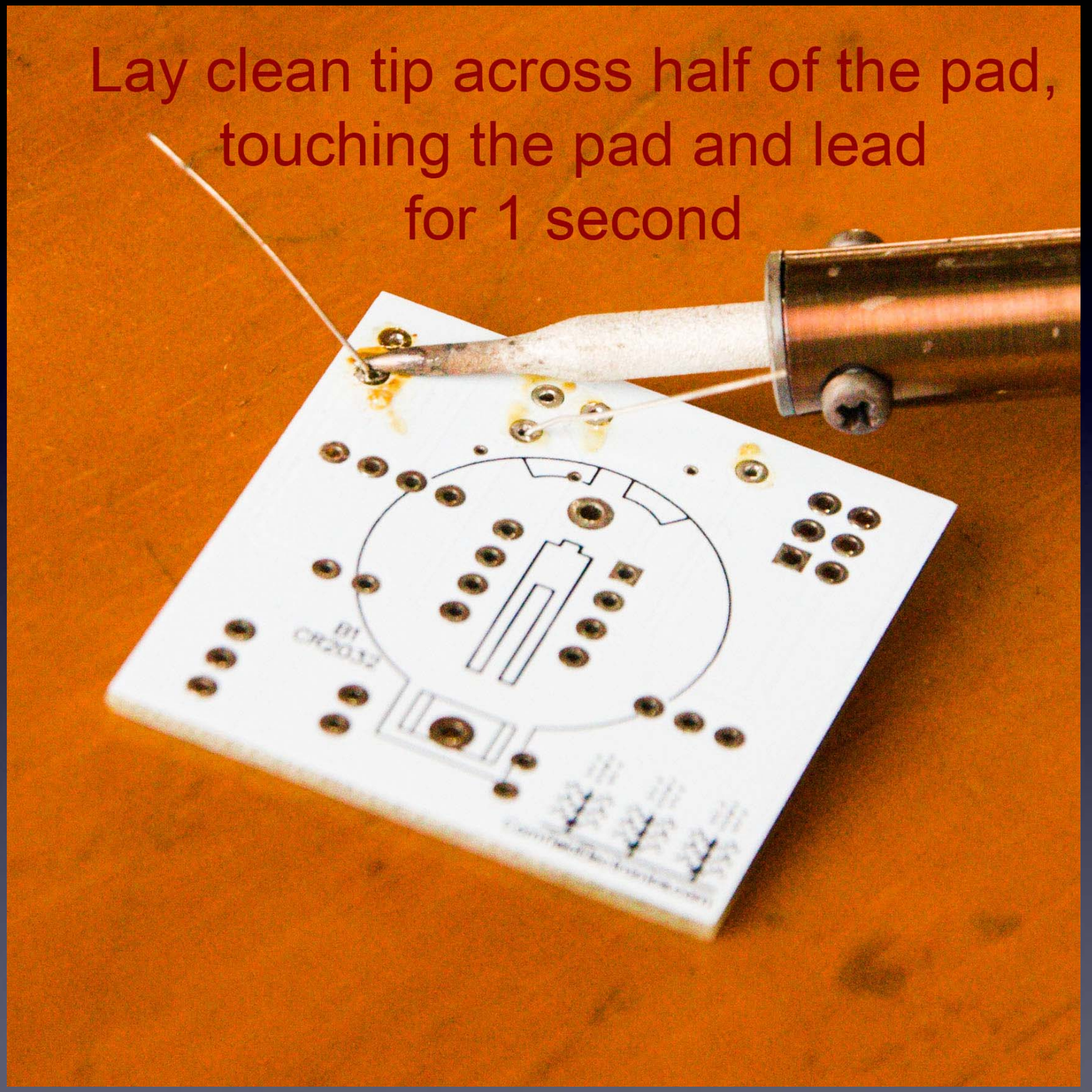
Bang (lightly) 3 times,

Swipe, Rotate, Swipe (on the sponge):

