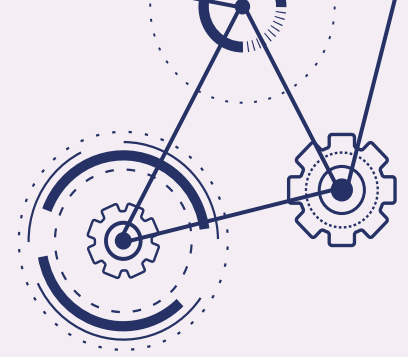


LEGO 9441: Kai's Blade Cycle

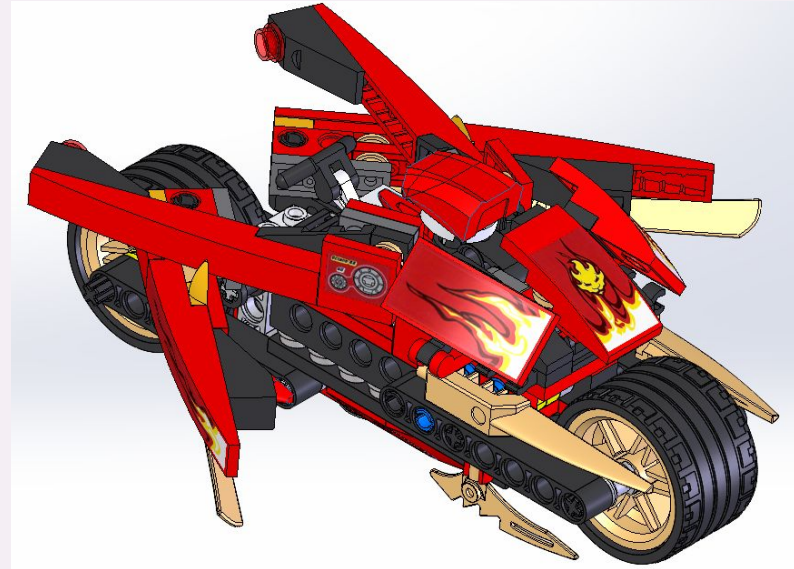
CAD Reverse Engineering - Julia Abboud



ACTUAL



CAD

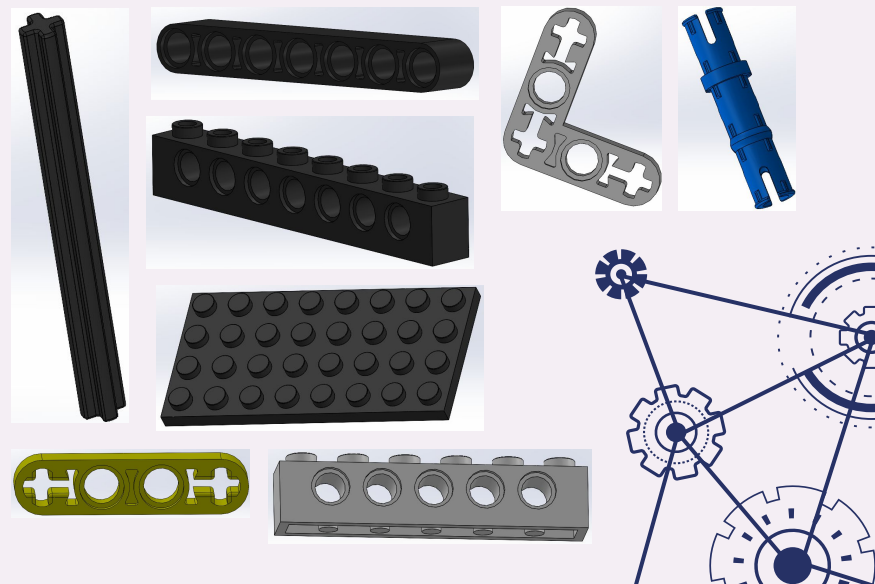
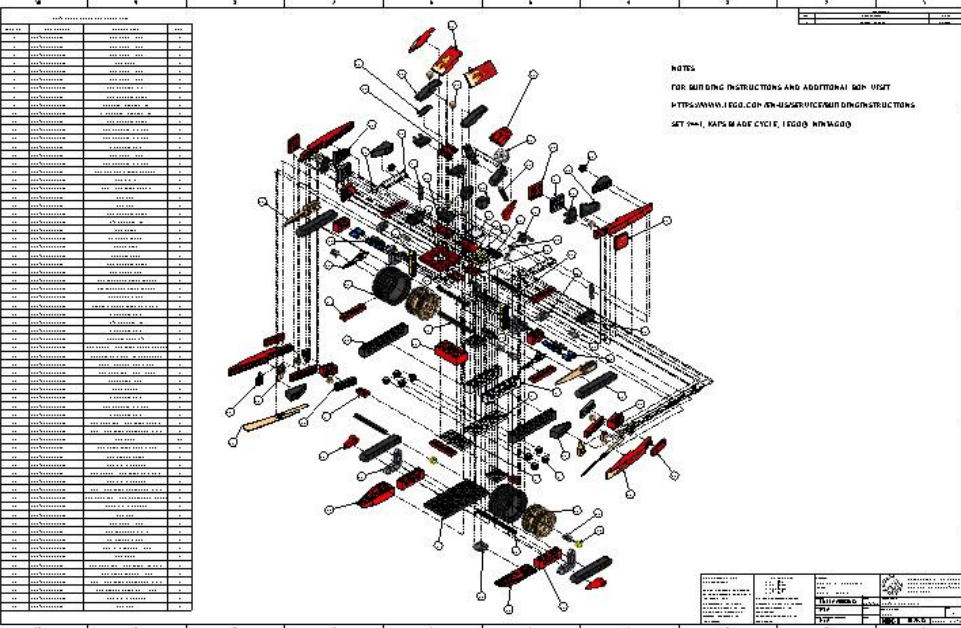
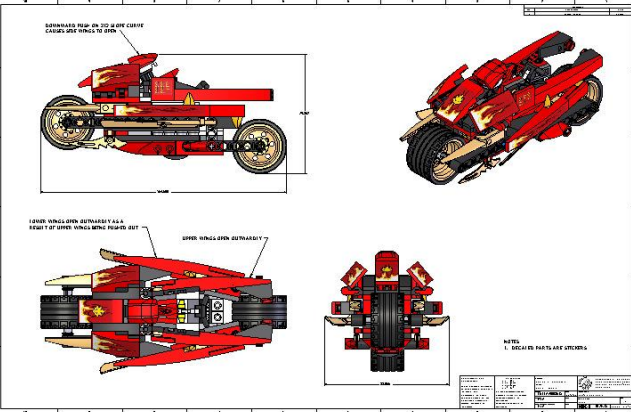


