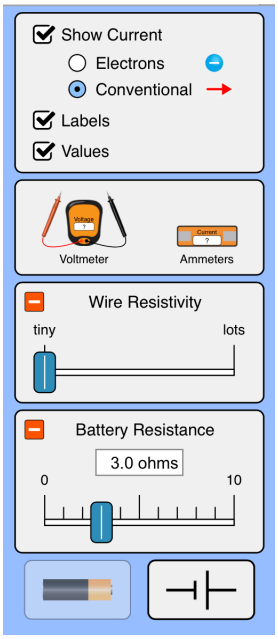
ONLINE CIRCUIT SIMULATIONS AT PHET

https://bit.ly/2z88sV7



You might find that watching the charges moving around gets distracting, but start the activity with the conventional current shown.

Later, turn off the top selections if you'd like.

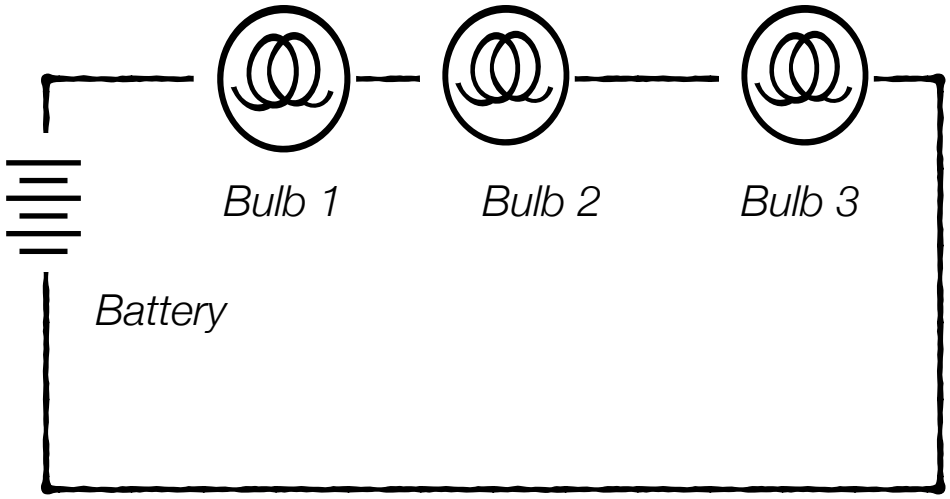
Use the Voltmeter and the Ammeter just like we did in class

Leave the wires as close to perfect as the software allows, almost no resistance.

Add a little resistance to the battery. This is normal, and keeps the currents from going the wrong way.

We want to see the circuits using simple icons for most of this activity, but after you build a circuit, try looking at the pictures too

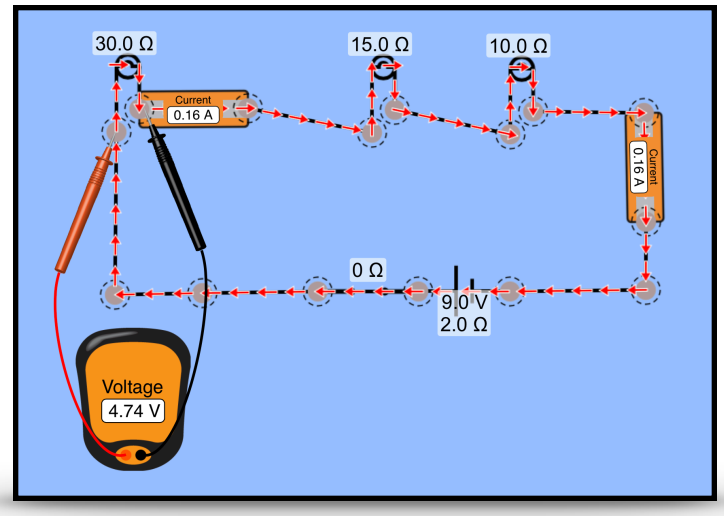
Wire the following circuit:



