



The third and final session in the 2020 STEM Family Workshop series was February 15th. Families participated in a model of Biomedical Engineering.

Dr. Burr-Alexander, one of the workshop leaders, explains the first task: How does a finger move?





Research is essential!



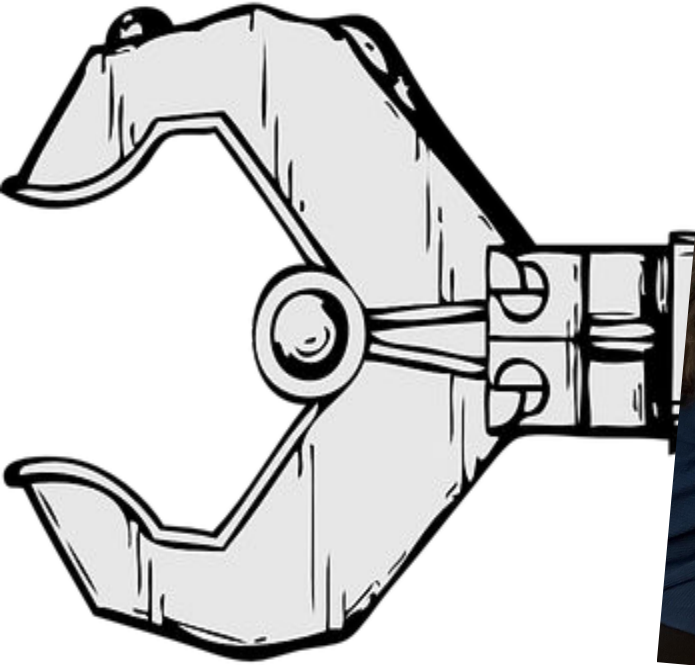


Dr. Elder Weller, a workshop leader, helps a student immobilize her thumb to focus on the role of the fingers with three phalanges.



