# Project DESIGN: OVERVIEW page 1

**Name of Project:** Barbie House (Barbie Dream House)

**Date** 12/07/23

**Group Members**

Justine Zehnder, Natasha House, Ian Murphy

**Grade Level:** 2nd

**Subject areas addressed:** Science, engineering, language arts.

| **Key Knowledge and Understandings that will be addressed** (CCSS, Content Standards, objectives, research needed, etc.)<br><br>· W.2.8. Recall information from experiences or gather information from provided sources to answer a question.<br><br>· SL.2.4. Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.<br><br>· Performance Expectation: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.<br><br>· Engineering design process: ask, imagine, plan, create, improve, reflect.<br><br>· Facts and terminology learned as needed while developing explanations and designing solutions supported by evidence-based arguments and reasoning.<br><br>· Students conducting investigations, solving problems, and engaging in discussions with teachers' guidance<br><br>· Students write journals, reports, and a presentation that explains their project and everything that went in.<br><br>· Provisions of support so that all students can engage in sophisticated science and engineering practices.<br><br>· Experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations. Analyze complex real-world problems. | Research needed:<br><br>For the project we needed to research how to build our own doll house furniture.<br><br>We also needed to search for small Barbie dolls and where to find them.<br><br>We researched how to install lights into a doll house without an outlet.<br><br>We researched the different colors that go with a barbie doll house.<br><br>We researched the different standards our finished project could meet.<br><br>We researched what grade level our project would work for.<br><br>We researched the different lesson plans that go with breaker and maker education for elementary schools. |
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| · Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.<br><br>· Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.<br><br>· Constructing explanations and designing solutions. Obtaining, evaluating, and communication of all project information.<br><br>· CCSS.ELA-Literacy.RH.6-8.7: “Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.”<br><br>· CCSS.ELA-Literacy.CCRA.R.7: “Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.”<br><br>· CCSS.ELA-Literacy.CCRA.SL.1: “Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.” | |

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| **Academic Language** (Vocabulary and phrases specific to the content area(s) and their standards involved in your project) | Measurement- Action of measuring something to learn about size.<br><br>Length- Size of something (side to side).<br><br>Width- Measurement or extent of something from side to side.<br><br>Height- Measurement from top to bottom.<br><br>Capacity- Maximum amount that something can contain.<br><br>Ruler- Scale of line often used to take measurement with in. or cm.<br><br>Measure- Size, quantity, and degree of an object<br><br>Dimension- Length, width height<br><br>Magnitude- Size, quantity, and extent of an object.<br><br>Metric System- Standard decimal measuring such as meters, grams, liters.<br><br>Inches- Unit of measurement: in.<br><br>Centimeters- Unit of measurement: cm. | |

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| **Success Skills – check the collaborative skills you needed for the project**<br><br>Adaptability and persistence<br><br>Cultivating and refining<br><br>Critical Thinking/Problem Solving<br><br>Collaboration/Group discussion and active listening<br><br>Conflict - Resolution<br><br>Communication Skills: Active listening, clarity, and feedback<br><br>Leadership Skills: Delegation, motivation, accountability | | |

**Project Summary**

(Include your role, issues, problem or challenge, complexity, execution of the project, and purpose/beneficiary)

At first our group thought of using the toaster oven as a terrarium. We would fill the base of the oven with soil, and then decorate it with different cute things to go into the soil. We then would plant some succulents to live in the soil.

The second idea we had was using the shell of the toaster as a candle holder. This was due to it being able to hold extreme amounts of heat. We would be able to light a candle and leave it there for a long time without worrying about anything burning down.

The next idea we had was a doll house, which had turned into a Barbie dream house. This idea was a lot more creative and involved more brainstorming of the possibilities.

To create the old, recycled toaster into a Barbie dream house took a lot of thought and work. We first had to figure out the hypothetical house layout. We thought of using the shelf the slides out as a second floor to the house. Giving us living room/family room and kitchen on first floor, bedroom and bathroom on second floor, and the small little hallway became the hypothetical car garage. The metal piece with an indented oval shape in it became a hypothetical backyard with a pool that would fold out on the back of the house. Ian had to cut out apart from the “old door” to make a new opening for our garage.

The Idea for using the sliding out shelf to be used as a floor separator was then changed, when we decided that there is no way to secure it, and the levels of the house would be too small to fit any furniture or dolls onto. We then decided that the slide out shelf will serve as a canopy for our pool deck, which then this idea got canceled because there was no way to attach the metal piece to where it slid out and not fall.

We decided that the whole house had to be pink, this would be later completed by Ian who spray painted the shell with hot pink spray paint.

After the shell was painted it was time to create the prototype of the layout in our Barbie House. Justine used sticky notes to mark where all the furniture and pool would go. Our sticky notes included the couch, the bed, the pool, the closet.

Justine then created a bead curtain to cover the garage. For a child to be able to use this house we had to cover all of the sharp edges that were a result of the metal being cut. We had to think of the different decorations we should put in the house, and also the different things that can be placed at the pool area.

