Simple Machines Lab **Name:**_____

Partner(s) Name:_____

2nd Class Lever Station: At this station you will construct two 2nd class levers by changing the load position, and record your data for analysis of how this change affects mechanical advantage.

Trial 1

Sketch your experimental set-up below.

Trial 2

Sketch your experimental set-up below.

In each sketch, label the effort and resistance lengths. Record their values, as well as the effort and resistance force used in testing your lever designs in the table below.

	Effort length	Resistance length	Effort force	Resistance force
Trial 1				
Trial 2				

Finally, show your calculations of IMA and AMA for both trials below by using your experimental data (4 calculations total).

3rd Class Lever Station: At this station you will construct two 3rd class levers by changing the effort position, and record your data for analysis of how this change affects mechanical advantage.

Trial 1

Sketch your experimental set-up below.

Trial 2

Sketch your experimental set-up below.

In each sketch, label the effort and resistance lengths. Record their values, as well as the effort and resistance force used in testing your lever designs in the table below.

	Effort length	Resistance length	Effort force	Resistance force
Trial 1				
Trial 2				

Finally, show your calculations of IMA and AMA for both trials below by using your experimental data (4 calculations total).

Inclined Plane Station: At this station you will construct two inclined planes by changing the resistance length (height) of the plane, and record your data for analysis of how this change affects ideal mechanical advantage and actual mechanical advantage when a cart is pulled up the incline.

Trial 1

Sketch your experimental set-up below.

Trial 2

Sketch your experimental set-up below.

In each sketch, label the effort and resistance lengths. Record their values, as well as the effort and resistance force used in testing your plane designs in the table below.

	Effort length	Resistance length	Effort force	Resistance force
Trial 1				
Trial 2				

Finally, show your calculations of IMA and AMA for both trials below by using your experimental data (4 calculations total).

Pulley Station: At this station you will construct two pulleys by changing the type of pulley system, and record your data for analysis of how this change affects ideal and actual mechanical advantage. Your pulley should be set with 0.15 for friction and a 5-N load in all trials.

Trial 1

Sketch your experimental set-up below.

Trial 2

Sketch your experimental set-up below.

In each sketch, label the name of the pulley system. Record the number of ropes, as well as the effort and resistance force used in testing your plane designs in the table below.

	Number of pulley ropes	Effort force	Resistance force
Trial 1			
Trial 2			

Finally, show your calculations of IMA and AMA for both trials below by using your experimental data (4 calculations total).