



Orvana

Multifunctional Kitchen Mat



A photograph of a kitchen counter. In the foreground, a smartphone with a dark screen and a light-colored case lies on the counter, its surface covered in a fine layer of white powder, likely flour. To the right of the phone, a clear glass bowl contains a thick, orange-brown batter, with a metal whisk resting inside. The counter surface is light-colored and shows some smudges and a small puddle of liquid. The background is bright and out of focus, suggesting a window or a bright light source.

“Cleaning up after cooking takes almost as much time as the cooking does”

In user interviews focused on kitchen products, around **50%** of users mentioned cleaning up after cooking as a process that was unpleasant because of how much time it takes.



How can the time it takes to clean up after cooking be reduced in order to create a better experience for users in the kitchen?

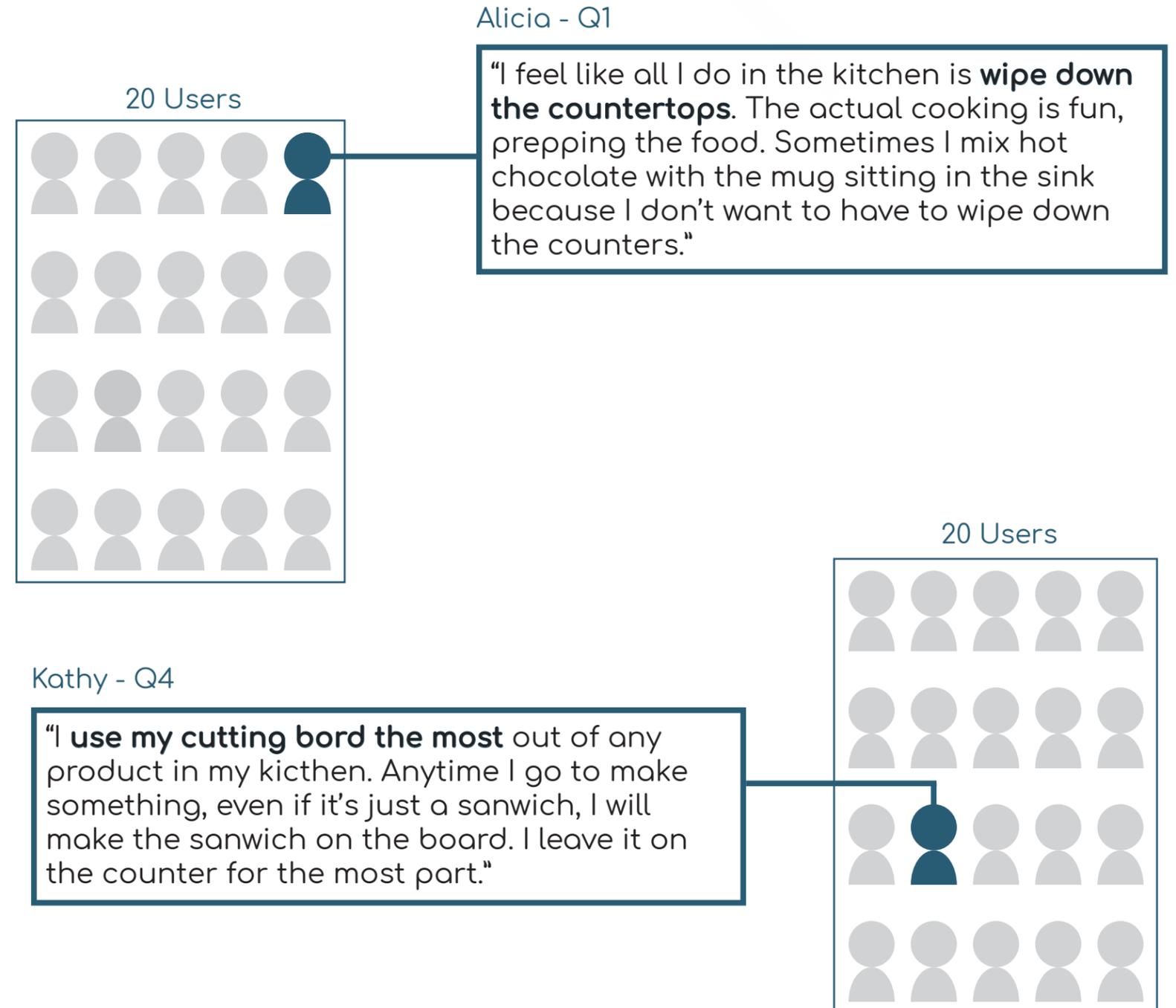


User Interviews

Guiding Questions

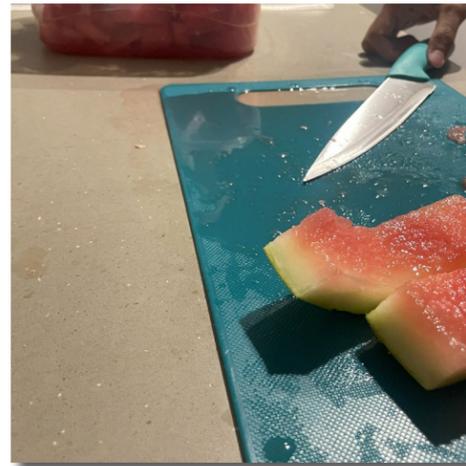
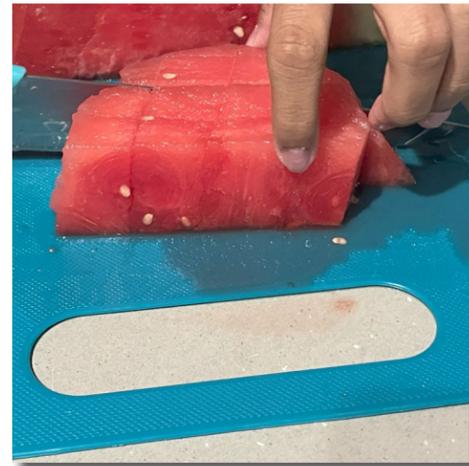
- 1 What are some tasks you do in the kitchen that either take a long time, or you would consider to be difficult?
- 2 What are some kitchen products you own that you think could be improved?
- 3 What are some of your favorite kitchen products that you own, or want to own?
- 4 What kitchen product do you think that you use the most?
- 5 Which kitchen product do you use the least? (May be hard to remember)

Findings



Observational Research

Cutting Process



Cleaning Process



Key Takeaways

Cleaning after cooking is not enjoyable and it takes too long

Users enjoy versatility in their kitchen products

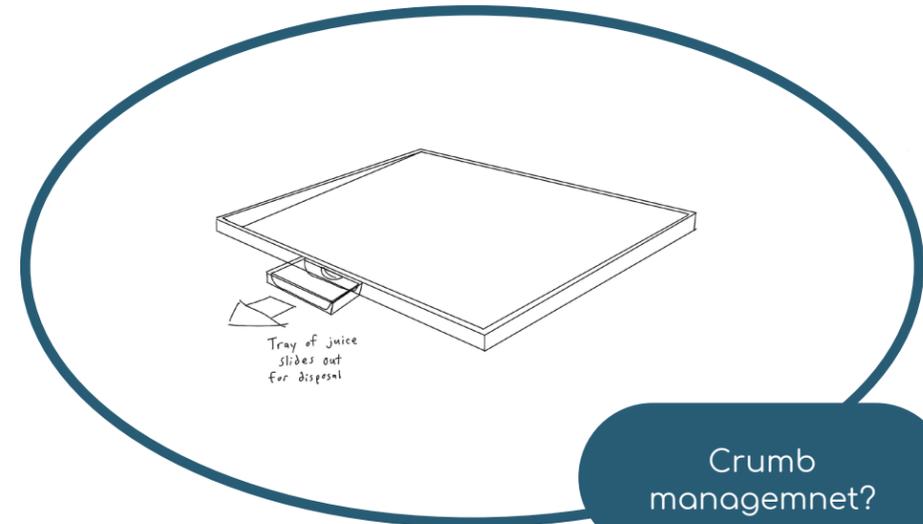
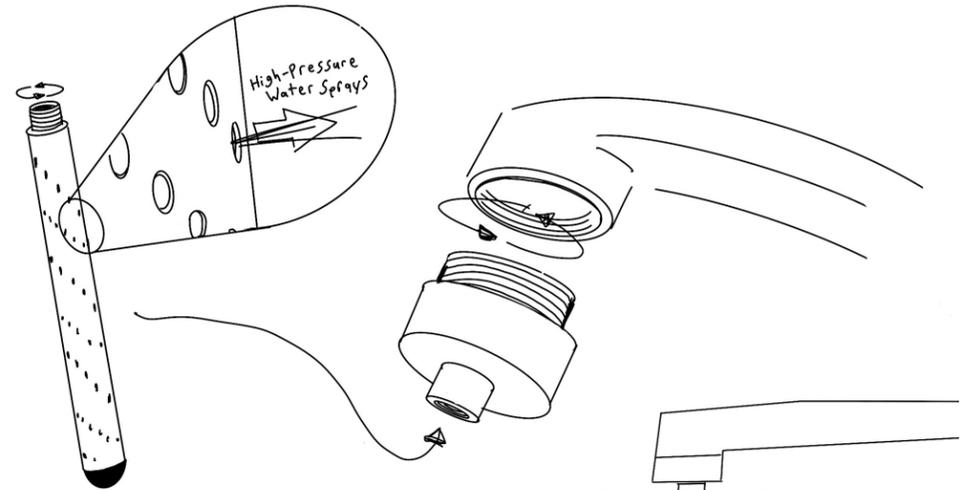
Users need a way to protect their countertops from cuts, crumbs, and spills

Cleaning cooking utensils and cups is difficult and takes too long

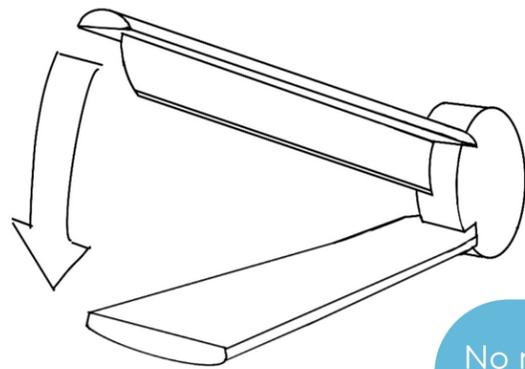


Initial Ideation

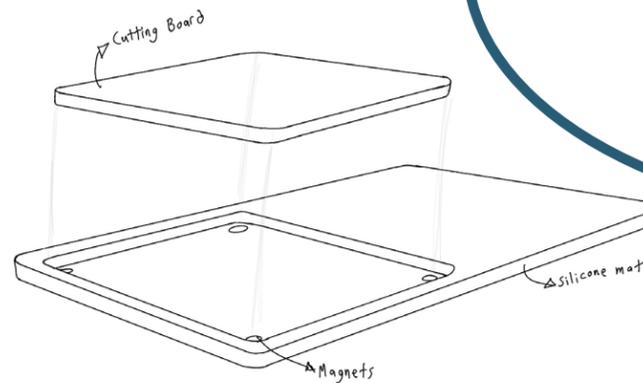
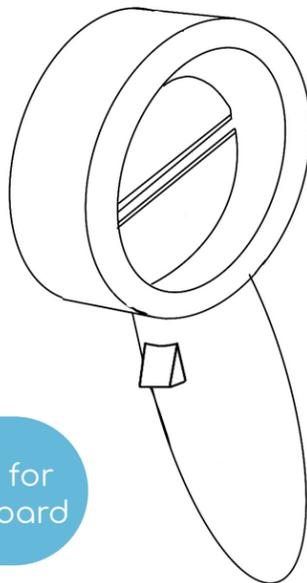
Cup Cleaner?