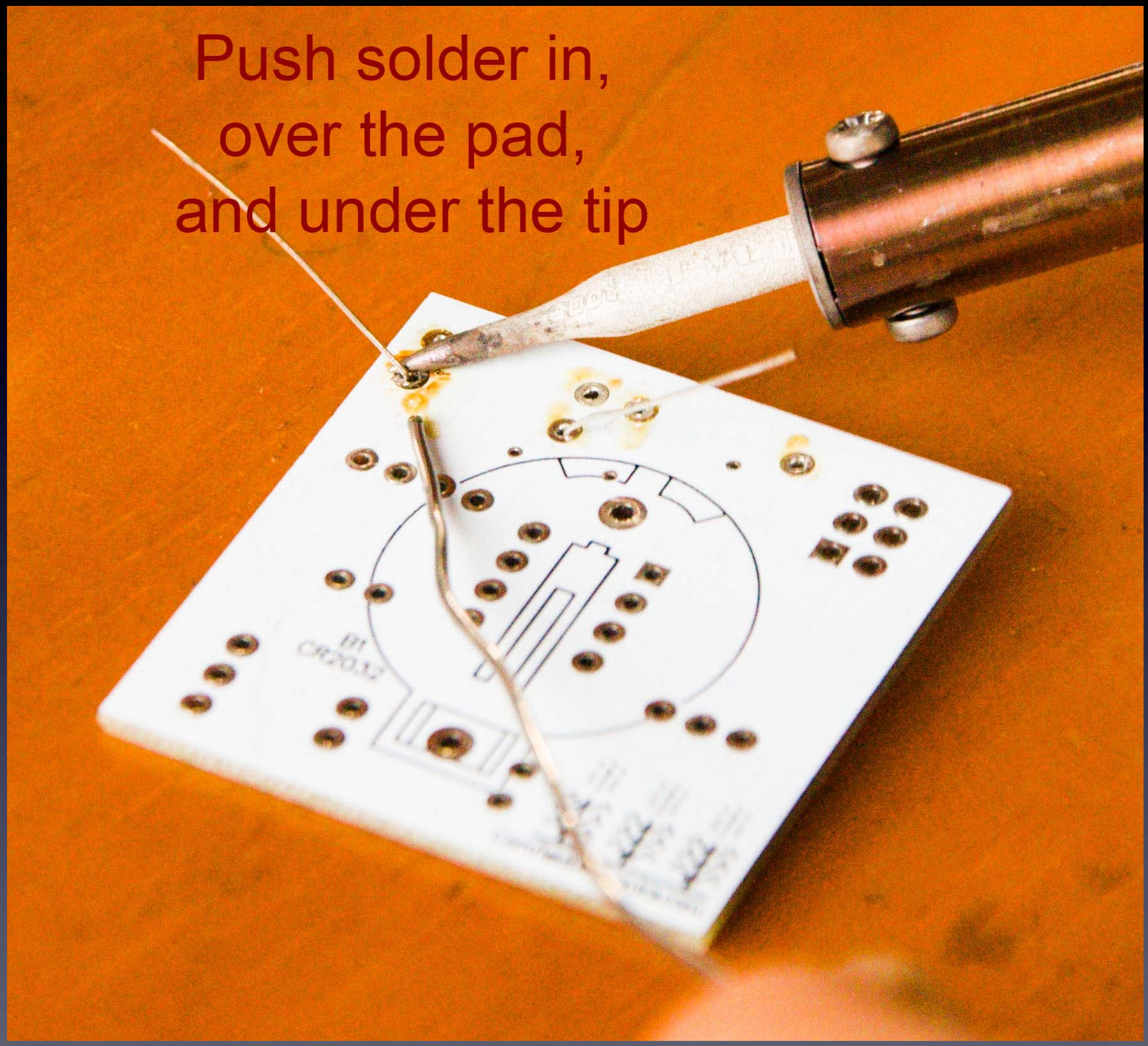
<u>Keep the tip shiny silver!</u>

knock solder off the tip

Lay clean tip across half of the pad,
touching the pad and lead
for 1 second

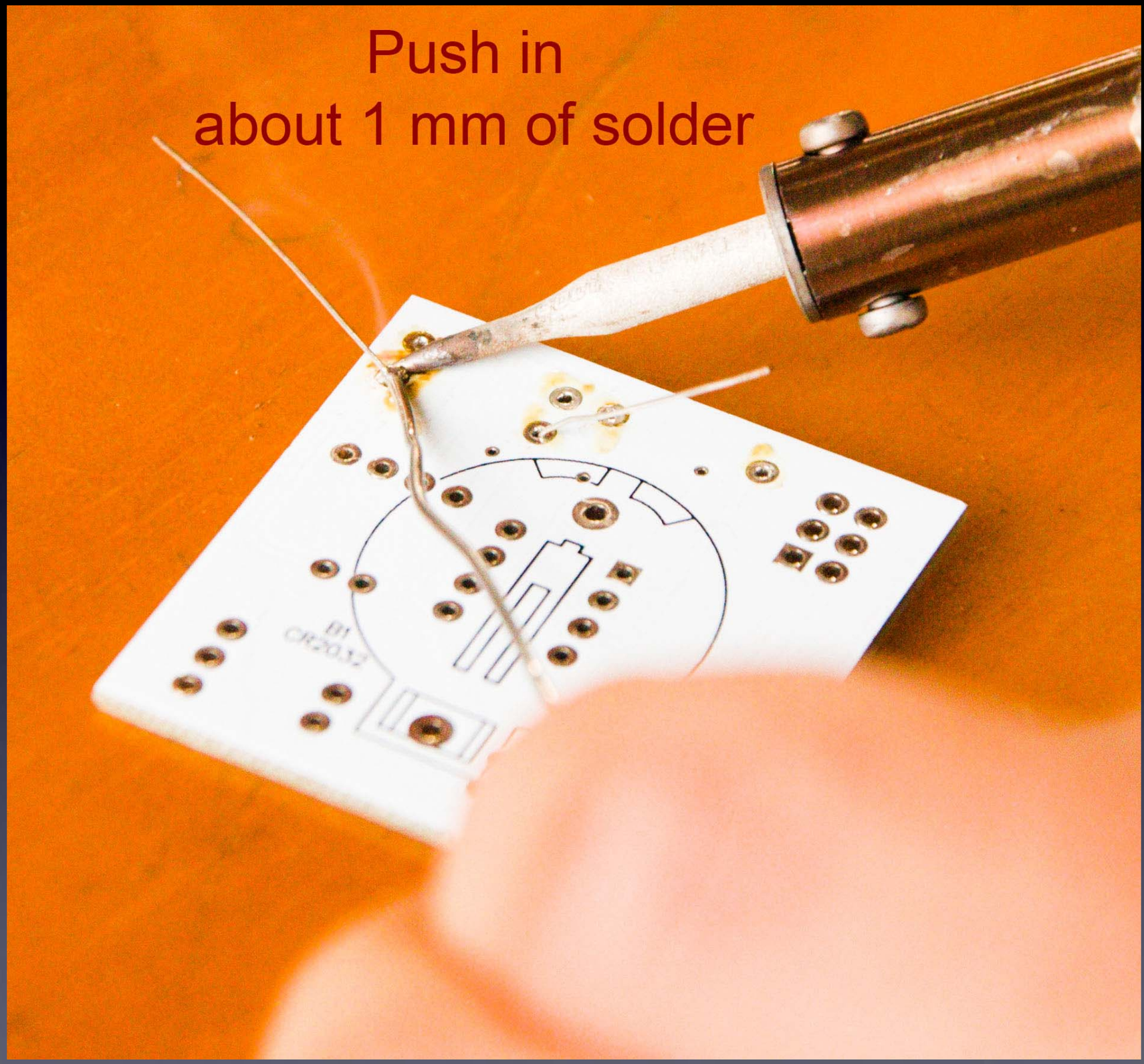


Do this quickly (slowly doesn't work well) – solder in & out in about 1 second



Make sure solder melts on the <u>underside</u> of the soldering iron tip
(not the side or top of the soldering iron tip)!

