Project 3: Light Intensity Measurement using LDR sensor and Arduino on TinkerCAD

The components used in the **Light Intensity Measurement** project in TinkerCAD are:

1. **Arduino (Microcontroller Board)** – Used for reading sensor data and controlling the LED.
2. **Breadboard** – Helps in connecting components easily.
3. **Photoresistor (LDR - Light Dependent Resistor)** – Detects light intensity.
4. **LED (Light Emitting Diode)** – Indicates the light intensity level.
5. **Resistors** – Used to limit current and prevent damage to the LED and LDR.
6. **Multimeter** – Measures voltage across the LED.

Description :

To begin, we first establish the power and ground connections on the breadboard. This is done by linking the **5V supply pin** from the Arduino to one of the power rails on the breadboard and the **GND (Ground) pin** to the ground rail. In the circuit, **red wires** indicate the power supply, while **green wires** represent ground connections.

The **LDR (Light Dependent Resistor)** has two terminals. One terminal is connected to **Analog Pin A0** of the Arduino, and the same pin is also linked to the **ground rail** via a resistor. The other terminal of the LDR is connected directly to the **power rail** on the breadboard.

For the **LED**, which serves as the output indicator, its **anode** (positive leg) is connected to **Digital Pin 9** of the Arduino. The **cathode** (negative leg) is connected to the **ground rail** through a resistor to prevent excessive current flow.

Additionally, a **Multimeter** is used to measure the output voltage. The **positive (red) terminal** of the multimeter is connected to **Pin 9** of the Arduino, while the **negative (black) terminal** is linked to the **ground rail** of the breadboard.