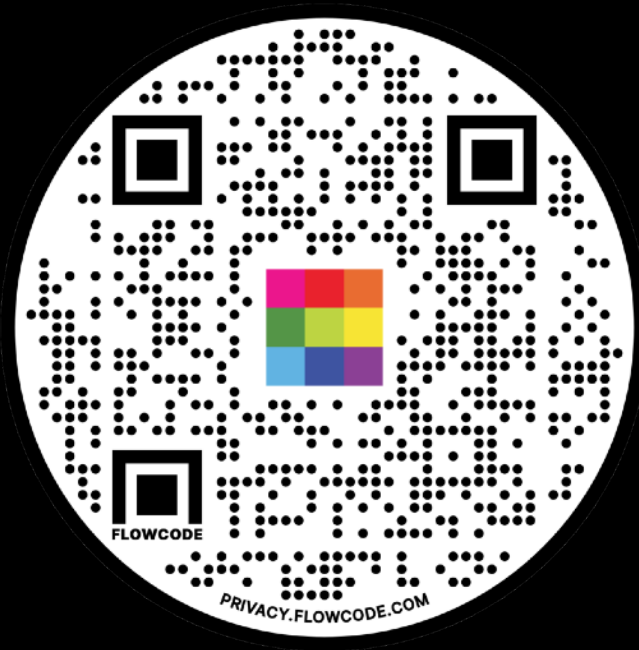
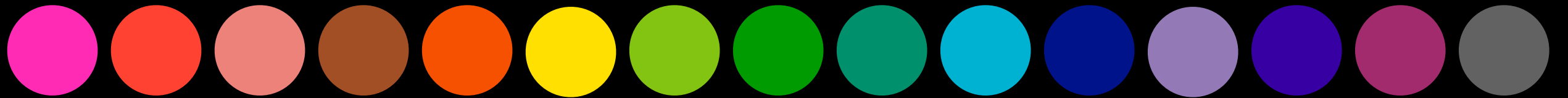


# Product Innovation Lab

# PLAYsentations!



# Blending Blocks

# Blending Blocks



Aayush Patkar



Amanda Vang



Julius Hardy



Micki Grover



Sophia Corrao



**instructor**  
Rory Alt

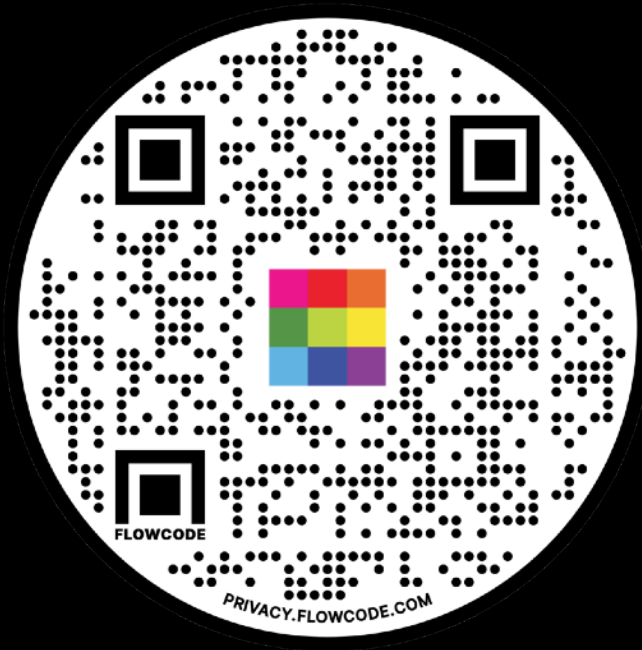
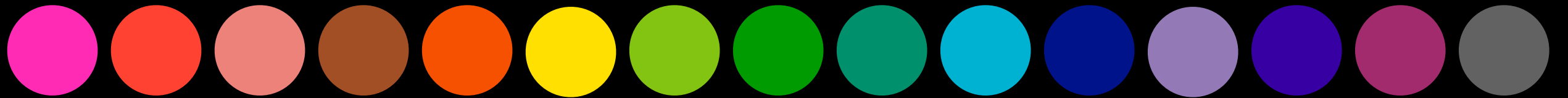


**instructor**  
Rachel Youngren



# Product Innovation Lab

# PLAYsentations!



# Blending Blocks

Introducing

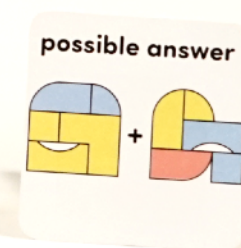
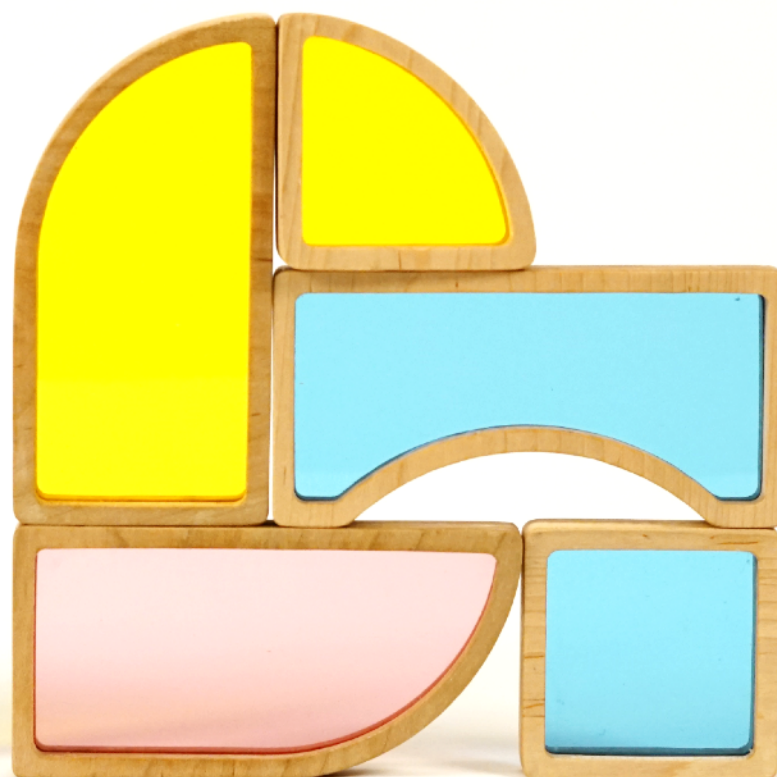
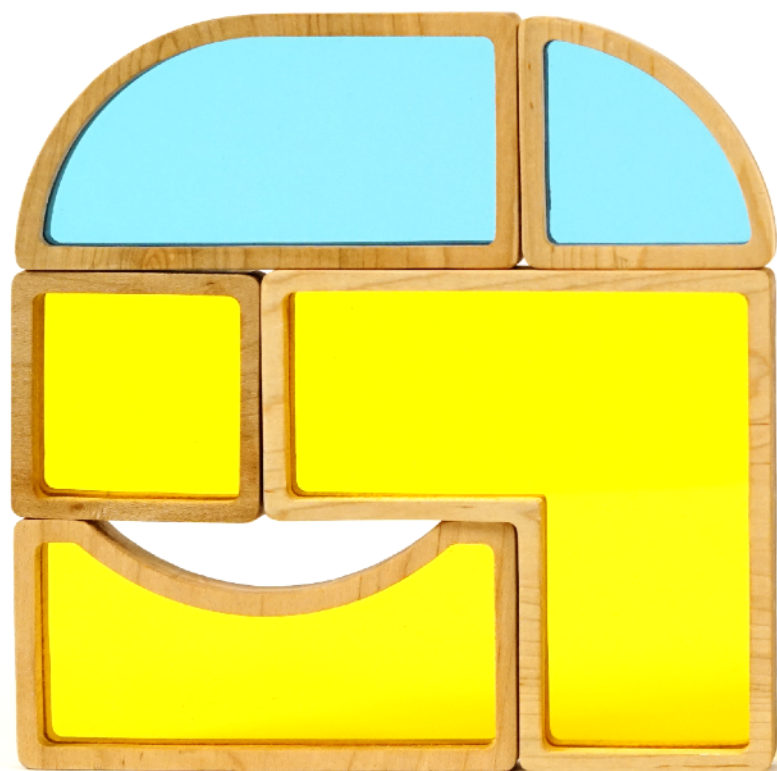
# Blending Blocks