Do this quickly (slowly doesn't work well) – solder in & out in about 1 second



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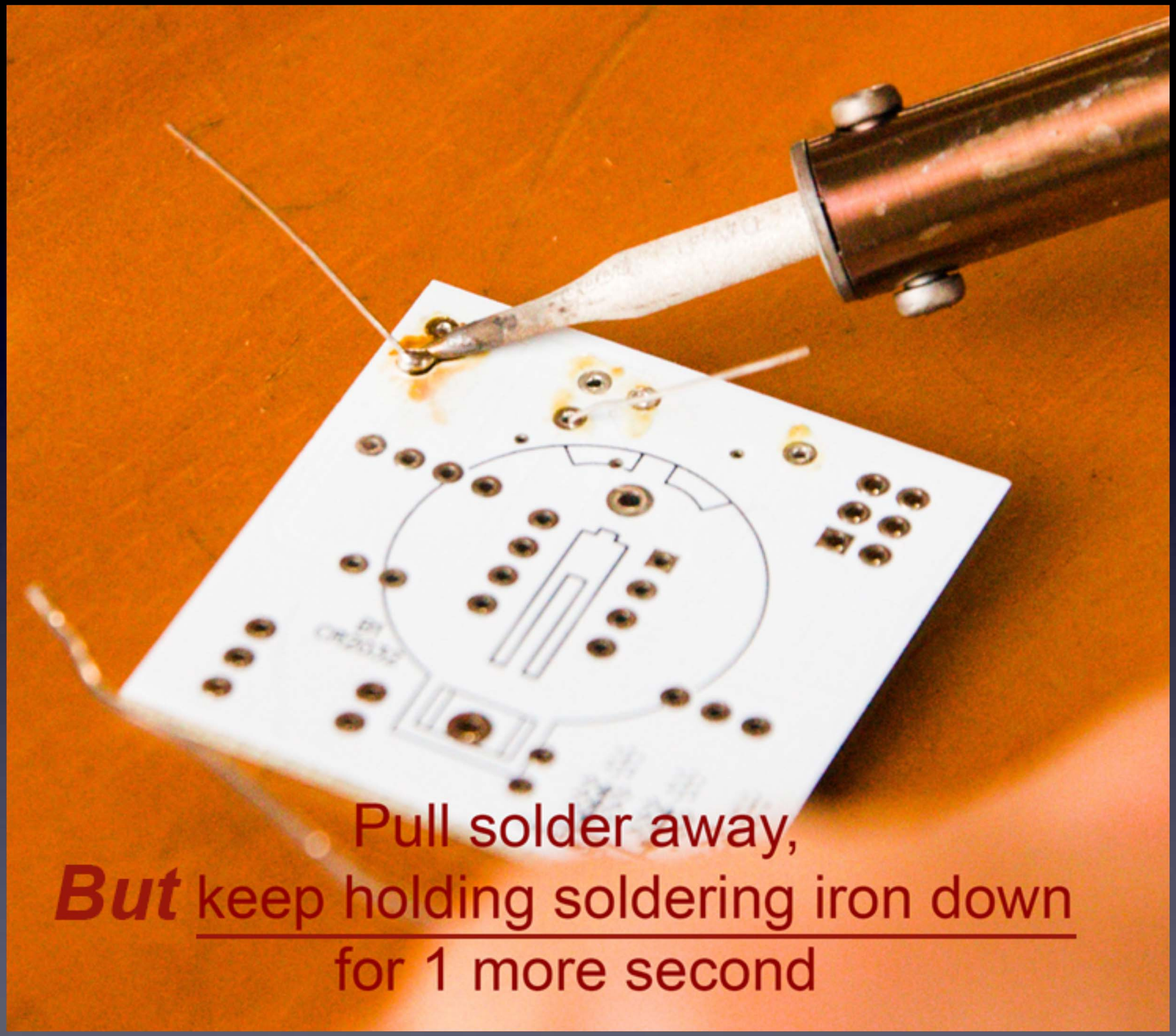
