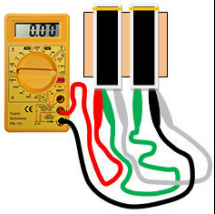
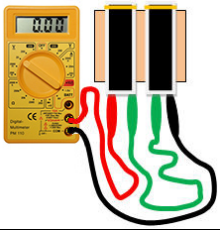
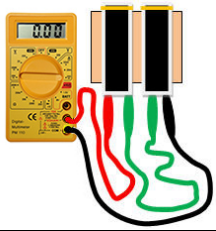
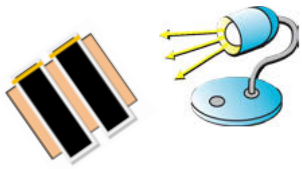
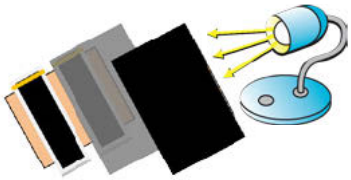
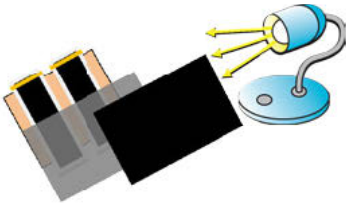
Worksheet 5: How do solar cells connected in series or in parallel behave when shaded?

Task 1

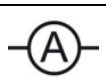
Conduct the experiment and enter the values you measure into the table.

Shading of the solar cells	Parallel connection of the solar cells		Series connection of the solar cells	
	Voltage 	Current 	Voltage 	Current 
Measurement	**(V)**	**(mA)**	**(V)**	**(mA)**
No shading 				
One solar cell is completely shaded 				
Both solar cells are half shaded 				

Task 2

Draw the circuit diagrams into the table. Use the circuit symbols.

Circuit diagrams

Circuit symbols		Parallel connection of solar cells		Series connection of solar cells	
		Voltage	Current	Voltage	Current
solar cell					
voltmeter					
ammeter					

Task 3

Describe the method of the experiment. Fill in the gaps of the text with the help of the words in the wordlist.

Wordlist

solar cell	measured values	shade
light	circuit diagram	both
black piece of paper	measure	parallel
shading	decrease	in series
voltage	enter	completely
current	draw	half
measurement	connect	slightly
table	hold	without
2,000 mV	200 mA	

Conducting the experiment

First we connect the solar cells in parallel. Then we set the measuring range of the multimeter to

_____ and _____

_____

_____

_____

_____

_____

Now we set the measuring range of the multimeter to _____

_____

_____

_____

_____

Then we connect the solar cells in series and repeat _____

_____

_____

Observation

With any kind of _____, the voltage only _____ _____.

The current on the other hand _____ far more with shading. The _____

_____ is particularly strong when the solar cells are _____ in

_____ and one solar cells is shaded _____.