



PAMANTASAN NG LUNGSOD NG MAYNILA
(University of the City of Manila)
Intramuros, Manila

Microprocessor Lab

Laboratory Activity No. 1
Familiarization with TinkerCAD



Score

Submitted by:
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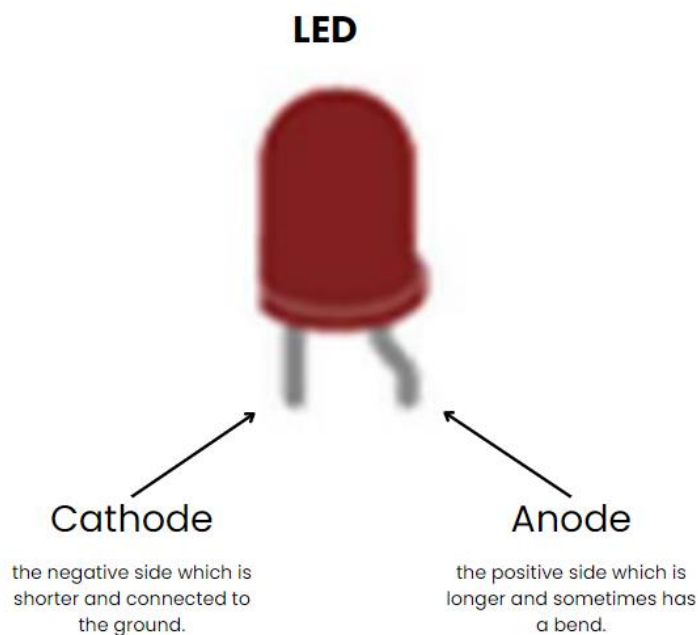
Submitted to:
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1. Exercise

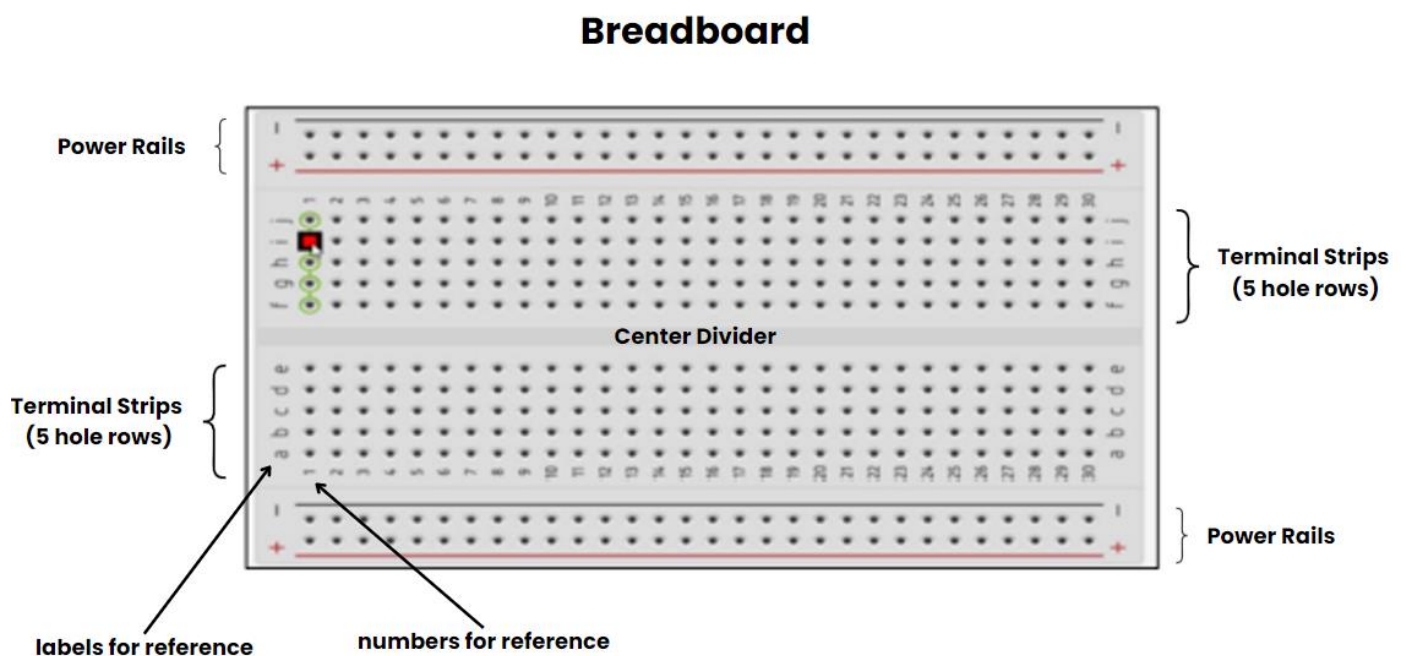
- A process in Tinkercad where we can develop electronic circuits that can be quickly updated, modified and tested is called Electronic Prototyping.
- In Tinkercad, Simulation tests the working of the circuits and the components.
- The device used to assemble and connect the various components is known as Breadboard
- In an electronic circuit with LED, the positive end of the circuit should be connected to anode and negative end should be connected to cathode of the LED.
- A resistor is used to restrict the flow of current to electrical components