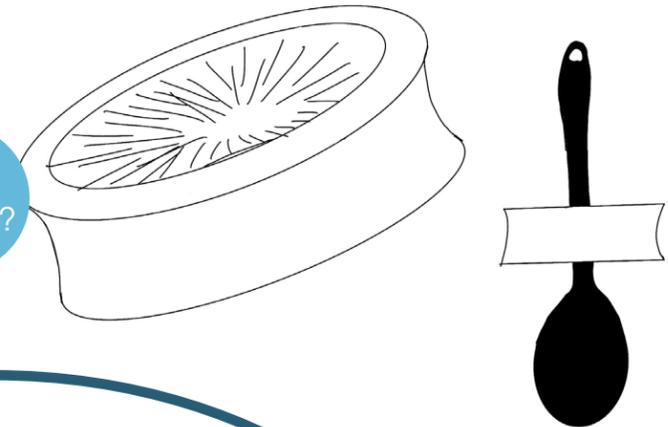
Crumb management?



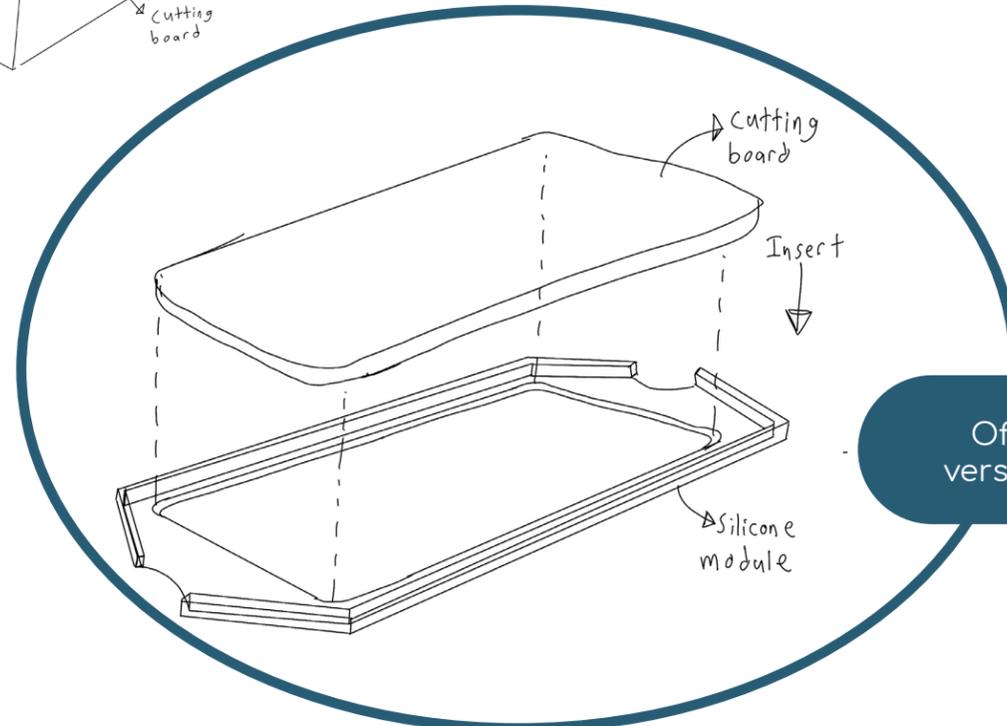
No need for cutting board



Easier to clean spoons?



A dip could catch crumbs and juices



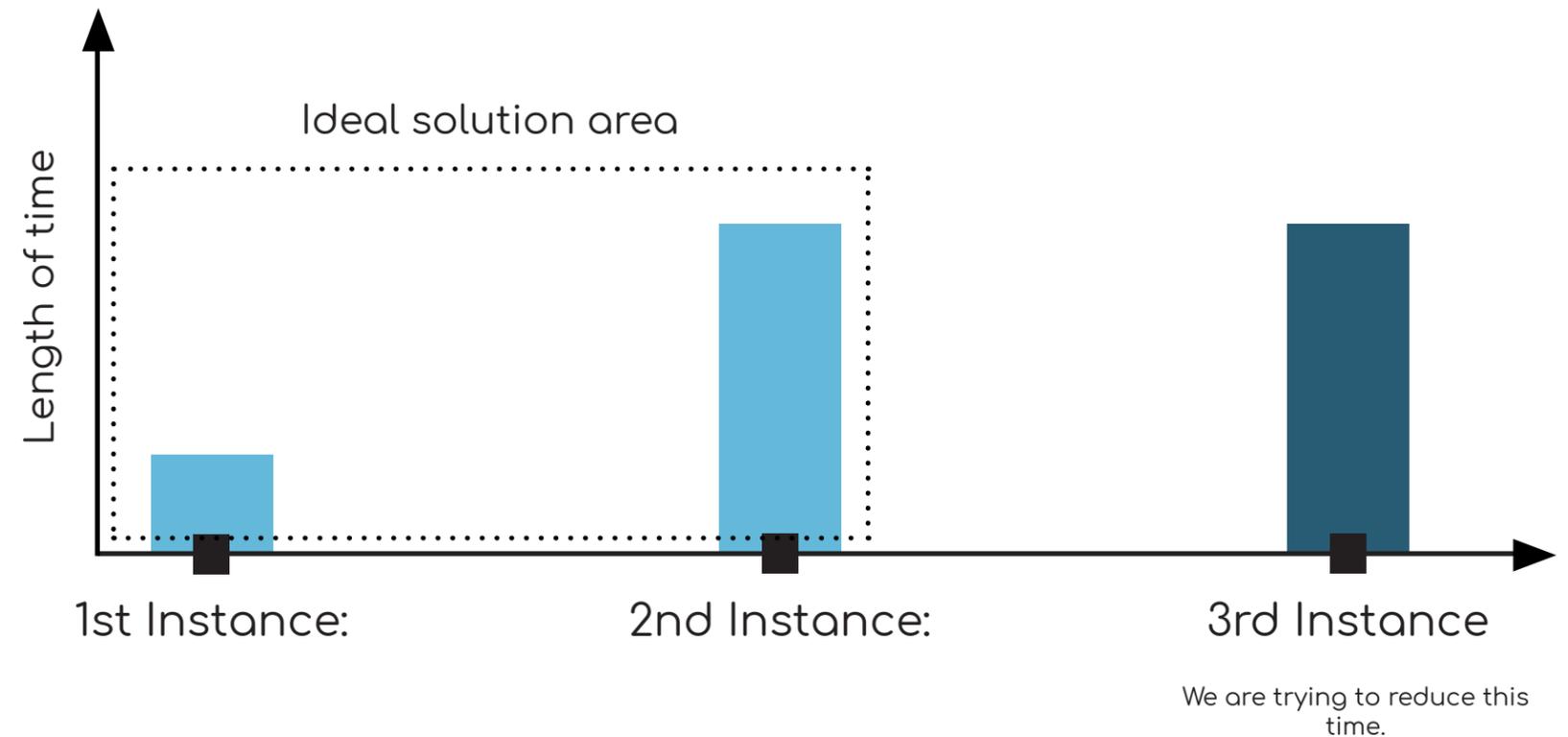
Offers versatility

Identifying the design area

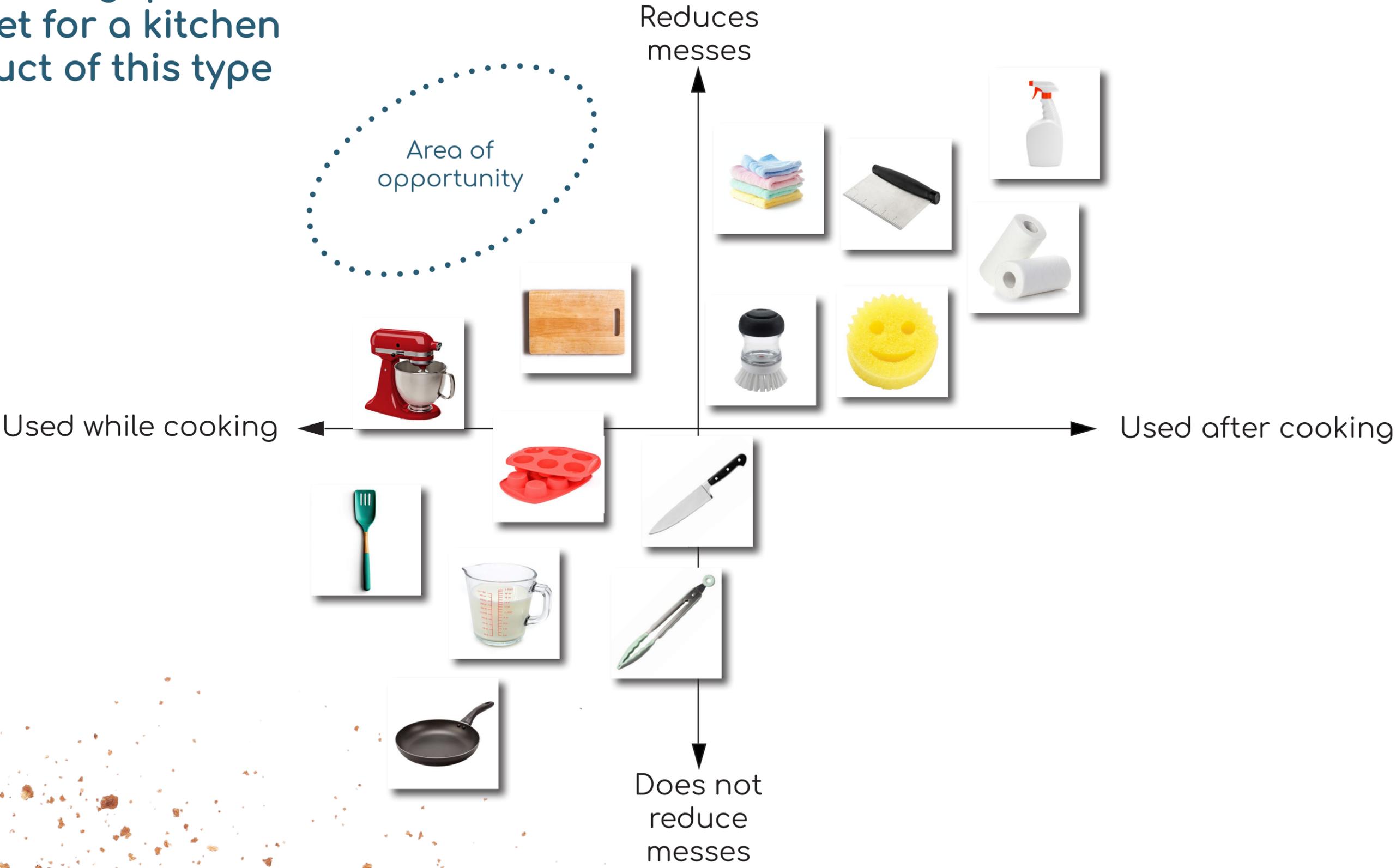
There were three instances where a product could be implemented to tackle the issue of messes in the kitchen. Before, during and after cooking.