BLENDING  
BLOCKS

4

1

make



green

# Market Research

Retail Price



40<sup>th</sup> Anniversary of  
Sustainable Play



**\$140**

Block Set with Wooden Box

**\$80**

Block Set Only

Pricing based on current Plan Toys prices for block sets, material costs, and user willingness to pay

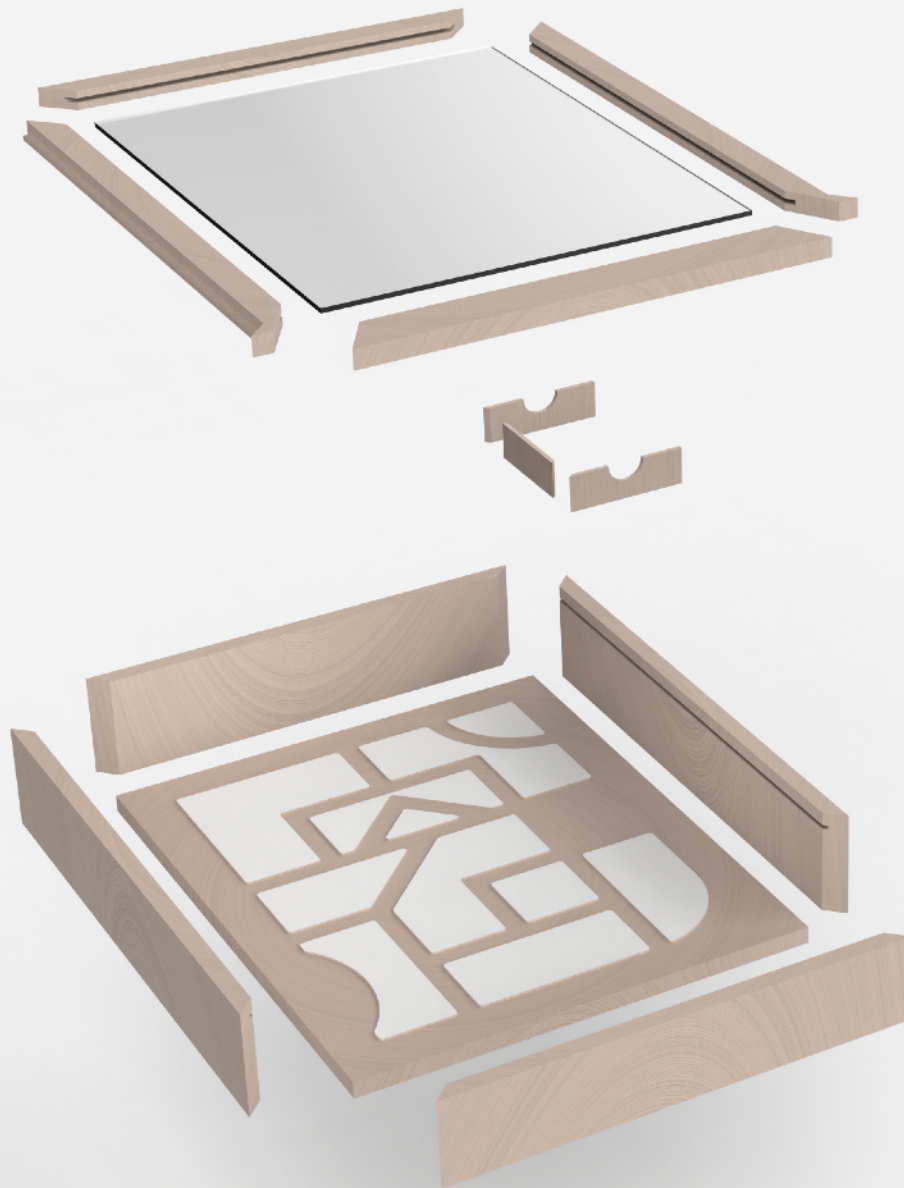


# Design For Manufacturing

Box Construction



40<sup>th</sup> Anniversary of  
Sustainable Play



## 5 Lid Components

Machined, Glued Rubber Wood; Slotted Acrylic

## 21 Box Components

Machined, Glued, Painted Rubber Wood

## \$5.90

Total Unit Cost









