BRISTLEBOT LAB

Elementary Student Page

1. Research Question.

How do the positions of the Bristlebot change its movement?

2. Background Knowledge.

What is the difference between a cause and effect?

What are some good examples of a cause and effect?

3. Hypothesis.

If (Cause), then (Effect).

4. Materials.

- Student Lab Page
- Pen / pencil
- Stopwatch
- 1 pre-cut toothbrush head
- 1 double-sided tape strip
- 1 vibrating pager motor
- 1 coin cell battery
- 2 googley eyes
- 2 chenille stems

5. Procedure.

a. Read through all of the instructions before you begin.
b. Gather all materials.
c. Construct your Bristlebot using the given materials and instuctions.
d. Try the Bristlebot to make sure that it is moving alright.
d. Put the Bristlebot legs into the first shape on the Observations / Data section:
BOTH LEGS POINTING DOWN
f. Time the Bristlebot moving for 10 seconds.
g. Record the approximate path of movement for the Bristlebot.
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 Bristlebot's **legs**	Effect – Sketch of Bristlebot's **movement**

ONE LEG POINTING DOWN, ONE LEG FOLDED FLAT

Cause – Sketch of Bristlebot's **legs**	Effect – Sketch of Bristlebot's **movement**

ONE LEG POINTING DOWN, ONE LEG OFF THE GROUND

Cause – Sketch of Bristlebot's **legs**	Effect – Sketch of Bristlebot's **movement**

TWO LEGS FOLDED FLAT

Cause – Sketch of Bristlebot's **legs**	Effect – Sketch of Bristlebot's **movement**

ONE LEG FOLDED FLAT, ONE LEG OFF THE GROUND

Cause – Sketch of Bristlebot's **legs**	Effect – Sketch of Bristlebot's **movement**

TWO LEGS OFF THE GROUND

Cause – Sketch of Bristlebot's **legs**	Effect – Sketch of Bristlebot's **movement**

7. Conclusion.

Answer the following questions:

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

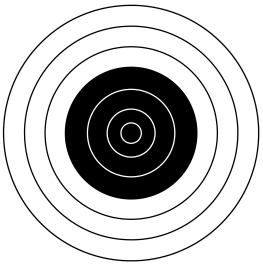
b. Was your hypothesis correct? Why do you think that it **is** or **is not**?

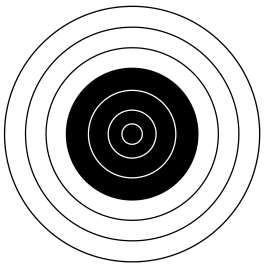
c. What are some possible errors made during this lab?

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 Bristlebot in the center and release.
4. If unsuccessful, try again until you are able to get all three.





START BRISTLEBOT HERE