A Lego collector since childhood, this was my first set 15 years ago!

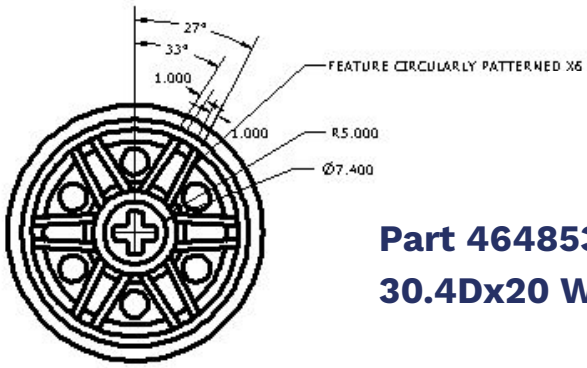
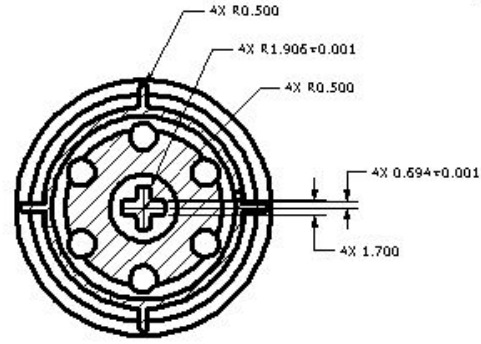
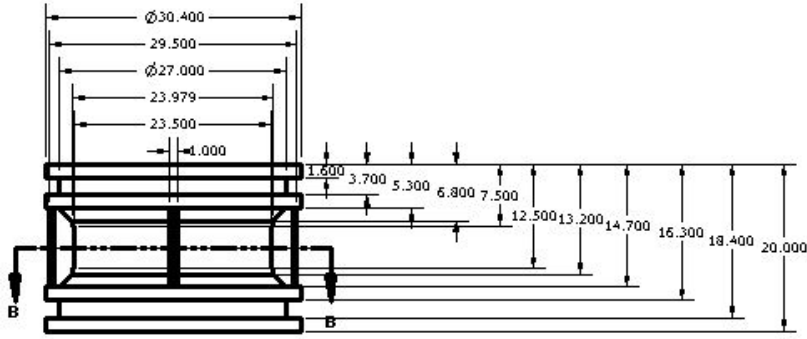
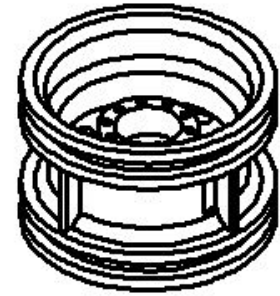
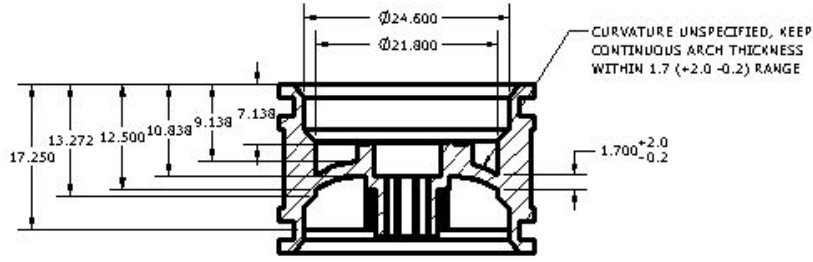
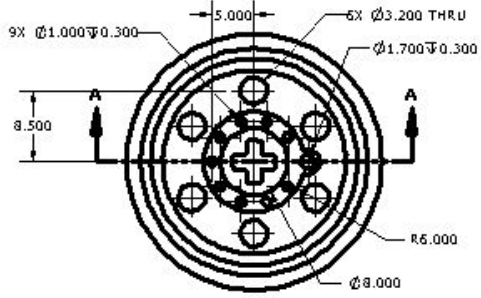
Critical Components

