



Uno Compatible Pogobed Kit

Intermediate Level



The pogobed kit is a hardware fixture that enables you to temporarily connect from your Arduino development board to any Arduino shield. Using the spring-loaded pins, this board allows you to mount your shield without soldering directly to the Arduino.

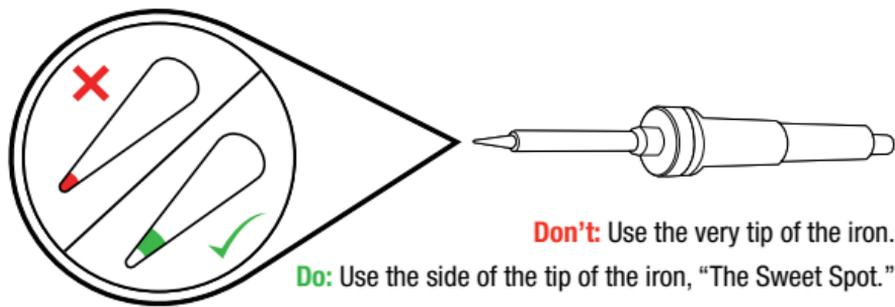
After building this kit, you will better understand the many elements of a pogobed, which will help you design your own pogobed for testing future projects. As an added benefit, it allows you to more quickly play with multiple Arduino shields while preserving your header holes for future soldering.

Arduino board not included.

Kit includes:

- Breakaway Male Headers (*qty: 40*)
- Pogobed PCB board (*qty: 1*)
- Shield mounting PCB (*qty: 4*)
- Green LED (*qty: 1*)
- Momentary Push Button (*qty: 1*)
- 10K Resistor (*qty: 1*)
- Pogopins (*qty: 28*)
- Hex Metal Standoffs (*qty: 12*)
- Nylon Standoffs (*qty: 6*)
- PCB mounting nubbins (*qty: 2*)
- 3/4 inch 4/40 Screws (*qty: 2*)
- 1/4 inch 4/40 Screws (*qty: 6*)

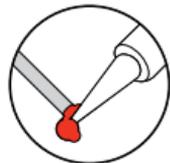
! SOLDERING TIPS



Do: Touch the iron to the component leg and metal ring at the same time.



Do: While continuing to hold the iron in contact with the leg and metal ring, feed solder into the joint.



Don't: Glob the solder straight onto the iron and try to apply the solder with the iron.



Do: Use a sponge to clean your iron whenever black oxidization builds up on the tip.

! SOLDERING TIPS



A Solder flows around the leg and fills the hole - forming a volcano-shaped mound of solder.



B **Error:** Solder balls up on the leg, not connecting the leg to the metal ring.
Solution: Add flux, then touch up with iron.



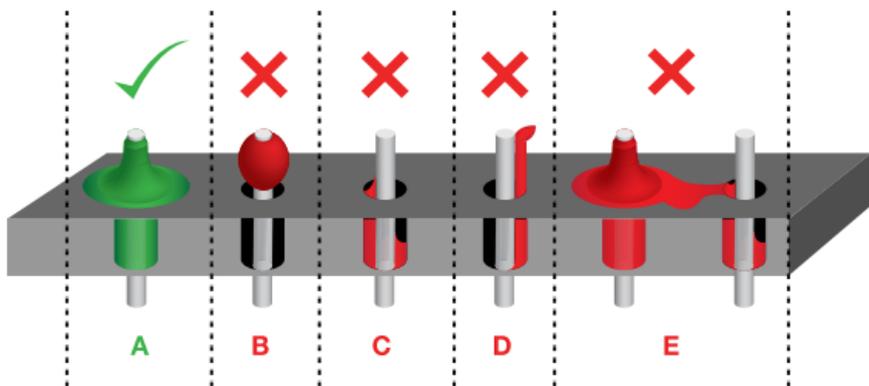
C **Error:** Bad Connection (i.e. it doesn't look like a volcano)
Solution: Flux then add solder.



D **Error:** Bad Connection...and ugly...oh so ugly.
Solution: Flux then add solder.

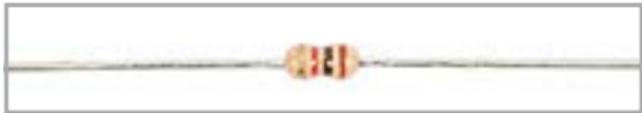


E **Error:** Too much solder connecting adjacent legs (aka a solder jumper).
Solution: Wick off excess solder.



QUICKSTART – YOUR FIRST COMPONENT

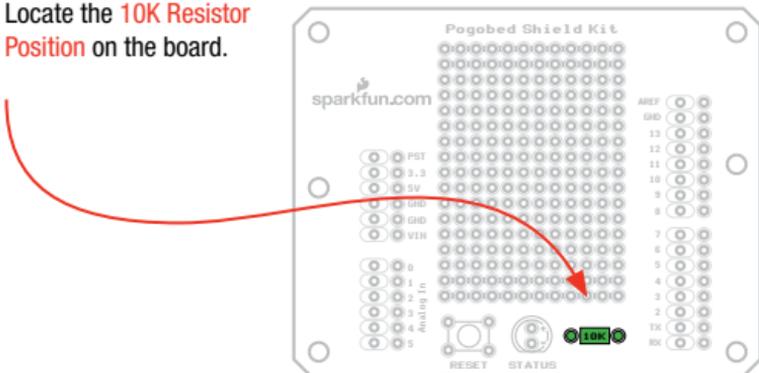
- 1 Locate the 10K Resistor.



- 2 Bend the legs downward.



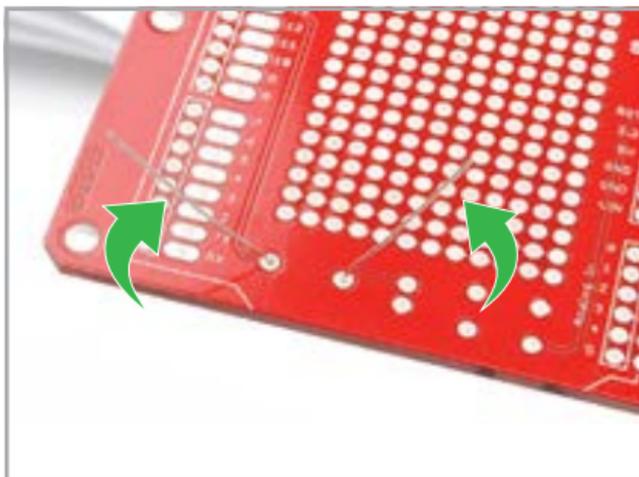
- 3 Locate the 10K Resistor Position on the board.