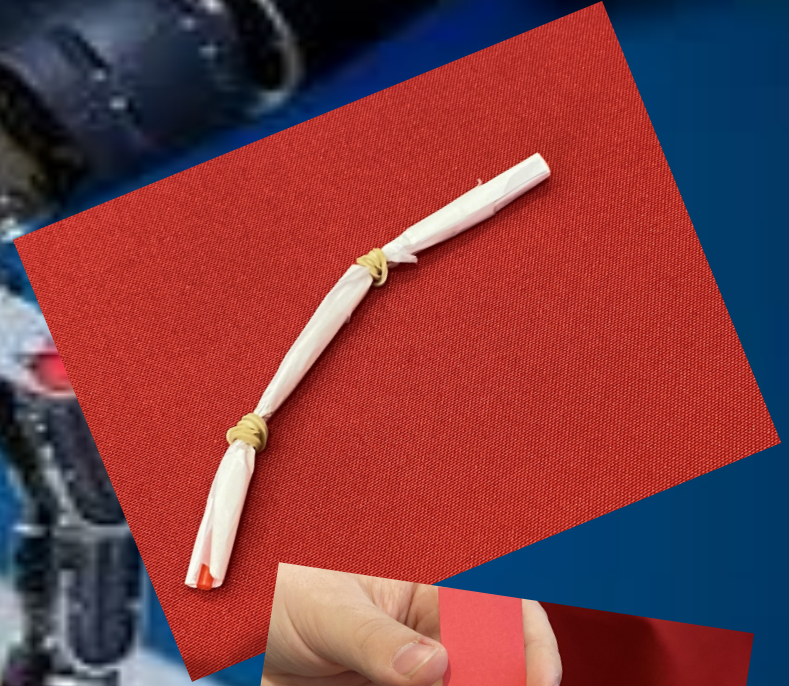


**The first model: Build a paper
finger that moves like your finger**



Families followed the steps in the Engineering Design Process





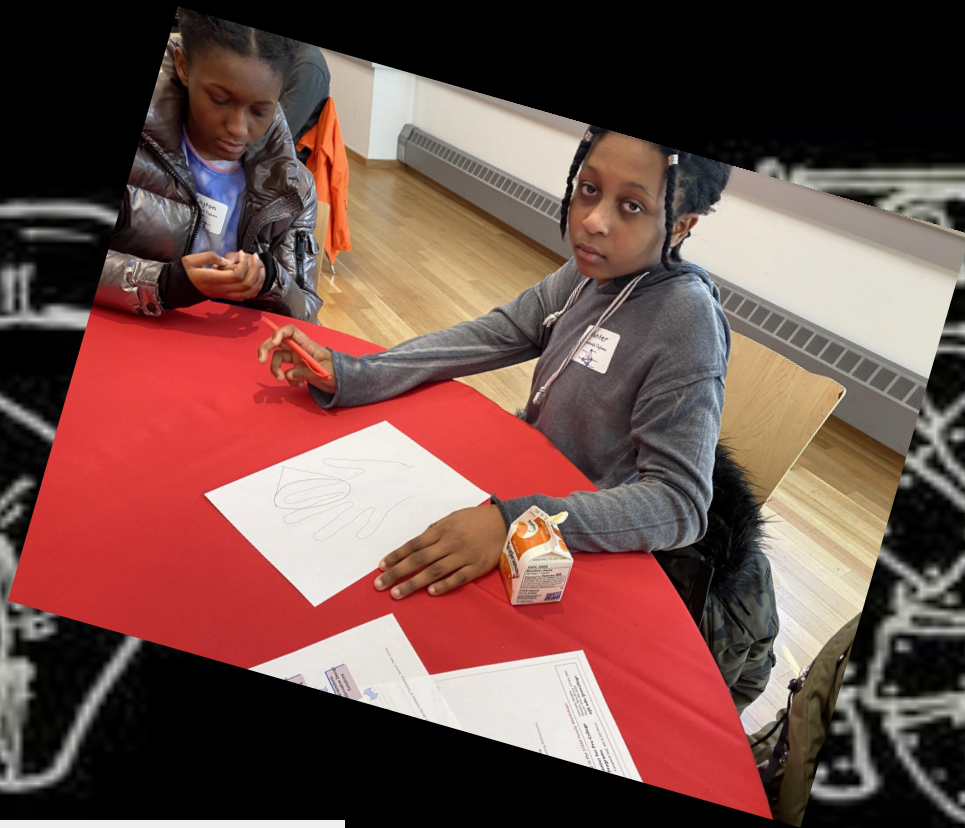
Families tested their model fingers, an important step in the Engineering Design Process

**After testing, some revised their models,
which professional engineers do regularly**



**The main challenge for the day was
constructing and using a mechanical hand
to do work**





It's essential to understand design constraints

THE BIOMEDICAL ENGINEERING



Brainstorming and sketching is an important part of the Engineering Design Process.

Careful measuring was essential for successful construction





Families worked together - sometimes with assistance from one of the workshop leaders

Some families worked collaboratively to solve the challenge

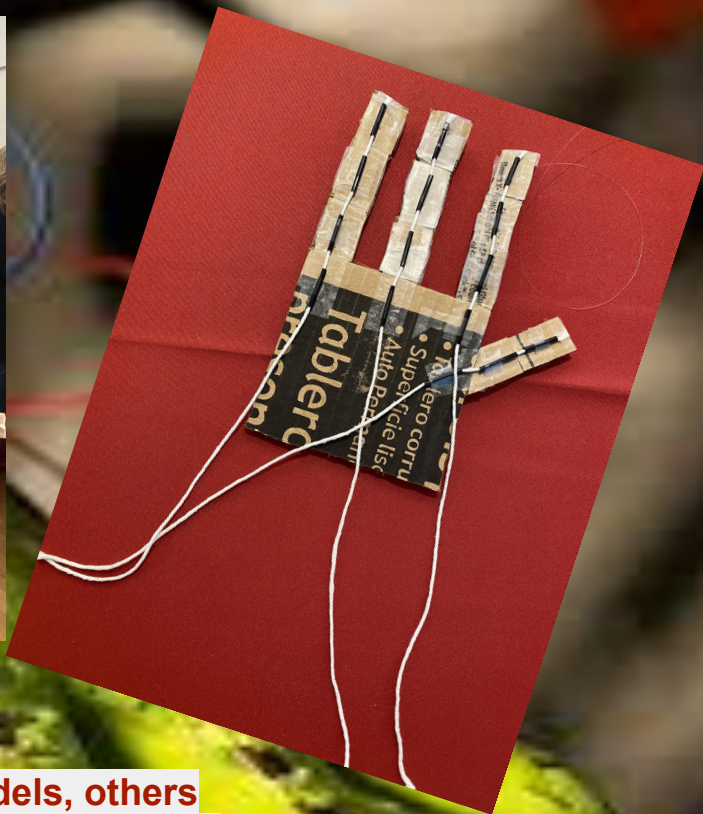
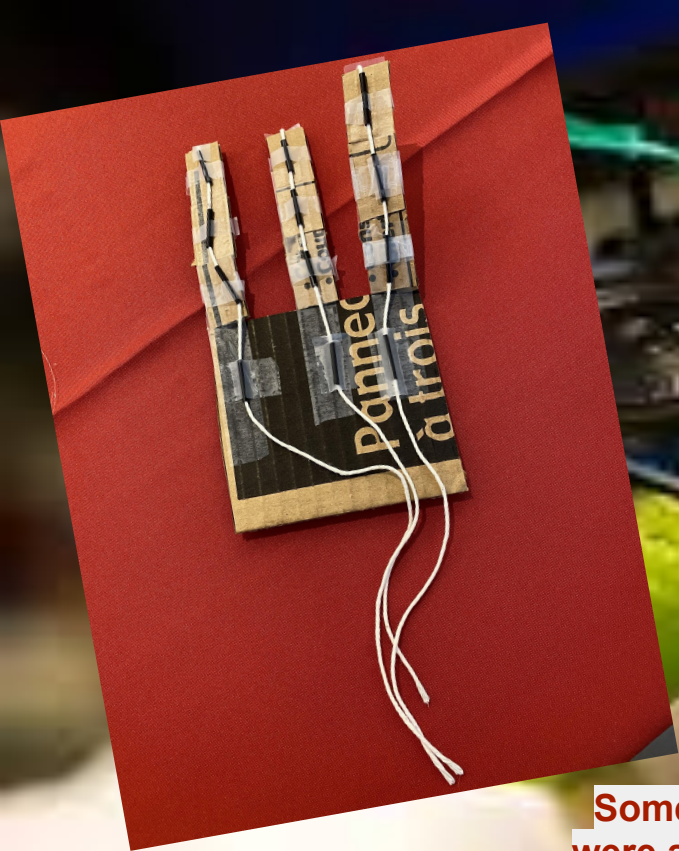