The ideal area for a solution would be located around the first and second instance.

If there was a product that helped prevent messes during the cooking process, cleanup time would be reduced.



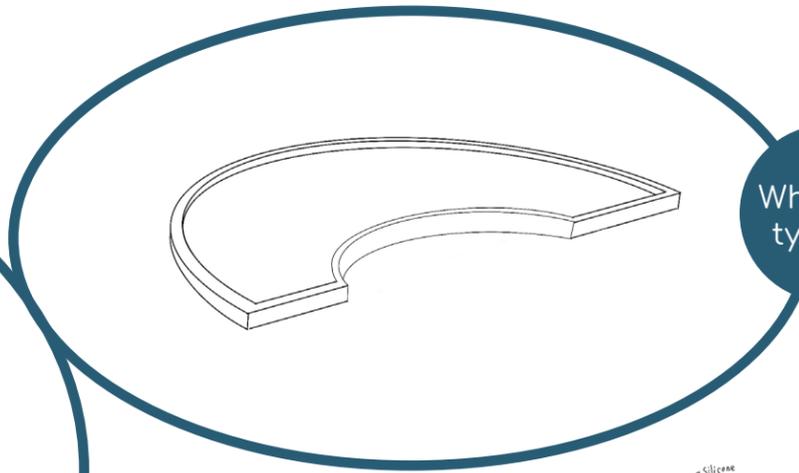
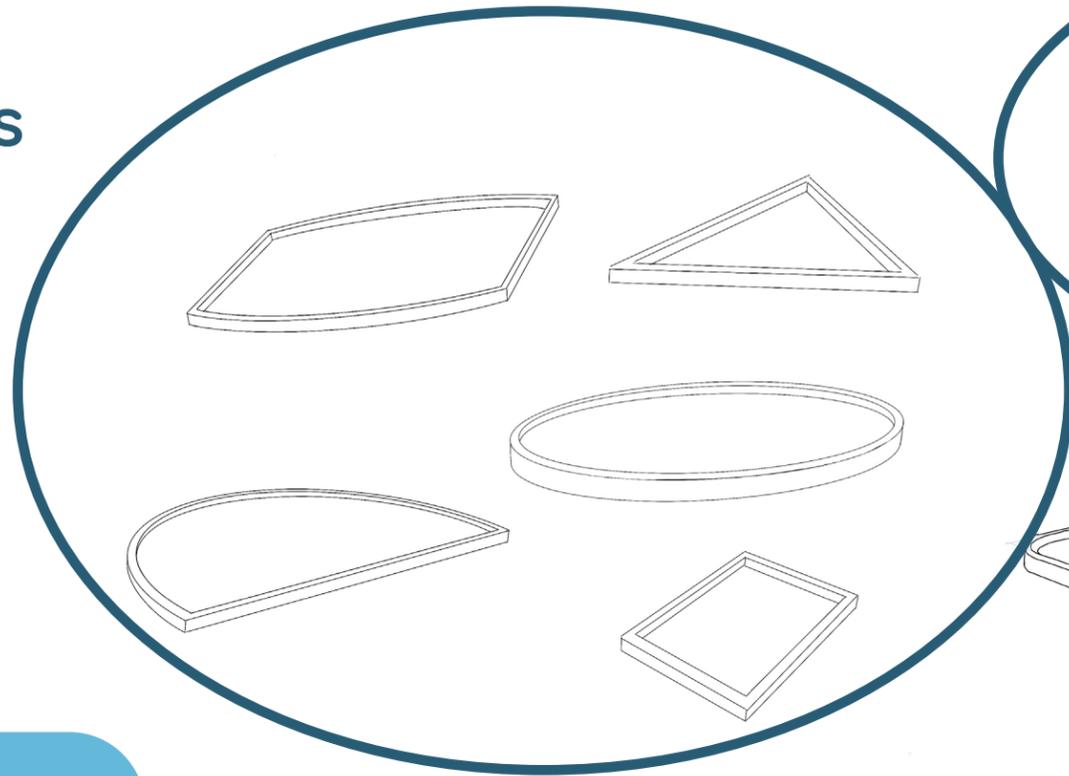
There is a gap in the market for a kitchen product of this type



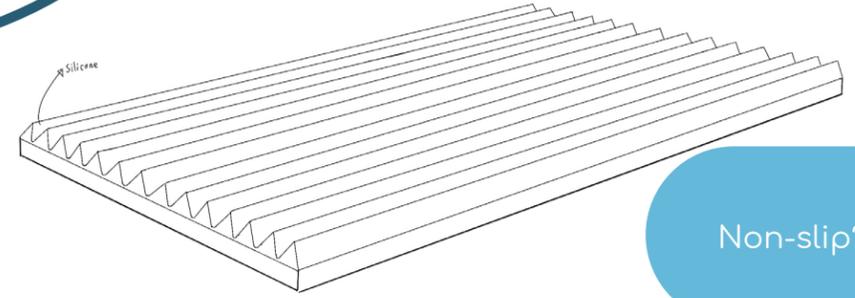


What if there was a cutting board
that was **more** than just a cutting
surface?

Ideation Sketches

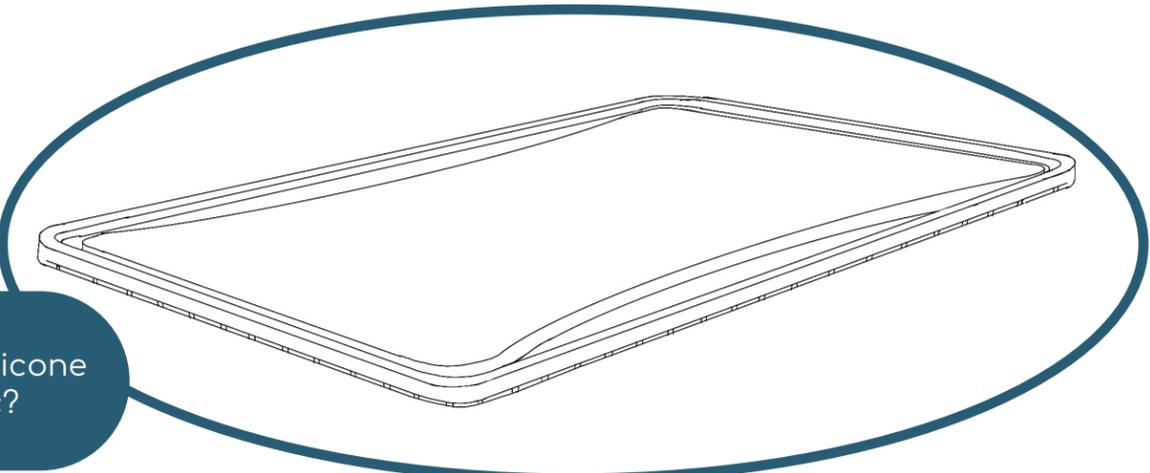
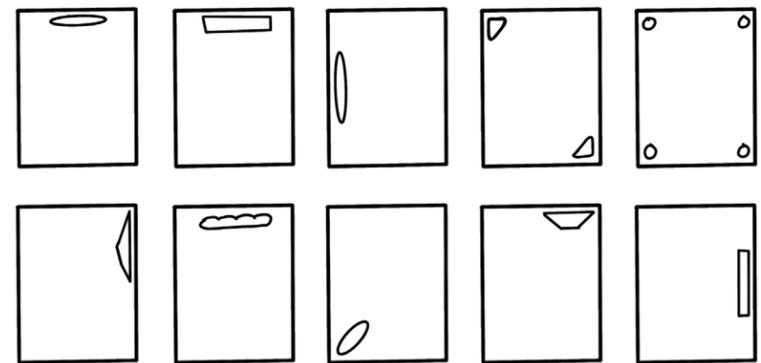
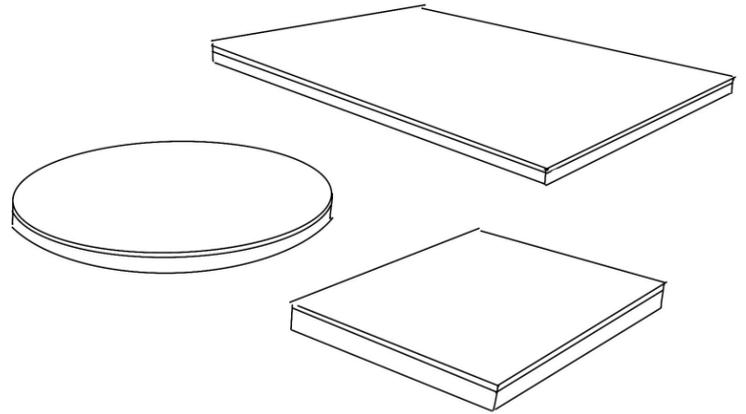
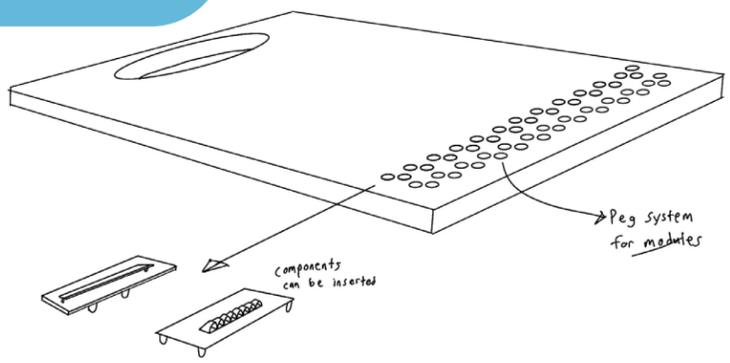


Why are cutting boards typically rectangular?