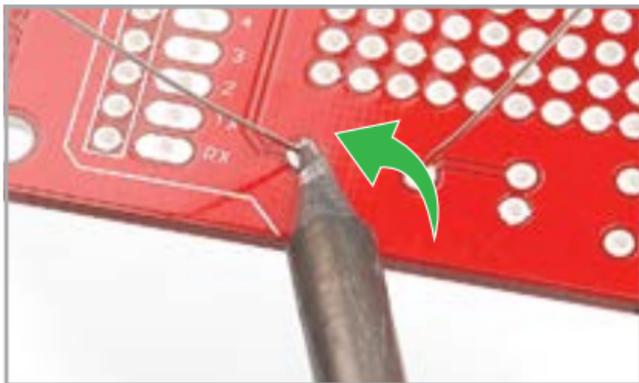
- 4 Insert the resistor into the PCB and push the resistor in, so it is nearly flush with the board.



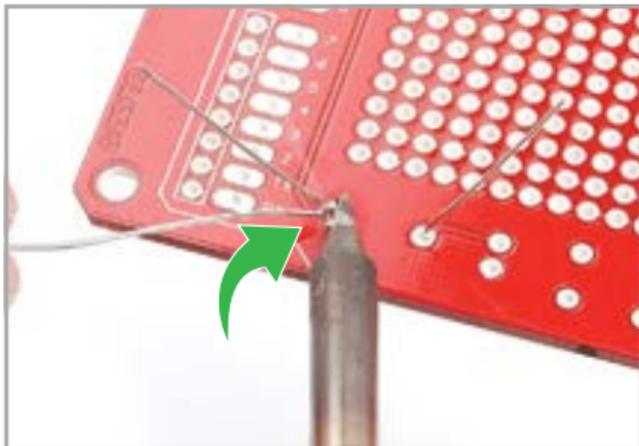
- 5 Slightly bend the legs outward to hold in place.



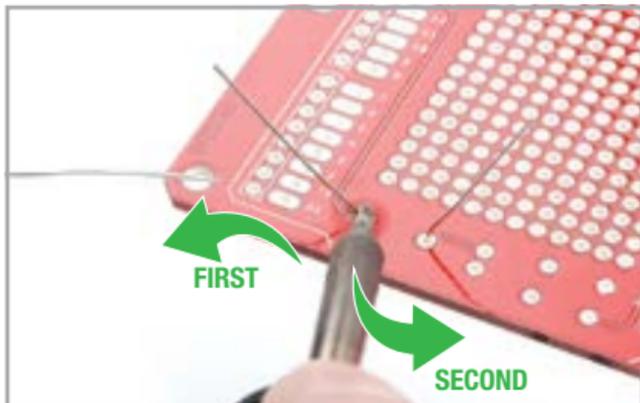
- 6 Flip the board over. Hold the iron's "sweet spot" so it touches both the leg and the metal ring. Hold for two seconds.



- 7 Feed solder into joint.



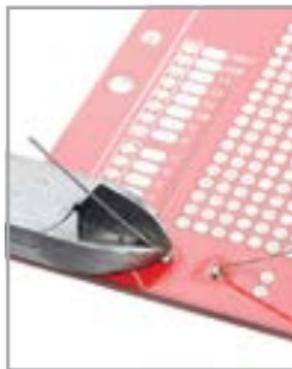
- 8 First, pull away the solder. Second, pull away the iron.



- 9 Your solder joints should look like this – a tiny volcano.



- 10 Clip off the excess legs.





CONTINUE WITH THE TOP OF THE PCB BOARD



Now that you've successfully soldered in the resistor, use the same method to place and solder the rest of the components.



Steps highlighted with a yellow warning triangle indicate a polarized component is being used. Pay special attention to the component's markings indicating how to place it on the board.



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Push Button

Momentary Push Button: Insert the four legs of the momentary push button through the main PCB from the top, lining it up with the square, white silkscreen marked "RESET." Solder the switch in place on the bottom of the PCB.



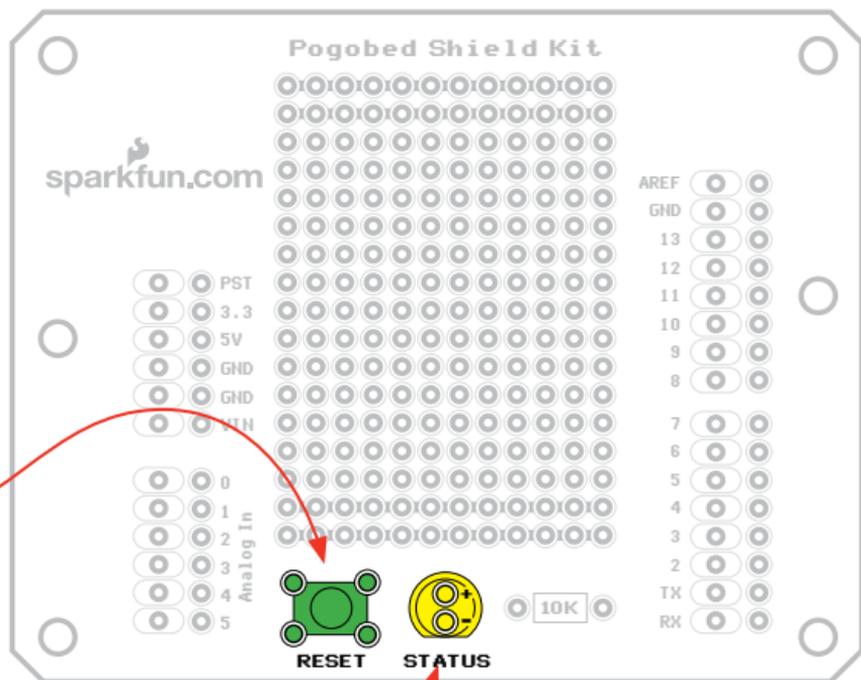
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Green LED



Green LED: Insert the LED through the top side of the main PCB, with the shorter leg of the LED going through the hole closest to the white silkscreen marked 'STATUS.' Solder on the bottom of the board and trim excess legs.

