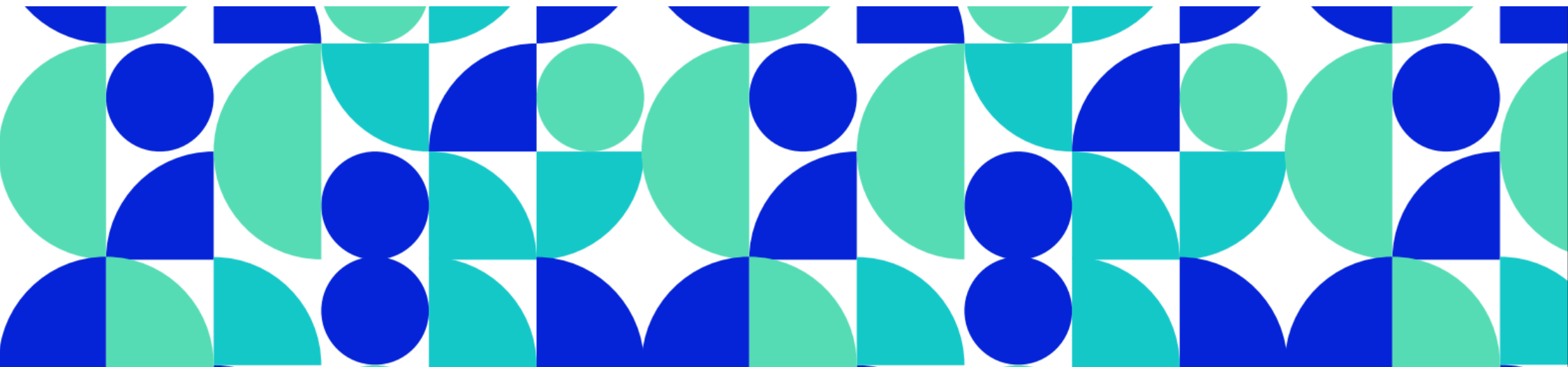


# ACTIVITY CARDS










## SUN ENERGY LAB

L2



# DOES EVERY SOLAR PANEL WORK?

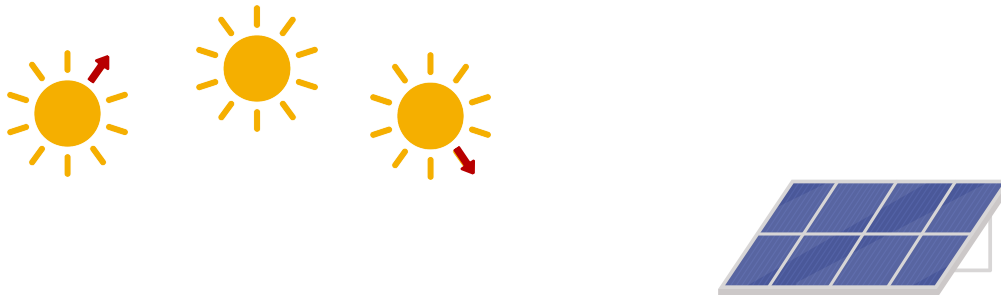
- 1 Connect each solar panel (one at a time see diagram 1) to the appliances.
- 2 Switch on from left to right, for each solar panel for one solar position.
- 3 Write down the voltage (V) for each solar panel per solar position.

	1 	2 	3 	4 
	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>
	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>
	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>
	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>
	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>	<input type="text" value="V"/>

# SOLUTION

Each solar panel receives a different amount of light due to light exposure, as a result all values are different.

More light means more voltage (V).