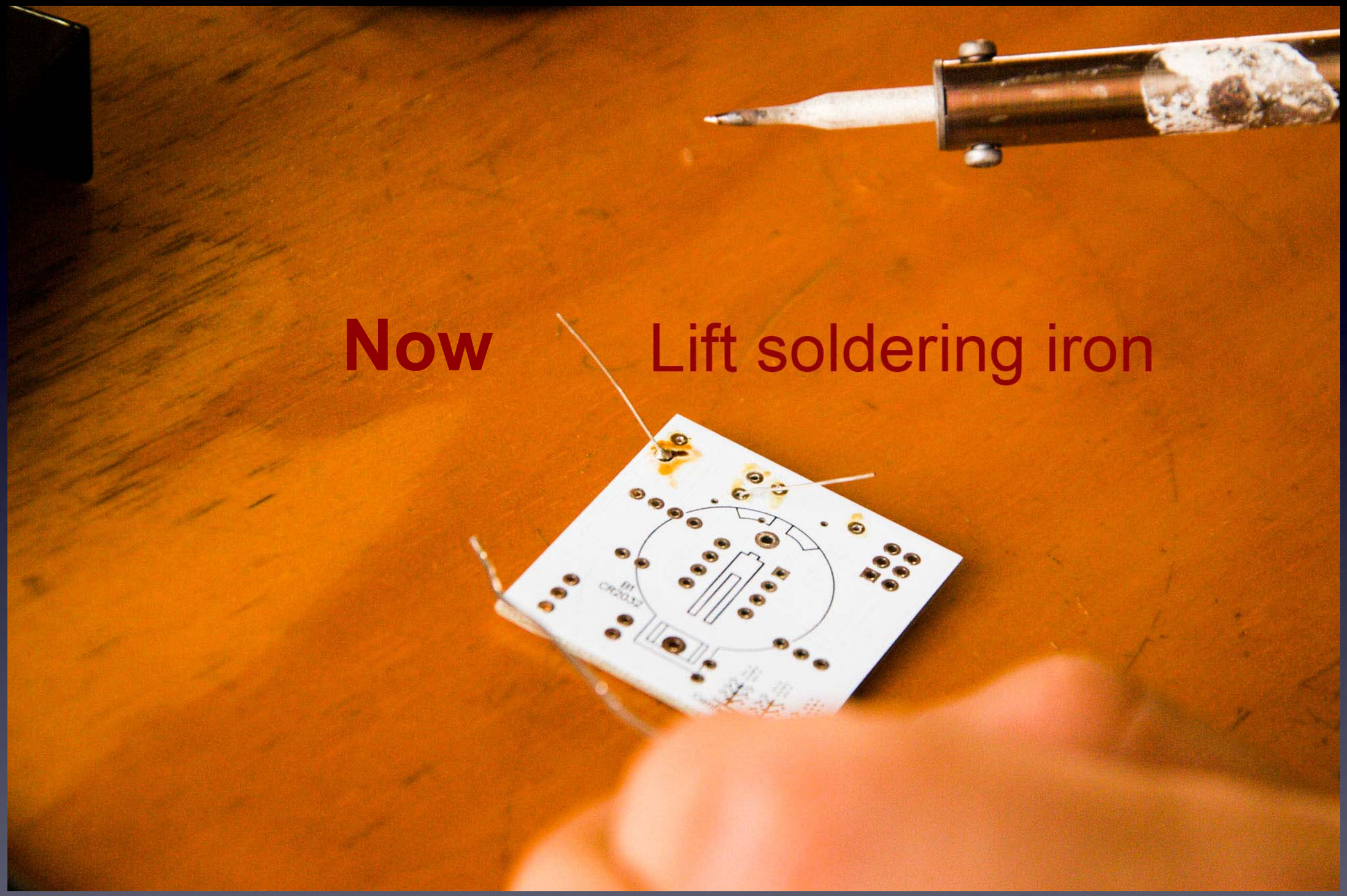
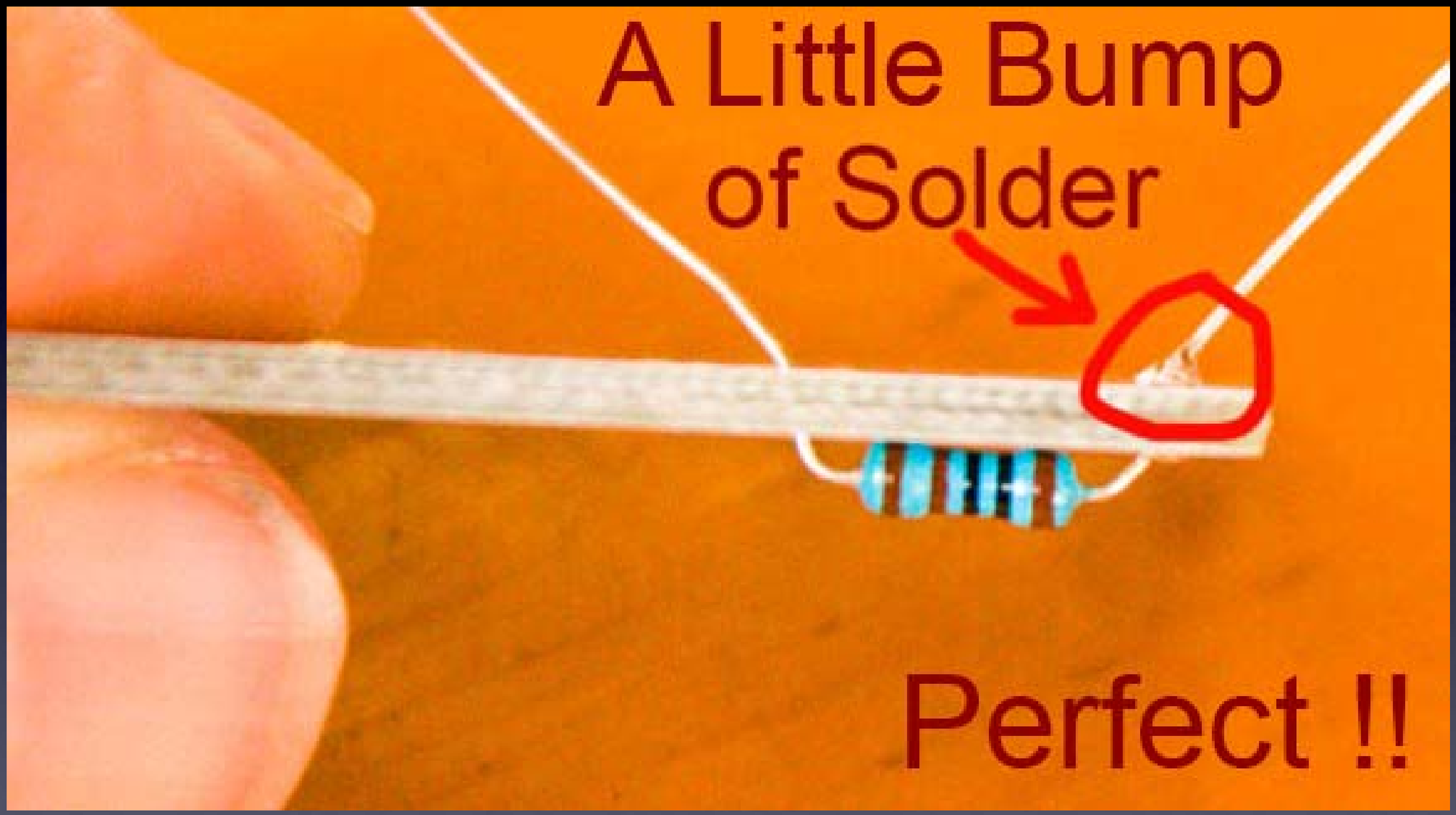