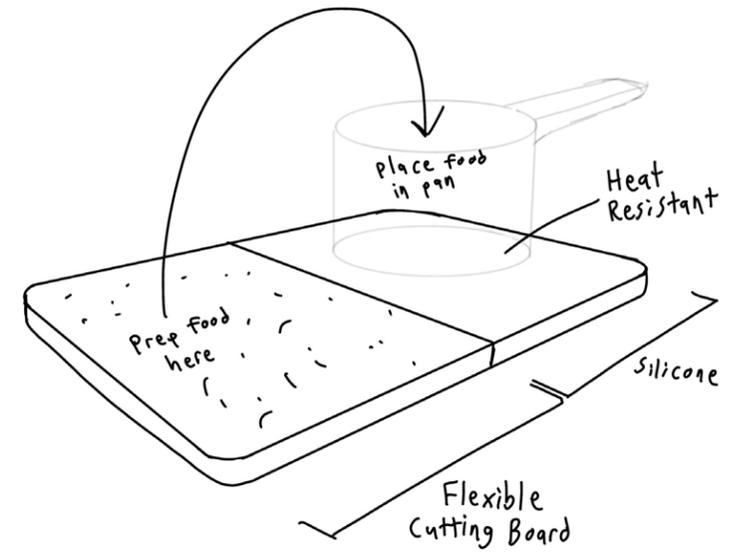


Non-slip?

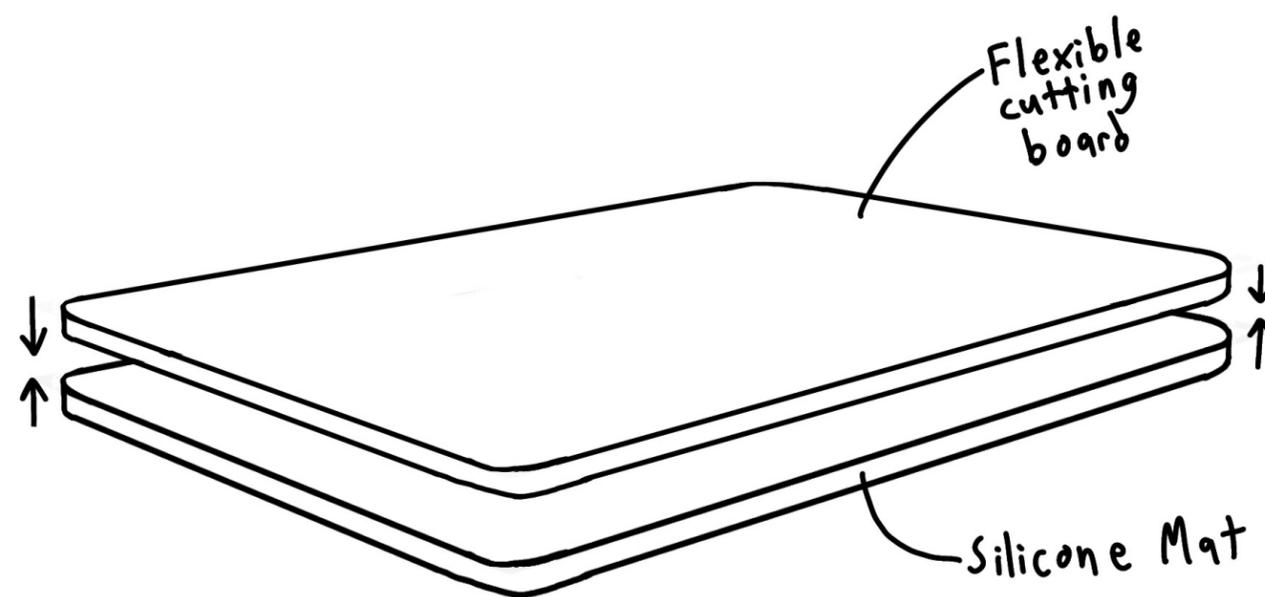
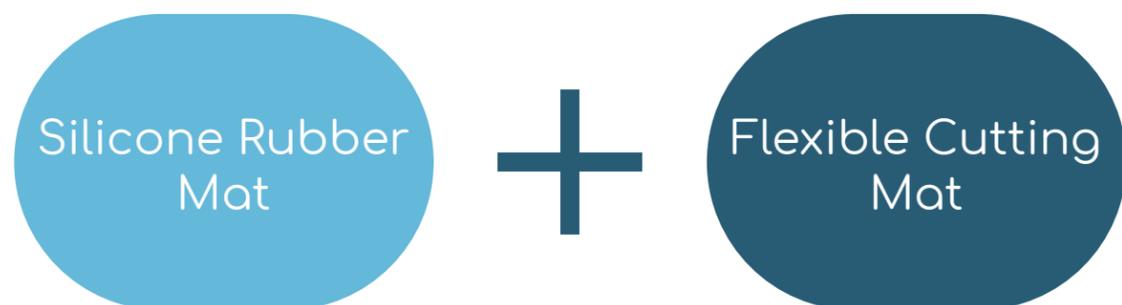
What other functions could it have?



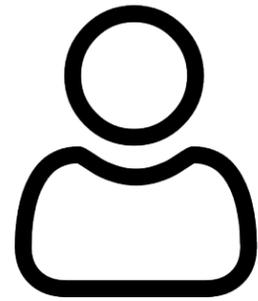
Layered with silicone and plastic?



Selected Concept

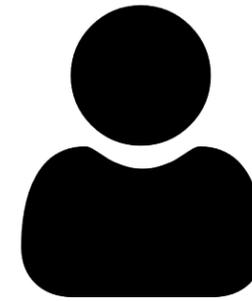


Target Users



Primary Target User

- Someone who has a busy or time consuming lifestyle and needs to save time where they can
- Someone that typically cooks for multiple people and creates more messes in the kitchen
- Someone who does not want to buy several different products when one could do the job



Secondary Target User

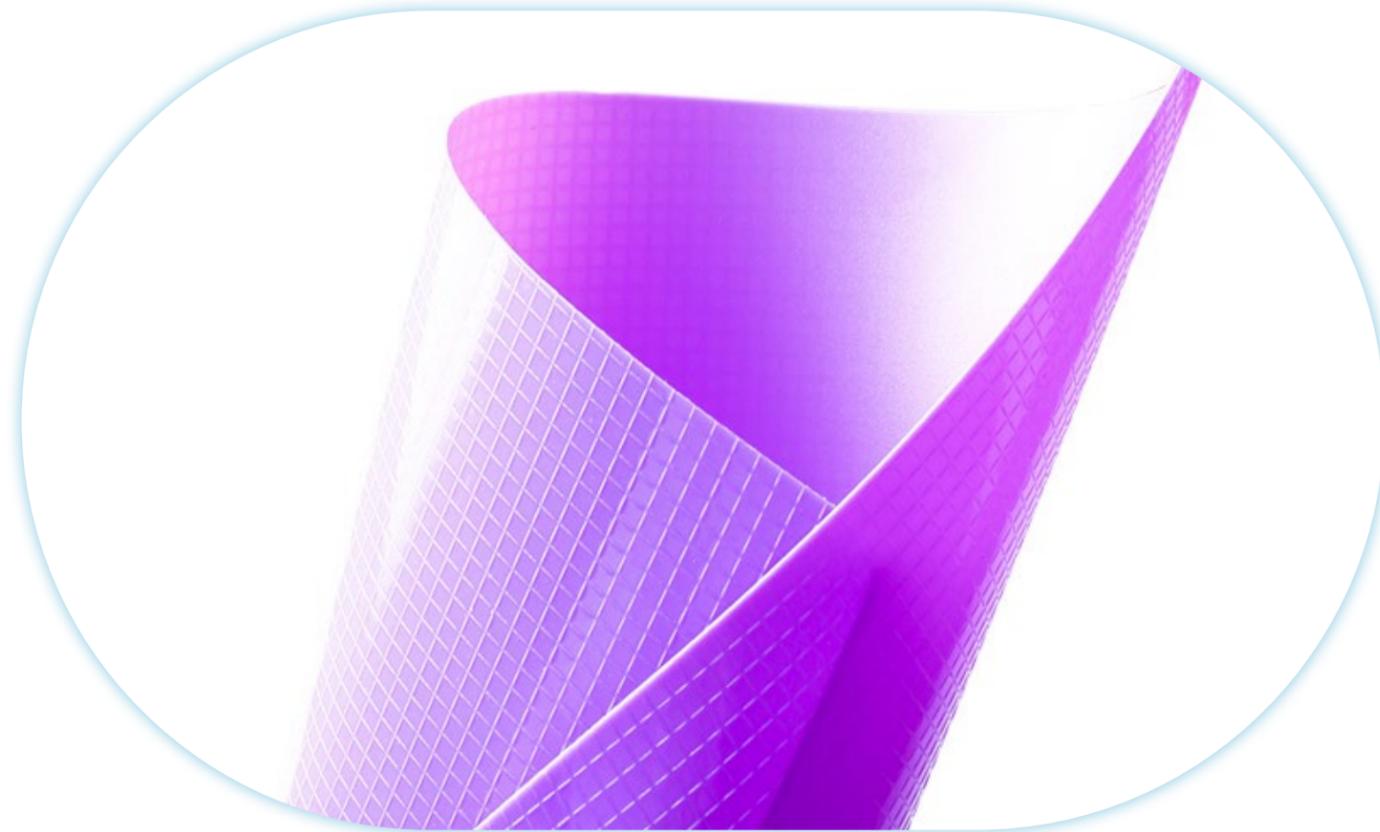
- Someone that enjoys cooking and hates the cleaning process afterward

Cutting Board Material Analysis

Wood	Plastic	Bamboo	Titanium	Epicurean	Ceramic	Glass
Benefits <ul style="list-style-type: none">• Eco-Friendly• Durable• Easy on blades• Longevity (if maintained)	Benefits <ul style="list-style-type: none">• Dishwasher safe• Cheap• Easy on blades• Design versatility• Non-Porous	Benefits <ul style="list-style-type: none">• Eco-Friendly• Organic• Aesthetic	Benefits <ul style="list-style-type: none">• Easy to sanitize• Dishwasher safe	Benefits <ul style="list-style-type: none">• Easy to sanitize• Durable• Dishwasher safe	Benefits <ul style="list-style-type: none">• Easy to sanitize• Dishwasher safe	Benefits <ul style="list-style-type: none">• Easy to sanitize• Dishwasher safe
Drawbacks <ul style="list-style-type: none">• Harbors bacteria in pores• Not dishwasher safe• Some wood types can be toxic	Drawbacks <ul style="list-style-type: none">• Microplastics• Longevity• Shows scratches	Drawbacks <ul style="list-style-type: none">• Harbors bacteria worse than wood• High Silica content (wears down blades)• Adhesives hold board together	Drawbacks <ul style="list-style-type: none">• Hard on knives• Hard to cut on• Shows scratches	Drawbacks <ul style="list-style-type: none">• Hard on knives• Formaldehyde released when cut	Drawbacks <ul style="list-style-type: none">• Hard on knives• Fragile• Hard to cut on	Drawbacks <ul style="list-style-type: none">• Hard on knives• Fragile• Hard to cut on

● Offers a variety of benefits



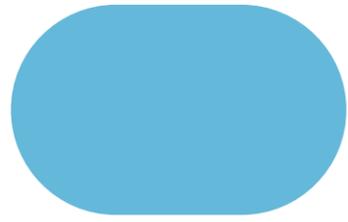


HDPE Plastic: This is the plastic traditionally used for cutting boards. While there have been red flags raised about the risk of microplastics from plastic cutting boards, studies and articles posted by the FDA and the AAMC show large gaps in data and have been unable to prove any definitively. It is a food-safe material.

