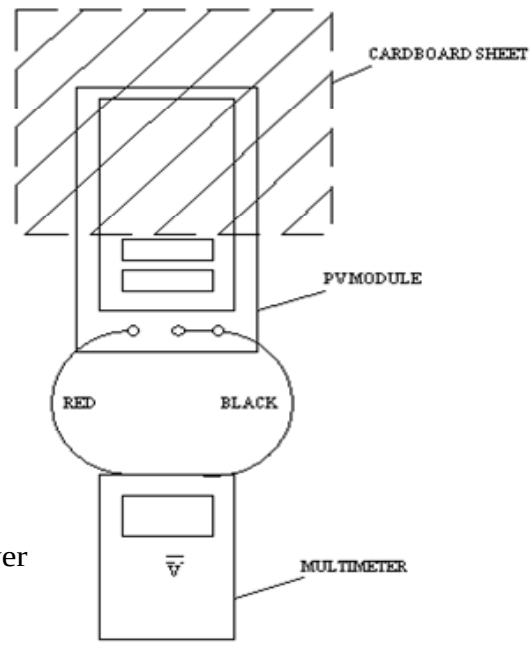
CLASSROOM PHOTOVOLTAIC EXERCISE

Objective #1:
To observe the effect of adding PV cells to a PV module.

Background:
The Ray Catcher PV module is made up of 6 PV cells connected in series.
As more and more cells are exposed to light the voltage across the whole module changes.

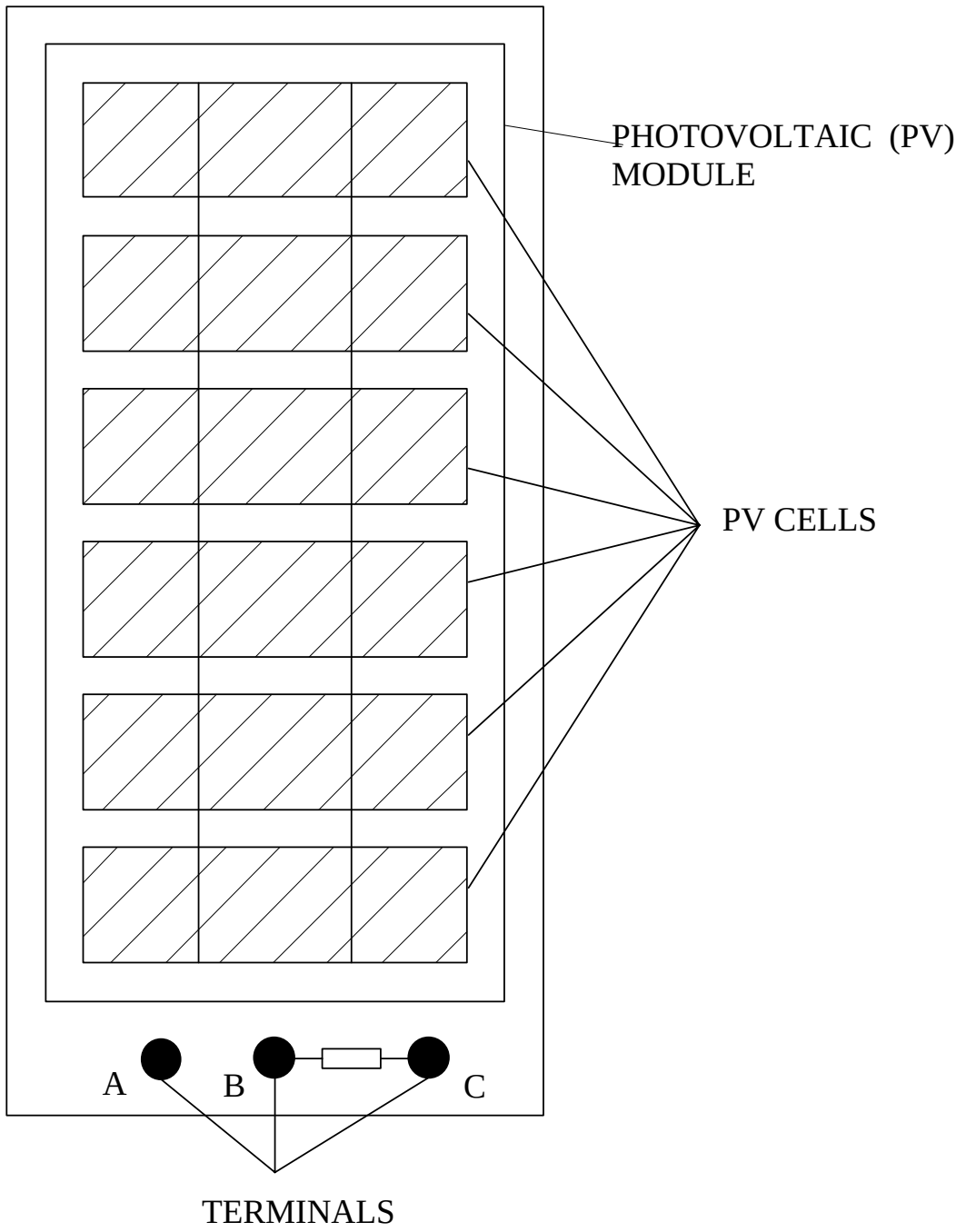
Materials required:
Pitsco Ray Catcher PV module
Triplett 2030-C Digital Multimeter
Red lead
Black lead
Sheet of cardboard
Graph pad



