

Make, "Tinker", and Invent: Exploring the Engineering Design Process With Your Afterschoolers

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Resource List

The Maker Movement and Makerfaires:

- Tinkerlab: A Hands-On Guide For Little Inventors (Rachelle Doorley)
- Tinkering: Kids Learn By Making Stuff (Curt Gabrielson)
- Making Makers: Kids, Tools, and the Future of Innovation (AnnMarie Thomas)
- Invent to Learn: Making, Tinkering, and Engineering in the Classroom (Sylvia Libow Martinez & Gary Stager, Ph.D; www.inventtolearn.com)
- www.makerfaire.com and www.makezine.com
- <http://www.stthomas.edu/SquishyCircuits>
- Make: Paper Inventions: Machines that Move, Drawings that Light Up, and Wearables and Structures You Can Cut, Fold, and Roll (Kathy Ceceri)
- Teaching STEM in the Early Years: Activities for Integrating Science, Technology, Engineering, and Mathematics (Sally Moomaw)
- Next Generation Science Standards (www.nextgenscience.org)
- National Science Teachers Association (www.nsta.org)
- National Association for the Education of Young Children (www.naeyc.org)
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Inventions and Inventors:

- Time 100 New Scientific Discoveries: Fascinating, Momentous, and Mind-Expanding Stories
- Popular Mechanics: Gadget Planet: 150 Gizmos and Inventions That Changed the World
- Time Life: American Inventions: Big Ideas That Changed Modern Life
- Toy Time: A Look Back at the Most Beloved Toys of Decades Past (Christopher Byrne)
- Mistakes That Worked: 40 Familiar Inventions and How They Came to Be (Charlotte Foltz Jones)
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Resources and Ideas for "Makerspaces" Building and Engineering

- Loose Parts: Inspiring Play in Young Children (Lisa Daly & Miriam Beloglovsky)
- The Do Nothing Machine by Sharon MacDonald
- Shapes: What's the Big Idea? (Pamela Schroeder & Jean Donisch)
- Circles Around Town (Nathan Olson)
(Other titles in the "Around Town" series feature triangles, squares, and rectangles.)
- Cubes, Cones, Cylinders, and Spheres (Tana Hoban)
- Rosie Revere, Engineer (Andrea Beaty & David Roberts)
- What Do You Do With An Idea? (Kobi Yamada & Mae Besom)
- Look at That Building: A First Look at Structures (Scot Ritchie)
- 13 Architects Children Should Know (Florian Heine)
- 13 Buildings Children Should Know (Annette Roeder)
- Skyscrapers: A History of the World's Most Extraordinary Buildings (Judith Dupre)
- Bridges! (Carol A. Johmann & Elizabeth Rieth)
- Simple Machines (Susan Canizares)
- Cubes, Cones, Cylinders, and Spheres (Tana Hoban)
- Not a Box and Not a Stick by Antoinette Portis
- The Curious Kid's Science Book: 100+ Creative Hands-On Activities for Ages 4-8 (Asia Citro)

Toys and Games

- Kids' Paper Airplane Book (Ken Blackburn)
- Whoosh! Easy Paper Airplanes for Kids: Color, Fold and Fly! (Amy Naylor)
- Zoom! The Complete Paper Airplane Kit (Margaret A. Hartelius)
- Making Moving Toys: 30 Quick and Easy Projects to Make (Pippa Howes and Ian Howes)
- Toy Making and Toy Games: How To Make Your Own Simple Wooden & Paper Toys and Easy to Play Games (Dennis Felstead)
- Make Fun!: Create Your Own Toys, Games, and Amusements (Bob Knetzger)
- The Lego Ideas Book: Unlock Your Imagination (Daniel Lipkowitz)
- Cool Creations in 35 Pieces (Sean Kenney)

Foods/Recipes

- Kids' First Cookbook: Delicious-Nutritious Treats to Make Yourself! (American Cancer Society)
 - Children's Quick and Easy Cookbook (Angela Wilkes)
 - Better Homes and Gardens New Junior Cook Book (Better Homes and Gardens Cooking) (Better Homes and Gardens)
 - Cooking in a Cup: Easy recipes for muffin tin meals (Cooking with Kids Series Book 3) (Debbie Madson)
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Clothes/Sewing