TOP OF BOARD

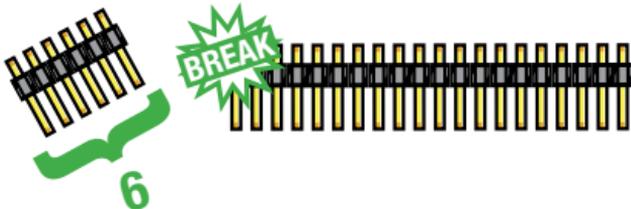




Male Headers x40: Break off two strips of six headers each from the main strip of 40 break-away headers.

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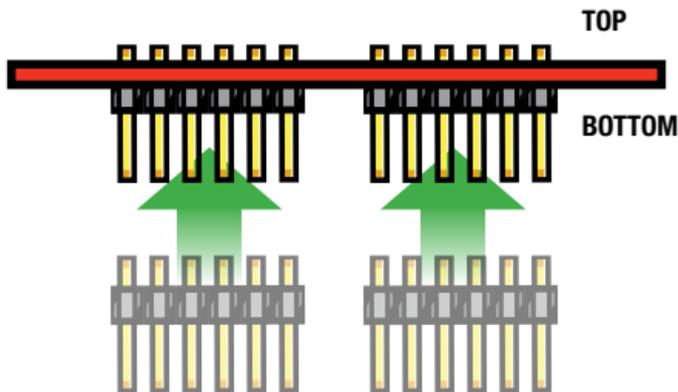
Male Headers



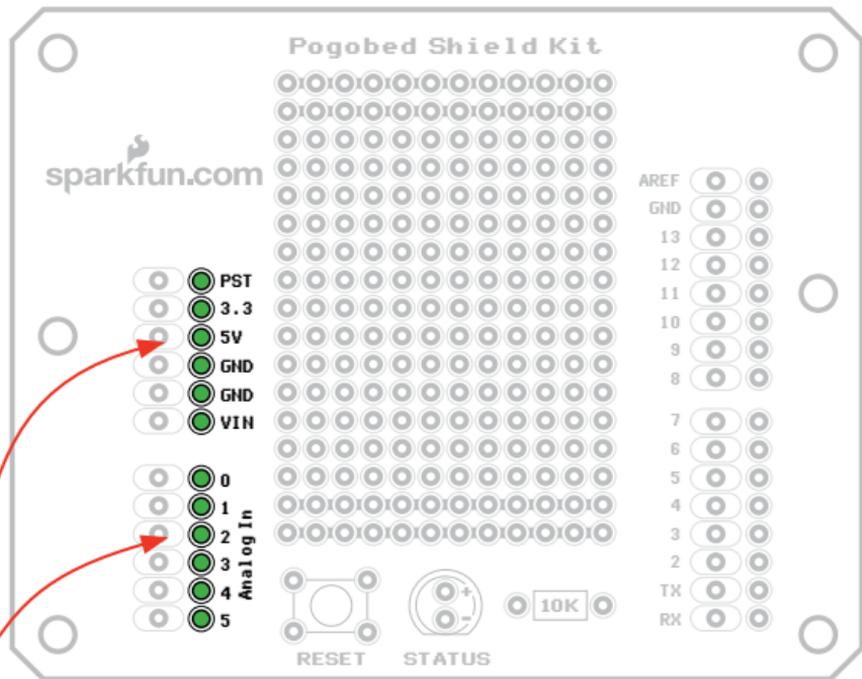
From the bottom of the PCB, insert the first set into the holes marked RST through VIN.

Holding the headers in place with your finger, but being careful not to touch the pin marked RST, tack the RST pin in place with a bit of solder. After making sure the headers are tacked on straight, solder the remaining pins in that row.

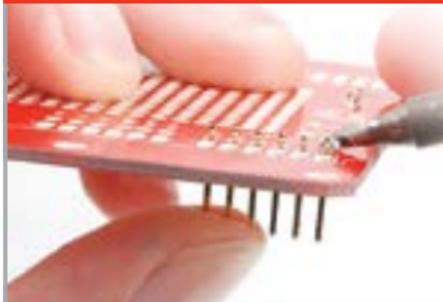
Repeat the process for the other six headers marked “Analog In” 0 through 5.



TOP OF BOARD



PRO TIP: TACKING



It's best to put a ball of solder on the tip of your soldering iron before you're ready to tack anything on. Never hold your header in place with the pin you're soldering. Your fingers will thank you.

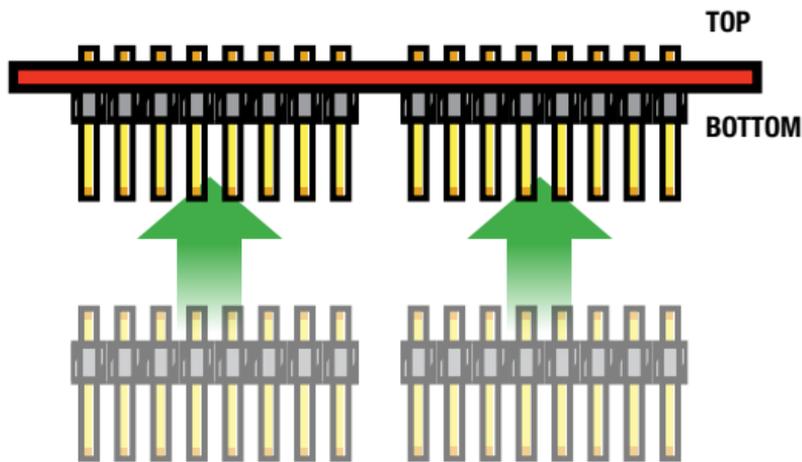
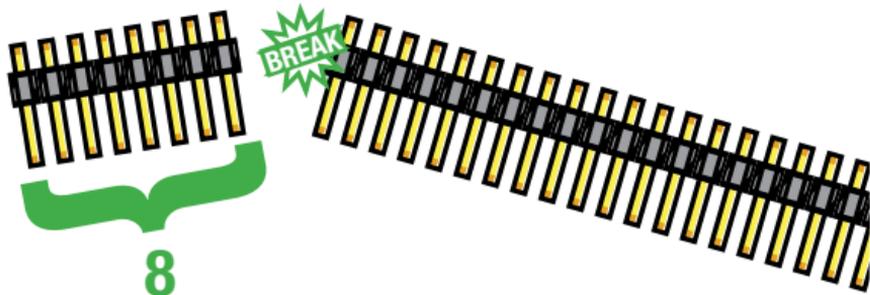


