



Unit 4: PCB and Soldering

Schools of Specialized Excellence
Delhi Board of School Education



Session Plan

PCB - Printed Circuit Boards and Introduction to Soldering

Teacher Name		Target Grade	10	Curriculum Component	Applied Learning Module
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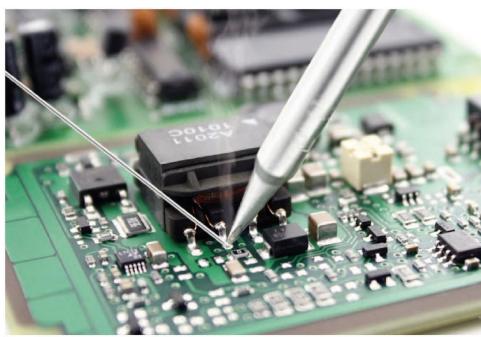
Module Title	Basics of Soldering		
Week Title	Printed Circuit Boards and Introduction to Soldering	Week Number	1
Important Concepts	<ul style="list-style-type: none">- Introduction to PCB & Soldering Process-Types of Soldering-Tools Required to do soldering and Desoldering-Safety Precautions-Hands on Activity		

Learning Standards
<ol style="list-style-type: none">1. Explain the basics of the Soldering Process.2. Describe the Types of Soldering.3. Discuss the Tools required to do Soldering.4. Demonstrate the Safety Precautions to be followed while doing Soldering.

Inquiry Questions
<ol style="list-style-type: none">1. What do you know about the Soldering Process?2. What is the temperature range required to do Soldering?3. Name the Material used for Soldering.

Classroom Inquiry Process



Day 1: Basics of Soldering	<p>Lesson Aims</p> <ol style="list-style-type: none">1. Explain the basics of the Soldering Process.2. Describe the Types of Soldering.3. Discuss the Tools Required to do Soldering & Desoldering.4. Hands-On Activity – Soldering Process <p>Activity Title:</p> <ol style="list-style-type: none">1. Ice-breaking on Soldering Process (10 Mins)2. Introduction to Soldering Process (10 Mins)3. Types of Soldering (10 Mins)4. Tools Required to do Soldering & Desoldering (15 Mins)5. Safe Soldering Work Practices (15 Mins)6. Hands-On Activity (40 Mins)7. Doubt Clarification / Q & A Session (10 Mins)8. Instructions for taking Home Assignment (10 Mins) (Individual) <p>Activity Description:</p> <ol style="list-style-type: none">1. Ice-breaking on Soldering Process: At the beginning, show them the Video or Sample PCB Board replicating the Soldering ART. Show them the PCBs from Real-Life Applications like Smartphones and USB drives. Video: https://www.youtube.com/watch?v=EREh-rGcV6g Video: https://www.youtube.com/watch?v=YJr-kHy6STg Video: What are PCBs? How do PCBs Work?2. Introduction to Soldering Process: 
	<ul style="list-style-type: none">● Soldering is a type of Metal joining process using Melting solder.



- Solder is made up of tin and lead, which is melted using a hot iron and is generally called Metal Alloy.
- The iron is heated to temperatures above 600 degrees Fahrenheit, which then cools to create a strong electrical bond between Joints.

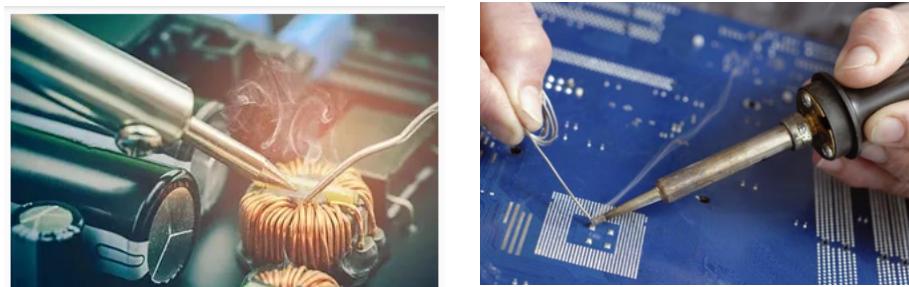
3. Types of Soldering:

- **Soft soldering (90 °C – 450 °C)**

This Type of Soldering melts alloys containing lead with a low melting point.

The solder used in this soldering process is often made of a mixture of tin and other metals.

Applications: It is used for joining wires and small components.



Soft Soldering

- **Hard soldering (above 450 °C)**

Hard (silver) soldering (>450 °C) – Brass or silver is the bonding metal used in this process which requires a blowtorch to achieve the temperatures at which the Soldering can be done.

Applications: It is used for Pipe Joining applications in Plumbing & Electrical.





- **Brazing (above 450 °C)**



This Type of Soldering Generally uses metals with a much higher melting point than other types. It is suitable for metal repairs and pipe joining in all Industrial Applications.

4. Tools Required to do Soldering & Desoldering:

- **Soldering Station:**

A soldering station is a complete kit that comes with all the essential tools for soldering which includes a soldering iron, Iron Stand, Power Source and desoldering tools.





- **Soldering Iron:**

- This is the most basic soldering equipment that is shaped in the form of a pen with a Tip.
- Heat the tip of the iron by powering the Soldering Iron. Once heated to Desired Temperature, place it on the solder and melt it.



- **Desoldering Station:**

After the soldering process, the desoldering station uses either hot air or a vacuum to melt and remove excess solder.

The heating element heats the air which melts the solder and can remove the solder easily.





- **Solder:**

- This is the type of filler material that melts and joins the two materials. The Thumb rule is that it should have a lower melting point than the materials to be soldered.
- At first, the Solder will melt and then bond the materials.



- **Solder Flux:**

- This is a type of chemical agent that is used to clean the surface of the metals that are to be joined. You can solder without applying flux, then the joints might not be bonding enough and it can be broken easily.
- The flux removes the oxides formed on metal surfaces and prevents further oxidation and strengthens the soldering joints.





- **Soldering Wick:**

- Soldering wick is a type of desoldering tool made of intertwining copper wires. When you place the tip of the soldering wick and heat it, the wick will melt the solder and absorb it.
- Once a portion of the soldering wick is covered with solder, you will have to remove the part.



5. Safe Soldering Work Practices:

- **Electrical Safety-** Electric soldering irons are plug-in appliances and must have a Test Tag on current safety. This confirms that the soldering iron conforms to electrical safety standards and has not been damaged at the time of the test.
- **Soldering Iron Safety -** Never touch the element or tip of the soldering iron. It is very hot (about 400°C) and will burn. • Hold wires to be heated with tweezers, pliers, or clamps to avoid receiving burns from objects that are heated.
- **Personal Protective Equipment** -To prevent burns from splashes of hot solder, long sleeve shirts or lab coats and pants that are made of natural fibres (cotton) and closed-toe shoes should be worn. Safety glasses or goggles should be used when soldering and clipping wires.