- Best of Sewing Machine Fun for Kids (Lynda Milligan and Nancy Smith)
 - Sewing School: 21 Sewing Projects Kids Will Love to Make (Storey Publishing, LLC)
 - My First Jewelry Making Book (Cico Kids) (Cico Books)
 - Loom Band It: 60 Rubberband Projects for the Budding Loomineer (Kat Roberts and Tessa Sillars-Powell)
 - Kid Made Modern (Todd Oldham)
 - Art Lab for Little Kids: 52 Playful Projects for Preschoolers (Susan Schwake)
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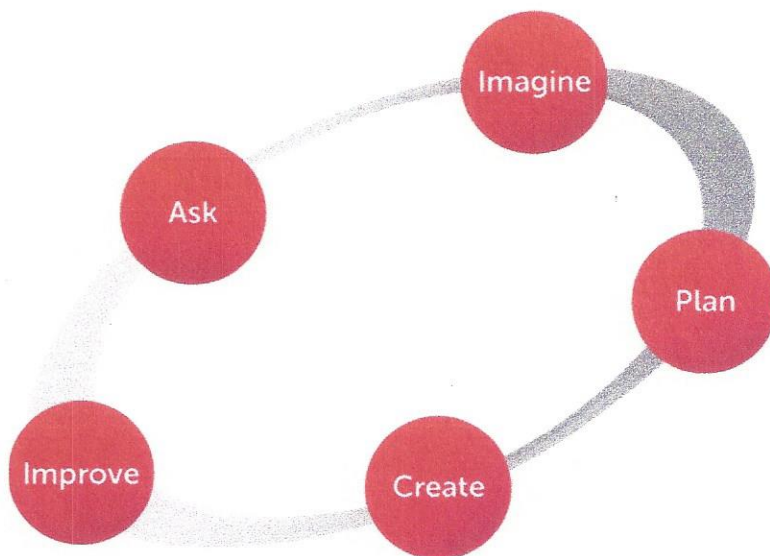
Woodworking

- The Kids' Building Workshop: 15 Woodworking Projects for Kids and Parents to Build Together (Craig Robertson and Barbara Robertson)
 - Easy Carpentry Projects for Children (Dover Children's Activity Books) (Jerome E. Leavitt)
 - Woodworking For Kids: 40 Fabulous, Fun & Useful Things for Kids to Make (Kevin McGuire)
 - The All-New Woodworking for Kids (Kevin McGuire)
 - Woodshop 101 For Kids (Craig Stevens)
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Arts and Crafts

- Look What You Can Make With Boxes by Lorianne Siomades and Hank Schneider
- Look What You Can Make With Egg Cartons by Betsy Ochester and Hank Schneider
- Look What You Can Make With Tubes by Margie Hayes Richmond and Hank Schneider
- Look What You Can Make With Paper Plates by Margie Hayes Richmond and Hank Schneider
- Look What You Can Make With Paper Bags by Judy Burke and Hank Schneider
- Look What You Can Make With Newspapers, Magazines, & Greeting Cards by Kathy Ross
- What Can You Do With a Paper Bag? by Judith Cressy
- Making a Dinosaur/Bird/Rabbit (Rigby PM Plus) by Annette Smith, Jenny Giles, & Beverley Randell
- 6 Sticks (Molly Coxe)
- 150+ Screen-Free Activities for Kids: The Very Best and Easiest Playtime Activities from FunAtHomeWithKids.com! (Asia Citro)
- The Dot (Peter H. Reynolds)
- Ten Black Dots (Donald Crews)
- Beautiful Oops (Barney Saltzberg)
- If (Sarah Perry)

The Engineering Design Process:

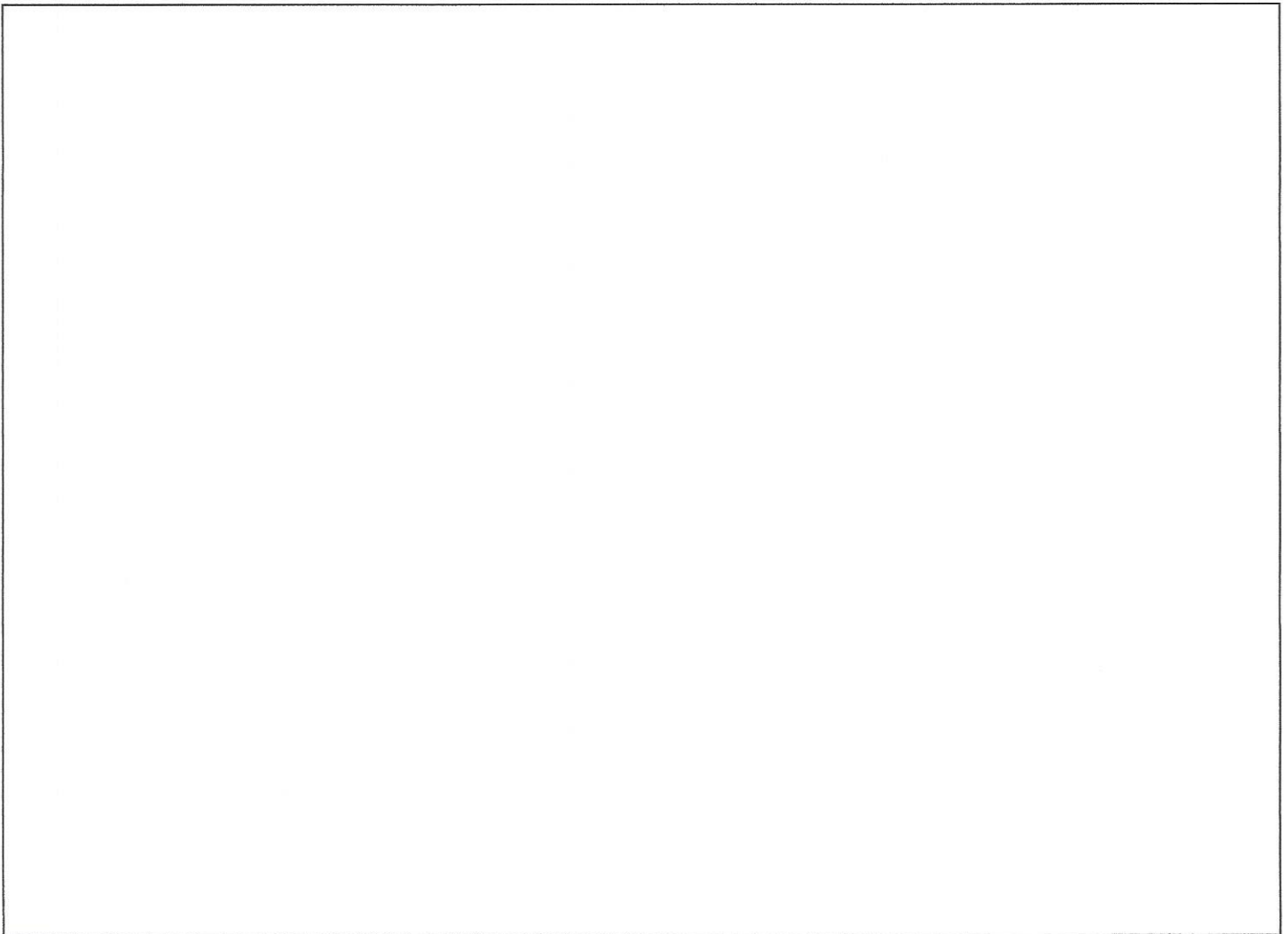


Snack Container Engineering Challenge:

Design and create a snack container to hold Froot Loops.

Engineer: _____

Initial Design Concept



(Draw your final design on the back.)

STEM Toy Making Challenge:

Design and create a toy to give to a classmate. Circle your category below, and draw your initial design concept.