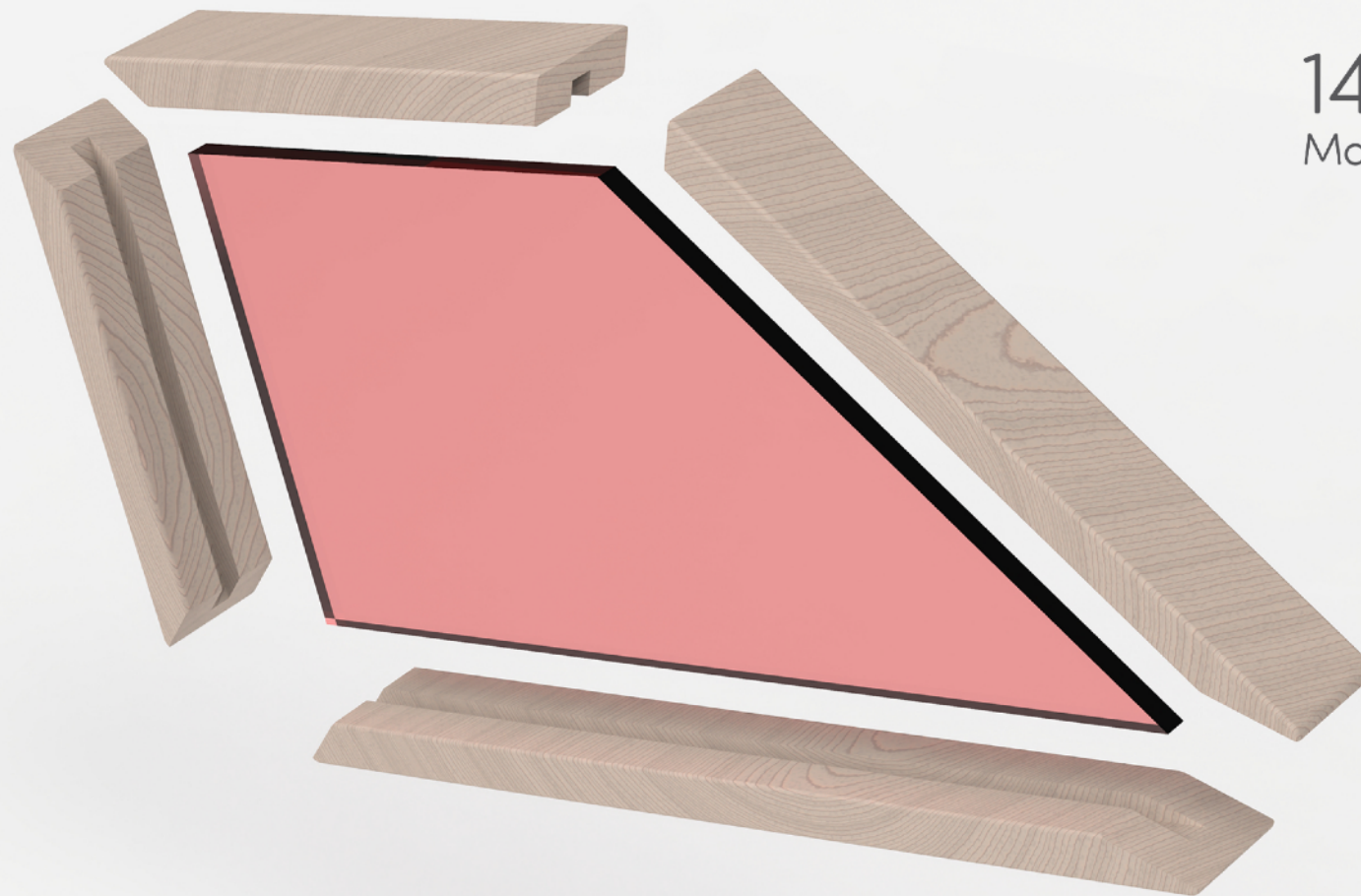


# Design For Manufacturing

Block Construction



40<sup>th</sup> Anniversary of  
Sustainable Play



148 Rim Pieces

Machined Rubber Wood

33 Blocks

Slotted Acrylic, Rims Glued

\$15.25

Total Set Cost

# Market Research

## Benchmarking



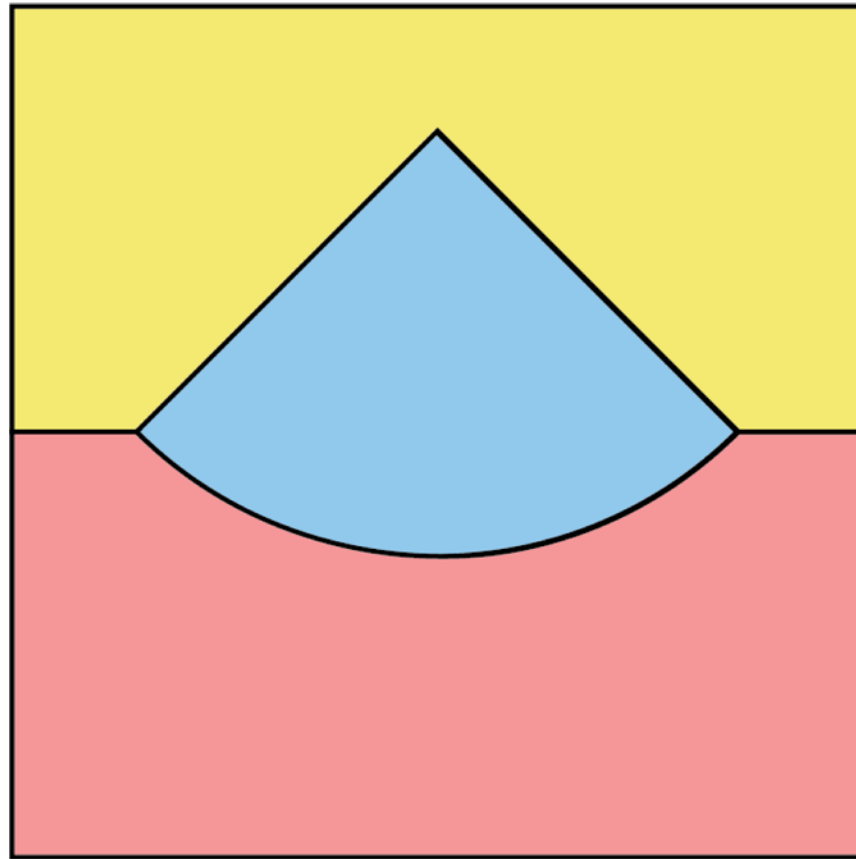
40<sup>th</sup> Anniversary of Sustainable Play



	Plan Toys	Guide Craft	Magna Tiles	BOHS	Conikus
Company	Plan Toys	Guide Craft	Magna Tiles	BOHS	Conikus
Cost	\$60	\$35	\$120	\$15	\$9
# of Blocks	6	20	100	7	7
Color Layering	✓	✓	✓	✓	
Puzzle				✓	✓
Layering Puzzle					



