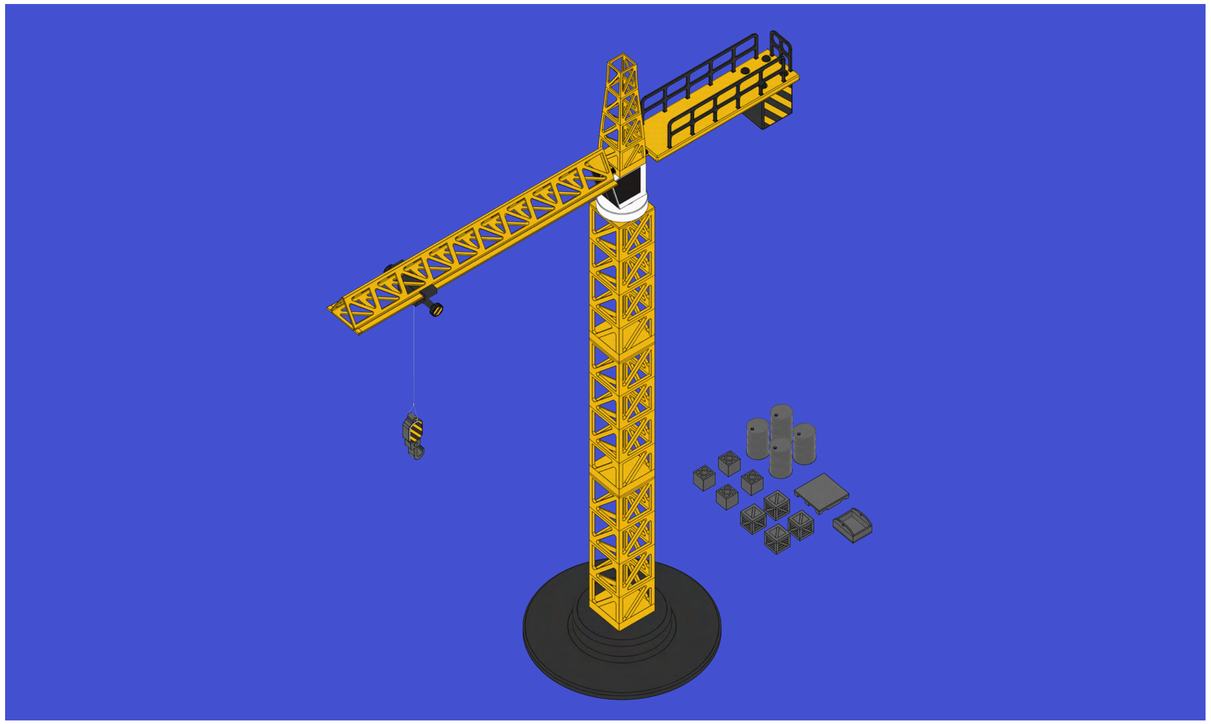
# LIFT-N-LEARN



Project 1:
Educational Toy

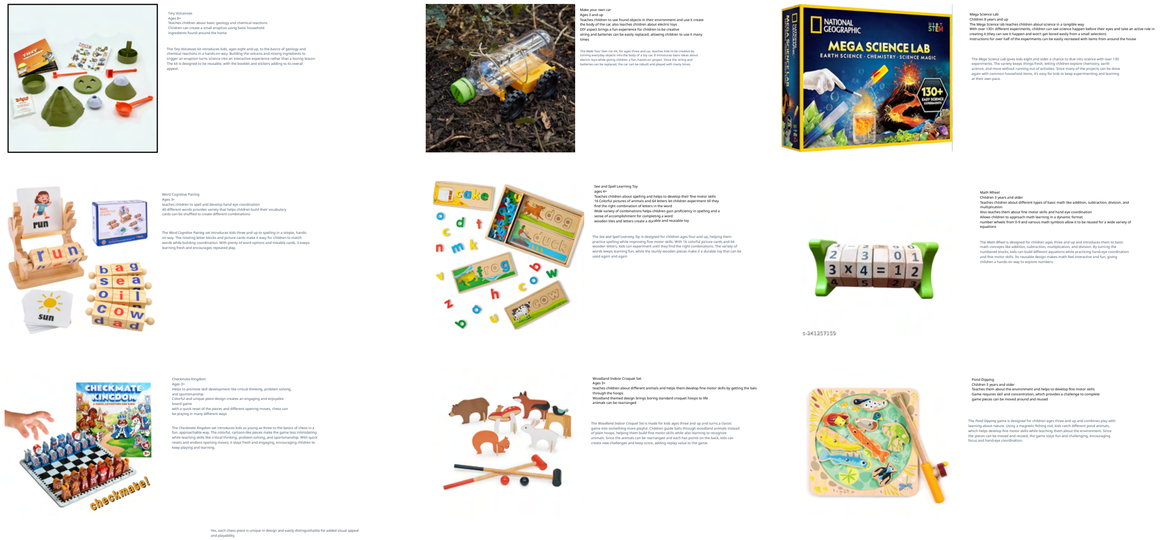
DES 460-01
Prof. Linn

David
Ausman

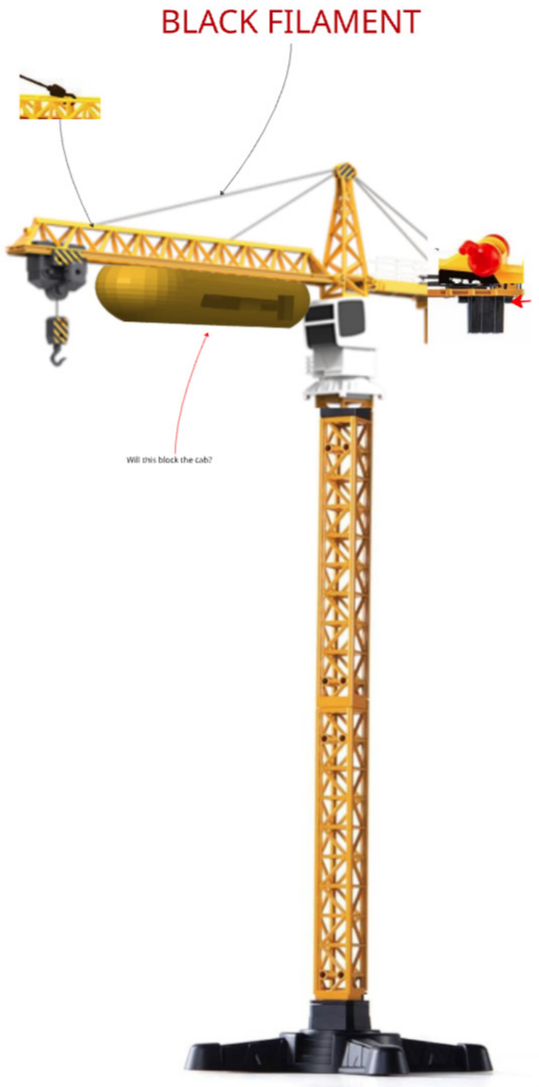
FALL 2025

# INITIAL RESEARCH

**As I studied different types of toys, I saw that play can act as a bridge between curiosity and learning. Construction toys stood out because they teach the principles of building and problem-solving in a way that feels intuitive and engaging.**

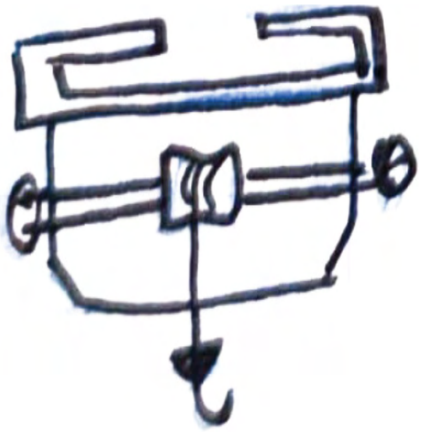


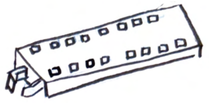

Through the initial research into different childrens toys, I began to get a better idea of what children’s toys i would find interesting to design and others not as much. I stumbled upon the idea of a construction toy as it combines engineering and play.