6. Hands-On Activity: Introduction to Soldering Traffic Light

Refer the Activity Sheet

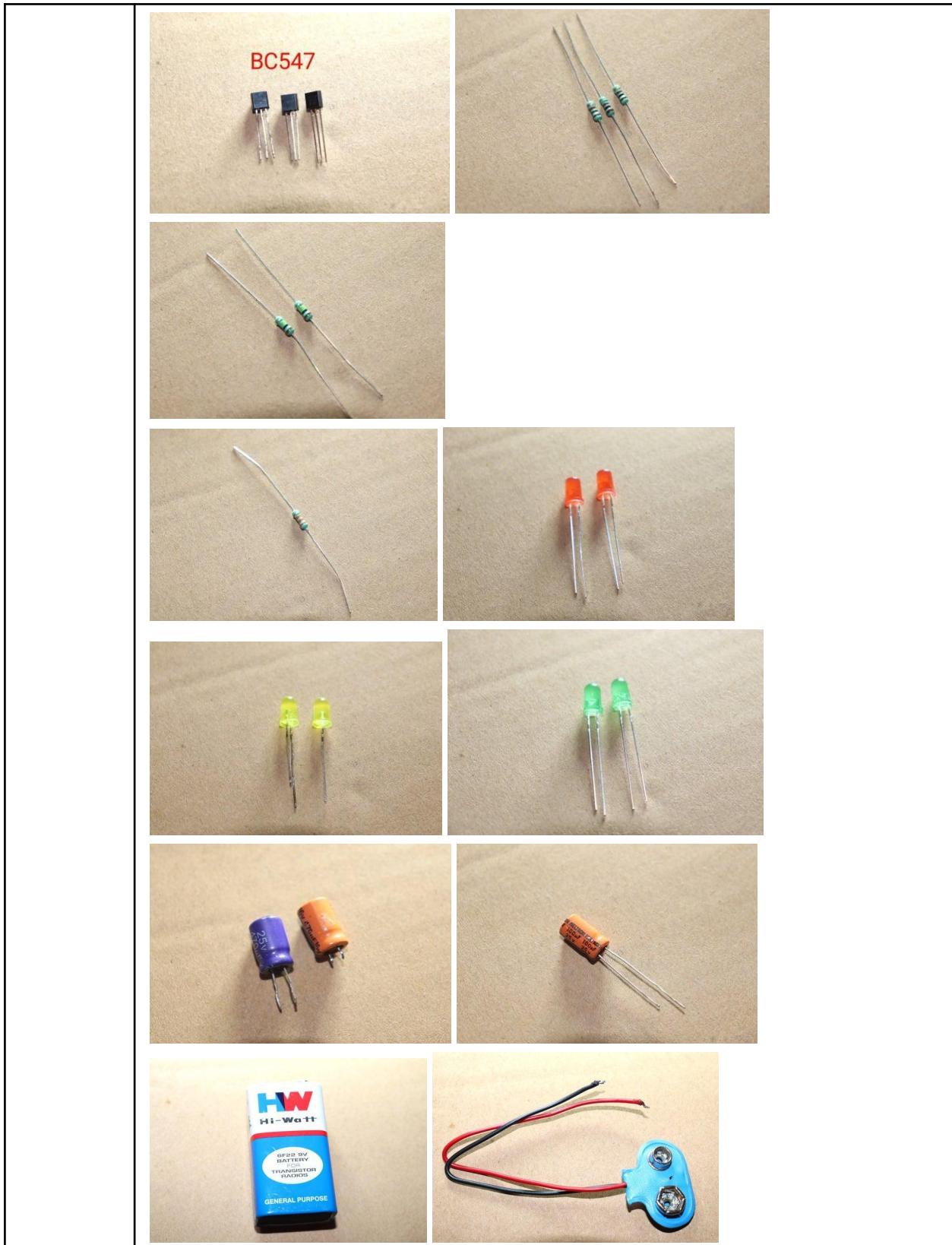
1. **Activity Name** - Introduction to Soldering Traffic Light
2. **Material requirement –**



- Transistor - BC547 x3
- Resistor - 1K x3
- Resistor - 100K x2
- Resistor - 33K x1
- Red LED - 3V x2
- Yellow LED - 3V x2
- Green LED - 3V x2
- Capacitor - 25V 470uf x2
- Capacitor - 25V 100uf x1
- Battery - 9V x1
- Battery clipper x1

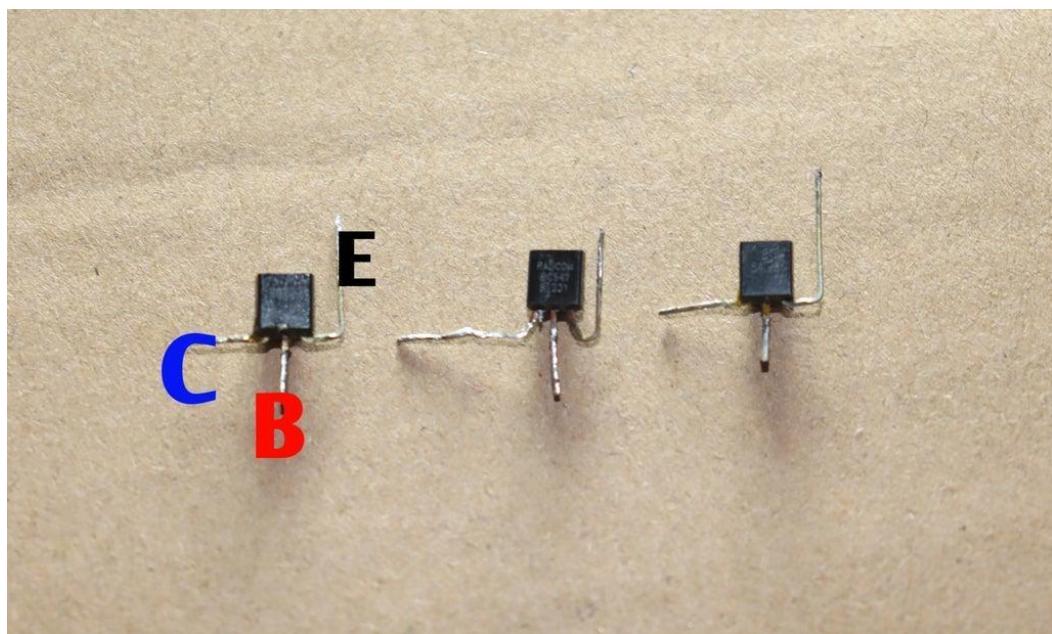
3. Procedure –

Step 1: Take All Components As Shown Below





Step 2: Fold Pins of Transistors like This



Step 3: Connect Red LED to Transistor



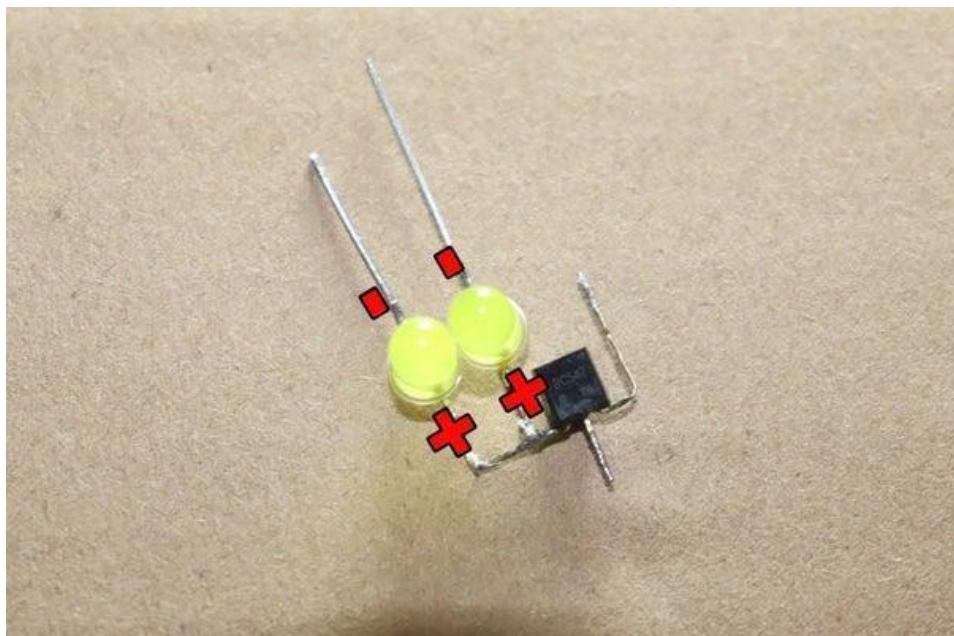
Solder +ve legs of Both Red LED to the Collector pin of a Transistor.

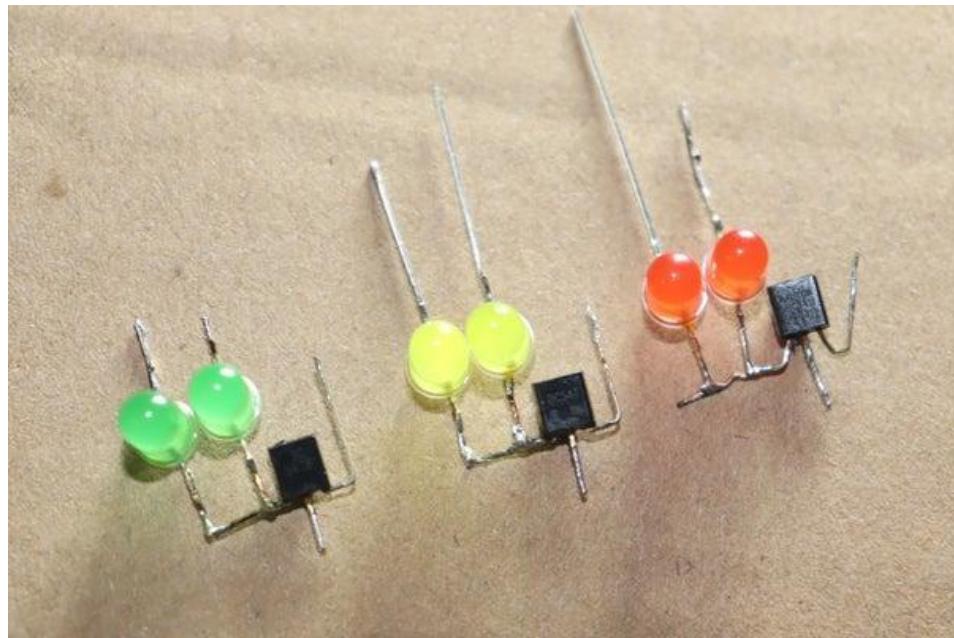
Step 4: Connect Green LED to Transistor



Solder +ve legs of Both Green LEDs to the Collector pin of the 2nd Transistor.

