**Group Collaboration to Create a Simple Machine to Accomplish a Specified Task**

**Clint Hayes, PAA, Eaton School**

**Curriculum Outcomes:**

PAA 10

* Module 11a: Demonstrate basic woodworking skills to complete a simple project.
* Module 10: Develop proficiency in using fasteners and adhesives effectively.

**Summary:**

In summary, the purpose of this artifact was to increase the amount of group collaboration and critical thinking in my PAA classes. Typically in my PAA class, students pick a project and follow strict plans that will lead to their resulting projects. This group activity will require students to collaborate and think critically in order to come up with their own way to accomplish a simple task.

**Task:**

The Task that the students will need to accomplish is to transport a plastic golf ball from point “A” to point “B” using the materials provided.

**Materials:**

Each group will be given:

* A 2 foot by 3 foot piece of ¾ inch plywood
* A 2 foot by 3 foot piece of cardboard
* Two plastic cups
* 3 feet of string
* Nails and glue
* Access to all tools in the shop (some only with assistance)
* Two large bolts with washers and nuts
* 4 large rubber bands
* Safety goggles (1 pair per student)
* 1 foot piece of 3/8 inch dowel
* 2 plastic spoons
* 4 popsicle sticks

Step 1:

Set up groups and introduce tasks. Show students pictures of various trebuchets, catapults, and ramps. Explain that their group is in charge of getting the golf ball from point A to point B using the supplies given. The examples are things they could build, but they could also find their own way to do it.

Step 2:

Students will assemble into their groups and create a design of their idea before beginning construction. During this time, groups could collaborate and compare notes with each other to help get ideas or come up with more efficient ways of accomplishing the task.

Step 3:

Supplies will be handed out and groups will begin constructing their simple machines, modifying their design as needed.

Step 4:

Testing. Groups will test out their machines making any changes or modifications as needed.

Step 5:

Task Performance. Groups will show whether or not they can accomplish the task.

**Modifications:**

The task could be modified to increase or decrease the amount of difficulty. Some examples may include: Getting the golf ball from point A to Point B without touching the floor, getting the golf ball as close to a target as possible, getting the golf ball into a bucket or pail prom a specified distance, or getting the golf ball from point A to point B to point C, etc.