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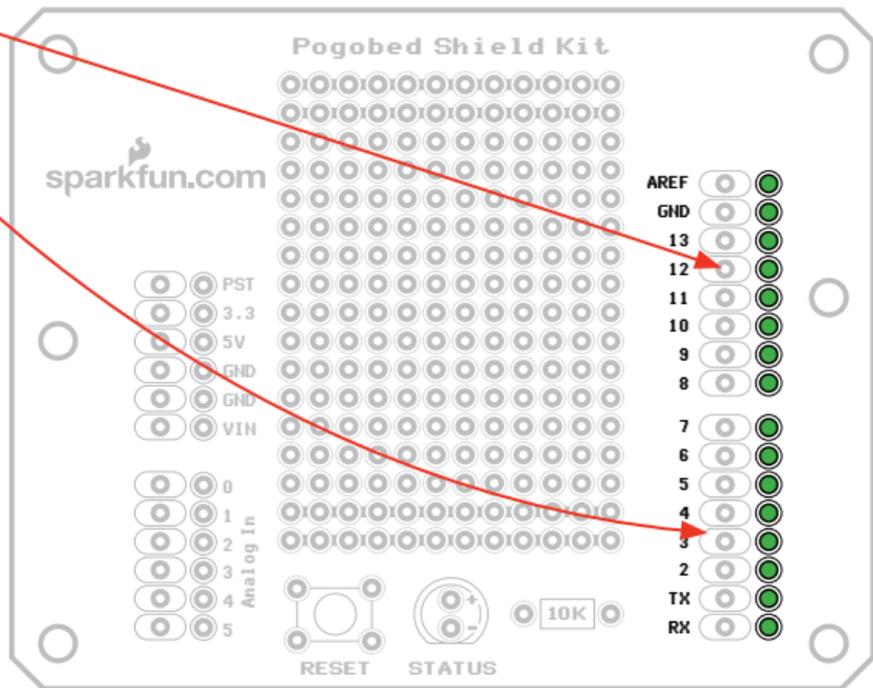
Male Headers

Male Headers x40: Break off two more strips, this time with eight headers each from the main strip. Using the same method from the previous step, tack the strip into the holes marked "AREF" through "8," making sure they are straight before soldering them completely.

Repeat the process for the row of headers marked "7" through "RX".



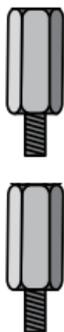
TOP OF BOARD



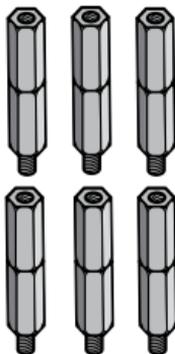
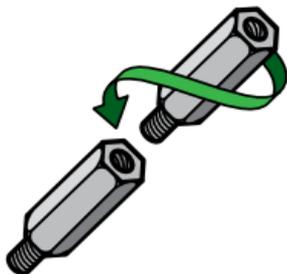


Assemble the six main pillars of the pogobed by combining 12 hex metal standoffs.

15 Metal Standoffs

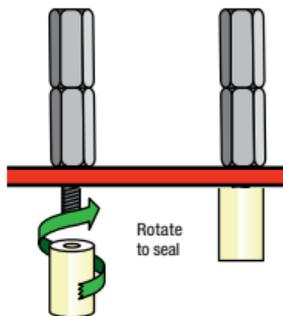


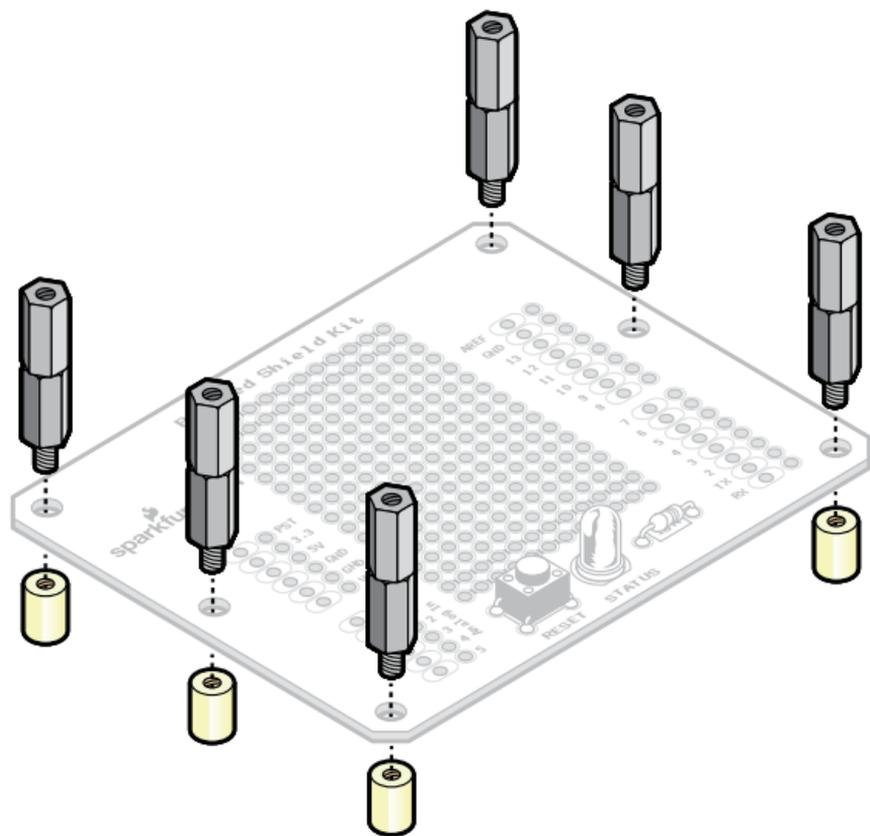
Rotate to seal



Insert the threaded end of each pillar through the top of the main PCB, securing each on the bottom side with one of six of the included plastic standoffs.

