Levers Experiment **Name:**_____

Partner(s) Name:_____

Hypothesis: As you change the *resistance distance*, what will happen to the *effort force* you need to lift the load?

Experimental Setup: Sketch your experimental setup and label effort distance, resistance distance, and fulcrum position. Try to make the fulcrum positions as drastically different as possible.

Fulcrum position 1: _____cm	Fulcrum position 2: _____cm	Fulcrum position 3: _____cm

Data Collection:

Use your spring scale to calculate the resistance force, which is the weight of the load. $F_R =$ _____ N

Measure the effort and resistance distances for each fulcrum position, then record the effort force needed for three trials at each position. Average the effort force for the three trials.

Data Table 1: Effort force measurements for fulcrum positioned at ____ cm.

Trial	**Effort Distance (cm)**	**Resistance Distance (cm)**	**Effort Force (N)**
1			
2			
3			
Average			

Data Table 2: Effort force measurements for fulcrum positioned at ____ cm.

Trial	**Effort Distance (cm)**	**Resistance Distance (cm)**	**Effort Force (N)**
1			
2			
3			
Average			

Data Table 3: Effort force measurements for fulcrum positioned at ____ cm.

Trial	**Effort Distance (cm)**	**Resistance Distance (cm)**	**Effort Force (N)**
1			
2			
3			
Average			

Analysis:

Calculate IMA for all three fulcrum positions. Show your work and label each calculation below.

Calculate AMA for all three fulcrum positions using the average effort force. Show your work and label each calculation below.

Summary:

What did you determine, through your experiment, about the relationship between the *resistance distance* and the *effort* needed to lift the load? What do your data and calculations show? Is your hypothesis supported or not?