Natasha bought wooden furniture from amazon that she painted and then put it together at home with some help from family and friends. Ian attached string lights to the ceiling of the house while Justine and Natasha worked on the deck layout and attaching fake grass around the pool area. The pool and the closet system came from the dollar tree. Ian glued the closet system and all the attachments that came with it to the wall. We also attached a big mirror to the wall.

**Driving Question** (What problem(s) are you able to solve with your creation?)

Less items in the trash that will never dissolve because it is not biodegradable and pollutes the ground.

Keeps the recycled and reused items from going into landfill.

Reduced manufacturing costs.

Don't require production of new material, there will be less pollution, lower carbon emissions produced by the manufacturers.

Reduced cost for a family, or person who will use this in the future.

Teaching repair skills.

Encourages group play and sharing.

Increases creativity.

Increases individual play and imagination.

Gave the toaster oven a "second life."

Protects the ecosystem and wildlife.

Brings people together.

Educates people about upcycling and protecting our planet.

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| **Describe your Journey (the Six-Stages of Design Thinking)** (Your initial ideas, ideas that did not work, and how you can resolve them.)<br><br>Empathize- How can we conceptualize our project? Which specific components of the toaster oven will be integral to our design, necessitating their incorporation? Additionally, what supplementary materials will we need to locate or procure to enhance the functionality and aesthetics of our project?<br><br>Define- Upon finalizing the list of required materials, we initiated the deconstruction process of the toaster oven.<br><br>Ideate- Collaboratively brainstorming, we innovatively generated numerous ideas for the potential uses of the toaster oven, aiming to distill and refine our concepts to identify the most optimal and creative solution.<br><br>Prototype- We considered tangible elements necessary to embody our ideas, engaging in the creation of diverse prototypes through sketching and conceptualizing. Through a series of iterations, we refined our designs before reaching a final consensus.<br><br>Test- Once we attached all the pool area pieces, this included the pool, the fence, the fake grass, a fake bush we attempted to attach the piece to the back of the old oven, this piece was supposed to be able to fold out from the house as it was a deck. However, | Insert Design Thinking Planning Template for Your Online Scientific Notebook – Part I or include it in your online folder. |

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| because we attached the closet system to the wall on the inside of the house and we attached the pool to the deck. The two parts were preventing the wall from closing. This is where we came up with the idea to place the whole deck piece onto the roof and make it a rooftop pool house.<br><br>We obtained feedback from outside classmates and from our peers using their advice and fixes to enhance our overall product.<br><br>Implement (launch)- With the groundwork laid we proceeded to redefine our concepts and add any final touches. This included minor adjustments such ass adding jewels and other fine detailing to our Barbie ream House. | |

| **Product(s)** | Individual (What portions did each of you do?) |
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| The product we created is meant for younger students to play with. It is a Barbie Dream house that has a pool on its rooftop. The furniture in the house is not attached to it and can be rearranged or removed if one wants to. If all of the furniture is removed the room could be used as a dance studio for Barbie because it has a big wall mirror. The Pool area has lawn chairs and a small table for barbie to sit on that can also be removed. The house is very well lit on the inside due to having an installed string of lights, the batteries can be replaced with the lights if they die. | Natasha-Shopped and searched for parts needed that were not available in the classroom, mostly doll house furniture and dolls. Sources included goodwill locations throughout the south county MO area, savers store, Facebook marketplace, Walmart, dollar tree, and amazon. Also looked up ideas on how to make doll house furniture on our own and sent the ideas to the group, ideas were mainly from Pinterest.<br><br>Bought the parts needed from dollar tree and amazon. Painted all the wooden furniture and put it together at home.<br><br>Ian- used a saw to cut out a piece that was not needed from our house. Spray painted the whole house hot pink outside. Glued the lighting system and the closet in the doll house. Put the shell of the toaster back together with some screws. Glued fairy lights to the roof of the toaster oven to represent the lighting in the building and glued furniture to the walls and floor.<br><br>Justine- worked on maker ed stages 1-5 worksheet, filled in the answers in our notebook. Used hot glue gun to attach the pool and grass onto the deck. Put stickers into the pool to make it look cuter and sparkly. Made a bead curtain by using string and beads for the barbie car garage. Justine organized all the material needed for creating the house, and created the prototype of where all the furniture would be placed. She used sticky notes to represent the furniture. |