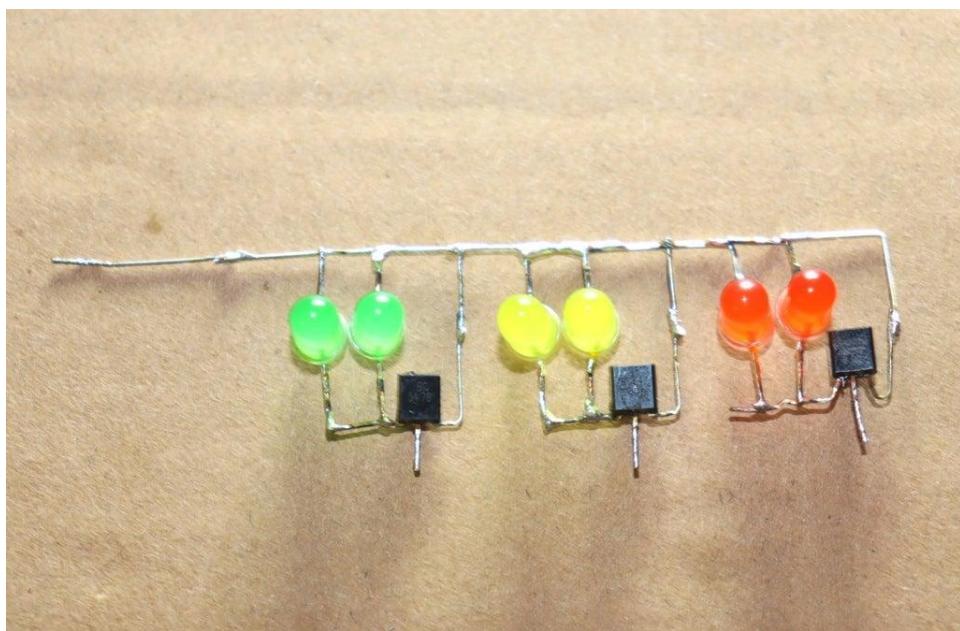
Step 5: Connect Yellow LED to the Transistor





Solder and +ve legs of Both Yellow LEDs to the Collector pin of 3rd Transistor as solder in the picture.

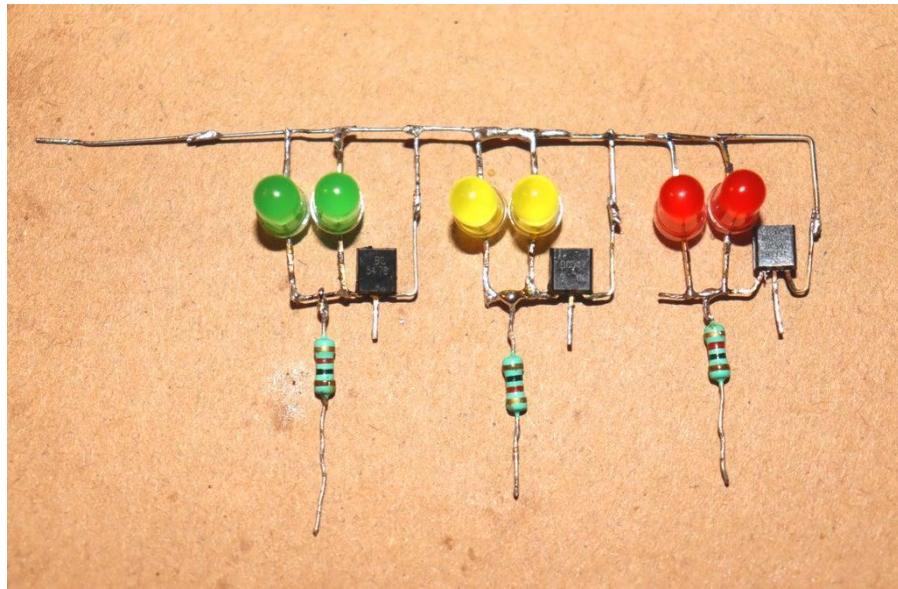
Step 6: Connect Emitter of Transistors





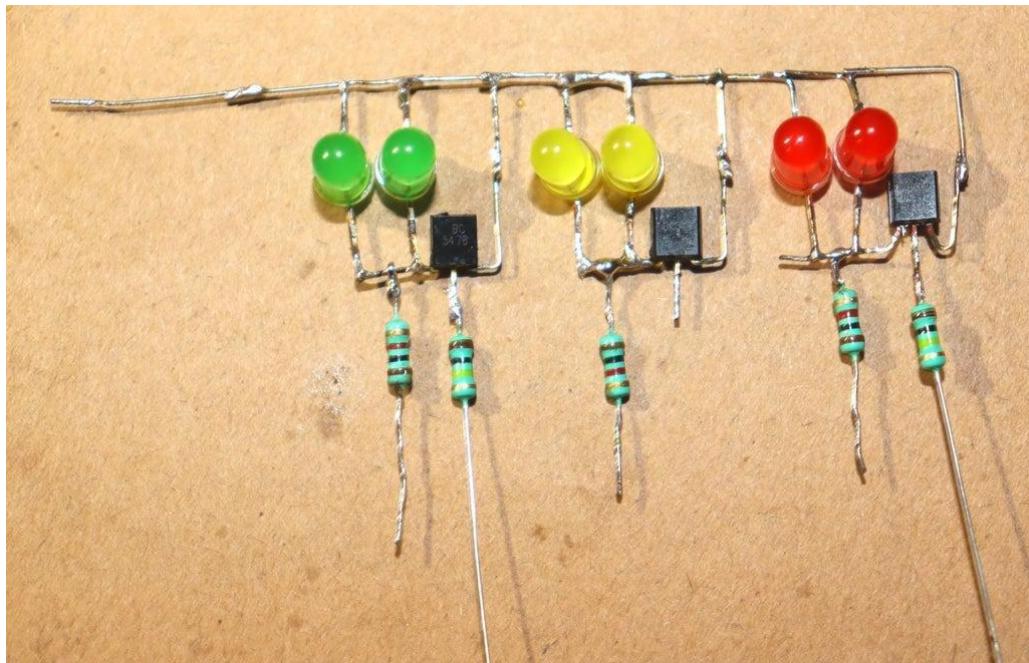
Next, we have to connect the emitter pins of all transistors and -ve legs of all LEDs (Red, Green and Yellow) to each other, as you can see in the picture.

Step 7: Connect 1K Resistors.



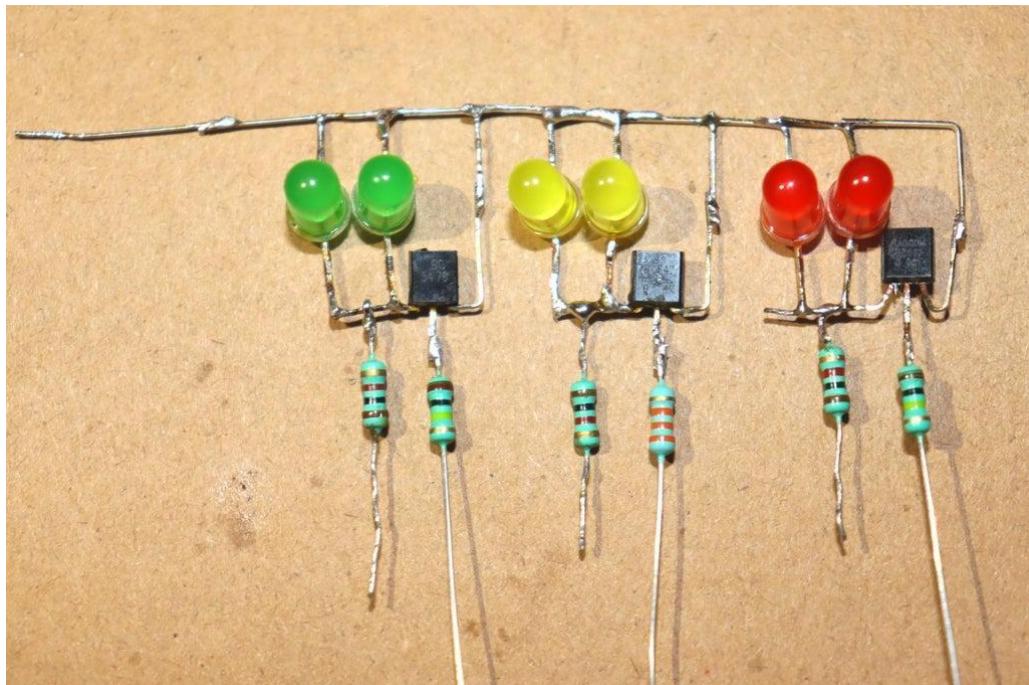
Next Connect 1K resistors to the Collector pins of all transistors as solder in the picture.

Step 8: Connect 100K Resistors



Next solder 100K resistors to the Base pin of Green and Red LED Transistor as you can see in the picture.