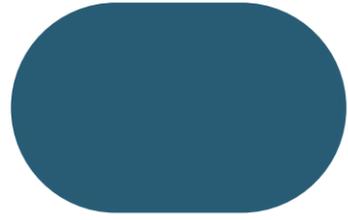


Silicone Rubber: This material has recently become popular in a variety of kitchen products. A study published by the National Library of Medicine shows that only under extreme temperatures where there is a possibility of silicone particles contaminating food (and even when contamination occurs, little negative health effects are seen.). It is a food-safe material.

Concept Palette



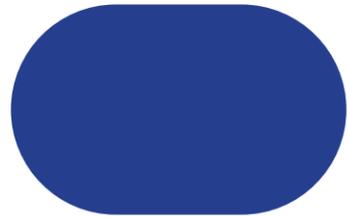
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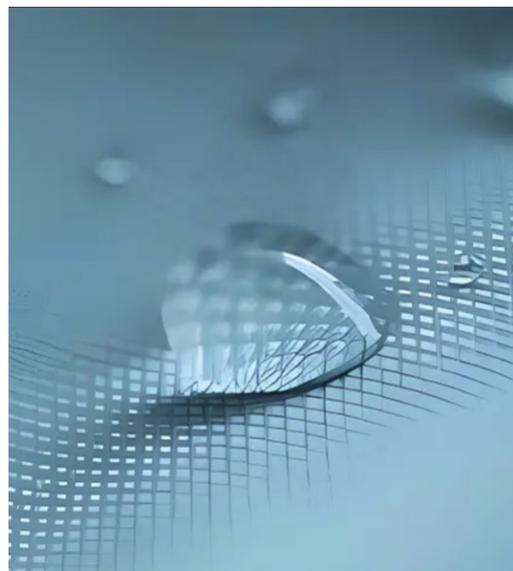
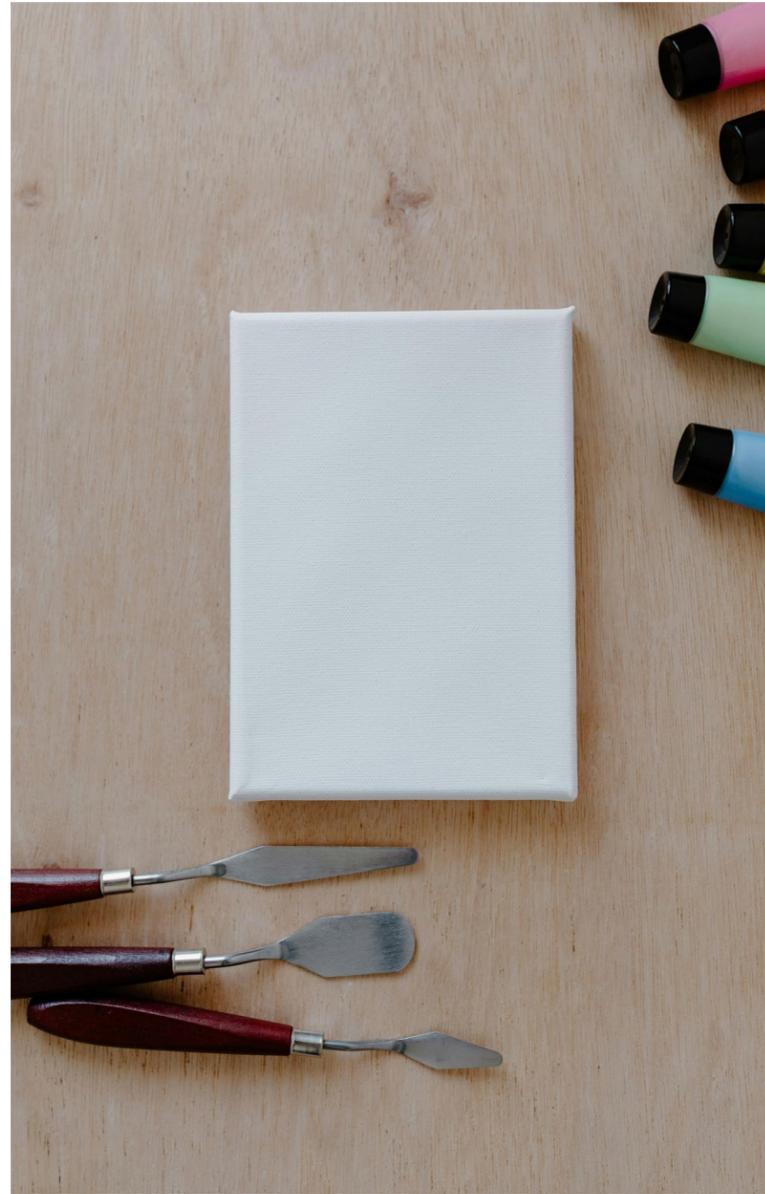
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Tonal Words:

- | | |
|--------------|-------------|
| Creativity | Clean |
| Artistic | Versatility |
| Foundational | Efficiency |
| Security | Workspace |
| Blank | Time |

Testing Materials From Concept



Creating the mold



Applying mold release



Slowly pouring to fill all crevices



Testing Materials From Concept



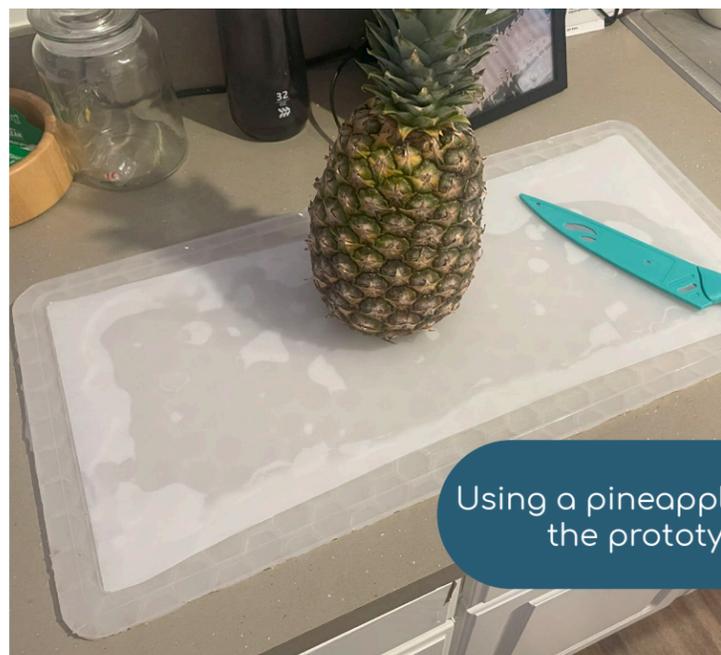
Removing from mold



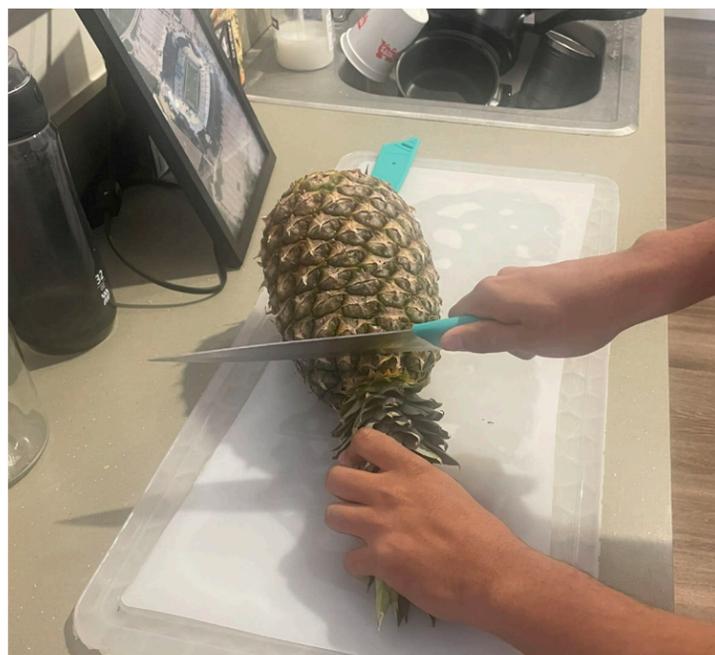
Glueing HDPE plastic to cast silicone rubber

* Some of the adhesives can be seen through the cutting mat because of the transparent nature of the test materials