Crucial to follow Lego standard part sizing (8mm apart studs, -0.1 mm on each side of part, 3.2 mm thickness, etc)

The internal frame pieces are most important to the model



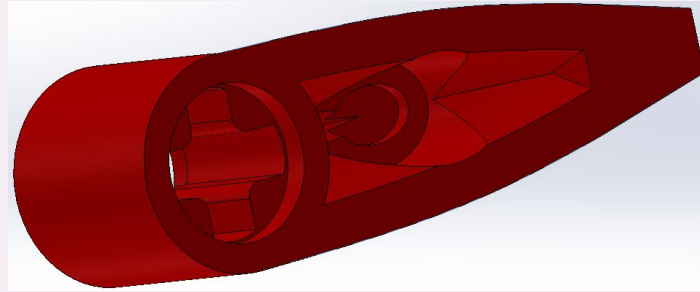
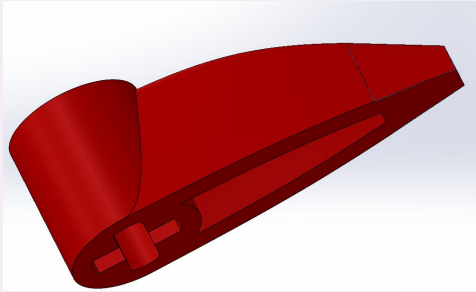
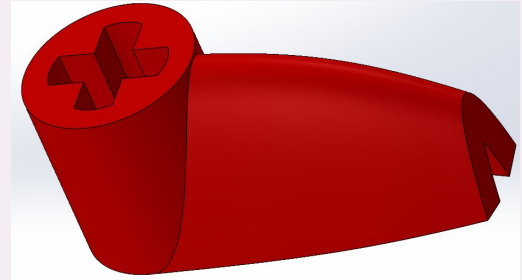
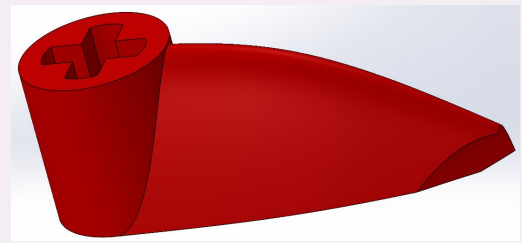
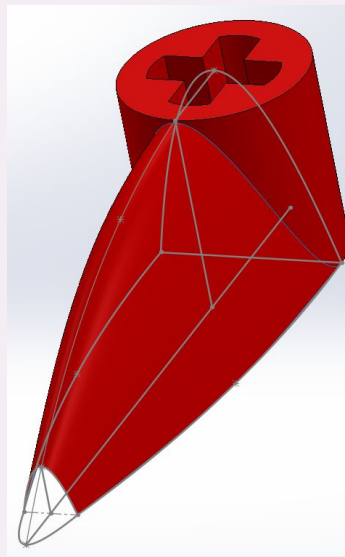
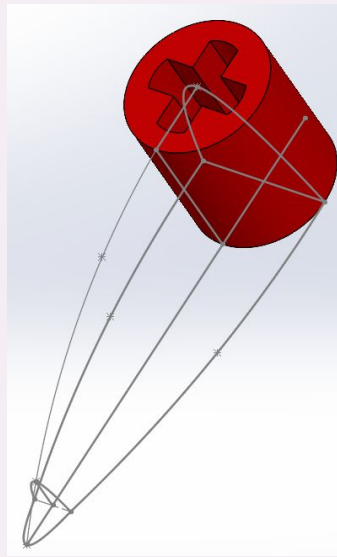
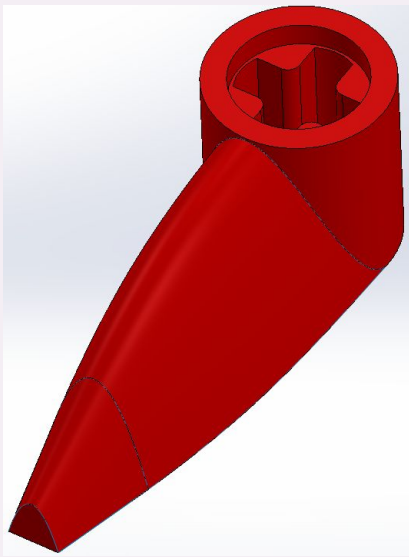
| REV. | DESCRIPTION | DATE |
|------|-----------------|-----------|
| A. | INITIAL RELEASE | 12/4/202* |