1

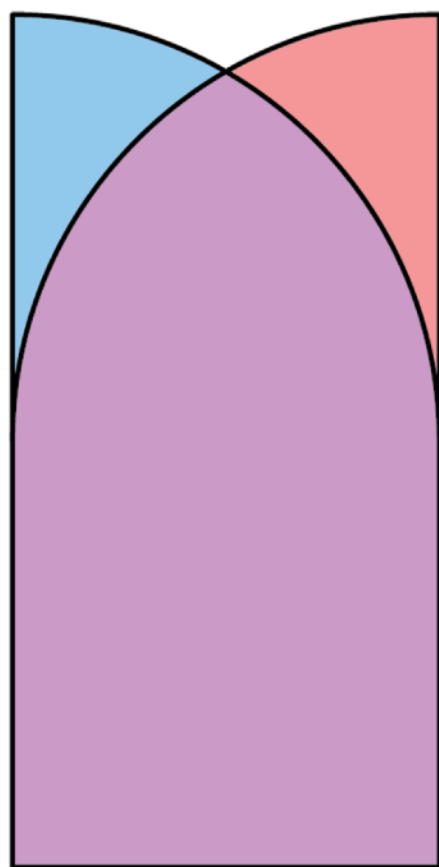








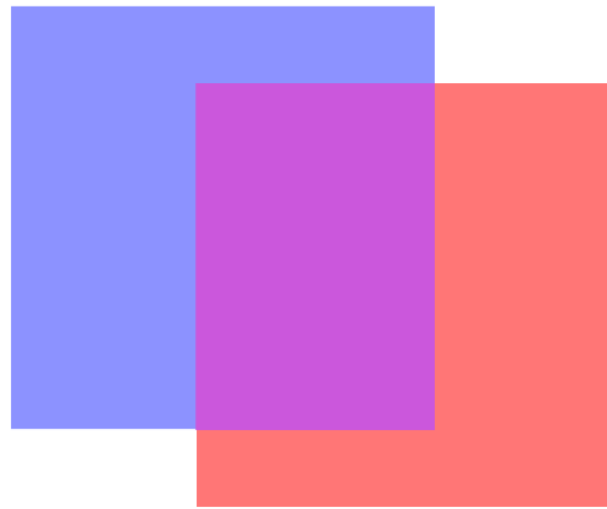
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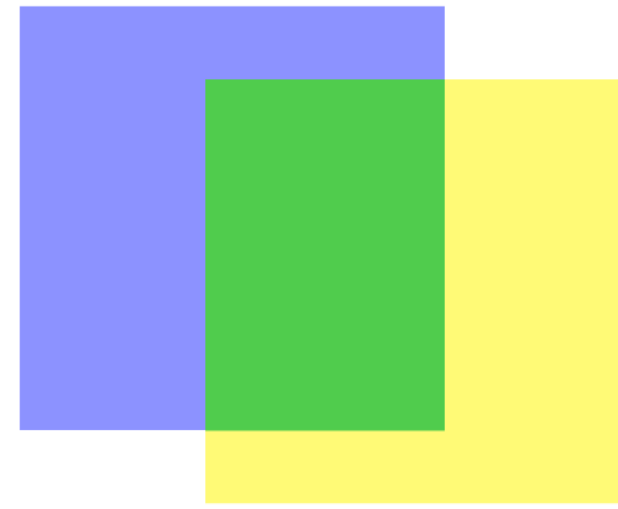




red + yellow = orange



blue + red = purple



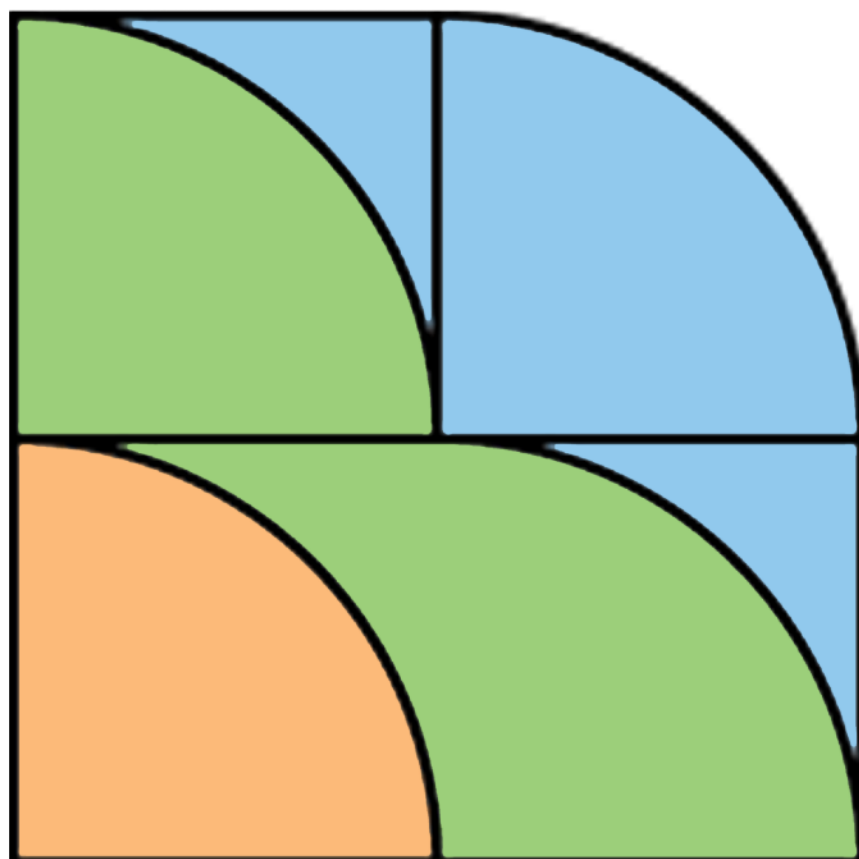
blue + yellow = green







3

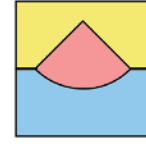
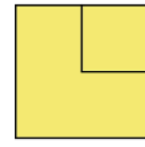
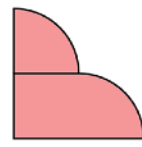
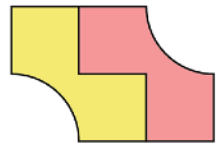




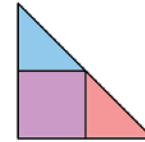
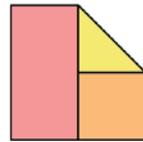
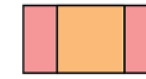
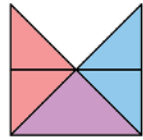




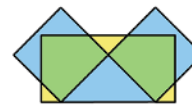
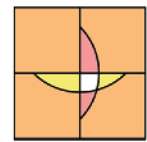
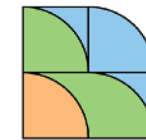
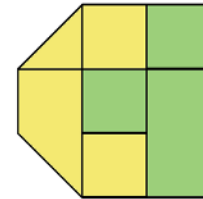
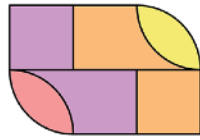
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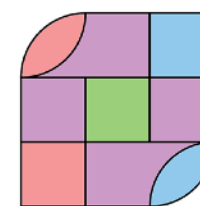
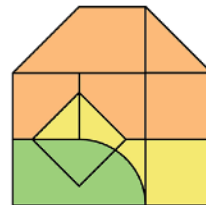
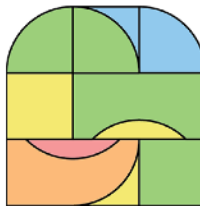
2