Pull solder away,
But keep holding soldering iron down
for 1 more second

Secret #2:

Keep hot tip down

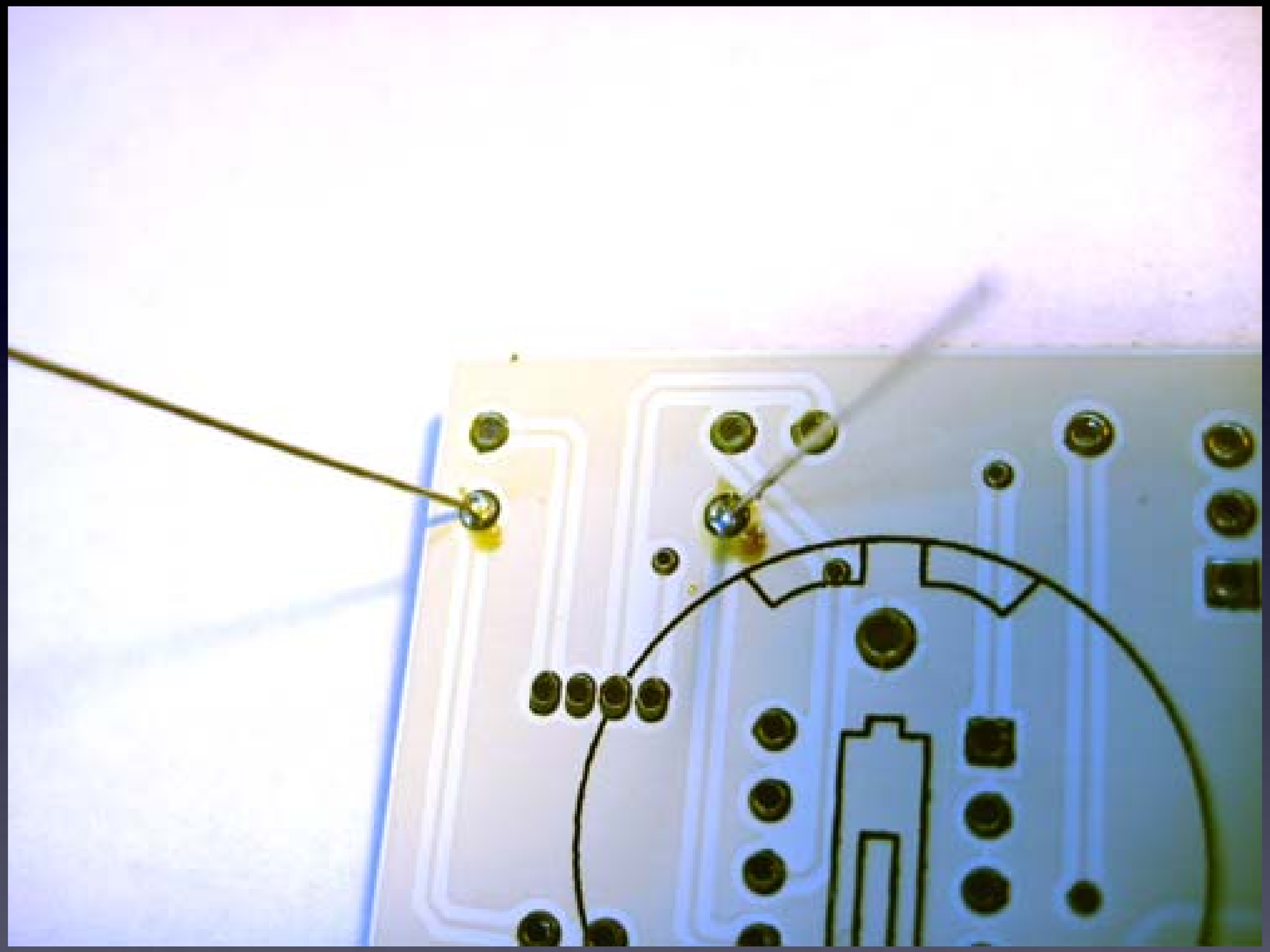
1 second
for solder to flow !!


Now
Lift soldering iron



If you can see any of the pad, or the hole, you need more solder – so, just do all the steps again to make it perfect.