16 Plastic Standoffs



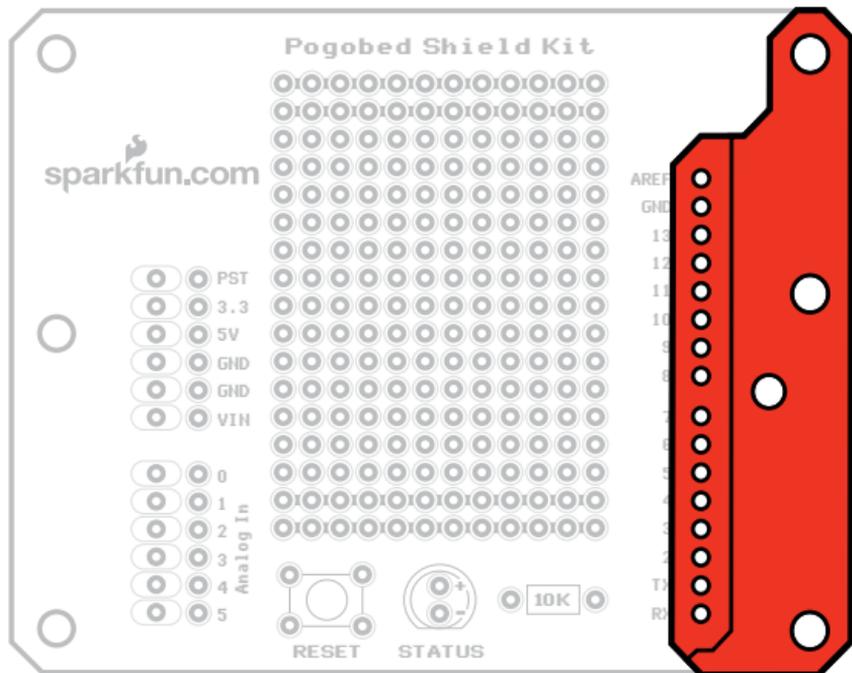


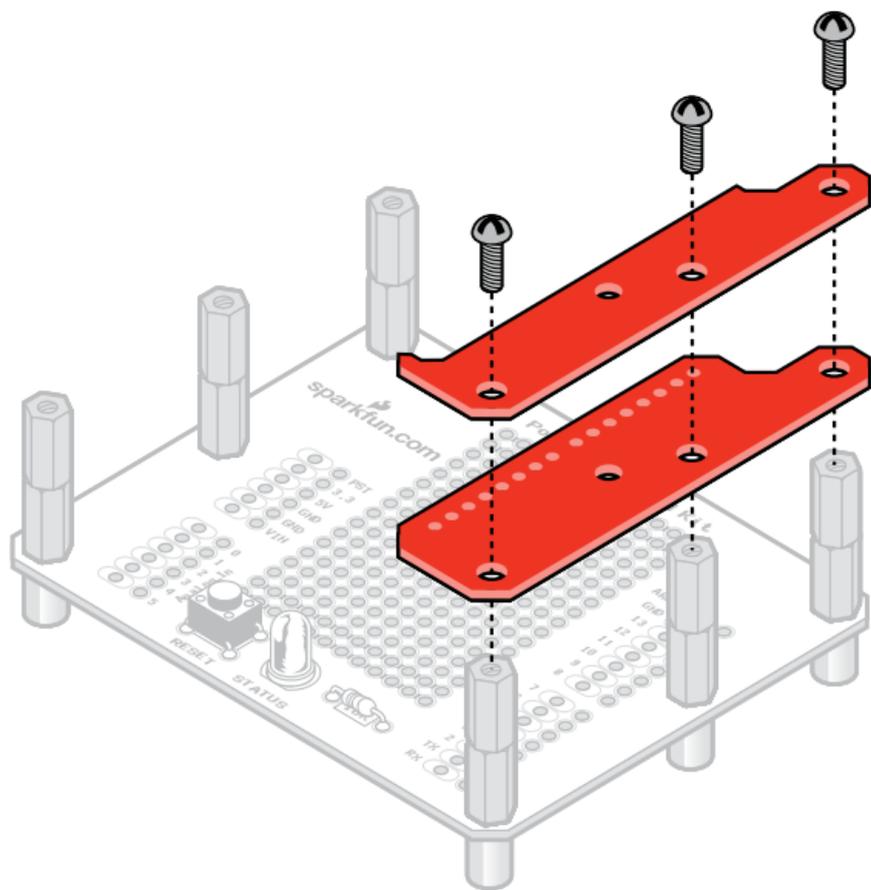


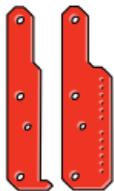
17 Mounting Brackets

Locate the two PCBs that will make the right side of the shield mount assembly. The drilled holes in each pair will line up with each other. Subsequently, the row of holes drilled in the middle layer will line up with the large pogopin header holes on the main PCB.