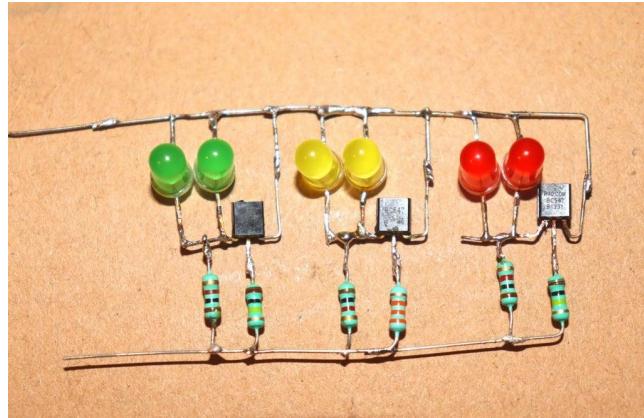
Step 9: Connect 33K Resistor





Solder 33K resistor to the Base pin of the Yellow LED Transistor as solder in the picture.

Step 10: Connect Out Wires of All Resistors



Next, we have to solder Out the wires of all Resistors, as you can see in the picture.

Step 11: Connect the 100uf Capacitor

Next, solder the +ve pin of the 100uf capacitor to the Base pin of the Yellow LED Transistor and the Solder -ve pin to the Collector pin of the Red LED Transistor, as you can see in the picture.

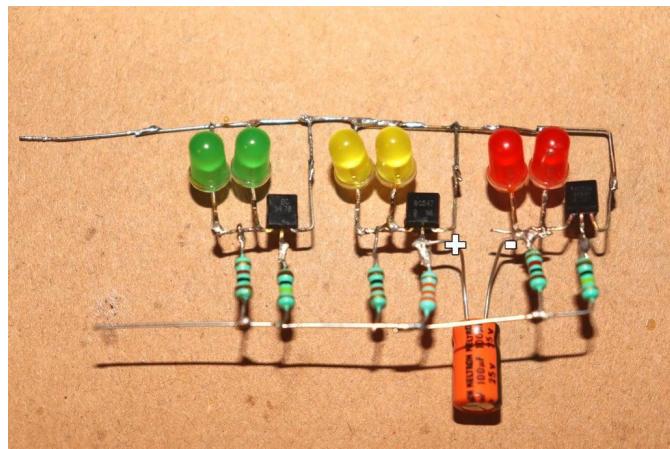


Step 12: Connect 470uf Capacitors



[Capacitor 1] - Next, connect the +ve pin of the 470uf capacitor to the Base pin of the Green LED and the solder -ve pin to the Collector pin of the Yellow LED as solder in the picture.

[Capacitor 2] - Solder -ve pin of 2nd 470uf capacitor to Collector pin of Green LED Transistor.

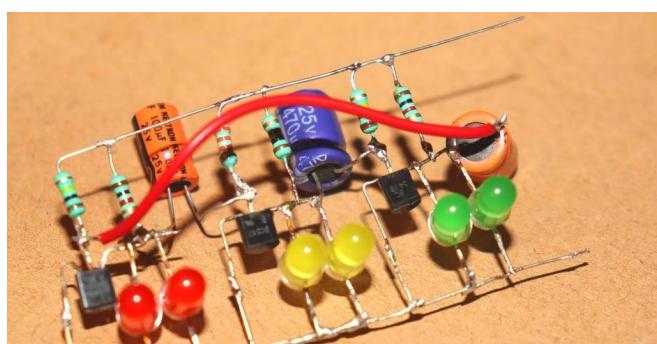


Step 13: Connect +ve Pin of 2nd 470uf Capacitor

Solder +ve pin of 2nd 470uf Capacitor to Base Pin of Red LED Transistor using a wire, as you can see in the picture.

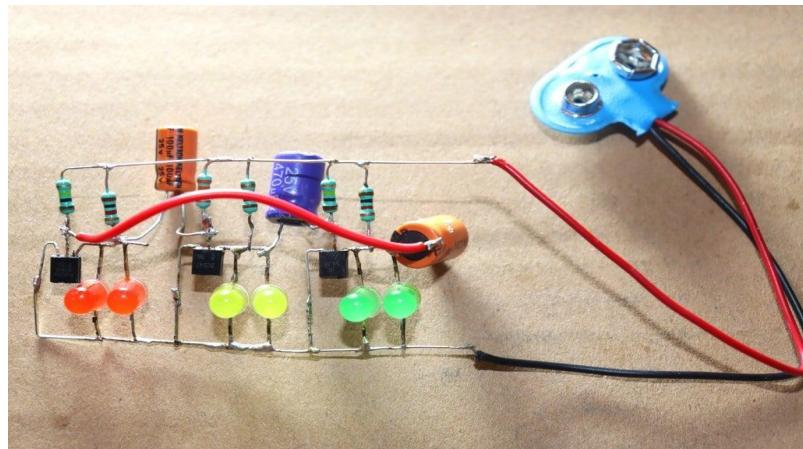
Step 14: Connect Battery Clipper Wire

Solder +ve wire of battery clipper to Out wires of all resistors and -ve wire to standard emitter pins of transistors and -ve legs of LEDs as connected in the picture.





Step 15: Connect Battery.



Now the circuit is completed, so connect the Battery to the battery clipper and see how the Traffic Light is glowing.

4. Final product -



Interesting Fact!

NOTE: We can Increase/Decrease the timing of Red, Green and Yellow wire glowing by changing the values of capacitors.

Video Links!

<https://www.youtube.com/watch?v=ujV5YwxhbTI>
https://www.youtube.com/watch?v=DzMGJwg3K_U

7. Doubt Clarification /Q & A Session- Do the Learning check using these Prompt Questions:

- Explain the types of the Soldering Process.
- Explain the Functions of Tools Required to do Soldering.



8. Take-Home Assignment

In your Handouts, list the things you shouldn't follow while soldering in your student handouts.

Refer to This Video: <https://www.youtube.com/watch?v=VCXsS1iHN4A>

References

Watch This Video: <https://www.youtube.com/watch?v=oqV2xU1fee8>



<p>Day 2: Circuit building using Soldering.</p>	<p>Lesson Aims</p> <ol style="list-style-type: none">1. Explain the essential parts to make up a Soldering Iron.2. Describe the Procedures for Soldering in a Zero PCB.3. Demonstrate the Handling of Soldering Tools.4. Hands-On Activity – Make a Circuit on Zero PCB & Do the Soldering Rushmore Circuit. <p>Activity Title:</p> <ol style="list-style-type: none">1. Ice-breaking on Soldering Process (10 Mins)2. Introduction to Basic Parts to Make a Soldering Iron (20 Mins)3. Hands-On Activity -Procedures to Prepare for Soldering (20 Mins)4. Hands-On Activity-Procedures to Perform Soldering (40 Mins)5. Safety Precautions while performing the activity (10 Mins)6. Doubt Clarification / Q & A Session (10 Mins)7. Instructions for taking Home Assignment (10 Mins) (Individual) <p>Activity Description:</p> <p>Ice-breaking on Soldering Process: At the beginning, show them the Competition videos from IPC India to get Awareness about this Skill.</p> <p>Watch This Video: https://www.youtube.com/watch?v=Xw-tcIL9z4s</p> <p>1. Introduction to Basic Parts to make up a Soldering Iron:</p> <ul style="list-style-type: none">● Soldering Irons <p>Tips - No iron is complete without an iron tip. The tip is the part of the iron that heats up and allows the solder to flow around the two components being joined. Although solder will stick to the tip when applied, a common misconception is that the tip transfers the solder.</p> <p>The tip transfers heat, raising the temperature of the metal components to the melting point of the solder, and the solder melts accordingly. Most irons give you the option to change your tip should you need to replace an old tip or if you need to switch to a different style of tip. Tips come in a variety of sizes and shapes to accommodate any component.</p>
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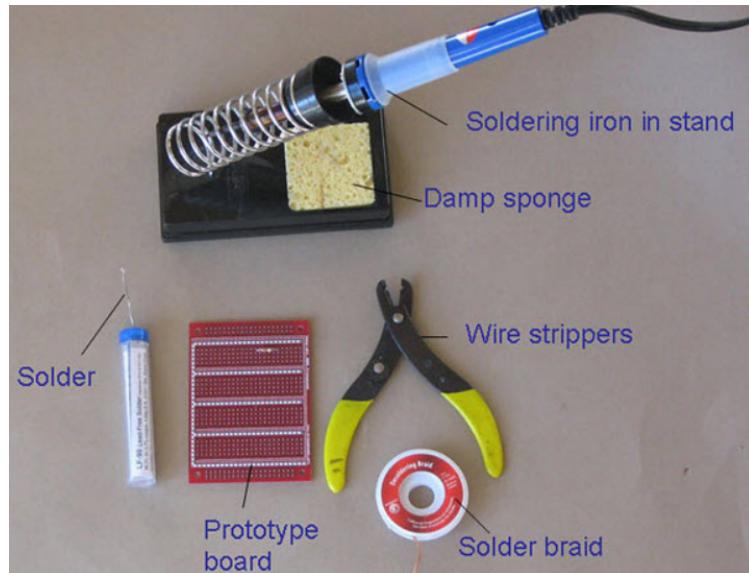
Tips

- **Wand** - The wand is the part of the iron that holds the tip. This is also the part that the user handles. Wands are usually made of various insulating materials (such as rubber) to prevent the heat of the tip from transferring to the outside of the wand. They also house wires and metal contacts that transfer heat from the base or outlet to the tip. This dual role of heating and preventing burns makes a high-quality wand much appreciated.



