

Is It Shocking? Worksheet

Engineering Challenge: Work together with your classmates to find a material that permits electricity to flow. This material will be used for making solar panels that conduct electricity.

1. What type of material are we looking for?

2. What are some properties of the material that we are looking for?

Predictions and Testing: Record your predictions and material test results in the table below.

1. Make a prediction for the material.
2. Rub the material with the cloth.
3. Float the material over the tissue paper.
4. If the tissue paper moves, the material holds static electricity.

Material	PREDICTIONS	OBSERVATIONS	
	Do you think it will move the tissue paper?	Did it move the tissue paper?	Is it a good conductor?

Results

3. Which material was the best conductor? Which material is best to use for the solar collector?

Apply It

Electrical and computer engineers must understand how static electricity builds up and dissipates. In fact, when engineers are designing, prototyping and fabricating semiconductors, which are important and delicate components in computers, they wear jumpsuits made of a material that prevents static electricity from building up. If the engineers had any static electricity on their clothing, they might damage or ruin the semiconductor.



4. What type of properties do you think the suits have?

5. What evidence from the activity can you use to support your argument?

6. What careers require knowledge of electrical systems so they do not get shocked? Why?

7. *Real-world thinking:* In addition to how well a material works as a conductor, engineers also must consider other factors such as cost. For your top three conductors, research the price per pound:

Material	Price per pound	information Source
1.		
2.		
3.		

8. For what additional reasons might an engineer choose a different conductor? What if making the conductor was dangerous for the manufacturers or harmful to the environment?