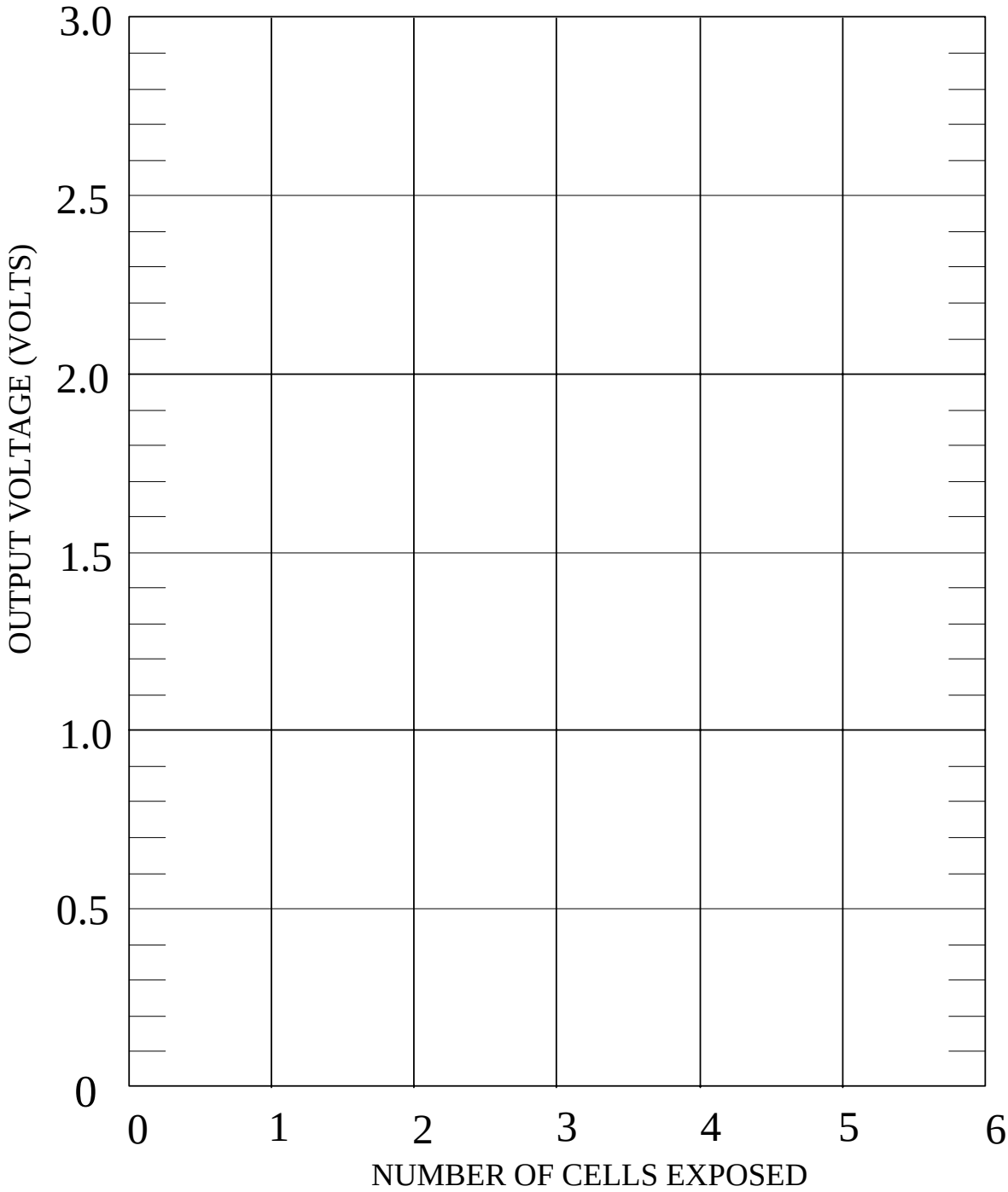
Instructions:

1. Using the red and black leads, connect the meter to the PV module as shown
2. Turn the meter to the DC Voltage range
3. When the reading has stabilized press the RANGE button
4. Cover the entire PV module with the cardboard sheet
5. Record the output voltage from the PV module
6. Move the cardboard sheet to gradually un-cover the PV module one cell at a time.
7. Record the output voltage each time an additional cell is un-covered
8. Plot your readings on a graph
9. Can you explain your results?

PHOTOVOLTAIC EXERCISE - PITSCO RAY CATCHER PV MODULE



PHOTOVOLTAIC EXERCISE - 1

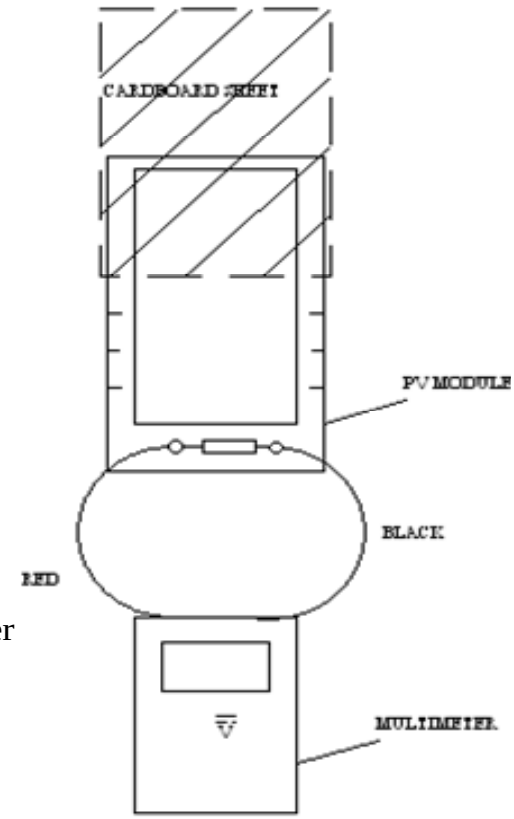


CLASSROOM PHOTOVOLTAIC EXERCISE - 2

Objective #2:
To observe the effect of exposing an increasing area of a PV module to light.

Background:
The power output of a PV cell is proportional to the amount of light to which the module is exposed.

Materials required:
Pitsco Thin Film PV module
Triplett 2030-C Digital Multimeter
Red lead
Black lead
Sheet of cardboard
Graph pad



Instructions:

1. Using the red and black leads, connect the meter to the PV module as shown
2. Turn the meter to the DC Voltage range
3. When the reading has stabilized press the RANGE button
4. Cover the entire PV module with the cardboard sheet
5. Record the output voltage from the PV module
6. Move the cardboard sheet to gradually un-cover the PV module vertically one area at a time.
7. Record the output voltage each time an additional area is un-covered
8. Plot your readings on a graph
9. Can you explain your results?

PHOTOVOLTAIC EXERCISE - 2

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0 1 2 3 4 5 6 7 8

NUMBER OF SEGMENTS EXPOSED

EXAMPLE

PV Module Output Voltage - Exercise #2

Segment	V	V^2
0	0	0
1	1.09	1.1881
2	2.09	4.3681
3	2.82	7.9524
4	3.47	12.0409
5	4.05	16.4025
6	4.49	20.1601
7	4.88	23.8144
8	5.22	27.2484