Wand

Tools Required to Perform Soldering:



2. Hands-On Activity -Procedures to Prepare for Soldering:

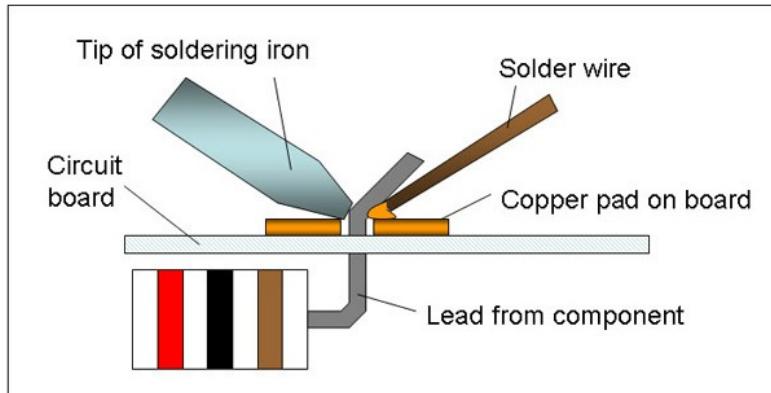
1. Place the soldering iron in its stand and plug it in.
2. Wait for the soldering iron to heat up.
3. Moisten the sponge.
4. Wipe the tip of the iron on the damp sponge. This will clean the tip.
5. Melt a little solder on the tip of the iron.
 - o This is called *tinning* and will help the heat flow from the iron's tip to the joint.
 - o The solder should flow onto the tip, producing a bright shiny surface.
 - o If the solder will not flow onto the tip, clean it by wiping it on the wet sponge.
 - o When tinned, wipe excess solder off on the wet sponge.
 - o You do not need to tin the tip before every joint, but you should re-tin it if it has gone dull when the soldering iron has not been used for a few minutes.
 - o Check the manufacturer's instructions related to tinning the tip.
6. The tip of the soldering iron should be a shiny silver color. If it is black and pitted, replace it with a new one.

3. Hands-On Activity-Procedures to Perform Soldering:

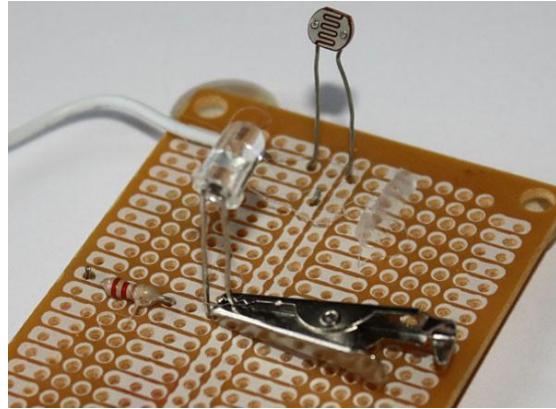
1. Solder needs a clean surface on which to adhere.



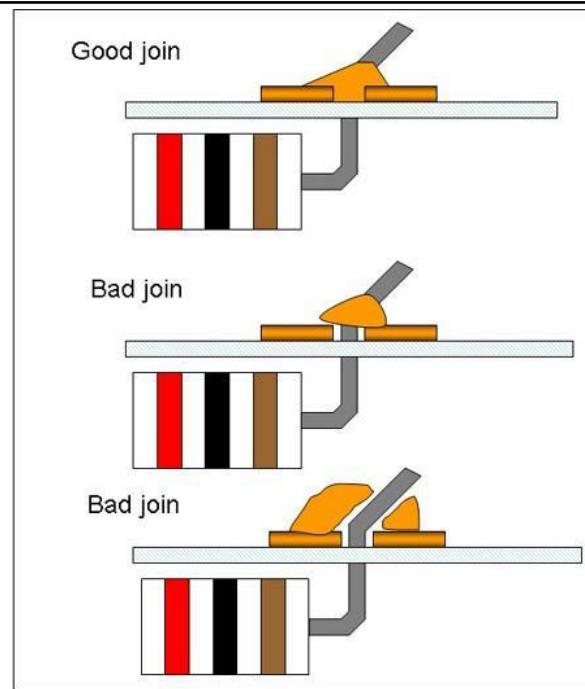
- o Buff the copper foil of a PC board with steel wool before soldering.
 - o Remove any oil, paint, wax, etc., with a solvent, steel wool, or fine sandpaper.
2. To solder, heat the connection with the tip of the soldering iron for a few seconds, then apply the solder.
- o Heat the connection, *not* the solder.
 - o Hold the soldering iron like a pen near the base of the handle.
 - o Both parts that are being soldered must be hot to form a good connection.
3. Keep the soldering tip on the connection as the solder is applied.
- o Solder will flow into and around well-heated connections.
 - o Use just enough solder to form a strong connection.
4. Remove the tip from the connection as soon as the solder has flowed where you want it to be. Remove the solder, then the iron.



5. Don't move the connection while the solder is cooling.
6. Don't overheat the connection, as this might damage your soldering electrical component.
- o Transistors and some other components can be damaged by heat when soldering. A crocodile clip can be used as a heat sink to protect these components.



7. Soldering a connection should take just a few seconds.
 - o If it is taking longer, see the troubleshooting section below.
8. Inspect the joint closely. It should look shiny (note: lead-free solder may appear dull, this is OK).
 - o If you are soldering a wire (called the *lead*) onto a PC board (on the *track*), it should have a volcano shape.
 - o If the connection looks bad, reheat it and try again.



9. Wipe the tip of the iron on a damp sponge to clean it. The tip should now be shiny.
10. Unplug the soldering iron when it is not in use.





4. Introduction to Third-hand Soldering Tool:



- **Cast Iron Base:** The soldering station with magnifier is made of heavy cast iron, which is not easy to rust. It can increase the weight of the base to keep the equipment upright and provide stability to prevent work movement. This tool lets you do precise, detailed work on small parts.
- **360 Degree Angle Rotate** The helping hand magnifying glass with adjustable alligator clip, other joints and lens can be rotated 360 degrees to place it completely where needed. Each joint is equipped with a screw that can twist elastic, adjust freely at any point of view, and be flexible and convenient.
- **2.5X Magnification Times:** The third-hand soldering stand with a magnifying glass has a 2.5X magnification and a lens diameter of 62mm. The fully extended width of the Helping hand's magnifier is 10.5 inches, and the height is 7.75 inches. It can be folded, compact after folding, and has a small footprint.
- **Third-Hand Design:** The soldering helping hand with the alligator clip provides a third extra hand. That can be placed at all angles while releasing your hand and make you clip on & work on anything from soldering to macro detailed, delicate arts/crafts to improve precision.



- **Multiple Uses:** Magnifying glass stand suitable for mobile phones and other small electronic circuit board inspection and maintenance, welding repair, jewellery making, watch repair, DIY fine crafts, model making, observe carving, painting miniatures, splinter removal etc.

5. Safety Precautions while performing the activity

1. A soldering iron can heat to around 400°C, which can burn you or start a fire, so use it carefully.
2. Unplug the iron when it is not in use.
3. Keep the power cord away from spots where it can be tripped over.
4. Take great care to avoid touching the tip of the soldering iron on a power line. If a power cord is touched by a hot iron, there is a serious risk of burns and electric shock.
5. Always return the soldering iron to its stand when it is not in use.
6. Never put the soldering iron down on your workbench, even for a moment!
7. Work in a well-ventilated area.
8. The smoke that will form as you melt solder is mostly from the flux and can be quite irritating. Avoid breathing it by keeping your head to the side of, not above, your work.
9. Solder contains lead, which is a poisonous metal. Wash your hands after using the solder.

6. Doubt Clarification /Q & A Session- Do the Learning check using these Prompt Questions:

- Explain the Safety Precautions to be followed while soldering?
- Describe the method to do rework on bad connections.

