

Quick Reference of Books and Materials for Design Challenges

Design Challenge	Book Suggestions	Suggested Materials Other than Reusable Resources, Connectors, Tools, and Writing and Drawing Tools
Section One: Build It		
Beautiful Buildings	› <i>Iggly Peck, Architect</i> › <i>Building Books</i> › <i>Dreaming Up: A Celebration of Building</i> › <i>A Girl Can Build Anything</i>	› Building materials (e.g., wooden blocks, LEGO bricks, dominoes) › Photos of tall buildings
Bug City	› <i>Roberto: The Insect Architect</i> › <i>Burt the Beetle Lives Here</i> › <i>Hank's Big Day: The Story of a Bug</i> › <i>The Very Busy Spider</i>	› Building materials (e.g., interlocking bricks, blocks, magnetic tiles) › Small toy insects › Reference and planning resources (e.g., nonfiction insect books, blueprints)
Build a Bridge	› <i>The Three Billy Goats Gruff</i> › <i>The Little Blue Bridge</i> › <i>The Three Billy Goats Fluff</i> › <i>The Three Billy Goats Gruff/ Los tres chivitos</i>	› Photos of different bridge designs › Balance scales and small items that weigh five pounds
Build a Fort	› <i>The Little Red Fort</i> › <i>The Better Tree Fort</i> › <i>The Fort</i> › <i>Fort-Building Time</i>	› Household items (e.g., sheets, old curtain rods, clotheslines) › Building materials (e.g., hollow blocks, dowel rods)

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Section One: Build It (continued)		
Home Tweet Home	› <i>Mama Built a Little Nest</i> › <i>Bird Builds a Nest</i> › <i>Have You Heard the Nesting Bird?</i> › <i>The Nest That Wren Built</i>	› Natural items (e.g., twigs, leaves, inactive bird nest) › Toy eggs and baby birds or materials to create them (e.g., playdough, beads)
A House for the Three Little Pigs	› <i>The Three Little Pigs</i> › <i>The Three Little Javelinas</i> › <i>The Three Little Pigs: An Architectural Tale</i> › <i>The True Story of the 3 Little Pigs!</i>	› Building materials (e.g., LEGO bricks, blocks, small building planks) › Devices or processes to make wind (e.g., fans, waving magazines) › Items to represent the pigs (e.g., pig figurines, finger puppets)
The Just-Right Chair	› <i>Peter's Chair</i> › <i>A Chair for Baby Bear</i> › <i>A Chair for My Mother</i> › <i>Goldilocks and the Three Bears</i>	› Building materials (e.g., LEGO bricks, magnetic tiles, blocks) › Weights or other items that weigh five pounds

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Section Two: Move It		
Float Your Boat	› <i>Who Sank the Boat?</i> › <i>Mr. Gumpy's Outing</i> › <i>Toy Boat</i> › <i>What Floats in a Moat?</i>	› Small objects that sink or float (e.g., pennies, packing peanuts, bottle caps) › A large container of water › Devices or processes to make wind (e.g., fans, waving magazines)
Launch It!	› <i>The Princess and the Pea</i> › <i>The Knight and the Dragon</i> › <i>Olympig!</i> › <i>The Princess and the Pig</i>	› Soft, lightweight projectiles (e.g., pom-poms, cotton balls) › Photos of catapults
Marbles in Motion	› <i>Roller Coaster</i> › <i>The Pigeon Will Ride the Roller Coaster!</i> › <i>The Roller Coaster Kid</i> › <i>Roller Coasters and Teacups</i>	› Toy parts and pieces (e.g., Hot Wheels tracks, wooden planks) › Everyday objects (e.g., funnels, tin cans) › Objects that roll (e.g., small balls, marbles) › Small containers (e.g., baskets, cups, bowls) › Stopwatches
Move Like an Animal	› <i>Fraidyzoo</i> › <i>Can You Dance Like a Peacock?</i> › <i>Dance Like a Flamingo: Learn How to Move and Groove Like the Animals Do!</i> › <i>Move!</i>	› Craft items (e.g., paint, googly eyes, yarn) › Photos or videos of animals moving › Examples of linkages in the everyday environment (e.g., scissors, tongs, folding chairs)

