

3.6-Series and Parallel Circuits

Circuit diagrams → Drawings of circuits using symbols to represent each part of the circuit

❖ There are 2 types of circuits (series and parallel)

Type of circuit	# of pathways	Electrical energy shared or not shared	Devices on or off?	Examples
Series	<u>one</u>	Shared	- <u>all devices must be on or off at same time</u>	- Flashlight - Cordless tools
parallel	More than one	<u>Not shared</u>	- Devices can be turned on or off at any time at any point in the circuit.	- Your house (all the lights and electric outlets in your house) - <u>holiday lights</u>

- ❖ A circuit with only one electrical device must be wired as series
- ❖ A circuit that has more than one electrical device can be wired as parallel or series

	Advantages	Disadvantages
Series	- If you add more <u>power</u> devices you increase the force of output - Very easy to wire	- all <u>devices</u> must be either on or off at one time (ie. cheap <u>Christmas</u> lights... when one burns out none of the lights work)
Parallel	- Each device can be turned off and on <u>separately</u> . (ie. you can turn on a light in your house without every other light turned on)	- depending on how many devices you need, it can be difficult to wire