7. Take-Home Assignment

Make a Chart of Tips to improve Soldering skills:

Watch This Video:

10 Soldering Tips to Instantly Improve Your Soldering Skills

References

Watch This Video: <https://www.youtube.com/watch?v=AqvHogekDI4>



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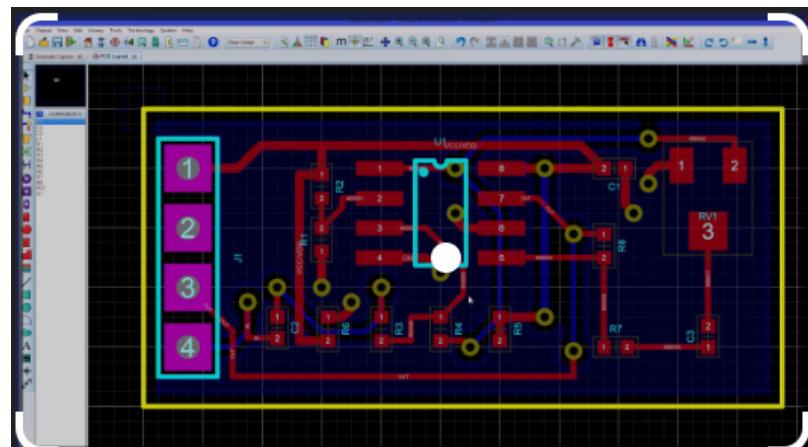


Day 3: PCBs & its Types	<p>Lesson Aims:</p> <ol style="list-style-type: none">1. Explain the PCBs & How they Manufacture.2. Discuss the Types of PCBs.3. Describe the Applications of PCB.4. Activity – Identification of Different PCBs & Name them. <p>Activity Title:</p> <ol style="list-style-type: none">1. Ice-breaking on PCBs (10 Mins)2. Introduction to PCB (10 Mins)3. PCB Manufacturing Process (20 Mins)4. Types of PCB (20 Mins)5. Applications of PCB (20 Mins)6. Activity -Identification of Different PCBs & Name Them. (15 Mins)7. Doubt Clarification / Q & A Session (10 Mins)8. Instructions for taking Home Assignment (15 Mins) (Individual) <p>Activity Description:</p> <ol style="list-style-type: none">1. Ice-breaking on PCBs: At the beginning, show them the real PCBs of Electronics Devices like Smart Phone, USB Drive & Discuss the importance of PCB. Video: https://www.youtube.com/watch?v=YJr-kHy6STg2. Introduction to PCB: A printed circuit board (PCB; also printed wiring board or PWB) is a medium used in electrical and electronic engineering to connect electronic components to one another in a controlled manner.
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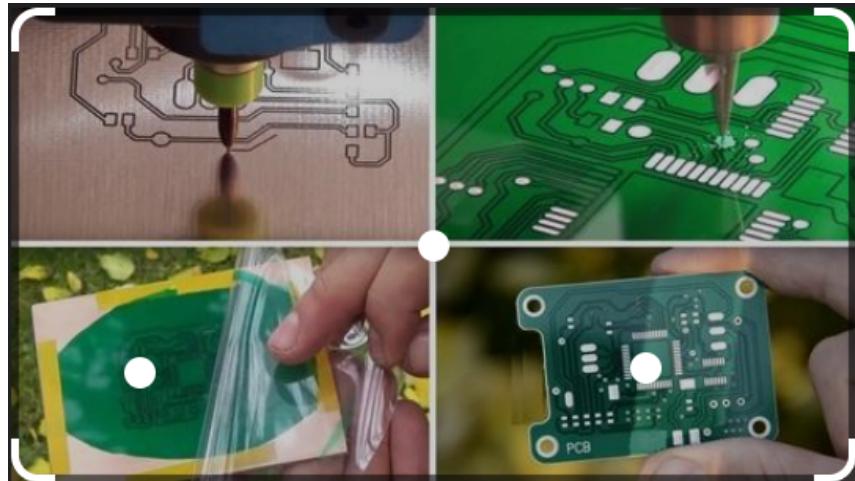
3. PCB Manufacturing Process:

PCB Development: PCB development can be defined as taking a circuit board design from the design to the production. This typically includes three stages: design, manufacturing, and testing. And for all but the most straightforward designs, this process is iterative to arrive at the highest quality design within the development time allotted.

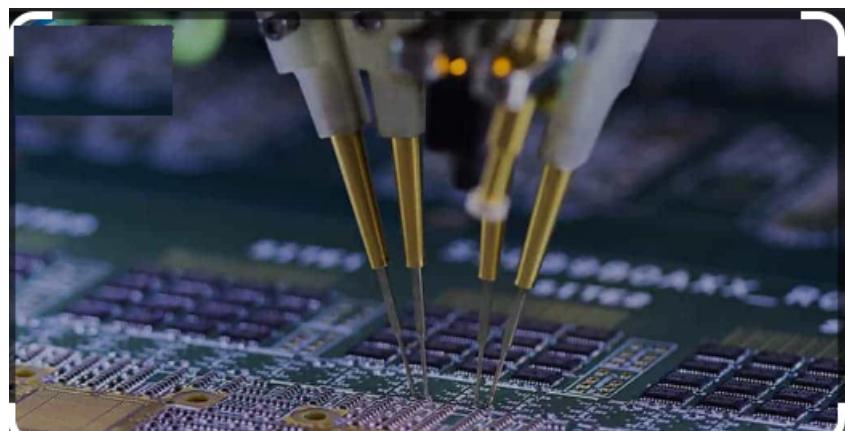




PCB Manufacturing: PCB manufacturing is the construction of your board design. This two-step process begins with board fabrication and ends with printed circuit board assembly (PCBA).

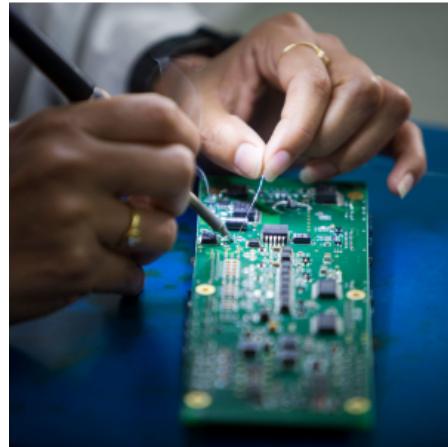


PCB Testing: PCB testing, sometimes referred to as bring up, is the third stage of PCB development, performed after manufacturing. Testing during development is done to evaluate the board's ability to perform its intended operational functionality. During this stage, any errors or areas where the design should be modified to improve performance are identified, and another cycle is initiated to incorporate the design changes.



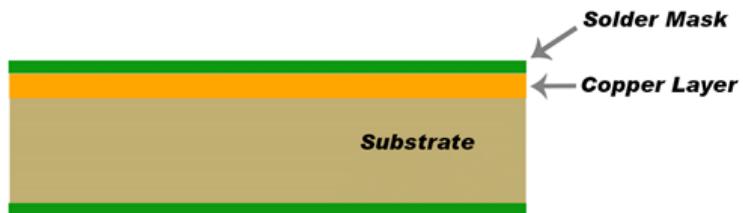


PCB Assembly: PCB assembly or PCBA is the second step or stage of PCB manufacturing in which the board components are mounted to the bare board through a soldering process.



4. Types of PCB:

Single-Sided PCBs- A single-sided PCB is the most common type of printed circuit board. It has a single conductive copper layer above the substrate. The electrical components are soldered or placed on one side of the board, and the entire etched circuit is visible on the other.



Advantages of Single-Sided PCBs

1. Easy to manufacture
2. Suitable for low-density designs
3. Easy to repair if in case something goes wrong
4. Easy to design
5. Cost-effective



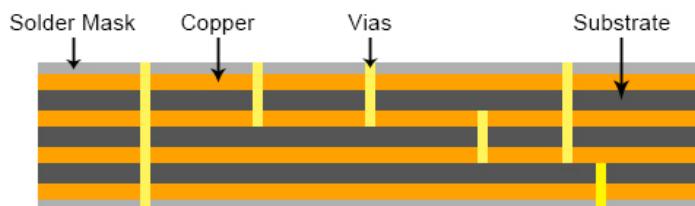
Double-Sided PCBs- A thin layer of conducting material, such as copper, is added to the board's top and bottom sides in a double-sided PCB. Holes in the circuit board allow metal parts to be connected from one side to the other.

Advantages of Double-Sided PCBs

1. The reduced size makes the circuit compact
2. Relatively lower cost
3. More flexible
4. Increased circuit density
5. Suitable for advanced electronic systems.



Multilayer PCBs- Multilayer PCBs have more than two copper layers. Multilayer PCBs are designed in a 'sandwich' fashion, with several double-sided conductive layers divided by an equal number of insulating material sheets.