Part 4648531
30.4Dx20 WHEEL

Use of symmetry
Detailed dimensioning
Distinguish features' tolerance importance
Top, bottom, and section views used for clarity

Challenging Drawing



Create boundary surface
Partially successful thicken
Cut with plane
Extrude new boundary surface
Inner Cuts and Fillets

Part 4185661

BIONICLE TOOTH WITH AXLE HOLE

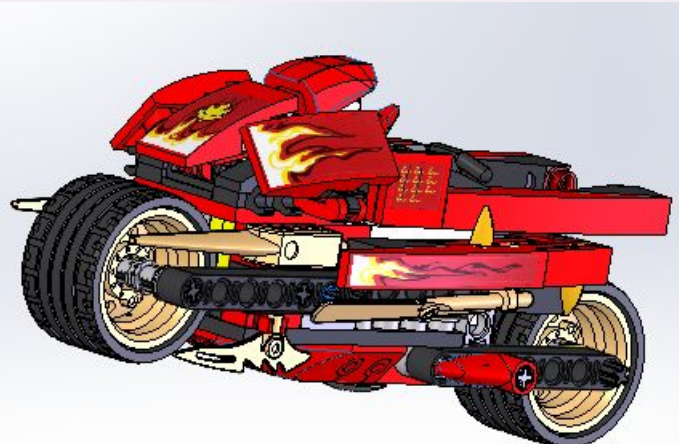
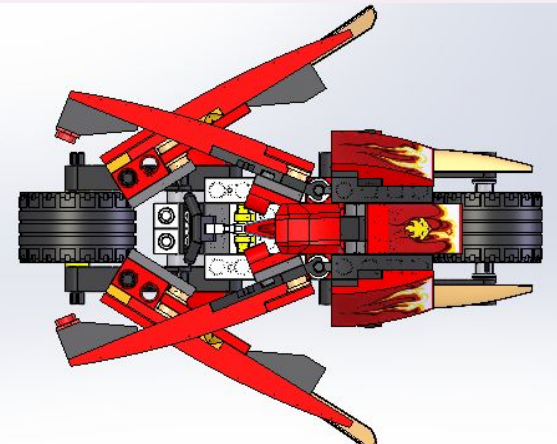
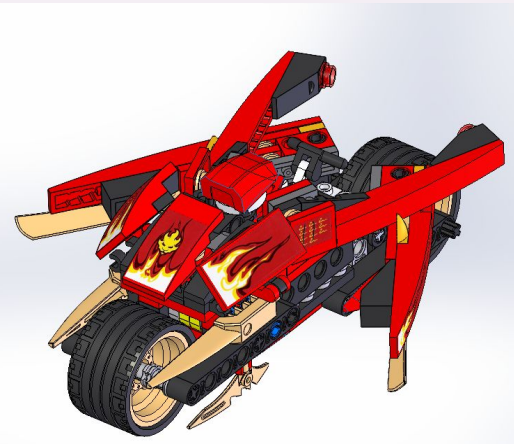
Challenging Part

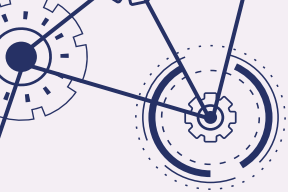
Model Comparison

ACTUAL



CAD





Additional Learning

Animation through Motion Study was challenging and time intensive for an 8 second video, but very rewarding!

Applying decals



Use subassemblies in the future

Thank You!

To the TAs who supported this endeavor and answered many questions as well as my mom who bought me this set over a decade and a half ago.

Contact

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