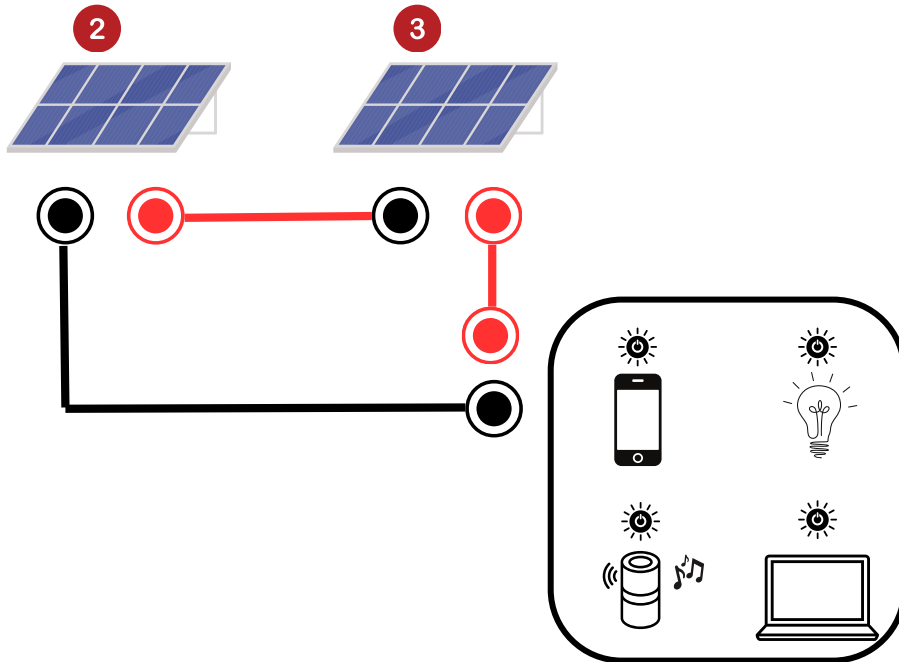


Less light means less voltage (V).



# TEST THE SYMMETRY

- 1 Make a series circuit with the two middle solar panels. Use the diagram below. Leave the appliance switched OFF.
- 2 Write down the voltage (V) of each solar position.
- 3 What is the difference between the voltage in activity 1 and 2?



	<input type="text" value="V"/>
	<input type="text" value="V"/>
	<input type="text" value="V"/>
	<input type="text" value="V"/>
	<input type="text" value="V"/>

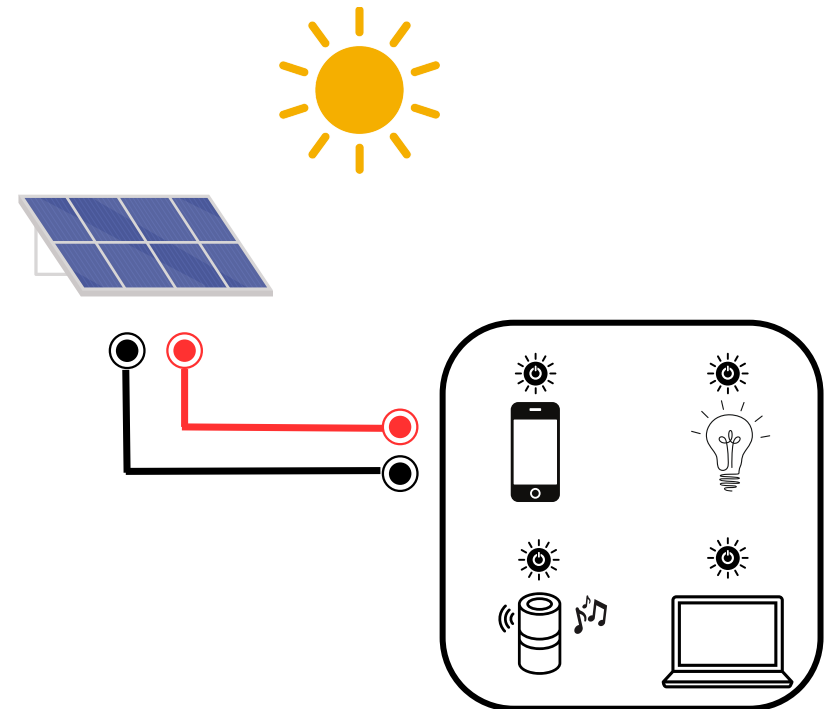
# IS ONE SOLAR PANEL ENOUGH TO CHARGE A CELL PHONE?

- 1 Connect one solar panel to the appliances.
- 2 Switch on the sun at noon.
- 3 Turn on the cell phone. Look at the red light.