Advantages of Multi-Layer PCBs

1. Compact in size
2. More robust
3. High level of design flexibility



4. Suitable for high-speed circuits

5. Applications of PCB:

- Medical Devices- Medical imaging systems



- LED's-Residential, Medical Lighting



- Consumer Electronics-Communication Devices, Home Appliances





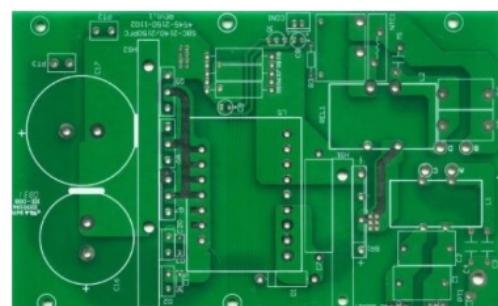
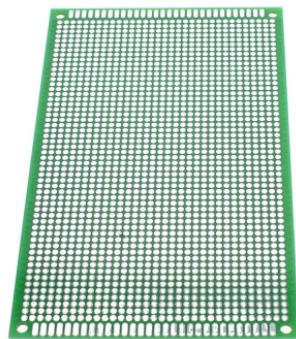
- Industrial Equipment- Manufacturing, Measuring Equipment

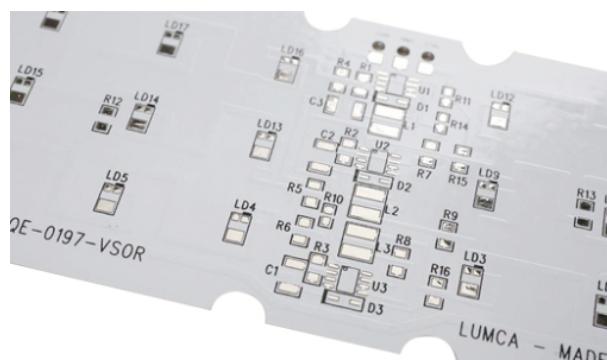
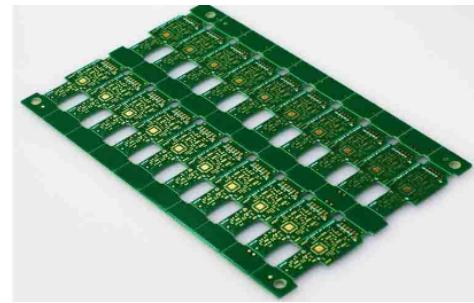
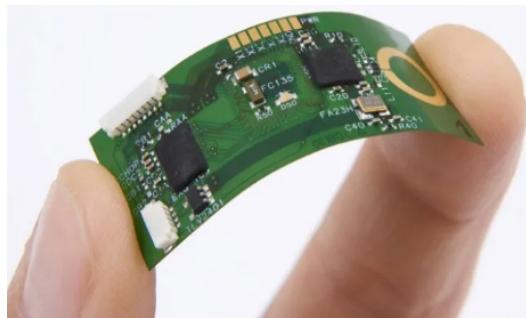


- Automotive Components-Entertainment, Navigation System



6. Activity -Identification of Different PCBs & Name Them:





7. Doubt Clarification /Q & A Session- Do the Learning check using these Prompt Questions:

- Mention the Application of Single Sided PCBs?
- Mention the Advantages of having Multi-Layer PCBs.

8. Take-Home Assignment:

Make Flashcards on Different types of PCB.

Watch This Video: [Types of PCB](#)

References:

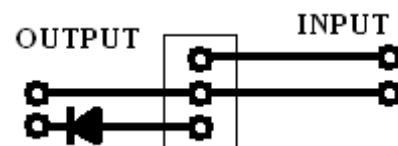
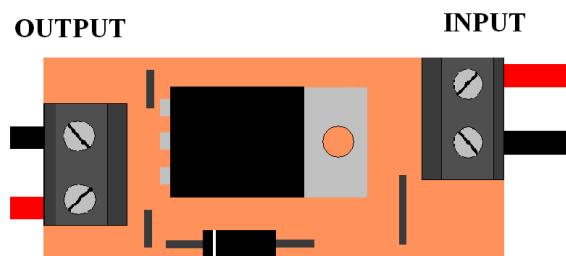
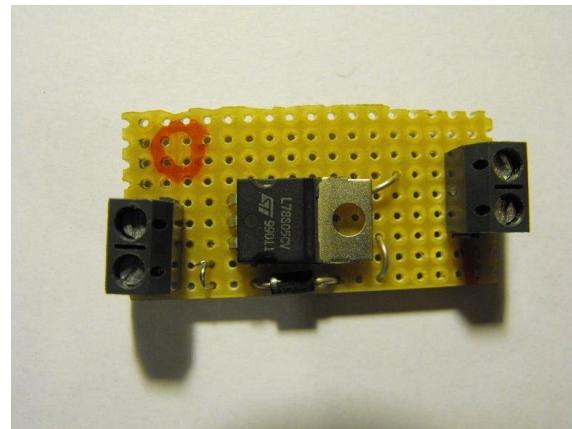
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How Do PCB Work? [How Do PCBs Work?](#)

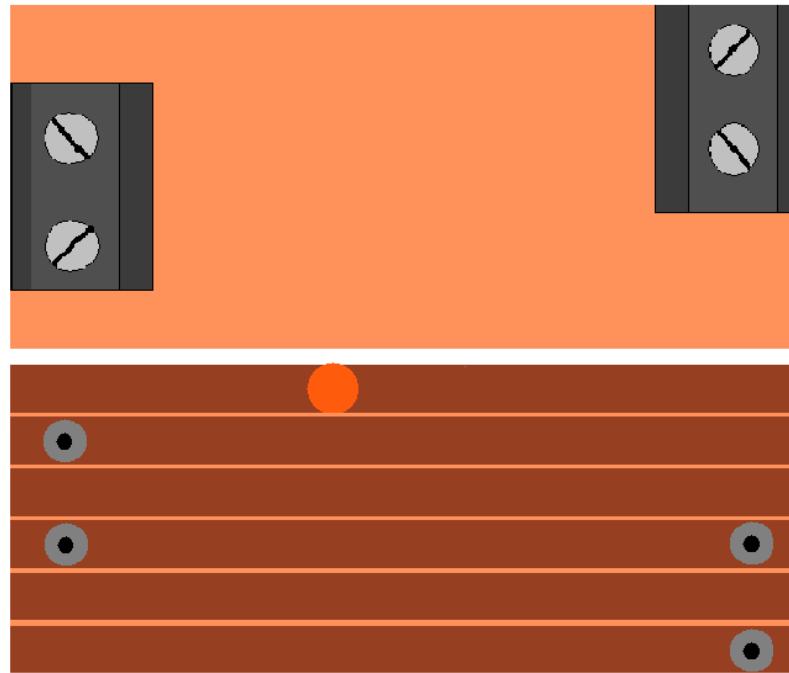




<p>Day 4: Make your own simple PCB part 1</p>	<p>Lesson Aims</p> <ol style="list-style-type: none">1. Explain the Project Objective to develop the product.2. Listing the Electronic Components Required for the Project.3. Hands-On Activity-Connect the Components as per PCB Layout.4. Verify the Outcome is in alignment with PCB Layout. <p>Activity Title:</p> <ol style="list-style-type: none">1. Ice-breaking on Project Overview (PCB & Soldering) (10 Mins)2. Introduction to Activity (10 Mins)3. Specify / Select the Electronic Components Required (10 Mins)4. Connect the Materials as per PCB Layout (40 Mins)5. Output Verification (20 Mins)6. Doubt Clarification / Q & A Session (10 Mins)7. Instructions for Taking Home Assignment (20 Mins) (Individual) <p>Activity Description:</p> <ol style="list-style-type: none">1. Ice-breaking on Project Overview (PCB & Soldering): At the beginning, show them the projects like the mobile charger circuit and calculator circuit to demonstrate how the Project has been executed as per Planning & Preparation.2. Introduction to Activity: The activity's objective is to solder the Components of the Voltage regulator as per PCB Layout.3. Specify / Select the Electronic Components Required:<ul style="list-style-type: none">● 2 X 2 wire PCB mounted terminal blocks (optional)● 1 X diode● 1 X L78S05CV voltage regulator chip● Some Veroboard● Some Wire4. Connect the Materials as per PCB Layout: Procedure –
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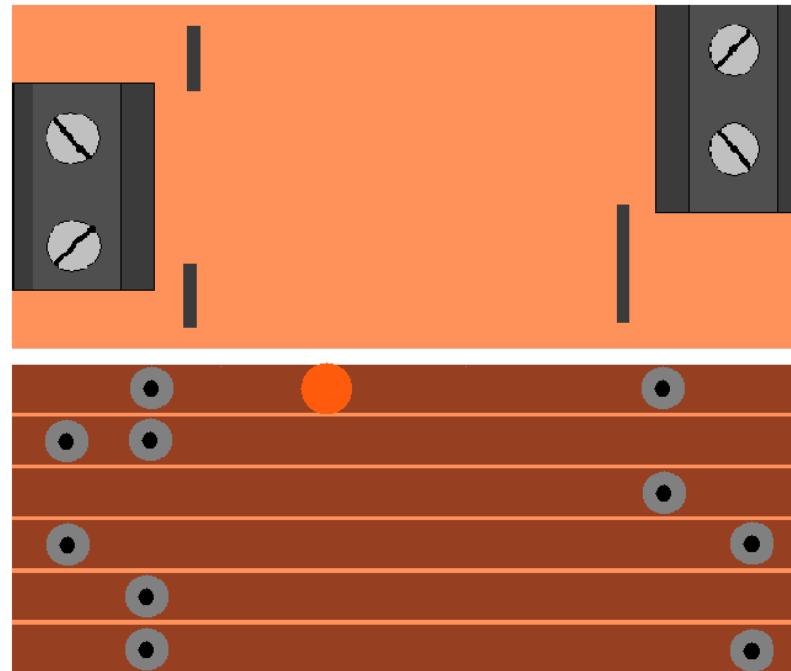


