

Name: _____ Class: _____ Date: _____

Experiments on renewable energies: Solar energy

Experiment 1: Using solar energy

You need:

- 2 metal sheets, one black, one metallic
- 1 electric thermometer
- 1 pair of gloves



Photo: parabolic trough power plant:
By Z22 - Own work, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=27881587>

Procedure:

1. You have two metal plates, one shiny metallic and one matte black. First, keep both plates in the shade.
2. Measure the temperature of each plate and enter the values in the table.
3. Guess what temperature the two plates will reach if you place them in the sun for 5 minutes and enter your guess in the table.
4. Now place both metal plates directly in the sun.
5. Measure the temperature of each plate after 2 minutes and after 5 minutes and enter the values in the table. But be careful! The plates are hot, so use gloves!
6. What do you notice? Please explain.

Measurement table:

	Temperature in °C			
	At the start	Guess	After 2 min.	After 5 min.
Metallic plate				
Black plate				

Worksheet

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Explanation:

7. **For fast-working students:** Think about and explain how the temperatures you measured came about. Tip: What happens in the summer when you wear a black T-shirt versus a white T-shirt?

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Experiment 2: Solar cells supply electric current

You need:

- 1 small solar cell
- 1 solar motor
- 1 sheet of paper



Procedure:

1. Connect the motor to the solar cell. Your teacher will show you how.
2. Hold the solar cell toward the sun.
3. What do you observe at the motor? Write down your observation under (1).
4. Now gradually cover the solar cell with a sheet of paper.
5. What do you observe at the motor? Write down your observation under (2).

Observation 1:

Observation 2:

6. **For fast-working students:** Think about and explain how your observations came about. Tip: What happens when clouds cover the sun?
