

6 This question is about generating electricity from renewable energy resources.

- (a) Photograph 1 shows a solar farm in the United Kingdom and photograph 2 shows a geothermal power station in Iceland.



Photograph 1

(Source: © Marcin Jucha / Shutterstock)



Photograph 2

(Source: © Javarman / Shutterstock)

Discuss the advantages and disadvantages of generating electricity using solar power and geothermal resources.

(4)

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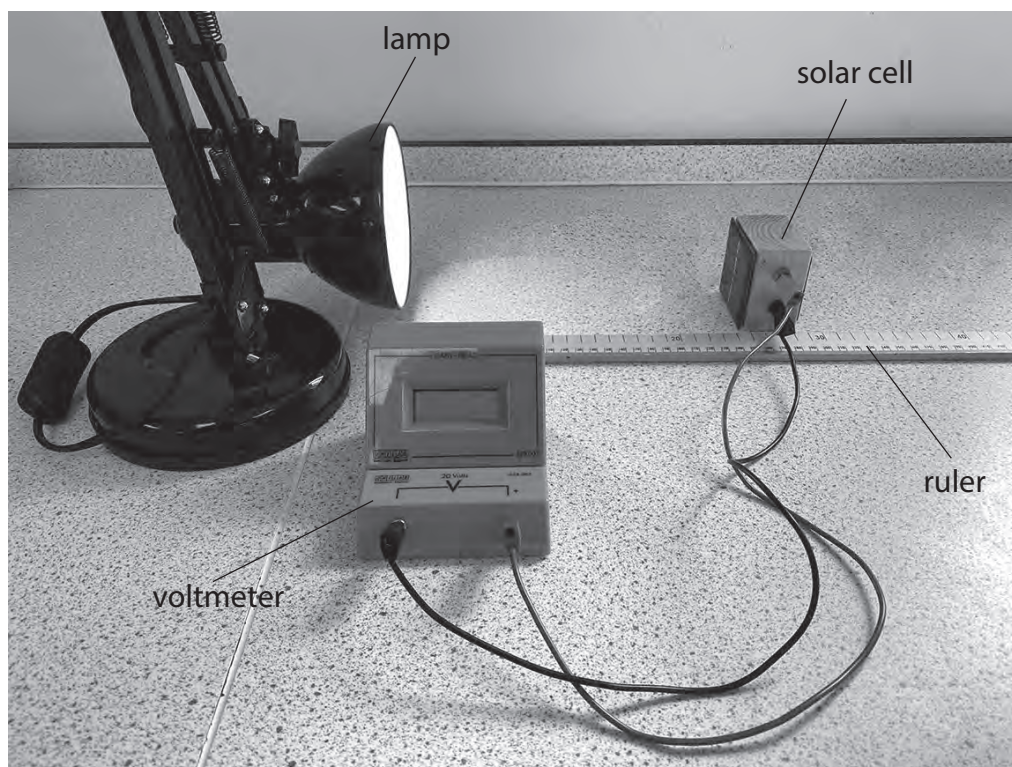
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- (b) A student investigates how the amount of light affects the output voltage of a solar cell.

Photograph 3 shows how the student sets up their equipment.



Photograph 3

- (i) The student varies the distance between the solar cell and the lamp and measures the output voltage of the solar cell at each distance.

The student's results are shown below.

5 cm, 0.45 V	14 cm, 0.06 V
8 cm, 0.18 V	17 cm, 0.04 V
11 cm, 0.10 V	20 cm, 0.03 V

Draw a table showing the student's results.

(3)

(ii) Give a control variable for the student's investigation.

(1)

(iii) The student states that the solar cell could be used as a power source for the lamp.

They suggest that this would work if

- the solar cell is connected directly to the lamp
- the light from the lamp is used to produce the output power from the solar cell

Explain, with reference to the principle of conservation of energy, why the student's suggestion would not work.

(2)

(Total for Question 6 = 10 marks)