Step 1: Connect the Terminal Blocks



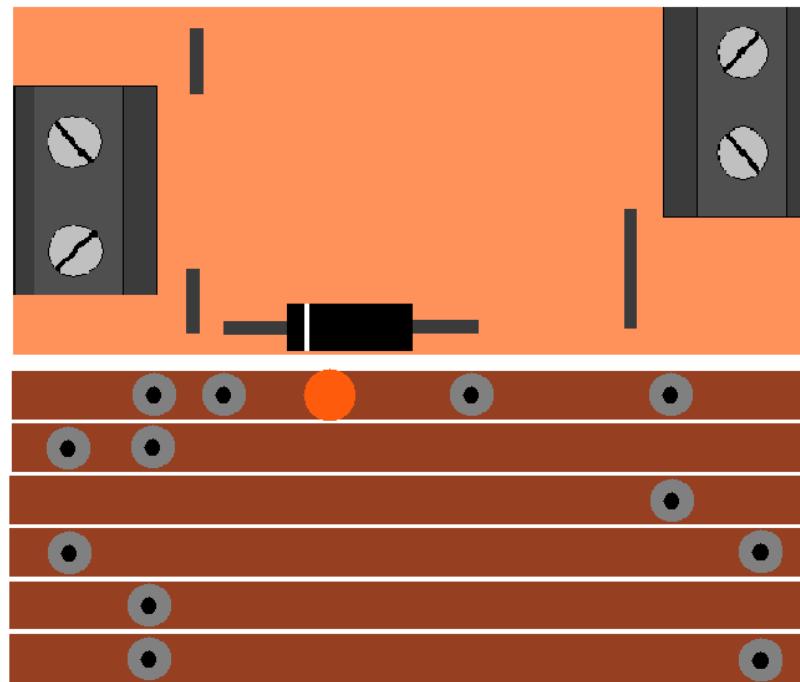
Drill a hole to break the tracks and solder the two terminal blocks, as shown in the picture.

Step 2: Connect the Wire Jumps



Solder the jump wires in.

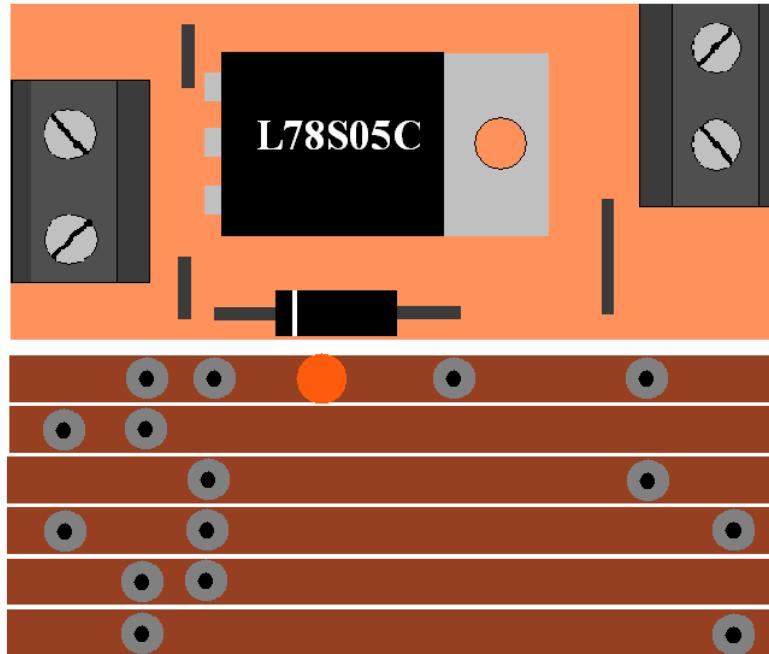
Step 3: Connect the Diode





Solder the diode in over the break in the tracks.

Step 4: Solder in the Voltage Regulator



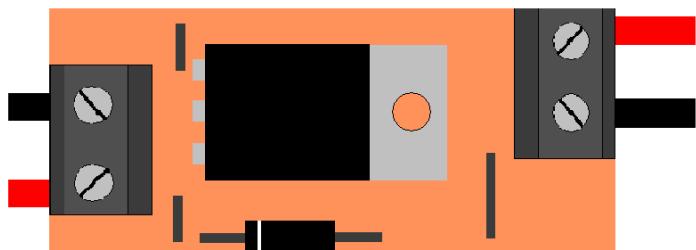
Solder the voltage regulator in (bend it down, so it's flat if space is an issue).

5. Output Verification:

Final product -

Test

OUTPUT **INPUT**





Connect the power to the input end of the board. Test between the connections at the other end and it should read the voltage the chip is set for.

6. Doubt Clarification /Q & A Session- Do the Learning check using these Prompt Questions:

- Identify the Type of PCBs Used in this Activity.
- Explain any one safety Precaution to be taken while doing this Activity.

7. Take-Home Assignment:

Make a Page Learning Report (PCBs Used, Procedure & Learning Outcomes) on this Project. (Choose Any one Project)

Watch this Video: <https://www.youtube.com/watch?v=elm9vmBjd5g>

References

Watch this Video: https://www.youtube.com/watch?v=Y-aj2EJ_LuI



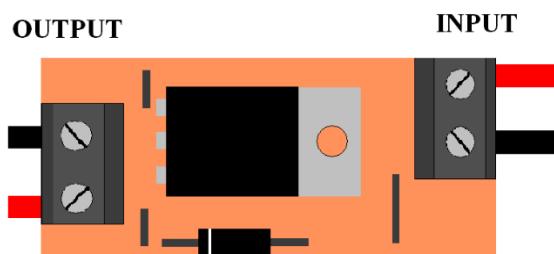
<p>Day 5: Make your own simple PCB part 2- (Activity on Desoldering)</p>	<p>Lesson Aims</p> <ul style="list-style-type: none">• Identify the Components Connected with the PCB.• Hands-On Activity -De-Soldering the Components from the PCB Layout.• Verify and Test the Components. <p>Activity Title:</p> <ul style="list-style-type: none">• Ice-breaking on Project Overview (PCB & Desoldering) (10 Mins)• Introduction to Activity (10 Mins)• Identify the Components Connected (20 Mins)• Desolder the Components as per PCB Layout (50 Mins)• Doubt Clarification / Q & A Session (10 Mins)• Instructions for Taking Home Assignment (20 Mins) (Individual) <p>Activity Description:</p> <p>1. Ice-breaking on Project Overview (PCB & Desoldering):</p> <ul style="list-style-type: none">• At the beginning, show them the projects like mobile charger circuit, calculator circuit to demonstrate how the Project has been executed as per Planning & Preparation. <p>2. Introduction to Activity: The activity's objective is to De-solder the Components of Voltage regulator as per PCB Layout & Test the Components.</p> <p>3. Identify the Components Connected:</p> <ul style="list-style-type: none">• 2 X 2 wire PCB mounted terminal blocks (optional)• 1 X diode• 1 X L78S05CV voltage regulator chip• Some Veroboard <p>Tools Needed for Desoldering:</p> <p>De-Solder Pump- It Works as removing through holes parts from a PCB.</p> 
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4. Desolder the Components as per PCB Layout:

How To Remove Solder with Desoldering Wick

- Use a soldering iron to heat up the solder you want to remove. Some desoldering pumps also come with attached irons.
- Press down on the plunger. If your pump has a bulb, squeeze the bulb.
- Once the solder is molten, place the tip of the desoldering pump against the solder you want to remove.
- Release the plunger or bulb. Some pumps have a release button so that you do not have to hold it the whole time.
- Remove the free component.
- Repeat the above steps to remove any excess solder.
- Dispose of the solder inside the pump. Do this by pressing down and releasing the plunger on repeat.



5. Doubt Clarification /Q & A Session- Do the Learning check using these Prompt Questions:

- Explain the procedures to do Desoldering?
- Explain any one safety Precaution to be taken while doing this Activity?

6. Take-Home Assignment:

Make a Page Learning Report (Tips to improve De-soldering Skills):

Watch This Video: <https://www.youtube.com/watch?v=X68HGySPGZQ>



References

Watch This Video: <https://www.youtube.com/watch?v=bG7yW9FigJA>