TOP OF BOARD



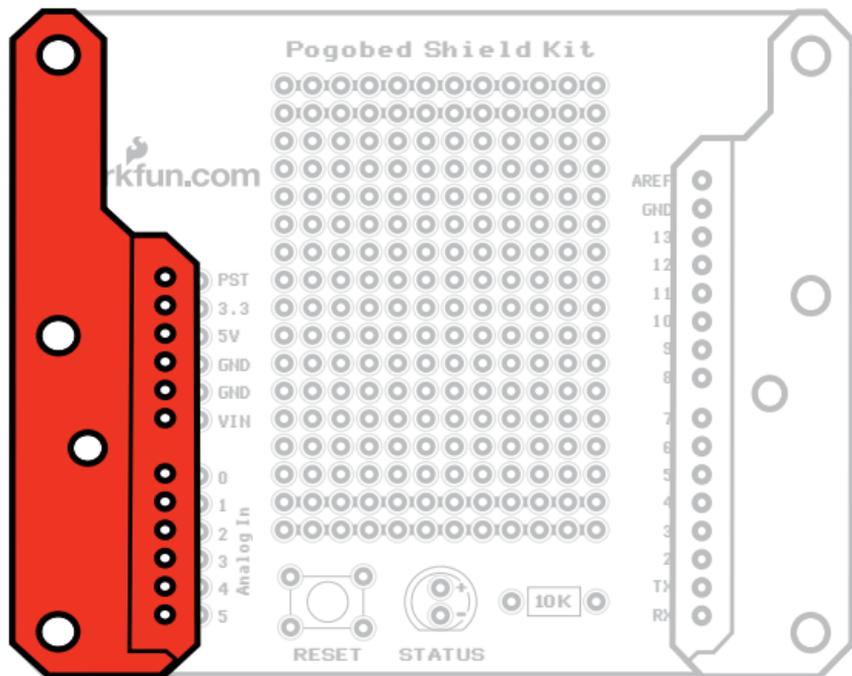


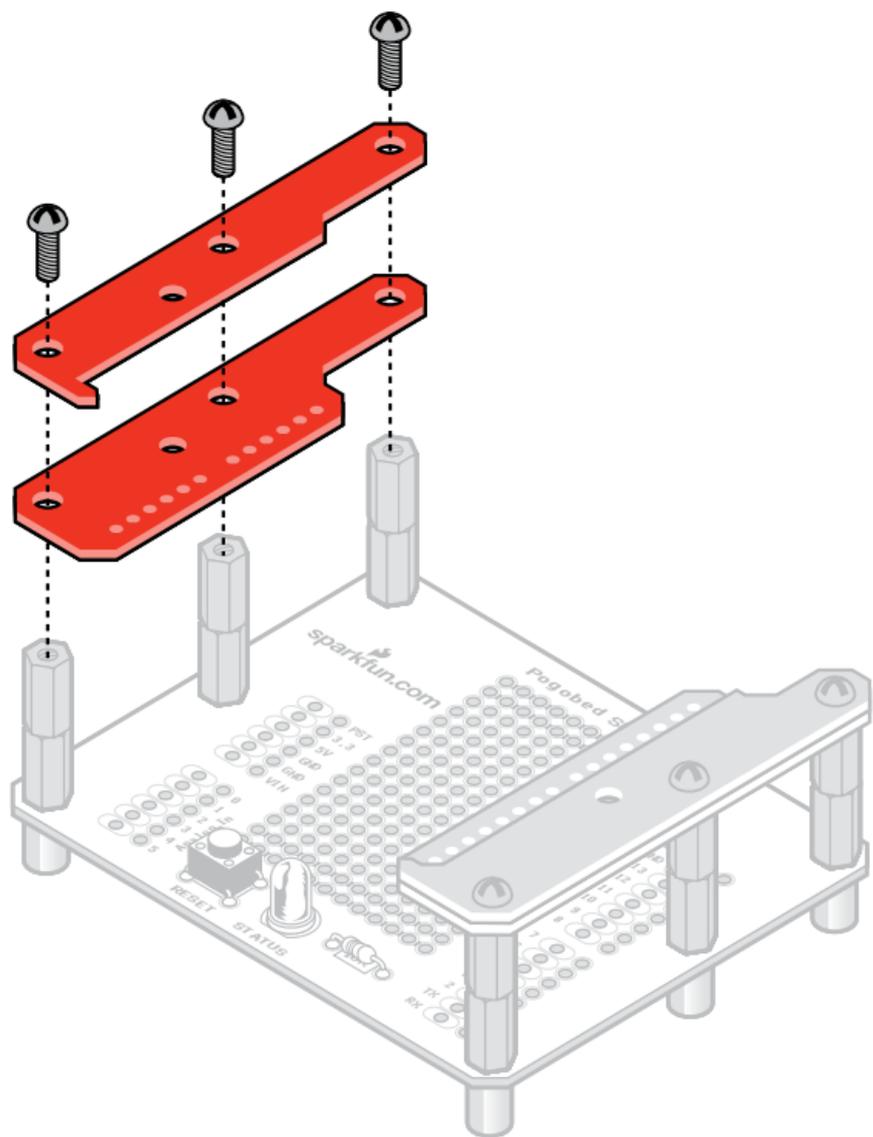


Repeat the process on the left side of the assembly, attaching the remaining two shield mounting bracket layers onto the standoffs with the remaining three $\frac{1}{4}$ -inch 4/40 screws.