Can you charge the cell phone?

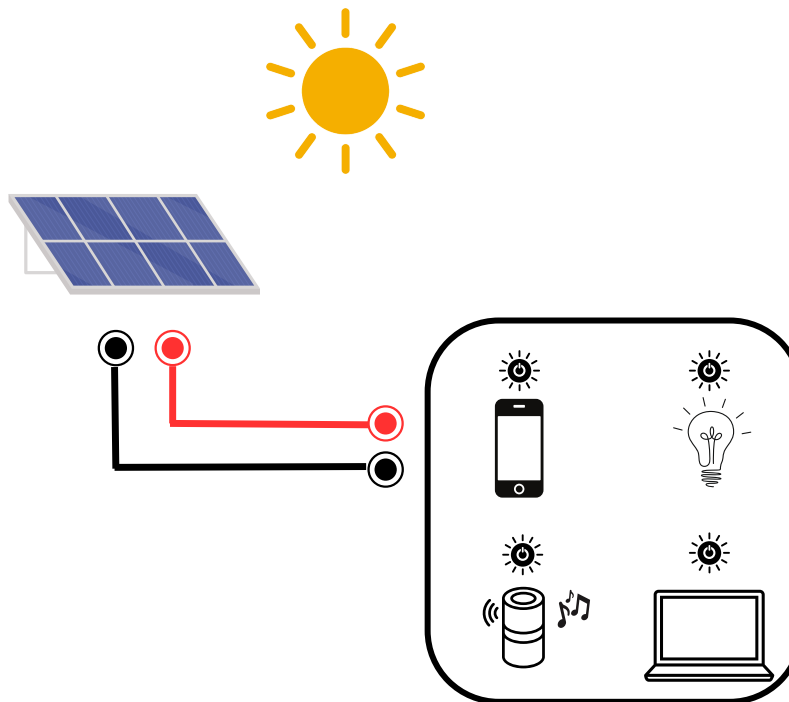
Yes / No

How does this happen?