3



4



# User Feedback

Research



40<sup>th</sup> Anniversary of  
Sustainable Play



## Balance/Overlaying

Explore ways to secure pieces when overlaying and balancing



## Puzzle Challenging

Different puzzle levels can enhance critical thinking as child grows



## Easy Grab

Great size, weight, and material for grip and play



## Booklet

Helpful to learn and reference color theory  
Great way to store information



## Packaging

Explore ways of packaging and storing pieces after play

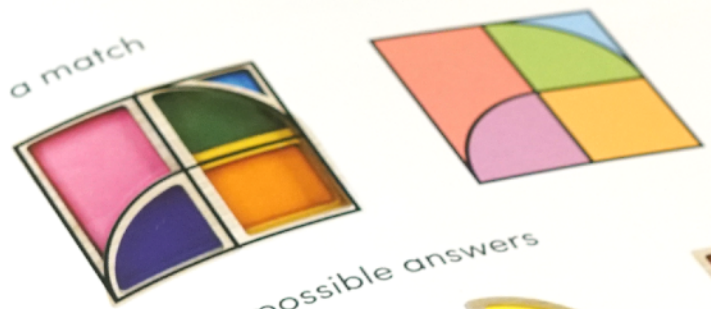


## Cards

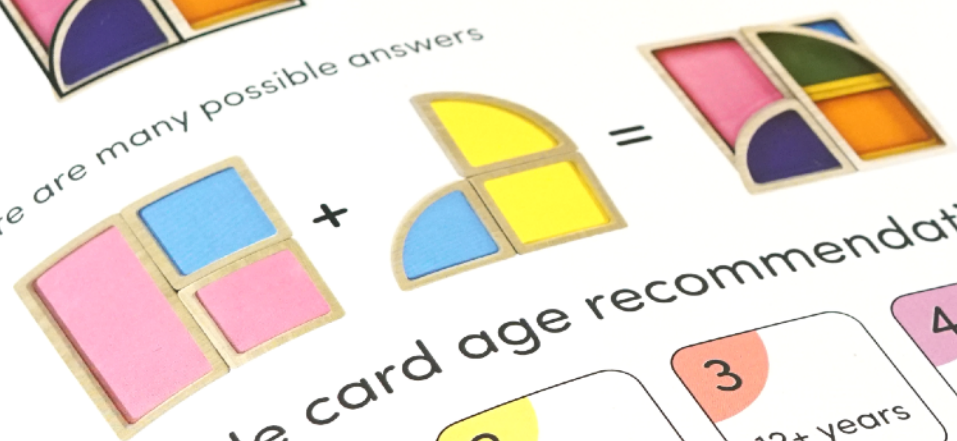
Helpful to play in group setting  
Easier way to access puzzles



or a match

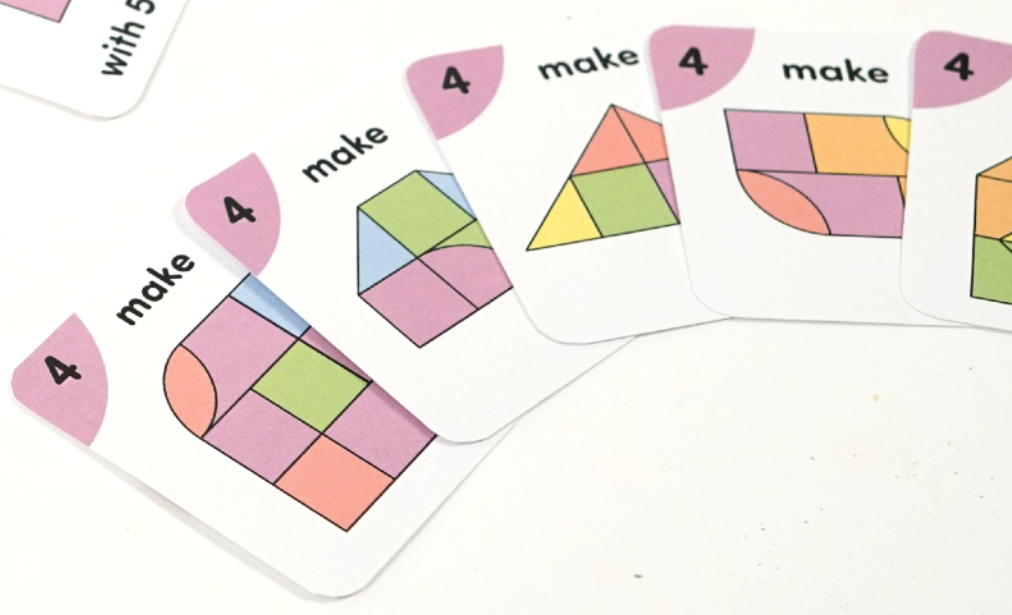
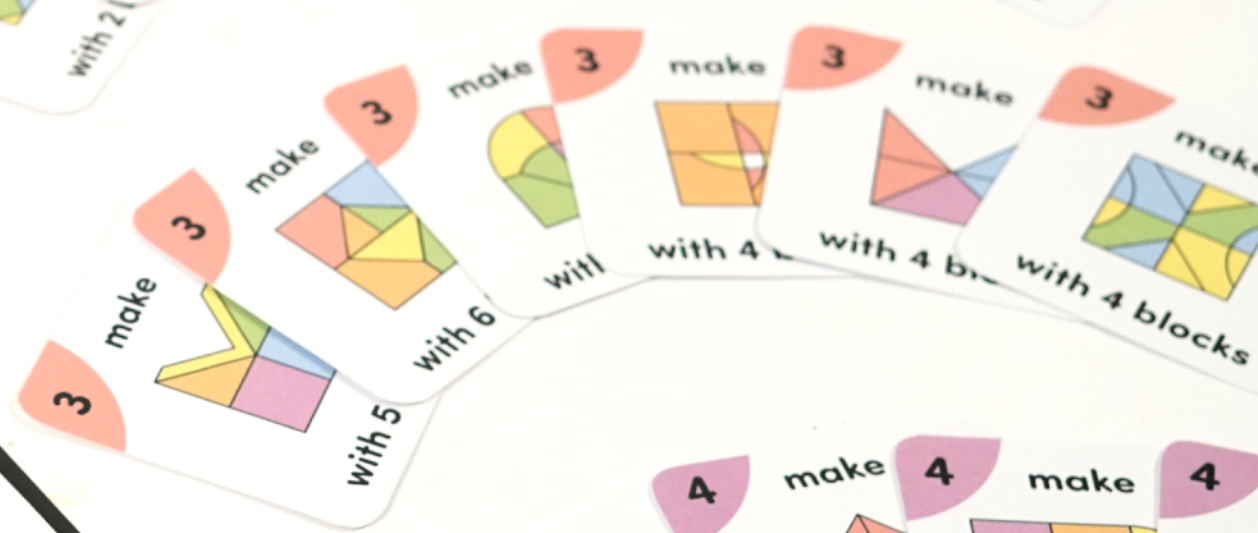