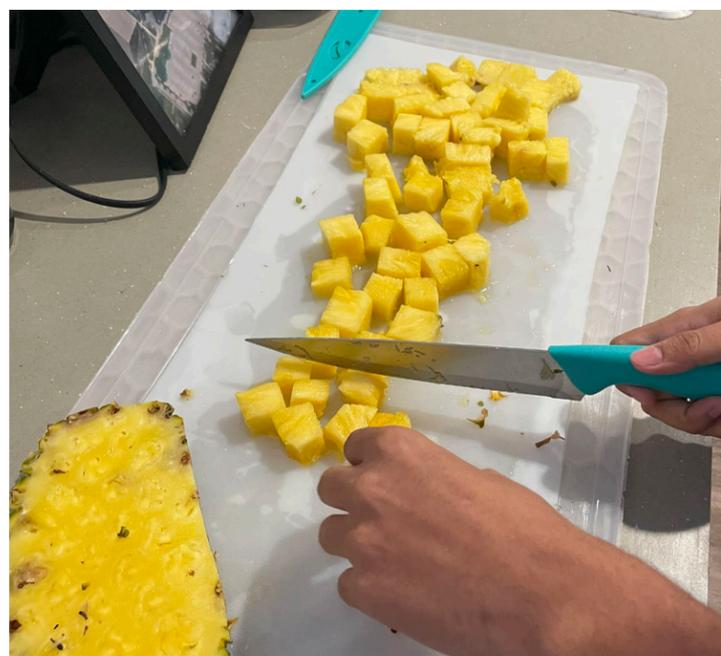
User Testing with Prototype



Using a pineapple to test the prototype



User feels complete freedom while cutting



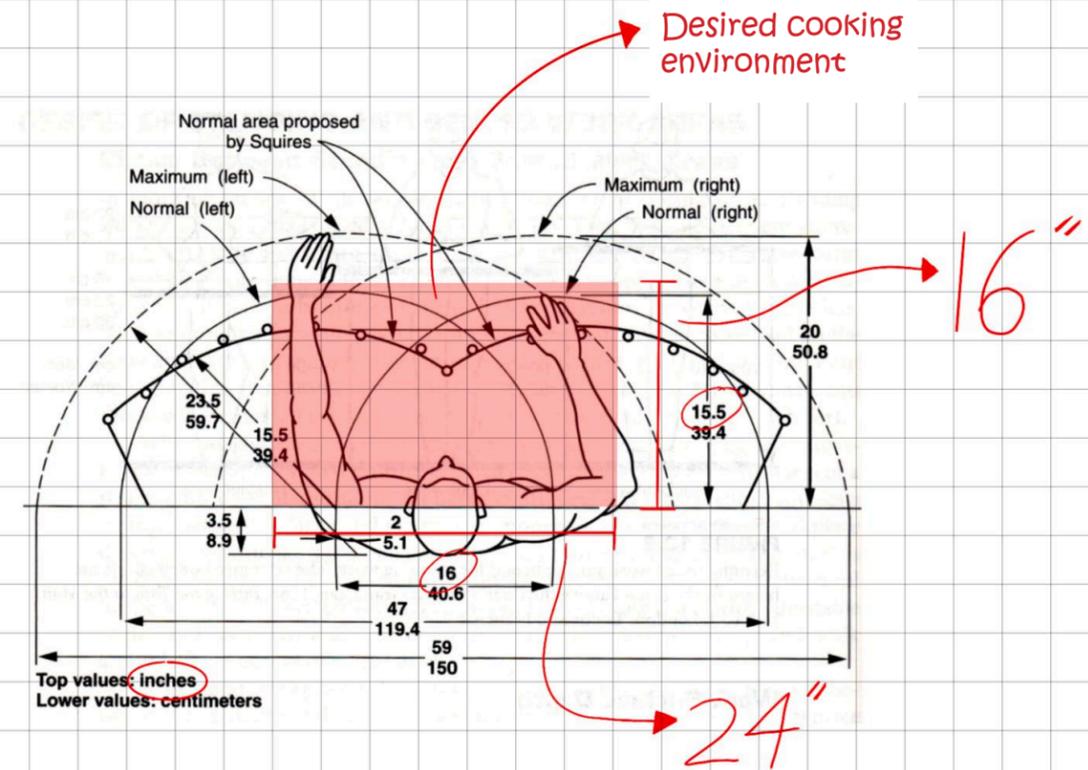
Excess juices and pieces are kept off the counter



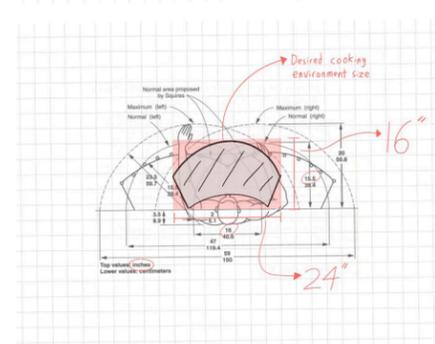
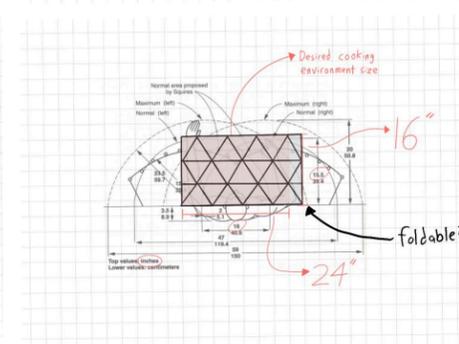
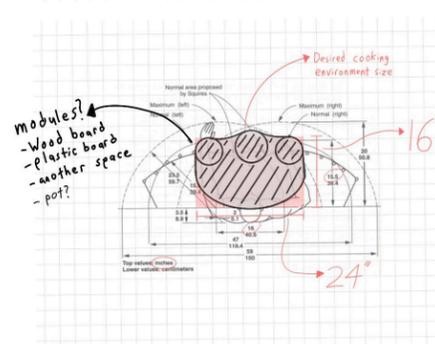
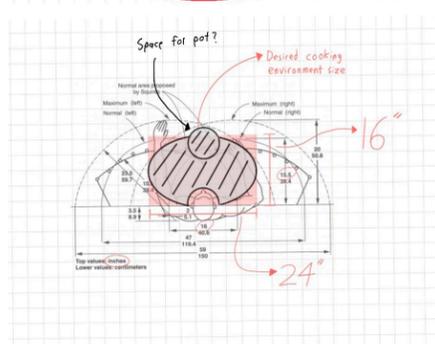
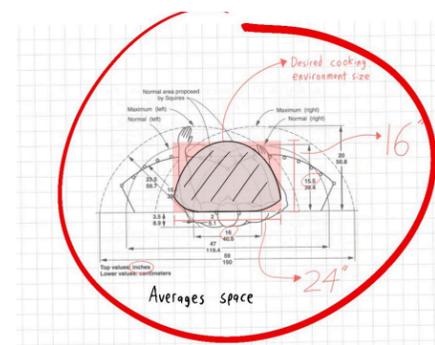
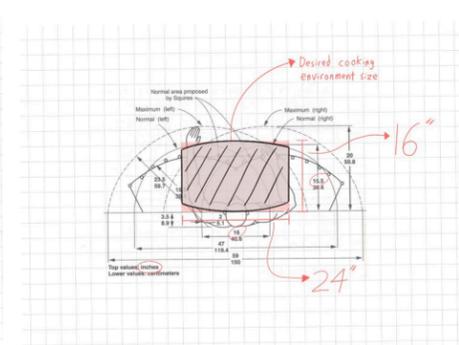
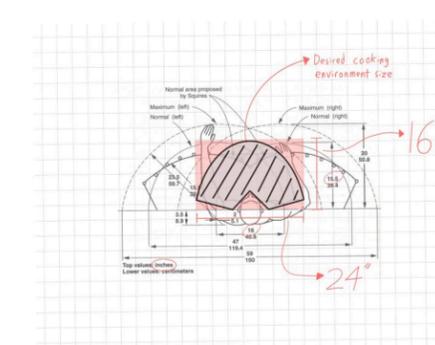
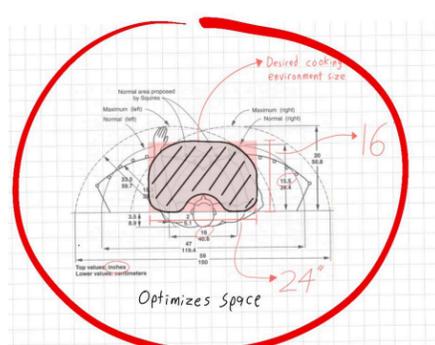
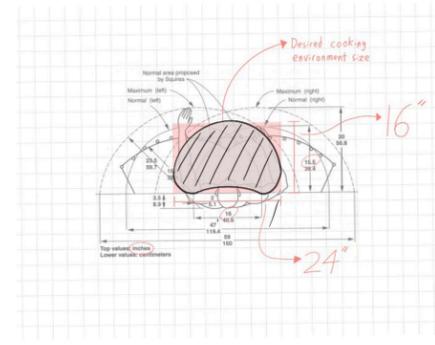
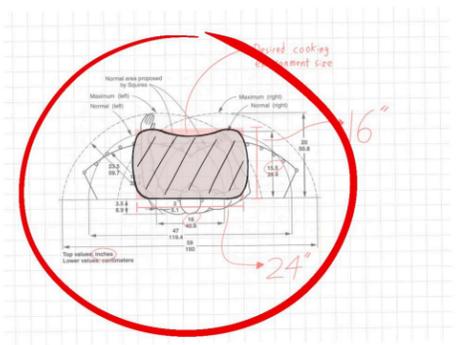
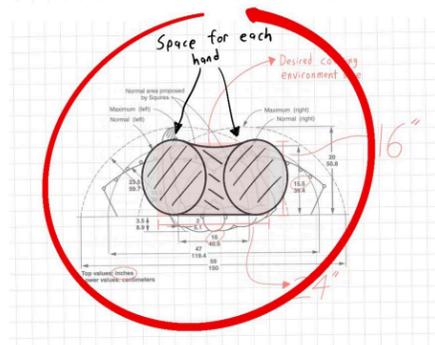
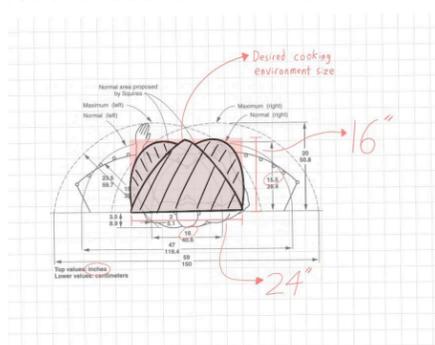
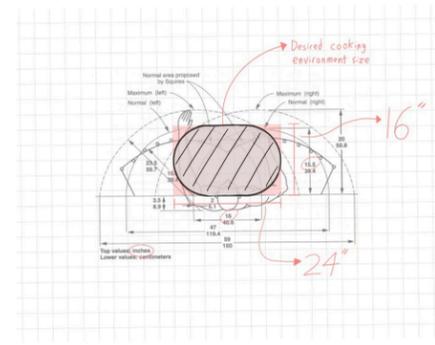
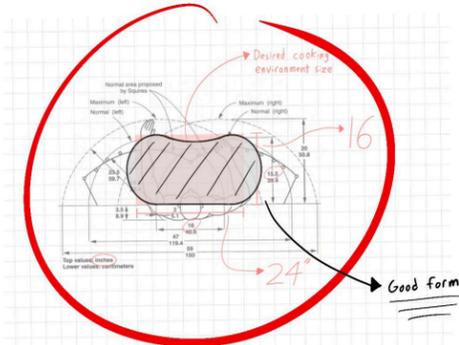
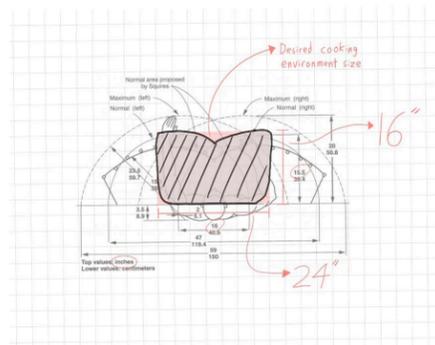
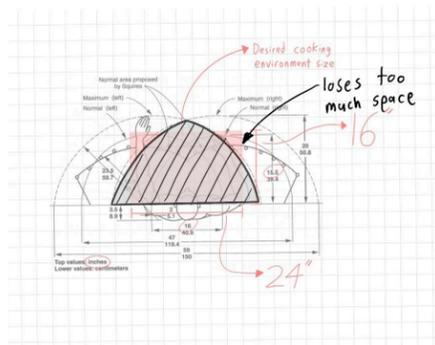
Much shorter cleaning process than before