Engineer: _____

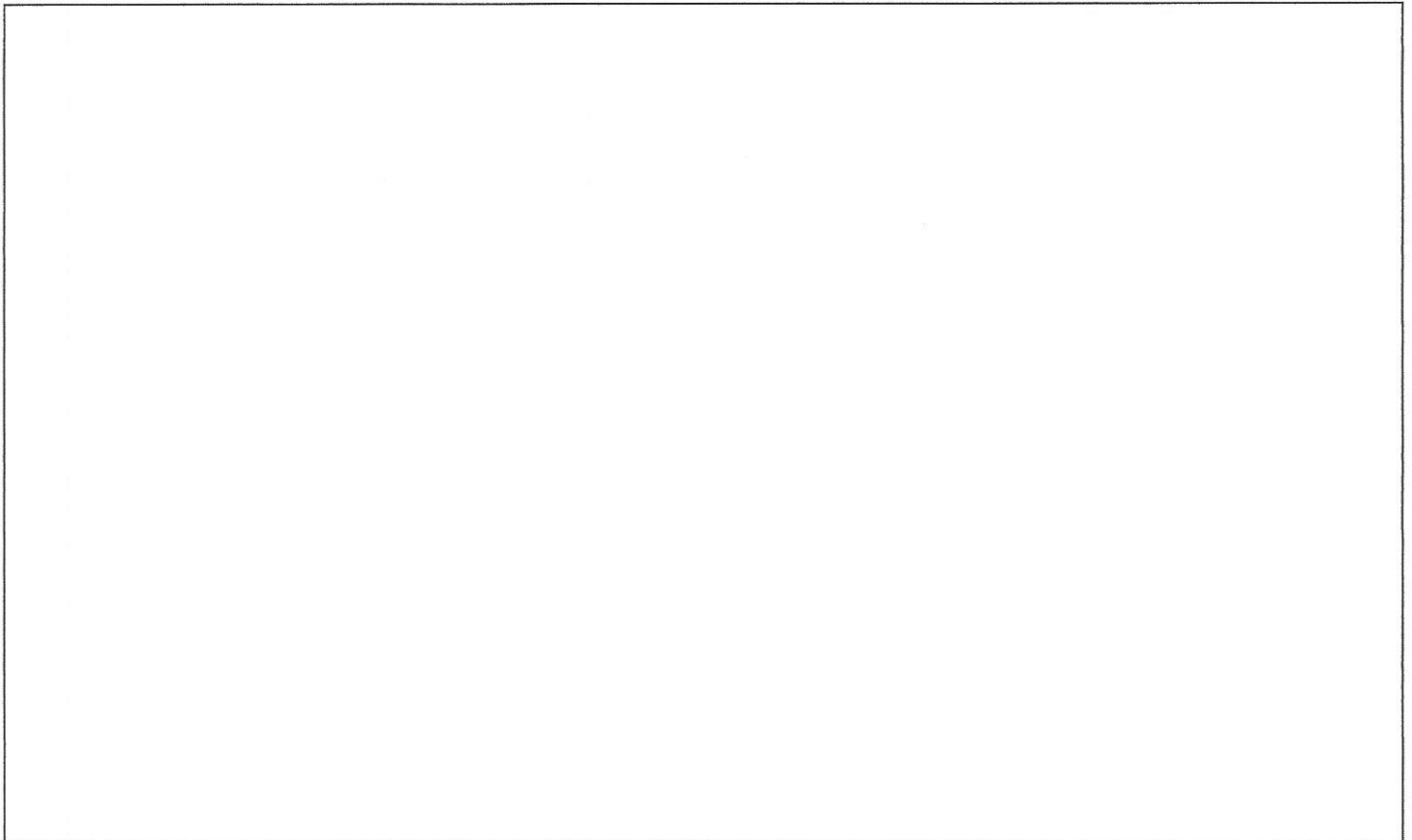
My category:

Play Figures

Play Structures

Games to Play

Initial Design Concept



(Draw your final design on the back.)

