

(40 pts) Approx. 3 days

The first part of this unit requires doing a lot of thinking, brainstorming, and planning so that the final construction of your Automata runs smoothly! Here you get to think about the kinds of materials and tools available to you before you research and brainstorm the different kind of things you might build. When you have an idea, you'll get it carefully drawn out on paper, then modeled in Autodesk before moving on!

1. **Notes:** Start by watching the videos *Automata Introduction* and *Automata Overview*. Take a full page of notes on the ideas and challenge. Include a list of Makerspace materials that you might use in your design!
2. **Research & Brainstorm:** Next, do a Google Image Search for "Automata Project" and look through some of the complex designs other people have built. Your design **does not** have to be as complicated as theirs. Use these ideas to generate your own. Brainstorm at least 10 ideas for your Automata project and write them down in your engineering notebook.
3. **Plan & Draw Automata:** Finally you get to actually design and draw out your Automata. Make a plan for your design that fits the following criteria:
 - a. Must use at least 2 cams of different shapes
 - b. Must have an axle and handle so it turns nicely
 - c. The box must be no larger than 12" wide and 8" tall
4. **Autodesk Model:** Create an accurate model of your design in Autodesk and get it assembled so it moves correctly
5. **Autodesk Diagram:** Finally, create an Autodesk diagram of your design and include full dimensioning so that you can use it as a reference while you build!

Part 1: Tasks	5 points	4-2 points	1-0 points
 Notes on Automata Challenge	+ You took a full page of notes on the <i>Automata Introduction</i> and <i>Automata Overview</i> + Your notes include a list of available materials from the lab for your Automata!	- Your notes are missing a major part	- Your notes are missing entirely
 Research & Brainstorm	+ You did a Google search for "Automata Project" and looked through the different ideas there + You brainstormed at least 10 ideas for your own Automata	+ Your brainstormed list is missing some ideas	+ Your brainstormed list has fewer than 5 ideas
	10-8 points	7-5 points	4-0 points
 Plan & Draw Automata	+ You made a very careful drawing of your Automata design in your notebook + Your drawing includes dimensions and labels	- Your drawing is not very detailed - Your drawing is missing dimensions or labels	- Your drawing is missing many important elements
 Autodesk Model	+ Your Autodesk model shows the moving parts of the cam & follower rods + Your Autodesk model does NOT show your decorative parts on top	- Your Autodesk model is not complete - Your Autodesk model does not have properly modeled cams	- Your Autodesk model is missing important elements - Your Autodesk model does not move properly
 Autodesk Diagram	+ You used your assembly to create an Autodesk diagram + Your Autodesk diagram is fully dimensioned	- Your Autodesk diagram is hard to read - Your Autodesk diagram is missing dimensions	- Your Autodesk diagram is missing completely