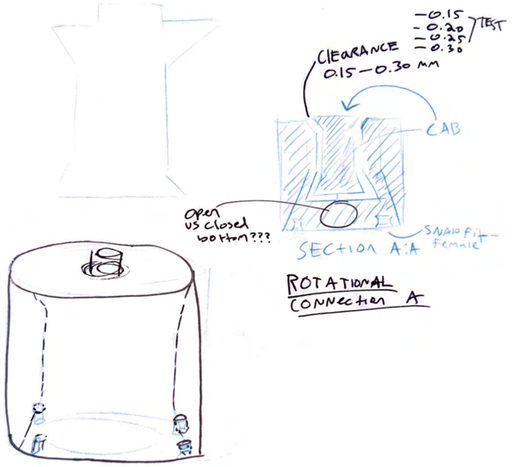


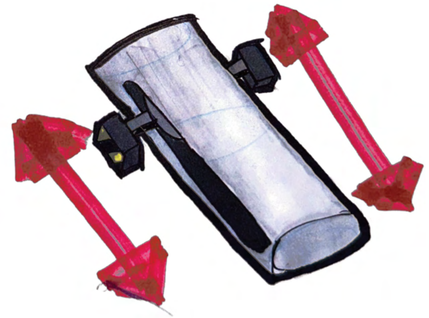

I selected features from a wide range of construction toys that i believed would be a good fit for my design. Even though my final design looked different, it was a valuble starting point.