Cleanup Tool Engineering Challenge:

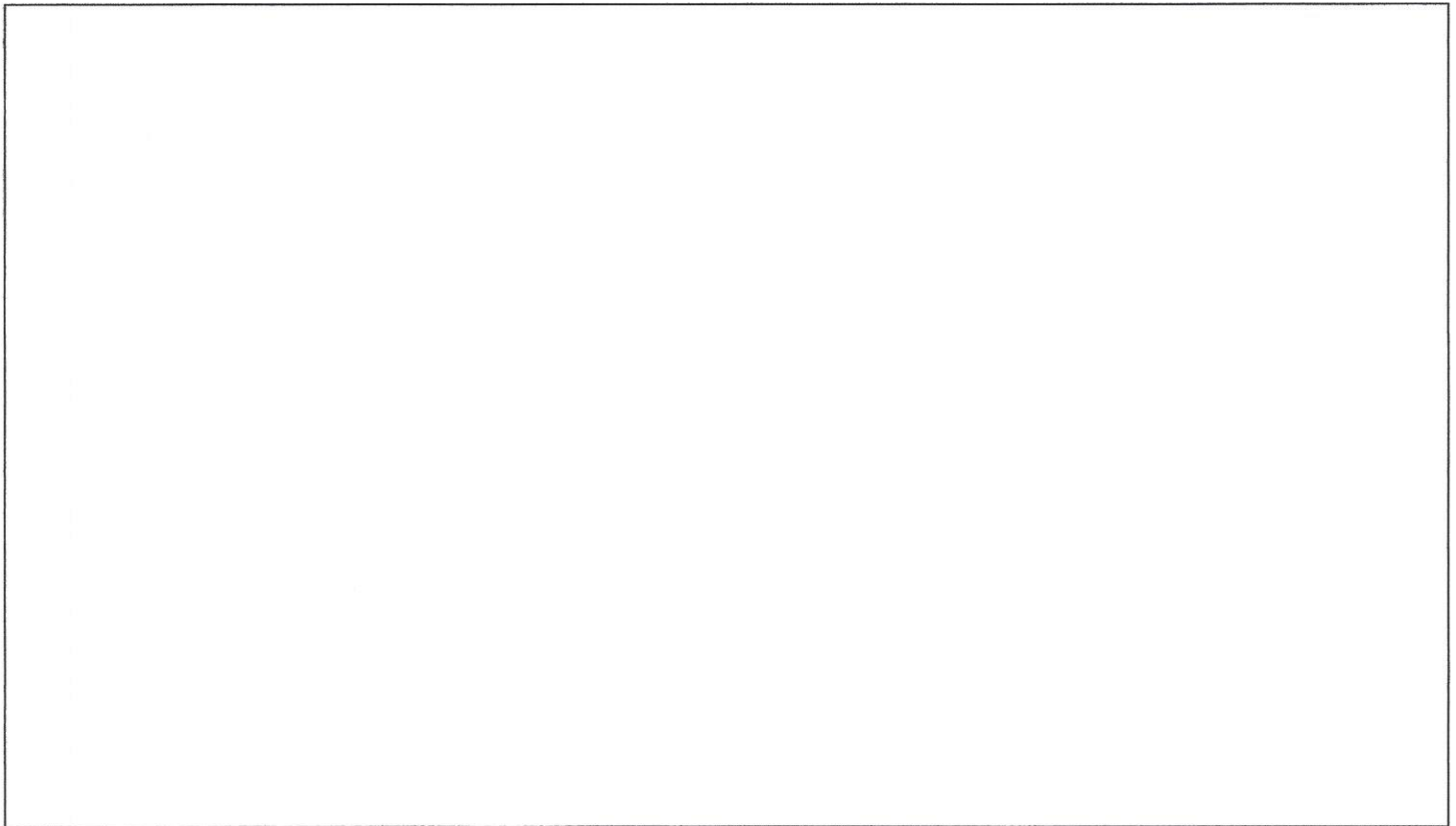
Design and create a tool to make cleanup faster and more fun! Circle your category below, and draw your initial design concept.

Engineer: _____

My category: Scoop Grabber Ramp

Other: _____

Initial Design Concept



(Draw your final design on the back.)