Families combined their resources to build a model

Students proudly display their creations





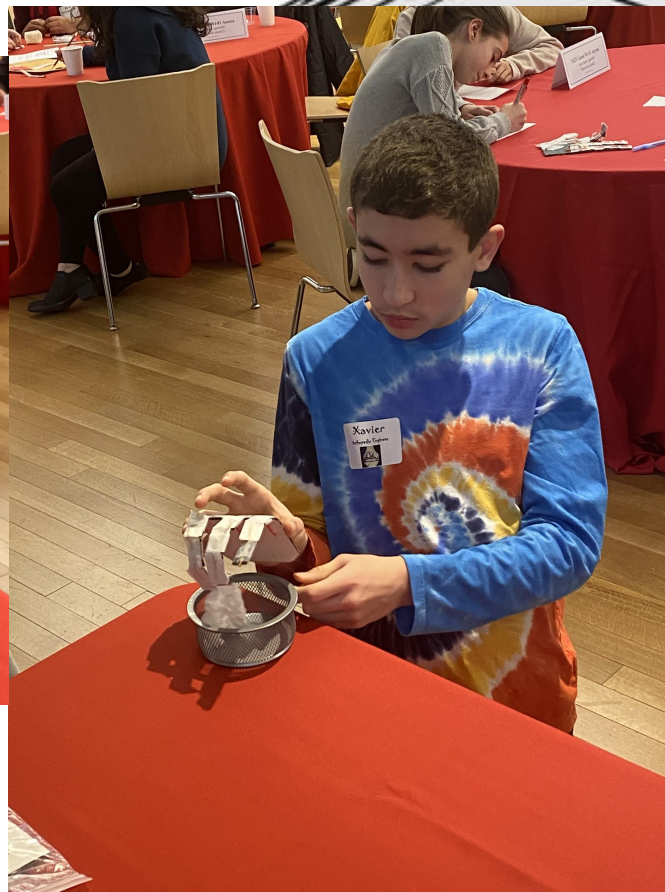
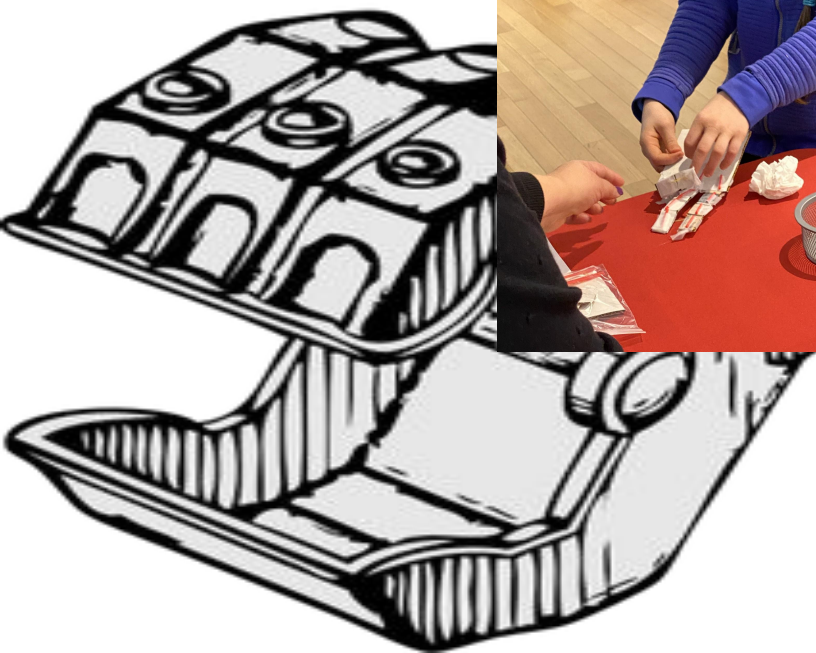
Some families built 3-finger models, others were asked to include an opposable thumb - a significantly more complex task



Families were asked to use their model hand to pick up a paper ball and drop in a basket









Everyone expressed a sense of satisfaction - a student suggested that should be a step in the Engineering Design Process!