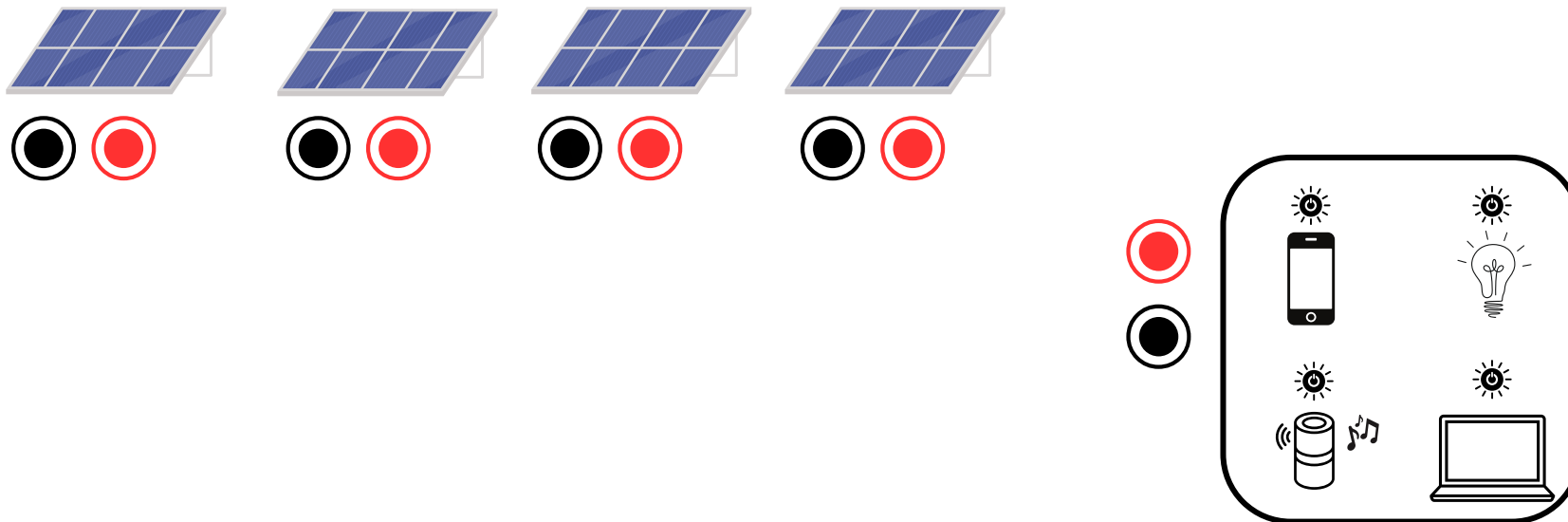
# SOLUTION

No, one mini solar panel does not provide enough voltage to charge the cell phone.

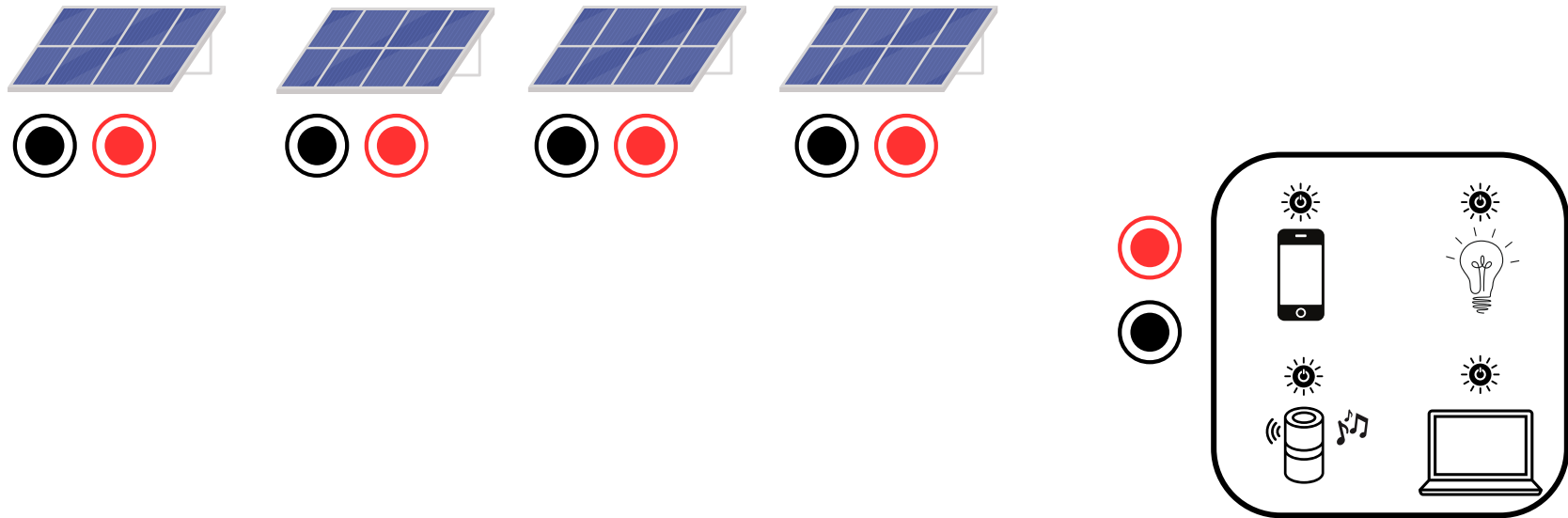


# EXPERIMENT WITH DIFFERENT CIRCUITS

- 1 Build circuits with different solar panels (series circuit, parallel circuit...).
- 2 Look at the red lights.  
Which appliances can you turn on?  
Can you manage to turn on all the appliances?