There are many possible answers



# puzzle card age recommendations

- 1 4-8 years
- 2 8-12 years
- 3 12+ years
- 4 expert



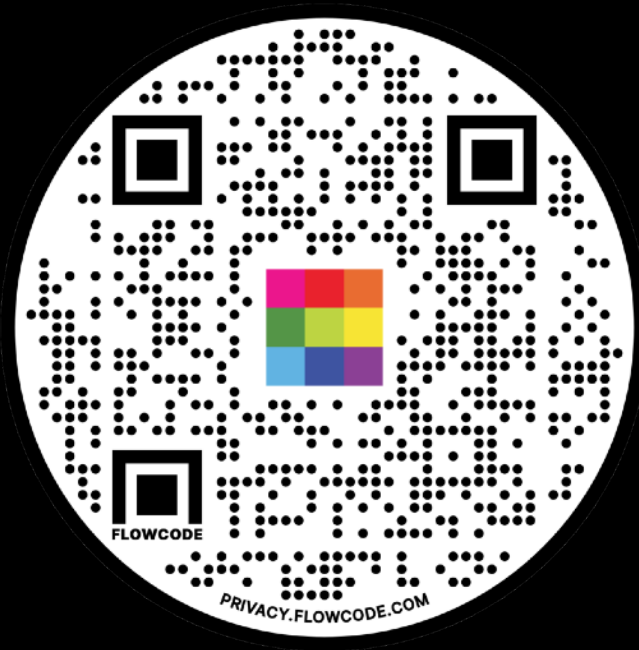
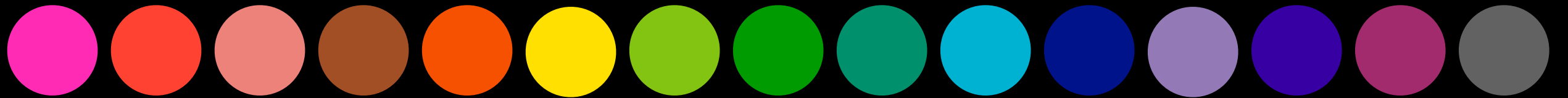






# Product Innovation Lab

# PLAYsentations!



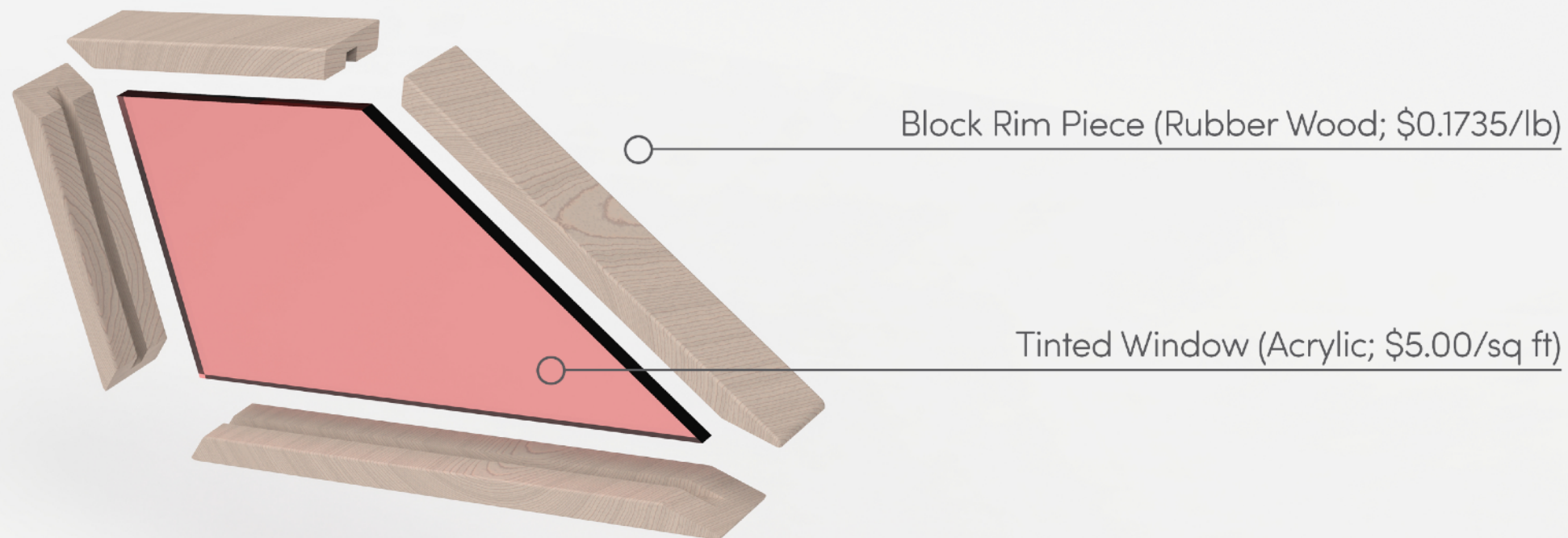
# Blending Blocks

# Detailed DFM

## Block Construction



40<sup>th</sup> Anniversary of  
Sustainable Play



Part	Qty	Material/Process	Cost
Block Frame	33	Rubber Wood; wood glue on joints	\$0.0077
Block Rim Piece	148	Rubber Wood; machined, dado cuts, wax finish	\$0.0017
Tinted Window	33	Acrylic; Laser cut from sheets	\$0.4545