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Section Two: Move It (continued)		
Spring into Action	› <i>Jabari Jumps</i> › <i>Bounce</i> › <i>A Dive into the Blue</i> › <i>The Marvelous Thing That Came from a Spring: The Accidental Invention of the Toy That Swept the Nation</i>	› Small, springy objects (e.g., softly inflated balloons, rubber bands, Slinkys) › Flexible platforms (e.g., cardboard, craft foam sheets) › Building materials (e.g., blocks, wooden dowels) › Soft, lightweight projectiles (e.g., cotton balls, rubber ducks)
Squirrel Shenanigans	› <i>Those Darn Squirrels!</i> › <i>Girl Versus Squirrel</i> › <i>Scaredy Squirrel</i> › <i>The Secret Life of Squirrels</i>	› Items to represent the squirrels (e.g., stuffed animals, pom-poms)
Tower Power	› <i>Rapunzel</i> › <i>Gustave Eiffel's Spectacular Idea: The Eiffel Tower</i> › <i>Pull, Lift, and Lower: A Book About Pulleys</i> › <i>The Tree House That Jack Built</i>	› Building materials (e.g., wooden blocks, LEGO bricks) › Small, lightweight objects to transport (e.g., pom-poms, figurines of people and animals)

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Wind Wonders	› <i>The Wind Blew</i> › <i>Argyle Fox</i> › <i>The Boy Who Harnessed the Wind</i> › <i>Kate, Who Tamed the Wind</i>	› Building materials (e.g., LEGO bricks, magnetic tiles) › Devices or processes to make wind (e.g., emptying inflated balloons, blowing through drinking straws) › Lightweight objects to blow around (e.g., table tennis balls, pom-poms) › Egg timers or stopwatches
Zany Chain Reactions	› <i>The Fix-It Man</i> › <i>Addy-Matic and the Toasteriffic</i> › <i>Carrot and Pea: An Unlikely Friendship</i> › <i>Rube Goldberg's Simple Normal Humdrum School Day</i>	› Building materials (e.g., wooden blocks, dominoes) › Everyday objects, including some that roll (e.g., CD cases, books, balls, rolling pins) › Small electronics (e.g., slow-moving motors, finger lights) › Craft items (e.g., yarn, fabric, pom-poms)

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Section Three: Change It		
Bubble Wand Magic	› <i>Curly's Fun with Bubbles</i> › <i>Big Bad Bubble</i> › <i>Bubble Trouble</i> › <i>You Can't Kiss a Bubble</i>	› Bubble solution › Containers for the bubble solution (e.g., trays, buckets)
Color-Mixing Machine	› <i>Little Blue and Little Yellow</i> › <i>Mix It Up!</i> › <i>The Mixed-Up Chameleon</i> › <i>Mouse Paint</i>	› Colorful objects and substances that can be blended (e.g., paint, playdough, colored lights) › Prisms
Face It!	› <i>Let's Make Faces</i> › <i>Faces</i> › <i>How Are You Peeling? Foods with Moods</i> › <i>What Presidents Are Made Of</i>	› Everyday objects (e.g., old hats and gloves, keys) › Natural items (e.g., leaves, seeds, shells) › Craft items (e.g., ribbon, googly eyes) › Containers to organize loose parts
Giant Shadows	› <i>Abiyoyo</i> › <i>The Black Rabbit</i> › <i>Nothing Sticks Like a Shadow</i> › <i>Shadowville</i>	› Light sources (e.g., flashlights, gooseneck lamps, finger lights) › Projection surfaces (e.g., white sheets, opaque shower curtain liners) › Craft items (e.g., yarn, tissue paper, glitter)

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Section Three: Change It (continued)		
If the Shoe Fits	› <i>The Elves and the Shoemaker</i> › <i>Pete the Cat: I Love My White Shoes</i> › <i>Shoes for Me!</i> › <i>Shoes, Shoes, Shoes</i>	› Craft items (e.g., buttons, fabric markers, mesh plastic canvases) › Old shoes to take apart (e.g., light-up sneakers, tap shoes, fluffy slippers; optional)
Instrument Engineer	› <i>Violet's Music</i> › <i>My Family Plays Music</i> › <i>Tallulah Plays the Tuba</i> › <i>Tito Puente, Mambo King/ Tito Puente, rey del mambo</i>	› Craft items (e.g., paint, feathers, stickers) › Musical instruments to investigate
Juice It!	› <i>The Very Hungry Caterpillar</i> › <i>Caterina and the Lemonade Stand</i> › <i>Eat Your Superpowers! How Colorful Foods Keep You Healthy and Strong</i> › <i>Froggy's Lemonade Stand</i>	› Kitchen tools and utensils (e.g., tongs, small plastic cups, strainers) › Fruits to juice › Sweetener (optional) › Materials for cleanliness (e.g., paper towels, rubber gloves)
Silly Sounds	› <i>Bark, George</i> › <i>Canta, rana, canta/Sing, Froggie, Sing</i> › <i>Cock-a-Doodle Oops!</i> › <i>Señor Pancho Had a Rancho</i>	› Musical instruments and noisemaking toys to explore
Weaving Wonders	› <i>Rainbow Weaver/Tejedora del arcoíris</i> › <i>The Goat in the Rug</i> › <i>One Plastic Bag: Isatou Ceesay and the Recycling Women of the Gambia</i> › <i>The Weaver's Surprise</i>	› Natural items (e.g., leaves, grasses, vines)

