

Continue

Name: _____

Series and Parallel Circuits

Identify which of these circuits are parallel circuits and which are series circuits.

Innovative Teacher

DETERMINE THE VOLTAGE ACROSS, CURRENT THROUGH, AND POWER DISSIPATED BY THE RESISTOR IN THE CIRCUIT BELOW.

18V

BREAK IT DOWN.
BUILD IT UP.

BREAK IT DOWN:

1ST REDRAW:

Ohm's Law Problems for Parallel Circuits

Parallel circuits have components arranged in separate loops.

Total Current	$I_{\text{total}} = I_1 + I_2 + I_3 \dots$ = sum of currents
Total Voltage	$V_{\text{total}} = V_1 = V_2 = V_3$ = same for each resistor
Equivalent Resistance	$\frac{1}{R_{\text{eq}}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \dots$ = reciprocal sum of resistances

Name: _____

Series and Parallel Circuits

In a **series circuit**, electricity has only one path to follow. All parts are connected one after another. Electrons flow from the negative side of the battery around in a loop to the positive side.

Draw arrows to show the path of the electricity in this series circuit.

If a light bulb is missing or broken in a series circuit, will the other bulb light? Explain.

In a **parallel circuit**, electricity has more than one path to follow. Electrons can follow different paths as they flow from the negative side of the battery to the positive side.

Draw arrows to show the different paths electrons can travel in this parallel circuit.

If a light bulb is missing or broken in a parallel circuit, will the other bulb light? Explain.

Super Teacher Worksheets

www.superteacherworksheets.com

A colorful and informative electricity word wall to compliment your room. There are 24 words with their definitions and a diagram. This engaging electricity word wall comes in both colour, and black and white. The words included are: atom, battery, circuit, conductor, distribution, electrical current, electromotive force, filament, fossil fuel, generator, hydropower, insulator, light bulb, orbit, parallel circuit, power station, series circuit, switch, transformer, transmission network, turbine.

Page 2Electricity I Have Who Has? is a versatile and engaging loop game that can be used for revision, as part of a center, in small groups or whole class. The following 24 words and their definitions make up the game: atom, battery, circuit, conductor, electrical current, electromotive force, filament, generator, insulator, light bulb, matter, orbit, parallel circuit, power station, series circuit, switch, turbine, voltage, transformer, transmission, transmission network, distribution, fossil fuel.

hPage 3What a fun way to review or introduce content vocabulary!!! My students LOVE word searches. I like to use these content word searches as morning work, busy work, sub work and rewards! This FREEBIE includes 14 vocabulary words about electricity. These words correspond with NGSS. NGSS: 4-PS3-2 The words included in this word search are: electric, current, circuit, series, parallel, power source, battery, wires, light bulb, simple, closed, open, switch, motor.

Enjoy this freebie! :) *Edited o This 4th-grade worksheet makes a seemingly difficult concept simple and easy to comprehend with clear visuals. The child can understand what a series connection looks like and how it is different from a parallel connection, and how this impacts the flow of electricity within the circuit. With this worksheet, you can quickly explain these concepts with no ambiguity. The sheet not only shows the conventional symbolic representation of circuits, thus familiarizing the children with the concept, but also has the pictorial representation of actual batteries, switches, and lights, so the child is clear on what each symbol stands for.

The tasks included in the worksheet test the child's understanding of the concept once the first part has been read. In addition, the coloring activity helps the child understand the outcome of using the given circuits. A simple and effective way to teach basic electronics concepts in a fun, engaging way, this worksheet is sure to be liked by your fourth grader.

In this experiment, you are to compare the combined resistance of lamps arranged in series or in parallel.

1. Record all your observations and readings on a separate sheet of paper.
2. First construct the circuit shown in fig 3.1 and then the circuit shown in fig 3.2

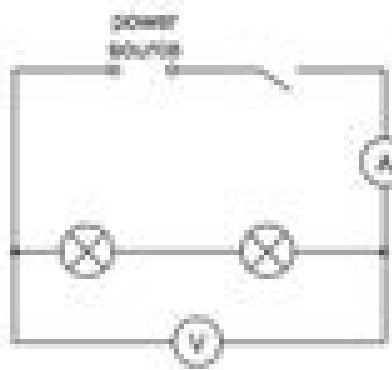


Fig. 3.1

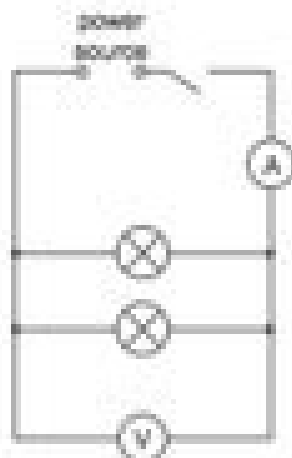


Fig. 3.2

- a) Switch on. Measure and record in a table the current 'I' in the circuit and the voltage 'V' across the two lamps, then switch off.
- b) Calculate the combined resistance R of the two lamps using the equation:
$$R = V / I$$

Record the value of R in the table
- c) Label the column headings of the table.
- d) Disconnect the lamps and the voltmeter. Set up the circuit shown in fig 3.2

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