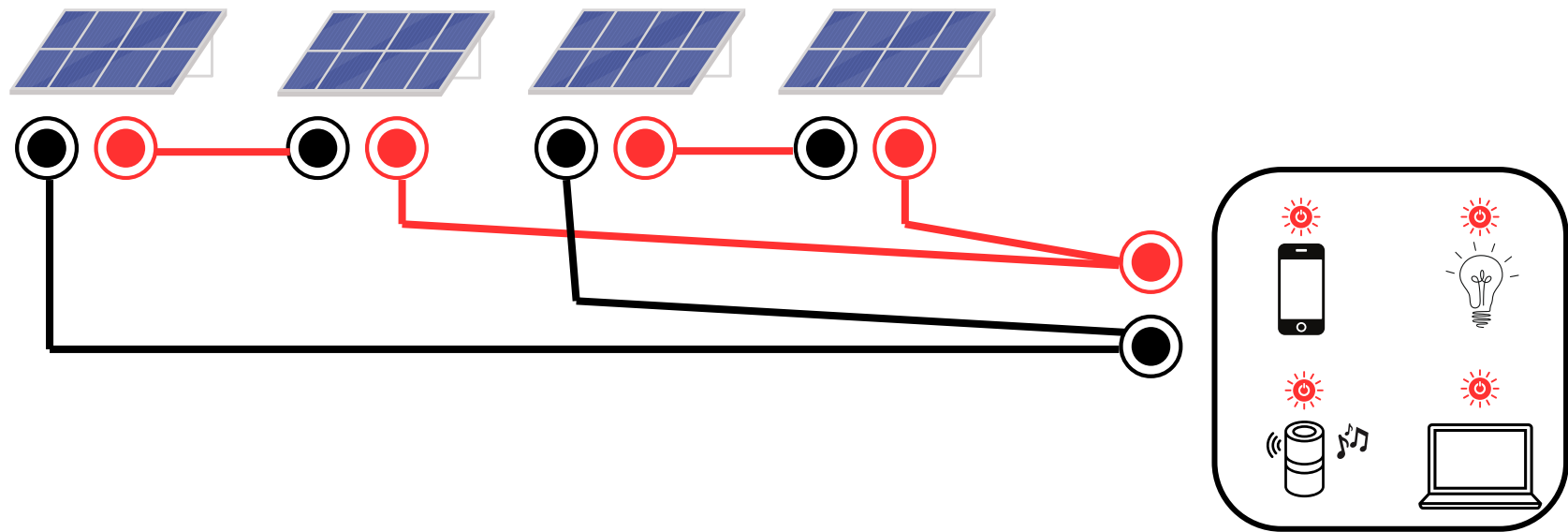
# BUILD A CIRCUIT WHICH ALLOWS YOU TO TURN ON ALL THE APPLIANCES.





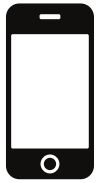
# CIRCUIT SOLUTION

Using this circuit, you can turn on all the appliances.



# LEGEND

## APPLIANCES



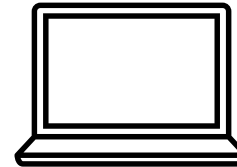
cell  
phone



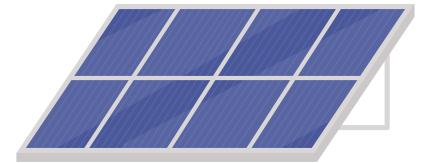
home lighting



bluetooth  
speaker



laptop

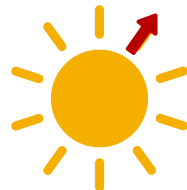


solar panel

## SOLAR POSITIONS



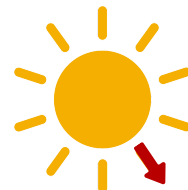
sunrise



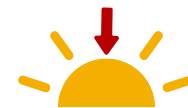
morning



noon



afternoon



sunset

## CLOUD COVER



light cloud



dark cloud

# LEGEND

## Voltage (V)

Voltage is the pressure applied by a power source in a circuit to push charged electrons (current) through a conductive loop. In short: voltage = pressure and is measured in volts.

## Current (Amp)

Current is the rate at which electrons flow past a point in a complete electrical circuit. Simply put: current is flow and is measured in ampere.

Ampere expresses the number of electrons (electric charge) passing a point in the circuit over a certain time.

## Power (Watt)

Power is the rate at which energy is used or transferred in a system. Watt expresses how much electrical energy a device consumes or delivers per second. In short: power is energy per second or how powerful a device is.

# DIAGRAM 1