Human Factors Exploration

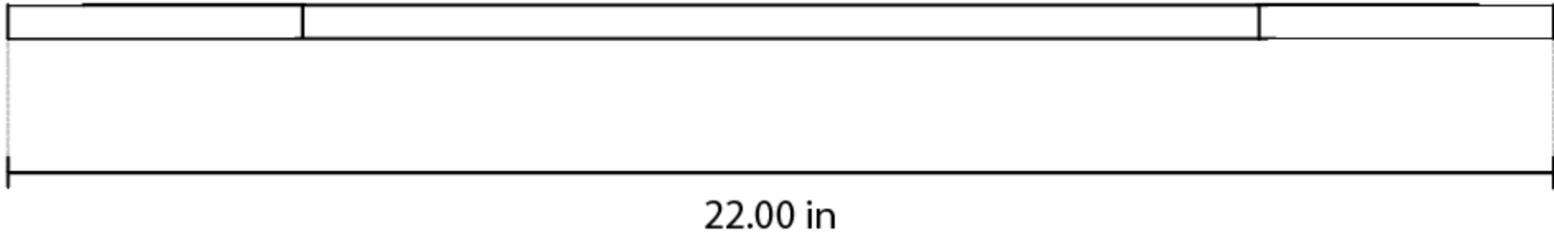
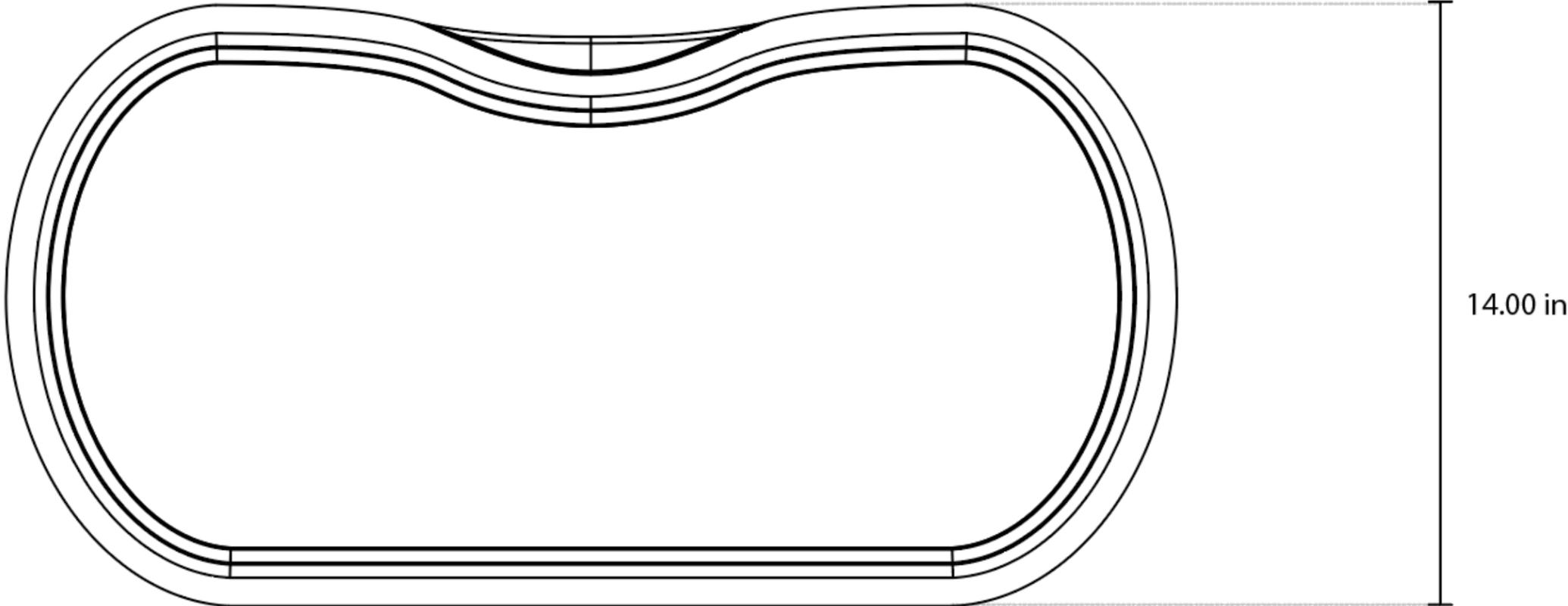
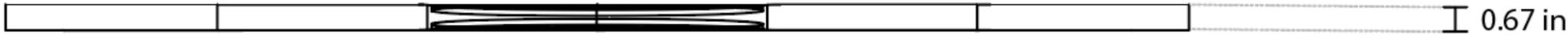
Drawing data from An Introduction to Human Factors Engineering [2] the ideal dimensions for a horizontal workspace would be estimated to be around 24 inches wide and 16 inches tall. Staying inside this area is optimal.



Form Studies



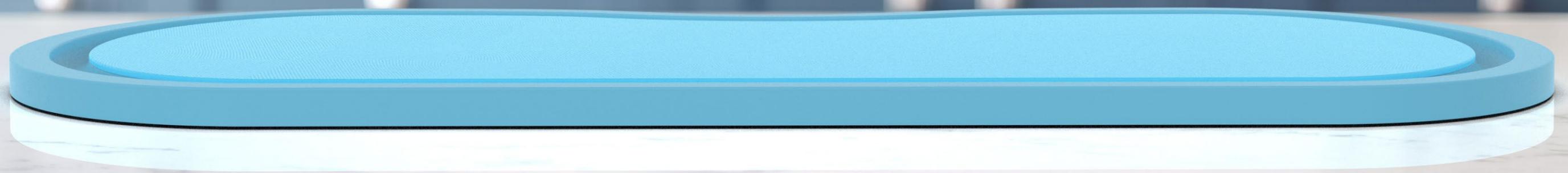
Technical Refinement

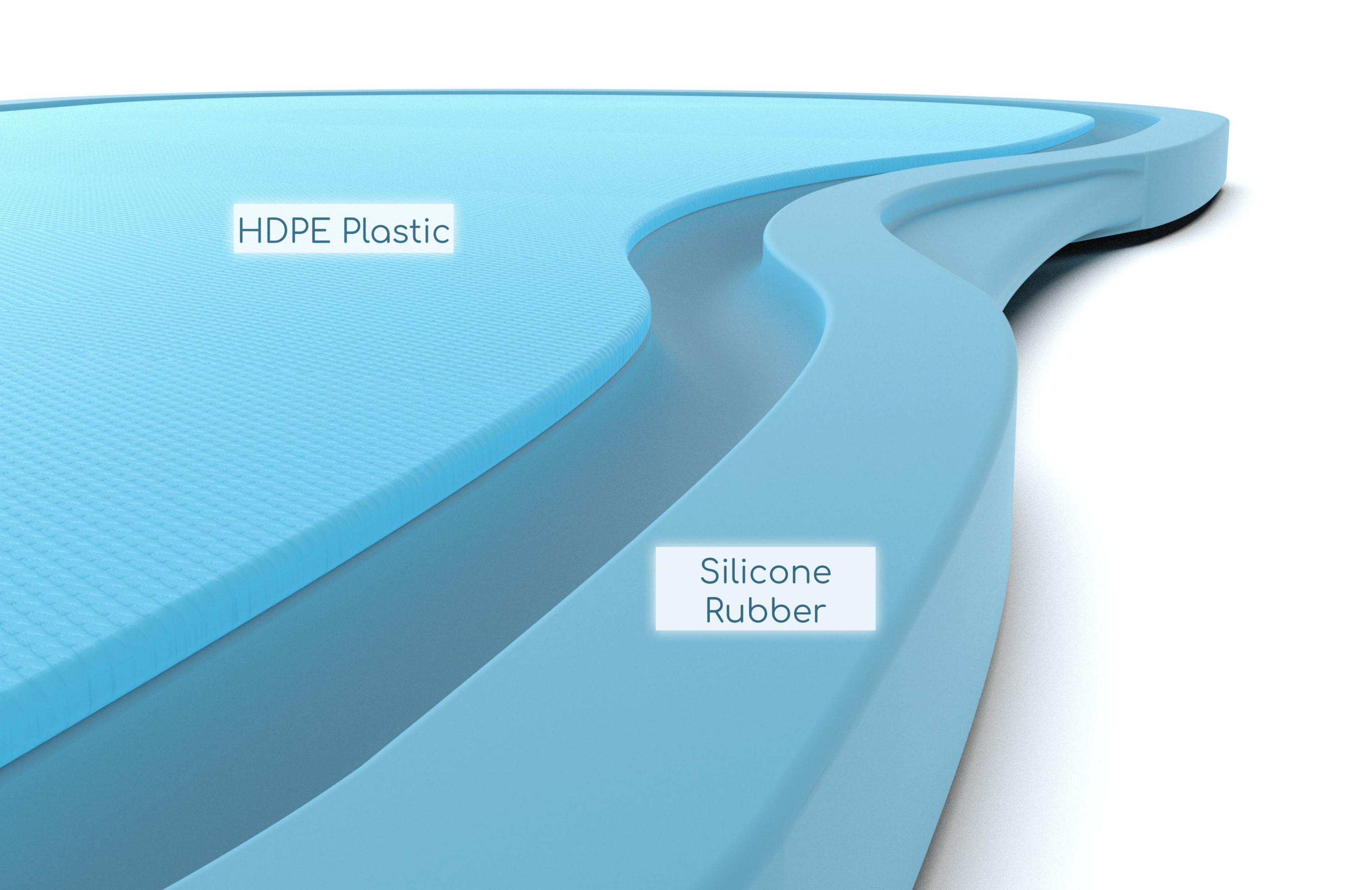


The logo for Orvana features a stylized 'OO' in a light blue color, followed by the word 'Orvana' in a dark blue, sans-serif font.