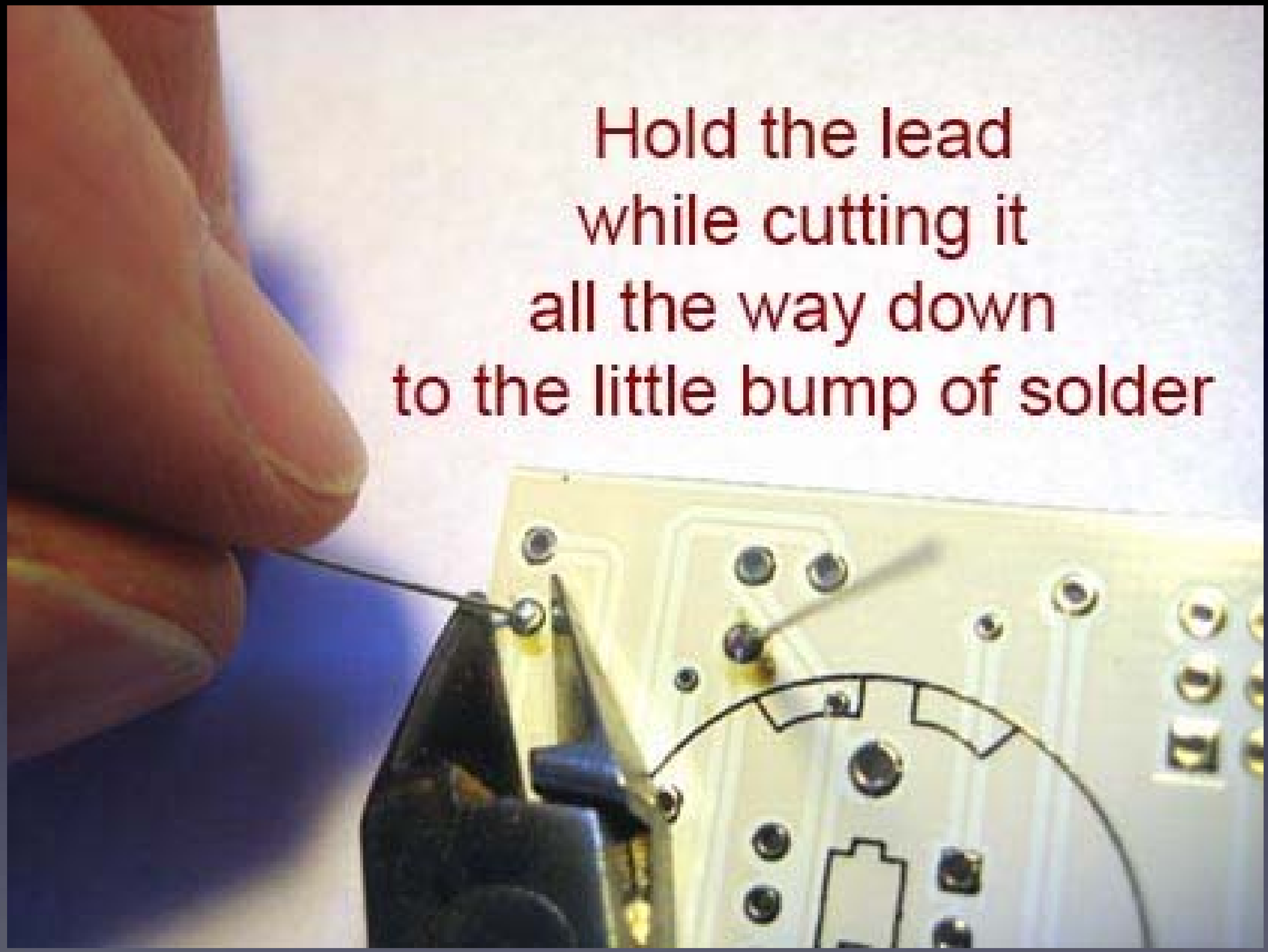
Solder all of the leads of the part to the board



For this part, there are two leads

Here you can see two good solder connections

Now cut the leads short



Cutting with the tip of the wire cutter gives you more control

Safety Tip #3:

Hold or cover the lead !

(or it will fly into your eye!)

(They like doing that – so please hold or cover the lead when you cut.)

No wires sticking out

One part at a time

Till all the parts are soldered

Then put in the batteries,

Turn it on,

And it works!

(Or you start debugging.)


I
CAN
SOLDER