Connect

Solar panels have the ability to convert solar energy into electrical energy. They are used to generate electricity for large utility grids, for satellites in space and in isolated locations for small communities or single homes.

Now build the Solar Station and investigate its ability to generate power.

Solar Station

Name(s): _____ **Date and subject:** _____

Build the Solar Station

(Building Instruction booklet 2A and 2B, to page 30 step 15).

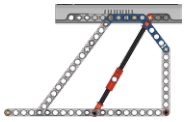
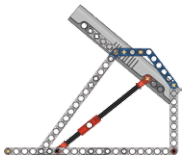
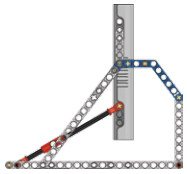
- Test the model's functionality. Loosening bushings can reduce friction
- Connect the plugs properly by pressing them firmly together
- Make sure to return the joules (J) reading to zero before testing
- Position the LEGO® Solar Panel under the centre of the light source

Changing angles

First, predict the average voltage (V) and the average current (A) readings of the Solar Station when positioned perpendicular to the light source at a distance of 15 cm. Remember to reset the Energy Meter before each investigation.

Then, investigate the average voltage and current of the Solar Station in this horizontal position. Make sure to let the Energy Meter units stabilize before carrying out the readings. Read and record your findings.

Next, follow the same procedure for the Solar Station in a diagonal position and a vertical position to the light source.

	 **Horizontal**	 **Diagonal**	 **Vertical**
My prediction of V	(V)	(V)	(V)
My prediction of A	(A)	(A)	(A)
My average findings of V	(V)	(V)	(V)
My average findings of A	(A)	(A)	(A)

Identifying variables

Identify and write down at least three variables, explaining clearly how these affect the efficiency of the Solar Station.

Optimizing variables

Based on the variables identified, optimise the Solar Station to maximize the power generated. Explain which variables are altered, their effect and record findings. Note them on this worksheet and show the set up, e.g. by taking a photograph or by sketching. Remember to reset the Energy Meter before each investigation.