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a circuit is an unbroken loop of conductive material that allows charge carriers to flow through continuously without beginning or end if a circuit is broken that means its conductive elements no longer form a complete path and continuous charge flow cannot occur in it the flow of charge through electric circuits is discussed in detail the variables which cause and hinder the rate of charge flow are explained and the mathematical application of electrical principles to series parallel and combination circuits is presented an electric circuit includes a device that gives energy to the charged particles constituting the current such as a battery or a generator devices that use current such as lamps electric motors or computers and the connecting wires or transmission lines in this section we introduce steady state electric charge flow and make multiple analogies with fluid flow we start by introducing the idea of a circuit where a fluid or charge returns to its physics on khan academy physics is the study of the basic principles that govern the physical world around us we ll start by looking at motion itself then we ll learn about forces momentum an electric circuit involves the flow of charge in a complete conducting loop when here is an electric circuit light bulbs light motors run and a compass needle placed near a wire in the circuit will undergo a deflection when there is an electric circuit a current is said to exist google classroom microsoft teams build an intuitive understanding of current and voltage and power voltage and current are the cornerstone concepts in electricity we will create our first mental models for these basic electrical quantities we will also talk about power which is what happens when voltage and current act together charge with electricity we measure the amount of charge flowing through the circuit over a period of time current is measured in amperes usually just referred to as amps an ampere is defined as 6.241×10^{18} electrons 1 coulomb per second passing through a point in a circuit dielectrics in capacitors this unit is part of the physics library browse videos articles and exercises by topic ohm s law allows you to determine characteristics of a circuit such as how much current is flowing through it if you know the voltage of the battery in the circuit and how much resistance is in the

circuit one of the first things you ll encounter when learning about electronics is the concept of a circuit this tutorial will explain what a circuit is as well as discuss voltage in further detail a simple circuit involving a button an led and a resistor built two different ways the sections on introduction to electricity static electricity and charges resistance and electrical circuits direct and alternating current and voltmeters and ammeters adapted from college physics 2e by openstax and are used under a creative commons attribution 4 0 international license the three most important passive elements are the resistor releases energy into the air by heat the capacitor stores energy electrically and the inductor stores energy magnetically these elements are often used in control system equivalent circuits there are two basic types of electric circuits direct current dc and alternating current ac most of the electronic devices we will work with use dc but the power grid and outlets in your house are ac what is an electric circuit an electric circuit is a closed loop network which provides a return path for the flow of current or a closed conducting path in which current can flow is called a circuit an electric circuit is also known as electrical network or electrical circuit an electric circuit also known as an electrical circuit is a conductor used to move current or electricity to establish a connection between the source of voltage and the load a conductive wire is used the source and load are separated by a fuse and an on off switch the figure represents a simple electric circuit a circuit is a closed path that consists of circuit components in which electrons from a voltage or current source can flow electric circuits demonstrate how an electric device receives power and operates this concept can be expanded to many devices and components including electrical mechanical and even chemical devices and reactions understand how to model a circuit with resistors and or capacitors understand how an ammeter and voltmeter function and how to model them in this chapter we develop the tools to model electric circuits circuit analysis is the process of finding all the currents and voltages in a network of connected components we look at the basic elements used to build circuits and find out what happens when elements are connected together into a circuit circuit elements learn ideal circuit elements ideal sources ideal elements and sources

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