Measure the values for V and I, calculate the missing values for R and P

	V	I	R	P
B_1			30	
B_2			15	
B_3			10	
T	9			

A screen capture of the circuit



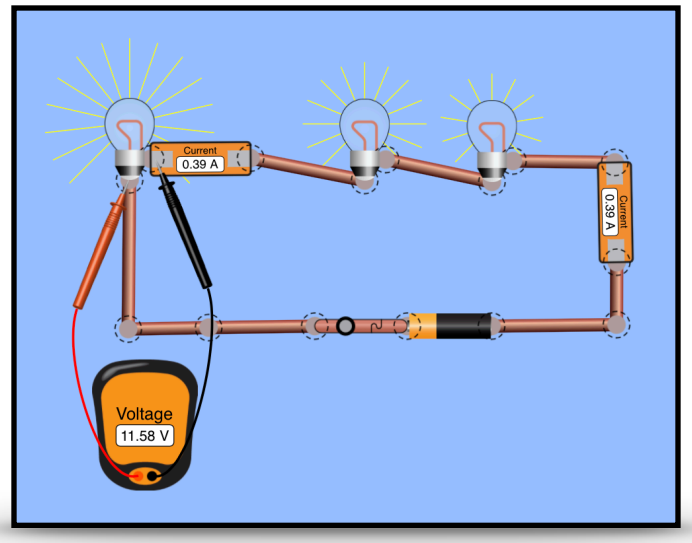
Switch to an image view of the circuit. The software represents the intensity of the brightness of the light bulbs with longer lines.

Which of the bulbs is the brightest?

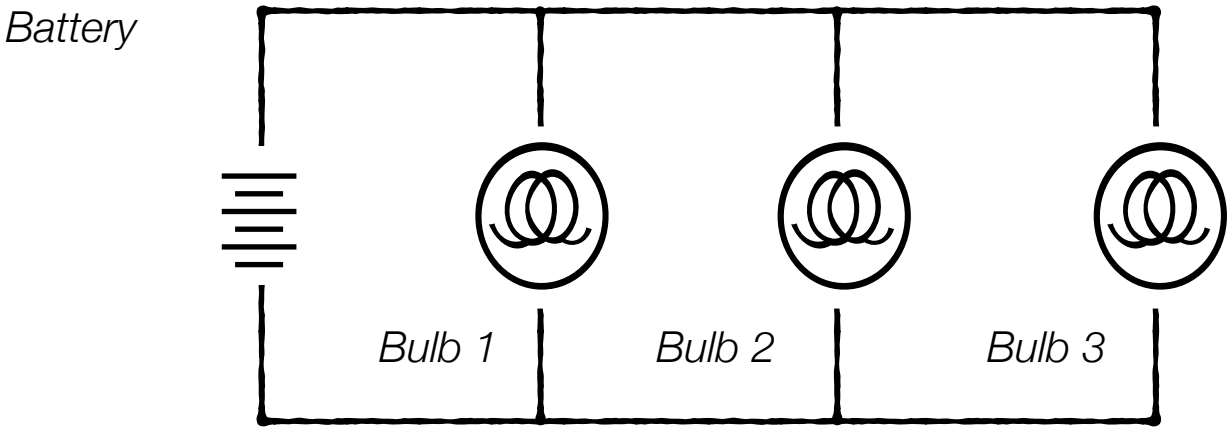
How could you have known this answer using the table of values above?

Take Bulb 1 out of the circuit. What happens to the brightness of the other two bulbs?

A screen capture of the bulbs.



Wire the following circuit:



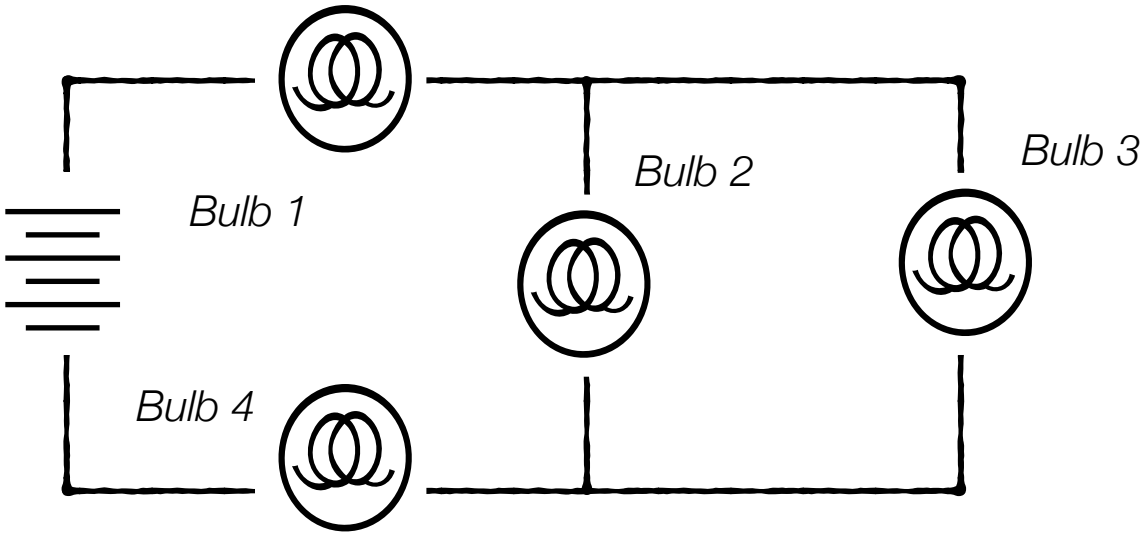
Measure the values for V and I, calculate the missing values for R and P

	V	I	R	P
B_1			30	
B_2			15	
B_3			10	
T	9			

Take a screen capture of the circuit

Which of the bulbs is the brightest?

Take Bulb 1 out of the circuit. What happens to the brightness of the other two bulbs?



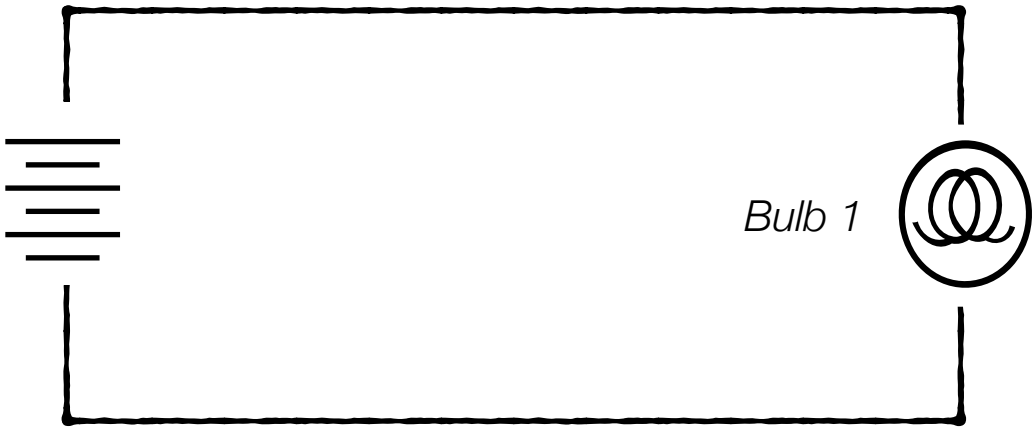
Measure the values for V and I, calculate the missing values for R and P

	V	I	R	P
B_1			20	
B_2			90	
B_3			45	
B_4			10	
T	25			

Take a screen capture of the circuit

Which of the bulbs is the brightest?

Take Bulb 2 out of the circuit. What happens to the brightness of the other three bulbs?



Measure the values for V and I, calculate the missing values for R and P

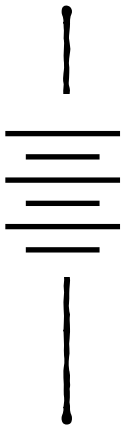
	V	*I*	*R*	*P*
B_1			*1*	
T	*120*			

Take a screen capture of the circuit

What is this kind of a circuit, with very little resistance, called?

What happened to the battery?

If this was connected to a 20 Amp fuse, what would happen to the fuse?



Design your own circuit. You must include 7 bulbs, they can not all be the same resistance. You must have at least one section of series connections. You must have at least one parallel component.

	V	*I*	*R*	*P*
B_1				
B_2				
B_3				
B_4				
B5				
B6				
B7				
T	*30*			

Take a screen capture of the circuit