18 Mounting Brackets

TOP OF BOARD



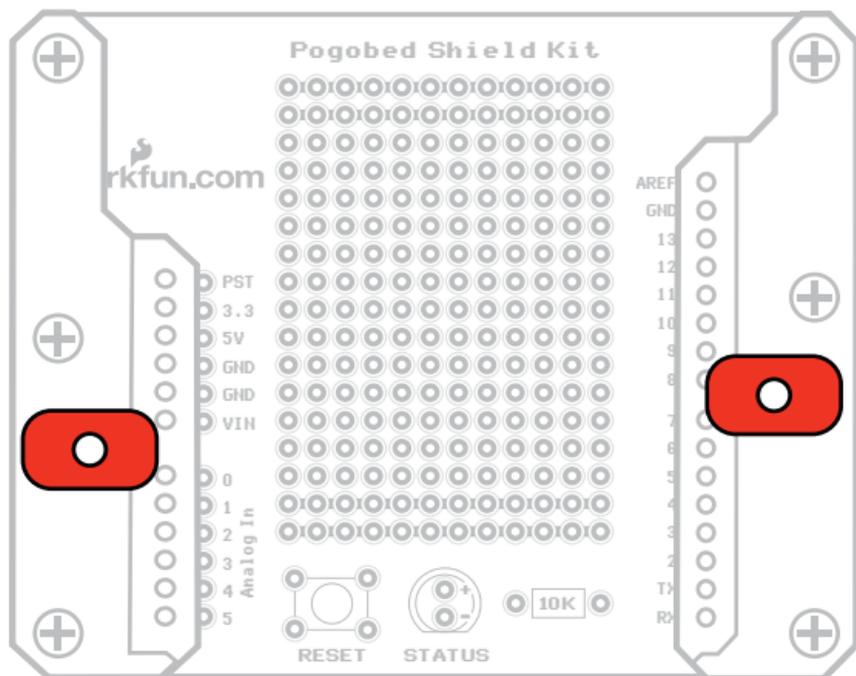


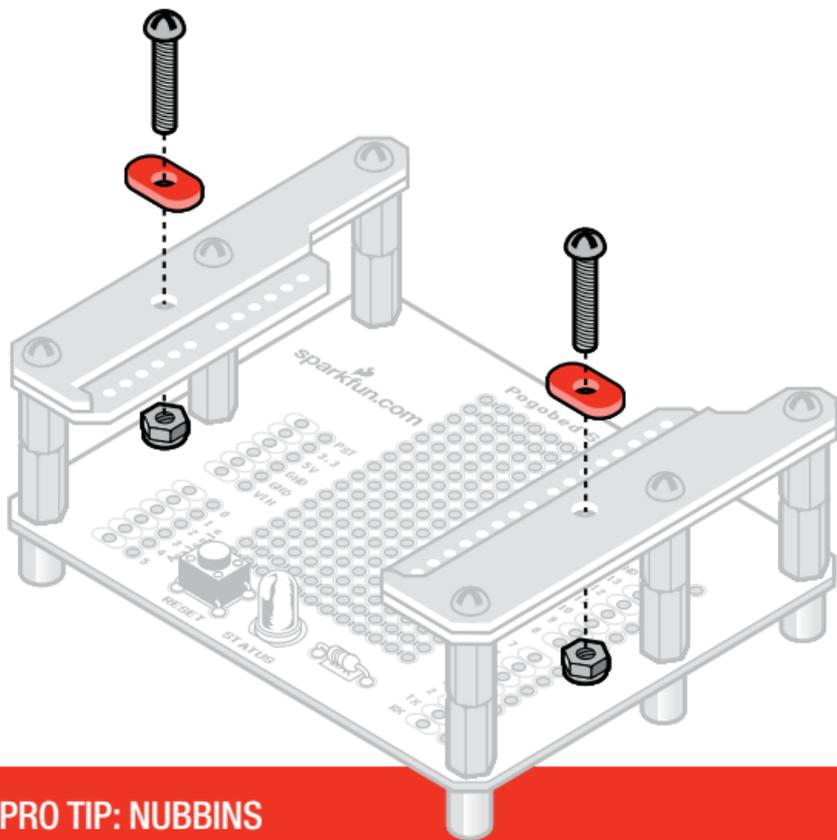


Attach the 'nubbins' – the tiny PCBs which say “turn me” on them – by first lining up the last remaining drill holes in the shield mounting brackets, and securing the nubbins below the brackets with a $\frac{3}{4}$ inch screw and locking nut.

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Nubbins





PRO TIP: NUBBINS



It's tricky to adequately tighten the locknut with your fingers. Holding the nut with a pair of needle-nose pliers will save time and frustration.

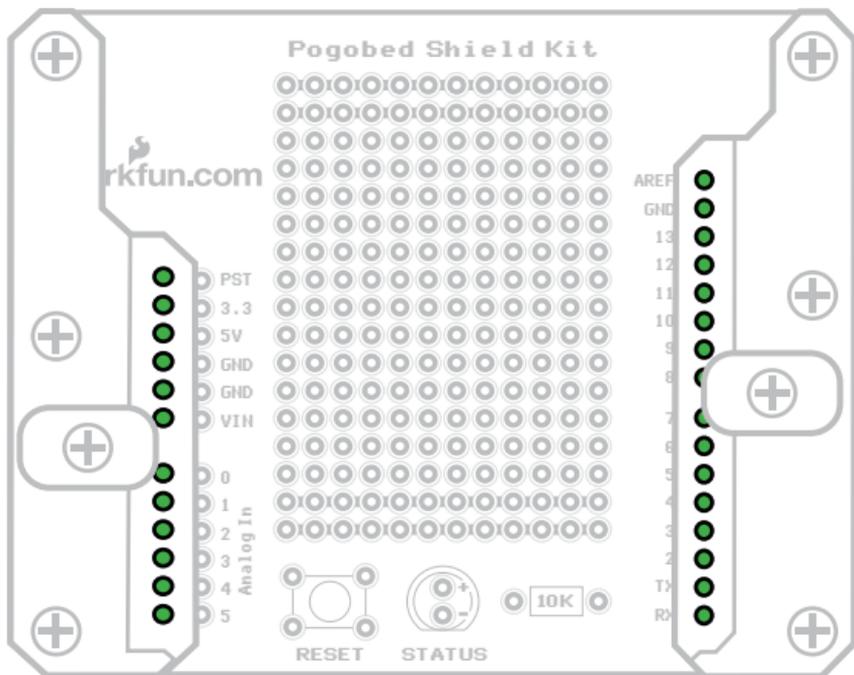


Locate the 28 spring-loaded pogo pins that will connect the main PCB to the Arduino Shield.