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| | Team (What parts of the project did you do together?)<br><br>Built the fence out of cut up popsicle sticks and string and used hot glue to connect the pieces. Ian assisted on attaching one side of the fence by using hot glue, while Natasha cut the pieces.<br><br>The pool area was put together by Justine and Natasha. After Justine attached the pool and the grass clippings to the deck, Natasha went over the grass pieces and added hot glue where needed.<br><br>Natasha and Ian helped Justine with some of the stage's answers.<br><br>All team members willed in this document, while meeting on zoom. |
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| **Making Products Public**<br><br>**Presentation**<br><br>(Include your initial ideas, what worked and what didn't, its purpose, a demonstration, issues to be resolved, potential changes, future work, etc.) | Presentation outline goes here with sections assigned to each group member:<br><br>Natasha: Initial ideas include turning the toaster oven into a terrarium or a candle holder, but when finding a more creative way to transform our toaster oven, we believed that a barbie house would be more fun and creative for younger students to make.<br><br>Ian: The whole shell had to be spray painted, some parts had to be reattached. What worked was the large open space that could be filled, and the walls had ridges in case the student wanted to add multiple floors but for our first design we decided on the one floor for the demonstration.<br><br>We tried making the pool area fold out from the back of the house and that did not work due to all the bulky items.<br><br>Justine: Our final product is the Barbie dream house. There is a garage with a car, a rooftop pool, and an open floorplan on the inside of the house.<br><br>The floorplan includes a living room, a bedroom, and a kitchen. The Garage is split into two sections, one is where the car is parked, and the other is where the bathroom is.<br><br>Potential changes can be made by using other containers as a home like a box. So, we can change where we can change our Barbie Home quickly if a toaster oven is unavailable.<br><br>In the house can be moved around or removed if needed.<br><br>The fairy lights batteries can be changed out, and the lights can be turned on and off. |

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| **Resources Needed for your project** | On-site people, facilities: onsite people include Natasha, Justine, Ian, and Dr. O. Facilities include the classroom.<br><br>Off-site people: Natasha's niece, Natasha's best friend, Justine's boyfriend. |
| | Equipment: Screwdriver, screws, dremel tool with metal cutting saw bit, hot glue gun, sandpaper, precision knife, ruler, tape measure. |
| | Materials: Hot glue, acrylic and spray paint, popsicle sticks, beads, string, fairy lights, duct tape, felt fabric, barbie doll shoes, purses, neckwear, and doll house furniture, sparkle gems, fake plants, toaster oven, Barbie, plastic pool, wooden furniture, pipe cleaner, glass ornament, pink duct tape, race car, plastic flower. |

 

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| Community Resources: Pinterest, Amazon, Walmart, Goodwill stores, Facebook Marketplaces, and dollar stores served as inspiration for doll house and furniture designs. |
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| **Reflection Methods**<br><br>(How individual, team, peers, and/or whole class reflect during/at end of project) check all that apply | Journal/Learning Log-<br><br>Everyone worked to take notes of the making process and take pictures of the doll house in progress, Justine took charge in organizing the materials and led peer reviews to ensure work is completed. | | |
| | Whole-Class Discussion-<br><br>During whole class discussion on the project, we all took turns making sure the details were told in clear and concise descriptions. | | |
| | Survey-<br><br>Brought in outside opinions from classmates and took criticism into consideration. | | |

**Additional Notes on Project:** (Add your group's thoughts on how this could be used in an elementary classroom – What grade level? What organizational and safety tasks need to be done? How would you accommodate students who have diverse needs (SEL, ability levels, manual dexterity)? etc.)

Our groups thoughts were that the Barbie House could be used for second grade. The house could be used for students to become imaginative or to talk about family matters that may be difficult for students to talk about but can use the house as a model of what goes on in their own home lives.

Safety tasks would include showing and modeling how to properly wear safety goggles, using tools the correct way, and spraying paint in an open area with good ventilation to ensure little to no risk of injury. We want to ensure this project is safe and repeatable for multiple years and to teach students good craft skills that they can use in future years.

We can make accommodations for students by allowing for flexible grouping when creating the work groups for the project. If students have physical limitations we can use adaptive tools, create alternative assignments, use this as an opportunity for collaborative work, and promote inclusive practices.

CANVA LINK: CIED428- Maker Ed Final Presentation - Infographic (canva.com)

# Barbie Dream House

## Created By:

Natasha Jan Justine

Made from a

# INITIAL IDEAS OF WHAT TO DO WITH THE TOASTER OVEN

OPTION 1

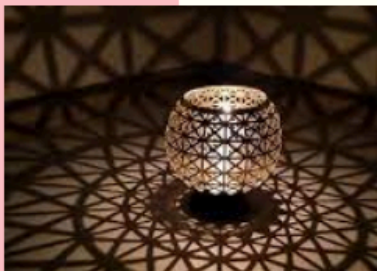
## TERRARIUM

- Fill with dirt
- Add plants
- Add decorations
- Add rocks
- Add creatures

OPTION 2

## CANDLE HOLDER

- Get candles
- Cut holes in the metal
- Put candles inside



IAN

# THE MAKING OF

## THE BARBIE DREAM TOASTER

PART 1

### BREAKING DOWN

We deconstructed the toaster oven until it was a shell of itself. taking note of the parts we took apart and drilling away at the front for a new door opening.

PART 2

### PLANNING

We made plans to figure out what will go where and labeled where furniture can go using sticky notes. we cleaned up our parts and began assembling our dream.

PART 3

### THE PAINT JOB

Taking a lot of time and paint, the home was transformed into a Barbie theme with hot pink paint covering the home from head to toe.

Girls, girls, girls

# Barbie
# DREAM HOUSE

1

## GRADE

Our groups focused on making the Barbie Dream House suitable for 2nd graders. Our Dream House is suitable for 1st graders-5th grade.

2

## EDUCATIONAL USE

The house could be used for students to become imaginative or to talk about family matters that may be difficult for students to talk about but can use the house as a model of what goes on in their own home lives.