Total Per Unit Cost (1 Block): \$0.4622

Total Set Cost (33 Blocks): \$15.2526

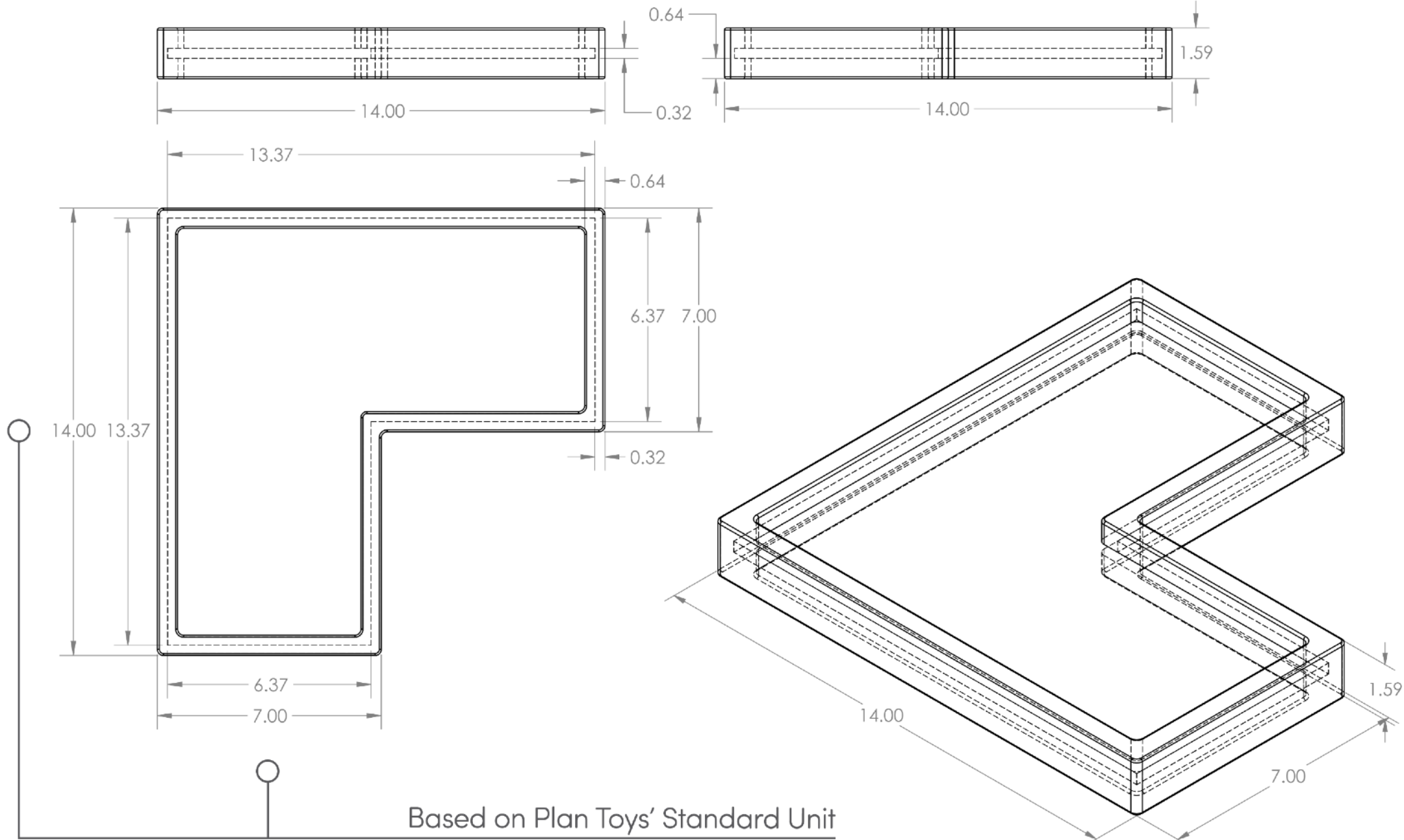


# Detailed DFM

## Block Construction



40<sup>th</sup> Anniversary of Sustainable Play



Based on Plan Toys' Standard Unit  
(3.5 cm = 1.378 in)

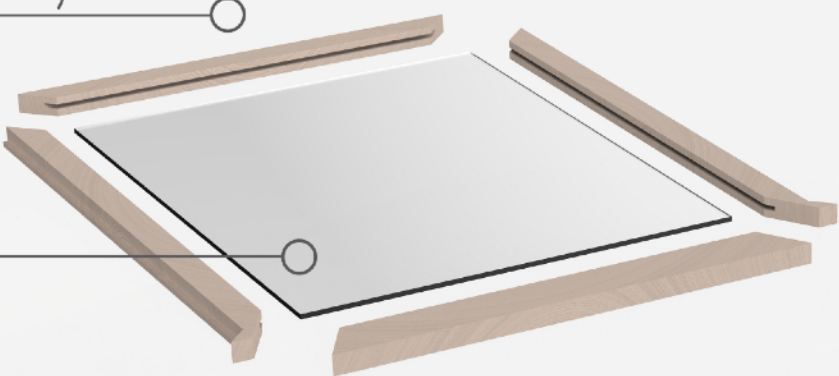
# Detailed DFM

## Box Construction



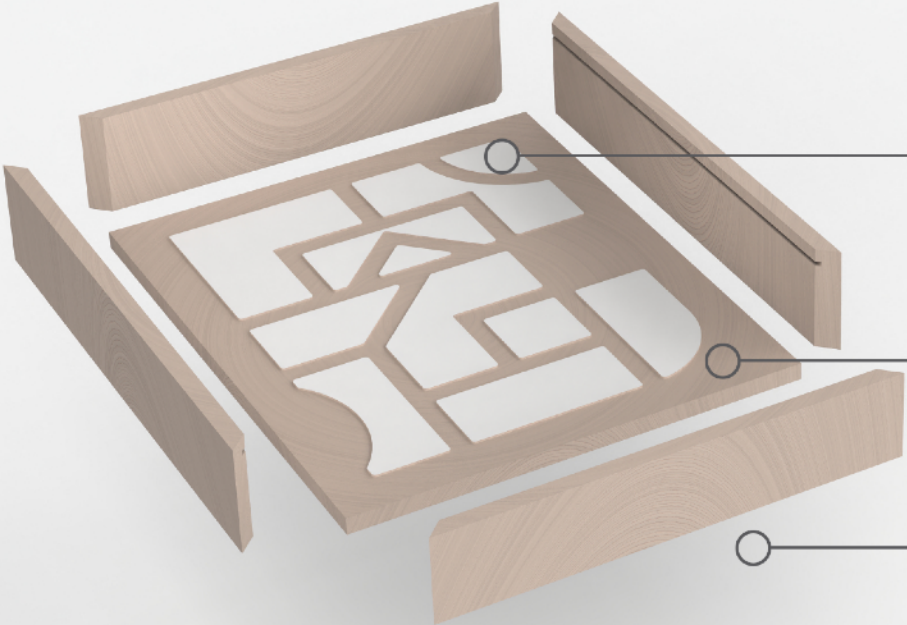
40<sup>th</sup> Anniversary of Sustainable Play

Lid Rim Piece (Rubber Wood; \$0.1735/lb)



Clear Window (Acrylic; \$5.00/sq ft)

Card Slot Piece (Rubber Wood; \$0.1735/lb)



Block Slots (Rubber Wood; \$0.1735/lb)

Box Base (Rubber Wood; \$0.1735/lb)

Box Side Piece (Rubber Wood; \$0.1735/lb)

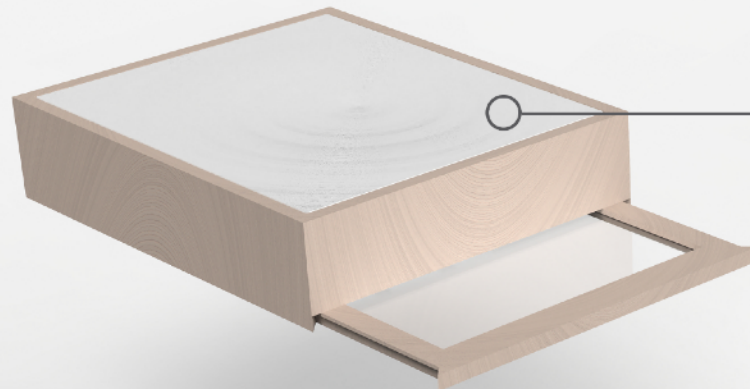


# Detailed DFM

## Box Construction



40<sup>th</sup> Anniversary of  
Sustainable Play



Box Base (Rubber Wood; \$0.1735/lb)

