

SOLAR BUG LAB

Elementary Student Page

1. Research Question.

How do the positions of the Solar Bug change its movement?

2. Background Knowledge.

What is the difference between a cause and effect?

Draw a sketch of a solar panel here.

3. Hypothesis.

If (Cause), then (Effect).

4. Materials.

- Student Lab Page
- Pen / pencil
- Stopwatch
- 2V solar cell
- vibrating motor
- 2 chenille stems
- wood bodies for insects
- 2 O-rings

5. Procedure.

- a. Read through all of the instructions before you begin.
- b. Gather all materials.
- c. Construct your Solar Bug using the given materials and instructions.
- d. Try the Solar Bug to make sure that it is moving alright.
- d. Put the Solar Bug legs into the first shape on the Observations / Data section:
BOTH LEGS POINTING DOWN
- f. Time the Solar Bug moving for 10 seconds.
- g. Record the approximate path of movement for the Solar Bug.
- h. Repeat D - G for the remaining 5 leg positions.
- i. Write a conclusion section.

6. Observations /Data / Results.

BOTH LEGS POINTING DOWN

Cause -
Sketch of Solar Bug's **legs**

Effect -
Sketch of Solar Bug's **movement**

ONE LEG POINTING DOWN, ONE LEG FOLDED FLAT

Cause -
Sketch of Solar Bug's **legs**

Effect -
Sketch of Solar Bug's **movement**

ONE LEG POINTING DOWN, ONE LEG OFF THE GROUND

Cause -
Sketch of Solar Bug's **legs**

Effect -
Sketch of Solar Bug's **movement**

TWO LEGS FOLDED FLAT

Cause -
Sketch of Solar Bug's **legs**

Effect -
Sketch of Solar Bug's **movement**

ONE LEG FOLDED FLAT, ONE LEG OFF THE GROUND

Cause -
Sketch of Solar Bug's **legs**

Effect -
Sketch of Solar Bug's **movement**

TWO LEGS OFF THE GROUND

Cause -
Sketch of Solar Bug's **legs**

Effect -
Sketch of Solar Bug's **movement**

7. Conclusion.

Answer the following questions:

a. What was the cause and what was the effect in this lab?

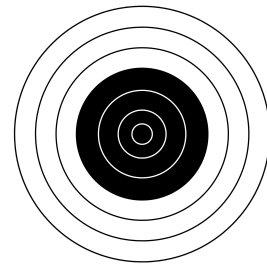
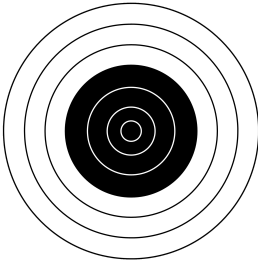
b. Was your hypothesis correct? Why do you think that it **is** or **is not**?

c. What are some possible errors made during this lab?

d. What is a different cause and effect relationship you could test?

ELABORATION PAGE

1. Using your knowledge of the movements when the legs are in various positions, you are going to attempt to hit all three bullseyes in 10 seconds.
2. As a group, discuss which leg configuration you think will be able to hit all three.
3. Start the Solar Bug in the center and release.
4. If unsuccessful, try again until you are able to get all three.



**START
SOLAR BUG
HERE**

