

Beautiful Functionality

Designing, building, & problem-solving with Claire Joseph

Aspiring architect Claire Joseph has been making things for as long as she can remember. What began with LEGO, paper, cardboard and whatever she could find around the house has grown into CAD, 3D printing, engineering projects, house plans and increasingly complicated handmade designs. The tools have changed. The instinct has not: Claire notices how something works, imagines how it could work better, and starts building.

"I like to create gifts that have a function. I think it is far more interesting to make things that are interactive rather than just still objects."

THE POP-UP BIRTHDAY CAKE

Designed as a gift for Claire's sister, the cardboard cake incorporated multiple layers and a carousel holding gift cards. The challenge was not simply making the cake look right; its second layer had to rise, remain supported and then collapse back inside the first. Claire tested the structure, encountered failure and revised the design until the mechanism worked.

First Architecture Model

This early architectural model reflects Claire's interest in structure, form, and how individual elements create a unified space.

Handmade Phone Case Insert

A small-scale design project showing Claire's love of personalization, visual storytelling, and making objects feel interactive and unique.

Design In Action

FROM CARDBOARD TO ARCHITECTURE: Claire's independent projects are only one side of her design experience. Through her high school Engineering Academy, she has worked with Chief Architect, Solid Edge, 3D printing, bridge-design software, Python and introductory CAD tools. Her projects have included a scale Empire State Building, automata components and 3D-printed pieces. One teacher retained Claire's automata project and used it as an example for the following year's class.

THE DIORAMA BOOK: Claire created a book containing an entire setting inside it, transforming a familiar object into a small three-dimensional world. She considers it one of the projects that best represents her personality and says it required more planning than many of her other independent designs.

THE CARDBOARD NINTENDO SWITCH: Claire recreated a Nintendo Switch from cardboard and incorporated a personalized interactive feature rather than making a static replica: a "Rainbow Road" of photographs could be pulled from the object. The project combined recognition, surprise and personal meaning with construction.

THE INTERACTIVE RECORD PLAYER: Another handmade gift transformed cardboard and other basic materials into a record-player-inspired design with a component the recipient could physically spin. The interaction mattered as much to Claire as the appearance of the finished object