*Opposite side of Box Base, painted white*

Part	Qty	Material/Process	Cost
Lid Frame	1	Rubber Wood; wood glue on joints	\$0.0857
<i>Lid Rim Piece</i>	4	<i>Rubber Wood; machined, dado cuts, rails, wax finish</i>	<i>\$0.0214</i>
Clear Window	1	Acrylic; Laser cut from sheets	\$5.00
Box Bottom	1	Rubber Wood; wood glue on joints	\$0.8009
<i>Box Side Piece</i>	4	<i>Rubber Wood; machined, dado cuts, wax finish</i>	<i>\$0.0737</i>
<i>Box Base</i>	1	<i>Rubber Wood; machined, wax finish, painted white</i>	<i>\$0.4424</i>
<i>Block Slots</i>	13	<i>Rubber Wood; machined, painted white</i>	<i>\$0.0049</i>
Card Slot	1	Rubber Wood; wood glue on joints	\$0.0147
<i>Card Slot Piece</i>	3	<i>Rubber Wood; machined, wax finish</i>	<i>\$0.0049</i>

Total Per Unit/Set Cost (1 Box): \$5.901

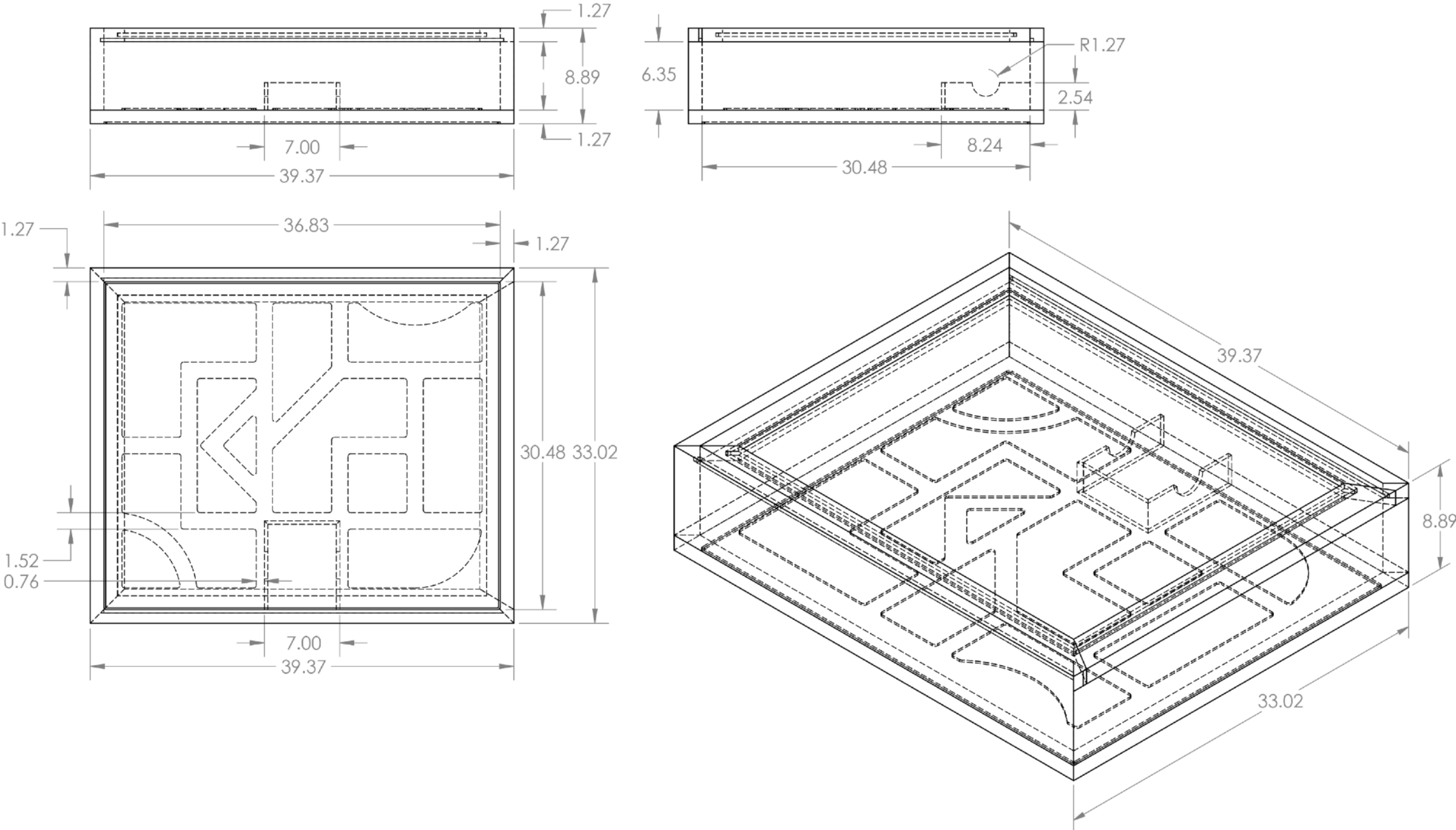


# Detailed DFM

## Box Construction



40<sup>th</sup> Anniversary of Sustainable Play



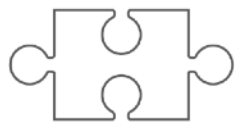
# Market Research

Trend Research

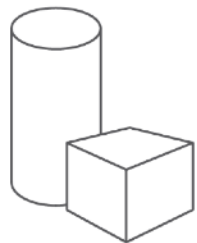


40<sup>th</sup> Anniversary of Sustainable Play

The market chooses puzzles & building sets



**38%** purchased puzzles within 12 months



**37%** purchased building sets within 12 months

1110 responses from households with children

The market chooses toys that last



**48%** said that it is important that a toy grows with the child

Sample: 1122 internet users who purchased a toy or game within 12 months

Source: Mintel Market Research

Date Taken: March 2020



# User Feedback

Research



40<sup>th</sup> Anniversary of Sustainable Play



**James (2 years old)**

Interests

Building  
Throwing Toys



**Lily (5 years old)**

Interests

Building  
Using Imagination



**Taylor (10 years old)**

Interests

Challenges  
Learning



**Marisha (34 years old)**

Interests

Unbreakable Toys  
Playing with children

154 responses



40% of users are willing to pay \$95+ for blocks



49% of users are willing to pay \$60+ for box

**User group is willing to pay \$155+  
for blocks and box**



# User Feedback

Play-Testing



40<sup>th</sup> Anniversary of  
Sustainable Play

Lila (2 years old), Violet (5 years old), Brooklyn (10 years old)



## Lila

Flat surface playing

Likes making shapes out of puzzle

Seeing through blocks (glasses)

## Violet

Likes booklet and cards

Imagination building

Can do the level 1 puzzles

## Brooklyn

Likes cards and booklet

Can do the level 2 puzzles

Emily (33 years old) Mother of two



Enjoyment of blocks

90%

Enjoyment of color theory

95%

Enjoyment of puzzles

80%

“My kids love the toy! They can build anything while also having puzzles on the side to **challenge** them.”

“The wooden box **catches the attention** of parents and their kids... such a great way to show **color!**”