2. Label the following:

- Anode and Cathode in a LED



- Different parts of breadboard



c. List the electronic components used in a circuit assembly

There are numerous electronic components that are used in circuit assembly as it depends on the specific circuit functionality and design. Listed below are some of the electronic components:

1. **Resistor** – a passive electronic component that restricts the flow of electric current in a circuit. It is primarily used to control the amount of current or voltage in a circuit and is often represented by a color-coded pattern on its body, indicating its resistance value.
2. **LED** – emits light when current flows through it. Used as an indicator in lighting applications.
3. **Potentiometer** – adjustable resistor that allows the user to manually control the voltage or current in a circuit by turning a knob or slider.
4. **Capacitor** – an electronic component that stores electrical energy in an electric field. It can release this stored energy when needed, making it useful for smoothing voltage, filtering signals, and storing temporary energy in circuits.
5. **Transistor** – a semiconductor device that can amplify electronic signals or act as an electronic switch. It is a fundamental component in electronic circuits, used in amplifiers, digital logic gates, and more.
6. **IC** – a miniature electronic circuit that contains multiple interconnected electronic components, such as transistors, resistors, and capacitors, within a single package. ICs are the building blocks of modern electronics, used in everything from microcontrollers to computer chips.
7. **Diode** – a semiconductor device that allows current to flow in one direction while blocking it in the opposite direction. Diodes are commonly used in rectification (converting AC to DC), signal clipping, and protection against reverse voltage.
8. **Inductor** – a semiconductor device that allows current to flow in one direction while blocking it in the opposite direction. Diodes are commonly used in rectification (converting AC to DC), signal clipping, and protection against reverse voltage.
9. **Switch** – a mechanical or electronic gadget that opens or shuts an electrical circuit. It is utilized to control the progression of current and is normally utilized for turning gadgets on and off.
10. **Battery** – portable energy storage device that provides a source of electrical power by converting chemical energy into electrical energy.
11. **Transformer** – an electromagnetic device that changes the voltage level of an alternating current (AC) signal. It has two coils of wire which is used in power distribution and voltage conversion.
12. **Sensor** – a gadget that identifies and measures physical or natural circumstances such as temperature, light, tension, or movement.
13. **Wires and Connectors** – conductive pathways that carry electrical signals between components, while connectors are devices used to join or terminate wires.
14. **Fuse** – a safety device that interrupts the flow of current in a circuit when it exceeds a certain level. It is designed to be a protection to prevent damage to the circuit.
15. **Multimeter** – a versatile test instrument used to measure voltage, current, resistance, and other electrical parameters.
16. **Speaker/Buzzer** – a simplified sound-producing device used for alarms and notifications, typically producing a single tone. It converts electrical signal into audible sound typically used in audio playback systems.