Orvana

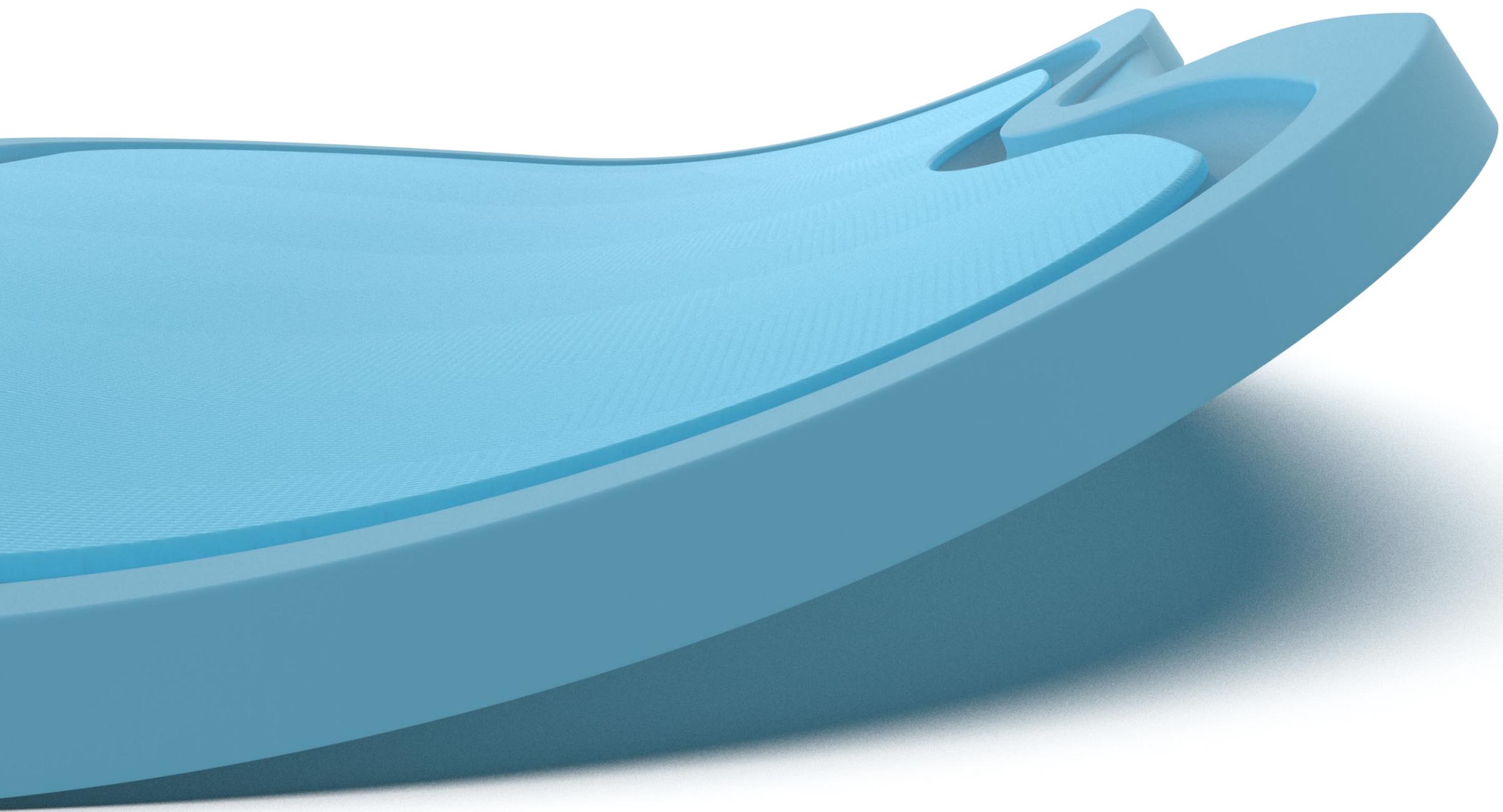
Multifunctional Kitchen Mat





HDPE Plastic

Silicone
Rubber



Flexibility provides versatility

The image shows a close-up of a curved, blue surface, likely a component of a machine or a piece of equipment. The surface is smooth and has a slight sheen. A dark, possibly black or dark blue, lip or edge is visible, which is designed for handling. The lighting is soft, highlighting the curvature and the texture of the material.

Lip for handling





Becomes the first step in any cooking process by building an environment that protects countertops from spills, cuts, and crumbs.

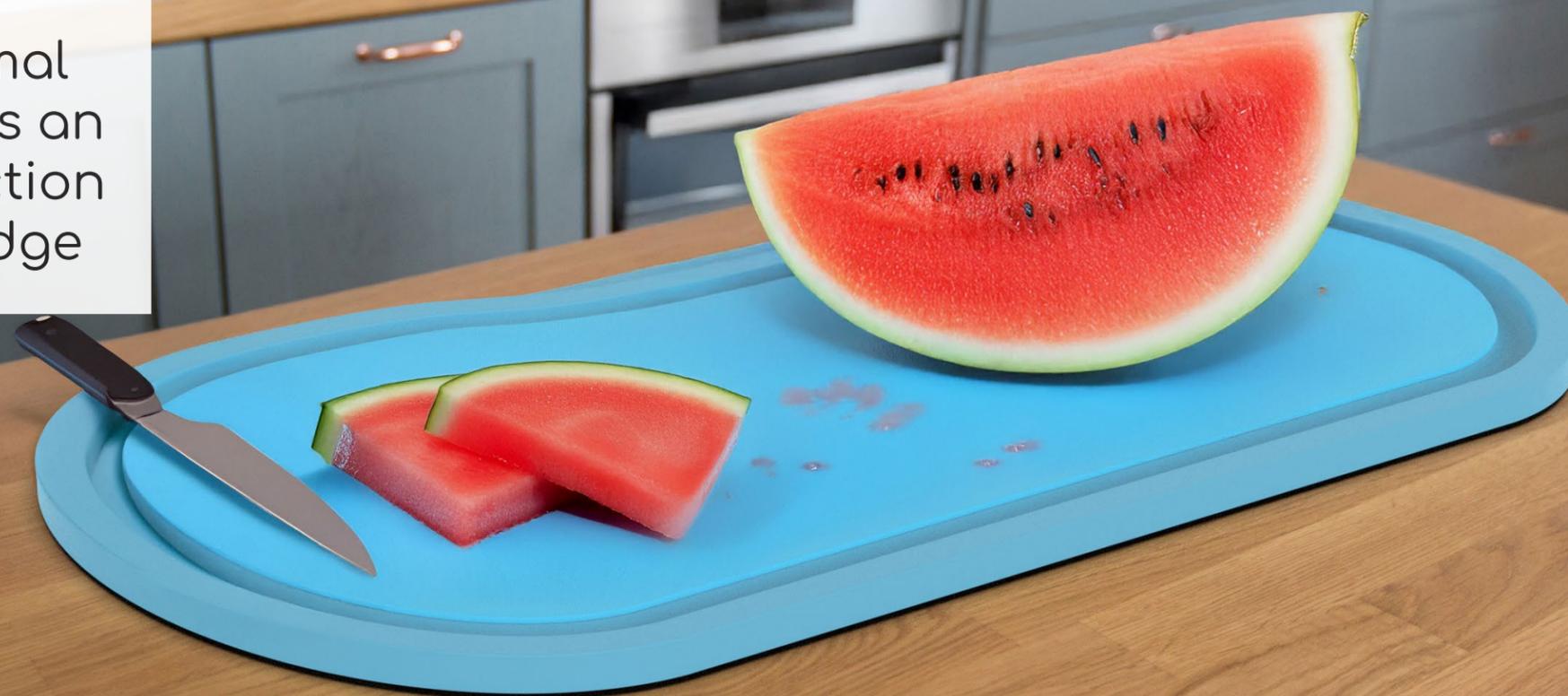


Orvana can live out in the open for quick and easy access



The flexible nature allows for proper food transportation and limits the potential for messes

Functions like a normal cutting board, and has an extra deep juice collection feature around the edge

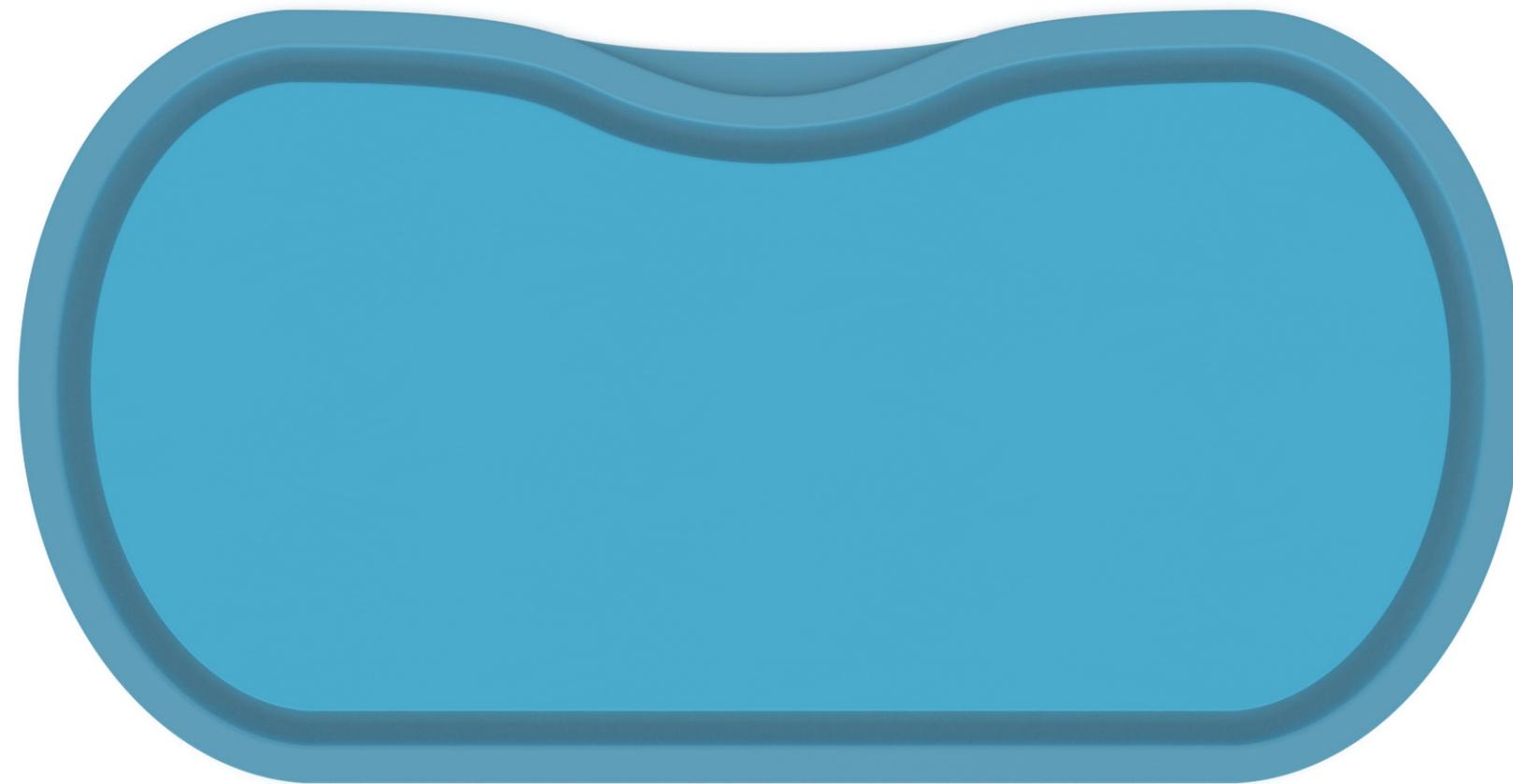




The heat resistant properties of silicone make Orvana an excellent place to set hot pots and pans

Orvana

Multifunctional Kitchen Mat



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