

LESSON 29

How to measure Volts w/DMM

Watch video Lesson 29



1 Build a series circuit of a 9V battery, red LED, and 390 ohm resistor. With the meter turned OFF, set the selector knob to the **20 VDC**. Plug in the MM leads, Black to **COM** and Red to the **V Ω mA** and turn it ON.

2 When the LED is lit up, touch the multimeter probe tips (as shown by the alligator clips in the picture.) This measures the 9-volt battery volts. (Ours has 8.63 V.)

3 Then touch the probe tips across the LED and it should show about 2 volts. (Ours shows 2.05 V.)

4 Then touch the probe tips across the resistor and it should show 7 volts. (Ours reads 6.57V.)



Practice Quiz 29

1	2	3	4
Set Meter to 20 VDC Scale	Voltage of battery	Voltage-Drop across LED	Voltage-Drop across resistor
About 9 volts	About 2 volts	About 7 volts	

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Answer these questions

Notice: On page 29a, the voltage drop across the LED plus the voltage drop across the resistor should add up to the battery voltage. It is close. It is because, as we were taking the pictures, the battery was losing voltage.

(1) How many scales or positions are there for DCV on this meter?

(2) What are they? Fill-in the blanks:

- 0 to 200 millivolts DC (200m)
 2a. 0 to _____ (2000m)
 0 to 20 volts DC (20)
 2b. 0 to _____ (200)
 0 to 250 volts DC (250)

(3) What meter jacks do you plug into to measure volts?

Ans: The V Ω mA jack and the:
_____ jack?

Activity Page

(4) Since we are powering our circuit with a nine-volt battery, what DCV scale or position should we use?

Note: When you measure DC voltage, it matters how you connect the leads because DC has polarity. If you connect it with the right polarity, it will show a positive voltage. If you don't, it will show a negative sign in the display, but it won't hurt the meter

Try it on a 9-volt battery. If you touch the red probe tip to positive and the black probe tip to negative, it will show a positive voltage in the display.

Now, touch the black probe tip to the positive and the red probe tip to the negative, and you will see the display on the meter will show a negative sign.

Try it with your meter.

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How to measure Volts on a Multimeter

29b

ud



Note: This is a new, fresh 9V battery and it is now showing more than the exact nominal of 9 volts. When the battery is powering a circuit, (or, as we say, under load, it will show a lesser voltage.