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Pogopins

TOP OF BOARD

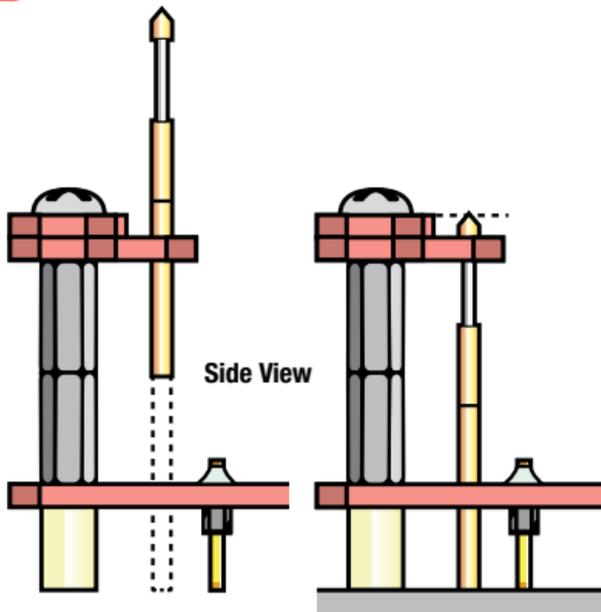




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Pogopins

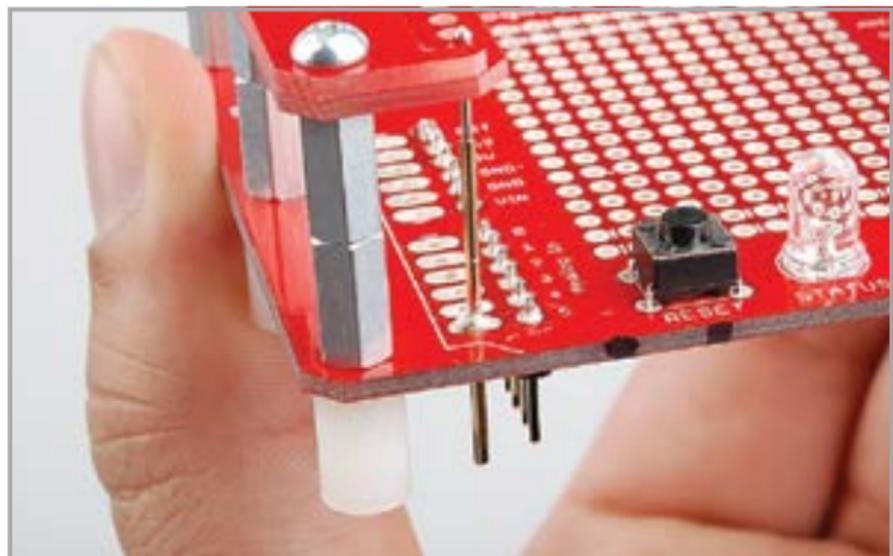
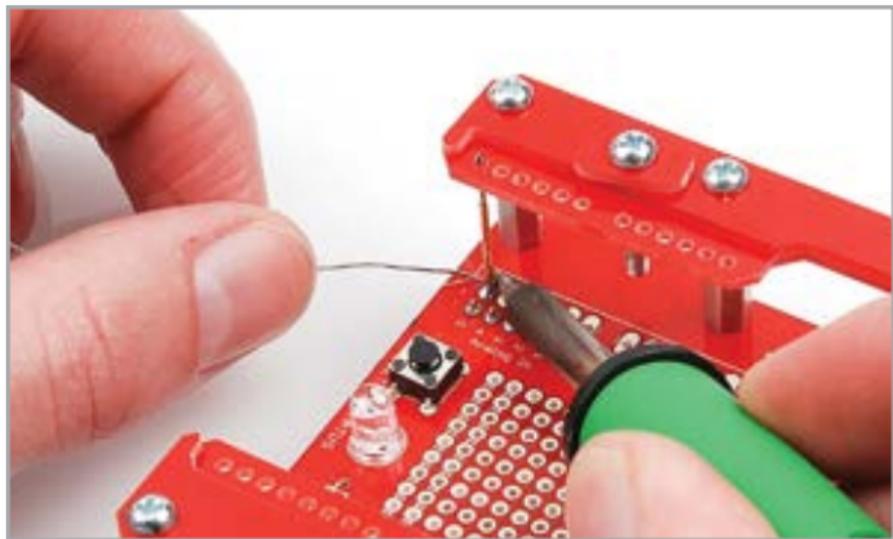
With the assembly flat on your work surface, insert each pogopin through the mounting bracket and through the corresponding hole in the main PCB. Solder each pin in place on the top side of the board.



PRO TIP: POGOPIN ALIGNMENT

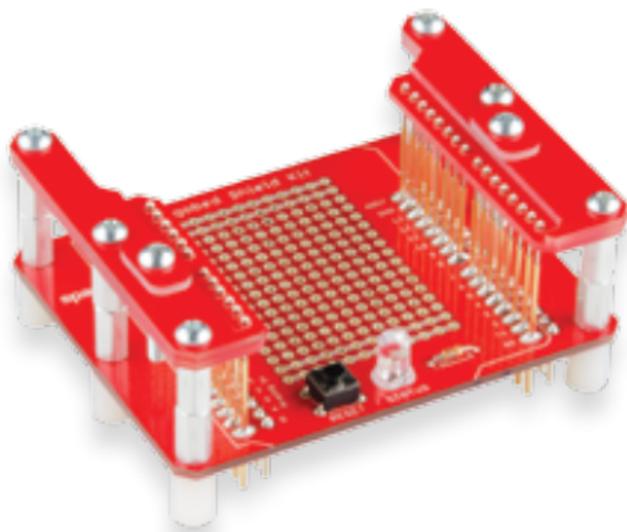
When the assembly is flat on your work surface, the tip of a properly inserted pogopin should protrude just slightly, about $1/32$ " , through the mounting bracket. If it protrudes less, check to be sure all of your standoffs are properly installed and tightened.



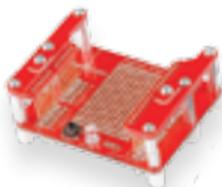


CONGRATULATIONS! IT'S A POGOBED

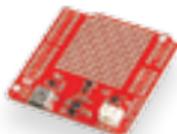
Your PogoBed Shield Kit is complete. You're ready to start working with any Arduino Shield! All you will need is an Arduino UNO or Pro and any Arduino Shield.



Arduino

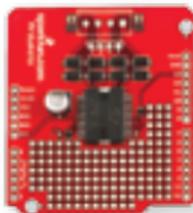


**SparkFun
Pogobed**



**SparkFun
Arduino shield**

A SHIELD FOR EVERY PROJECT



ArduMoto

Give your Arduino the power to act as a motor controller for robotics projects. Use this shield in anything from an autonomous robot to a DIY pinball machine.



Touch Shield

The Touch Shield converts your Arduino board into a touch sensitive control pad. Use it as a game controller, robot remote, or keypad.



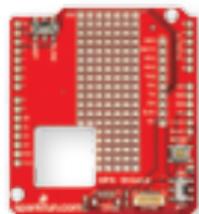
MP3 Player

Make your development board into a digital music player. Put it in a unique enclosure to have a one-of-a-kind media player.



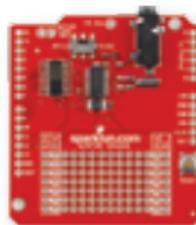
SD Shield

You can use this shield, with a standard SD card, to store data output from your Arduino project.



GPS Shield

The GPS shield makes it easy to incorporate GPS into your Arduino project.



AM/FM Shield

Harness the airwaves. Make your Arduino board into an AM/FM radio receiver.

AND THERE'S MORE: Check out other shield options at www.sparkfun.com

Learning More

How SparkFun Uses Pogobeds

Check out this tutorial (<http://www.sparkfun.com/tutorials/138>) to learn how SparkFun uses pogobeds in our own production and testing departments. This tutorial will show you how we build and use pogobeds in our product development, and give you helpful tips for developing your own custom testing boards!

Soldering

The tip of the iron is normally 700 °F, hot enough to melt metal. It is normal for the handle of the soldering iron to heat up a bit. Hold it like a pencil and move your hand further away from the tip if the heat is uncomfortable. The solder smokes because the rosin inside the solder is burning off - it's not harmful.

The PCB (Printed Circuit Board)

The PCB is where the magic happens - it is integral to the function of this product! It is designed to withstand the heat of the soldering iron and will stand up to normal use, but try to be gentle.



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