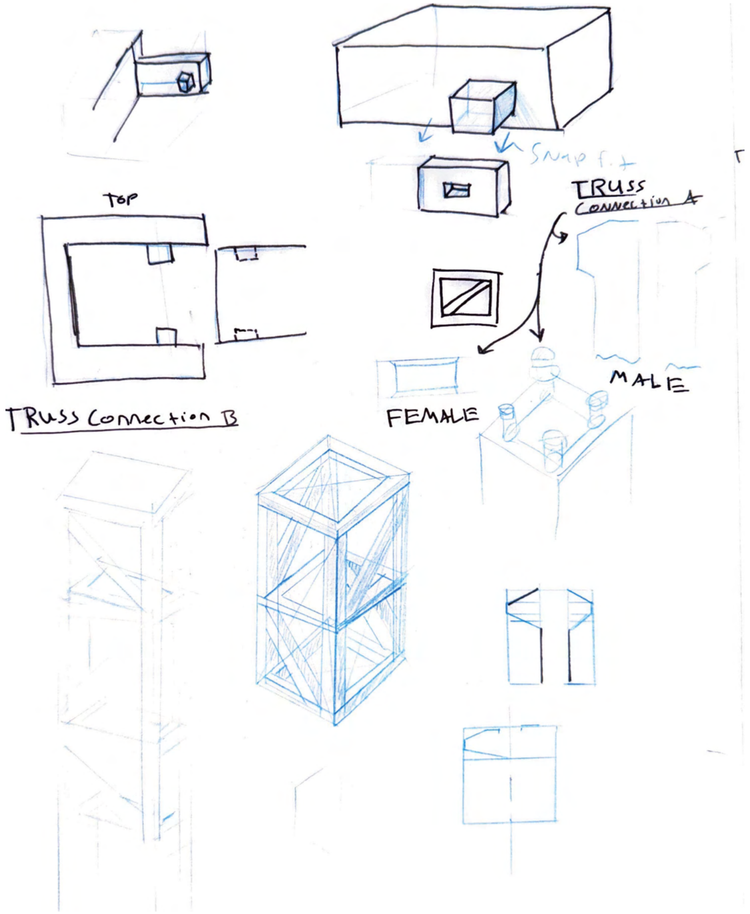
01







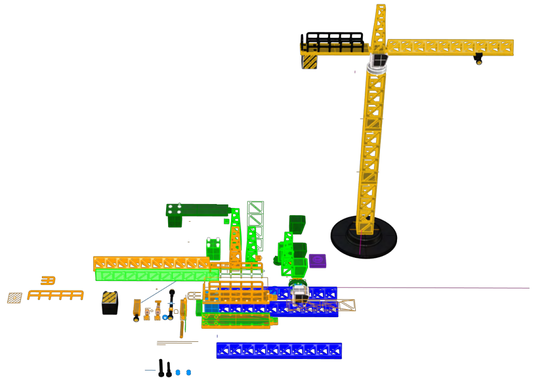






# Initial Sketches

02

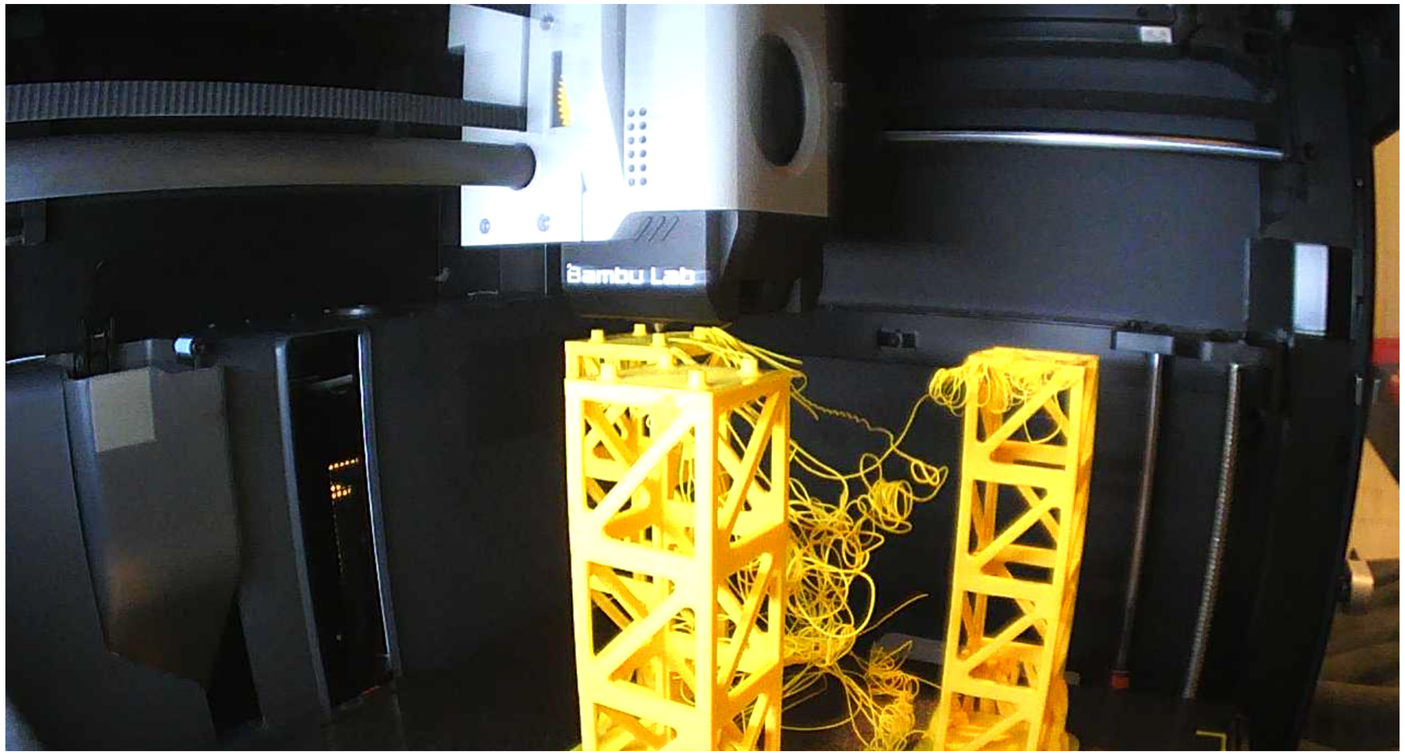
# CHALLENGES



03

**While techical problems delayed my design, i was able to learn how to better design and slice for 3D printing.**

One of the main challenges i ran into when printing was tolerances. It would be much easier to design a part and have a tolerance of zero. I generally tried tor get a tolerance of .20 MM between parts. While this ensured a snug fit for some designs, it resulted in a loose fit for others. Another problem i ran into was spaghetti that was caused by the print failing. Due to the nature of a rectangular truss, whichever direction you print in requires plentiful amounts of support material to ensure a god quality print



# FINAL CONCEPT