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Section Four: Invent It		
Box It!	› <i>Boxitects</i> › <i>Gift and Box</i> › <i>Grace and Box</i> › <i>Not a Box</i>	› Craft items (e.g., yarn, fabric, pom-poms)
Design a Bot	› <i>Clink</i> › <i>Boy and Bot</i> › <i>Doug Unplugged</i> › <i>Hello Robots!</i>	› Old technology and small electronic appliances with cords removed (e.g., computer keyboards, analog clocks, rotary telephones) › Organizers and containers for parts and pieces (e.g., baskets, magnetic bowls) › Craft items (e.g., air-dry clay, playdough, googly eyes)
Frame Factory	› <i>Arthur's Eyes</i> › <i>Arlo Needs Glasses</i> › <i>The Doctor with an Eye for Eyes: The Story of Dr. Patricia Bath</i> › <i>Douglas, You Need Glasses!</i>	› Craft items (e.g., feathers, glitter, craft foam)

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Section Four: Invent It (continued)		
Gizmos Galore	› <i>Rosie Revere, Engineer</i> › <i>Papa's Mechanical Fish</i> › <i>Violet the Pilot</i> › <i>What Do You Do with an Idea?</i>	› Everyday objects, including some with moving parts (e.g., backpacks, toothbrushes, piggy banks) › Old toys with moving parts (e.g., jacks-in-the-box, pull-back vehicles, pull-along toys)
Help, It's Stuck!	› <i>Stuck</i> › <i>Bubble Gum, Bubble Gum</i> › <i>My Truck Is Stuck!</i> › <i>Oh, No!</i>	› Natural items (e.g., branches, vines) › Soft, lightweight objects for an adult to suspend safely, (e.g., stuffed animals, pillows) › Examples of linkages in the everyday environment (e.g., tongs, folding chairs, accordion-style baby gates) › Old grabber and reacher tools to take apart (optional)
Invent a Thing	› <i>Izzy Gizmo</i> › <i>Have Fun, Mollie Lou Melon</i> › <i>Ingenious Edie, Master Inventor of Tiny Town</i> › <i>The Most Magnificent Thing</i>	› Old toys with moving parts (e.g., cash registers, remote-controlled cars and robots)

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Pet Carrier	› <i>Hello Goodbye Dog</i> › <i>A Dog Named Haku: A Holiday Story from Nepal</i> › <i>A Home for Dakota</i> › <i>A Home for Dixie: The True Story of a Rescued Puppy</i>	› Balance scales and small items that weigh five pounds to represent pets › Stuffed animals › Pet care items (e.g., pet toys, blankets)
Playground Maker	› <i>My Dream Playground</i> › <i>Dana Deserves a Playground Too</i> › <i>Pete the Cat: Construction Destruction</i> › <i>Rulers of the Playground</i>	› Building materials (e.g., LEGO bricks, wooden blocks) › Natural items (e.g., small sticks, leaves, pine cones) › Items to represent children (e.g., figurines, finger puppets)
Toy Workshop	› <i>Doll-E 1.0</i> › <i>Alexander and the Wind-Up Mouse</i> › <i>Galimoto</i> › <i>Whoosh! Lonnie Johnson's Super-Soaking Stream of Inventions</i>	› Old toys, including some with moving parts (e.g., marbles, wind-up toys, pull-back vehicles)
What a Car!	› <i>If I Build a Car</i> › <i>Monkey on the Run</i> › <i>My Little Car</i> › <i>What Kind of Car Does a T. Rex Drive?</i>	› Photos of different types of cars, both assembled and disassembled › Old car parts (e.g., mirrors, hubcaps; optional) › Toys and toy cars that can be disassembled, including some with moving parts › Craft items (e.g., paint, pom-poms, glitter)