Name: _____

_____

Block: _____

Simple Machines - Lever Lab
Adapted slightly from:
http://www.scientificjam.com/SCIENCE404WEB/science404web_unit2/7thwebfiles/LAB_levers.pdf, Middle
School Physical Science *by Jay Russell Bingaman* © 2003, published by *TEACHINGpoint*

Using the supplies listed below, build a small lever like the one pictured. Use the ruler as a lever, the pencil as a fulcrum, and tape the cups to the ends to hold the pennies. Test the lever with pennies following the instructions given.

Supplies Needed:
- 2 small paper cups
- one ruler (30 cm long)
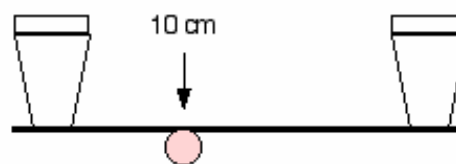- one pencil
- some tape
- about 60 beans

Lever One:
Build Lever One according to the diagram shown. Place the pencil fulcrum at the 15 cm mark on the ruler. Tape the pencil to the ruler if needed to keep it from sliding. Place 30 pennies in the left side cup. See how many pennies need to be added to the right side to get the lever to tip, and lift the left side cup. Record your results on the data table provided.
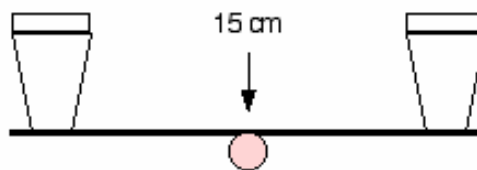
Lever Two:
Build Lever Two in the same way. Place the pencil fulcrum at the 10 cm mark on the ruler. Place 30 pennies in the left side cup. See how many pennies need to be added to the right side to get the lever to tip, and lift the left side cup. Record your results on the data table provided.
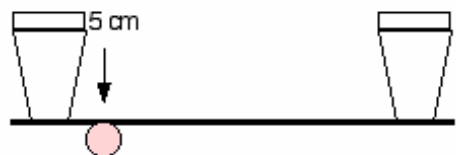

Lever Three:
Build Lever Three in the same way. Place the pencil fulcrum at the 5 cm mark on the ruler. Place 30 pennies in the left side cup. See how many pennies need to be added to the right side to get the lever to tip, and lift the left side cup. Record your results on the data table provided.

Record the data from the three levers into the table below:

The *output distance* is the length of the left arm of the lever.
The *input distance* is the length of the right arm of the lever.
The *output force* is the number of pennies lifted.
The *input force* is the number of pennies needed to tip the lever.

	Output Distance	Input Distance	Output Force	Input Force
Lever One				
Lever Two				
Lever Three				

Look over the data in the table carefully. What is the relationship between the location of the fulcrum and the input force needed to lift 30 pennies?

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What do you think would happen if you were to redo this lab using a meter stick instead of a ruler?

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