



# STANWOOD HIGH SCHOOL

## TECHNOLOGY EDUCATION

### ARCHITECTURE AND ENGINEERING DESIGN

## MECHANICAL DEVICE—LEGO SIZE

### **Purpose (Student Learning Target):**

I will be able to create mechanical parts in SolidWorks.

I will be able to manufacture parts using a CNC Mill.

I will be able to design and produce multiple components that work together in a system.

### **Design Statement/ Parameters:**

Our world is driven by mechanical devices and mechanisms. These items are responsible for actions in a variety of things and allow us to transfer energy or movement from one item in a system to another.

Your task is to find one of the many different mechanical mechanisms and create your own version of it that would fit with a Lego system. Meaning it must be proportional in size to Legos.

### **REQUIREMENTS:**

- At least 2 machined parts
- All parts fit on a total of 2 blocks that measure 3"X2"
- Require 2 ½ Axis Milling (No 3d surfaces.)
- Use Lego Axels (0.1875 Diameter)
- Your system must include a display stand that is made on the laser out of 1/8" plywood.

### **PROCEDURES:**

1. Research ideas
2. Create in SolidWorks
3. Create Dimensioned drawings.
4. Program in RhinoCAM or MasterCAM
5. Cut on Mill out of Wax Block
6. Pour Silicone Mold, then Urethane parts.
7. Assemble and present.

### **THE FINISHED PRODUCT:**

When finished you will put together a notebook with:

- Rendered Drawing
- Dimensioned Orthographic Drawings
- Written description of what the device is, does, and how it works.
- Finished Parts

