

Making Space for Preschool MAKERSPACES



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MAKING SPACE



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PREFACE

Several years ago, Robin (lead author) was preparing for a state early childhood conference, and she came across the term *makerspace*. She had never heard of the term, so she did some research on the topic. As she searched the internet, Robin found multiple definitions and ideas about different types of makerspaces; however, she did not find anything on the subject as it relates to early childhood programs. Robin made inquiries on her favorite social-media outlets. She asked if others had heard of the term *makerspace*, and most of the replies were along the lines of, “Yes, I have heard of it, but I don’t really know what it means.”

After Robin had perused the many internet suggestions, scholarly articles, and friendly feedback, she noticed some overlapping keywords: *make, tinker, explore, create, wonder, imagination, independent, and collaborate*. She decided to compile these ideas and create her own description of a makerspace:

A *makerspace* is a place for individuals to explore a variety of items, including but not limited to creative-art materials, electronics, technology, woodworking materials, and recycled and upcycled materials. It is a place to engage the senses and to manipulate materials from their current state into something only the maker can imagine, either independently or with others.

Makerspaces sparked Robin’s curiosity. She thought about what a makerspace would look like in an early childhood classroom and how children and teachers would react and respond to it. That fearless spark drove Robin to bring the idea to our early childhood team and enlist the efforts of Teresa, Sarah, Cathy, and several other team members to initiate the maker movement in early childhood programs in the state of Nevada. It began with the introduction of pop-up makerspaces. The movement grew and flourished as a number of early childhood programs added makerspaces to their early childhood

programs. This book shares the many lessons we have learned and highlights how you can make space for a makerspace in your early childhood program.

Here is what some early childhood directors, teachers, and families had to say about being part of an early childhood makerspace:

“Since being introduced to Makerspace, each of our classrooms has created a Makerspace area of their own. I have seen firsthand how Makerspace promotes cooperative play, vocabulary development, and creative expression. I am excited to have the opportunity to offer Makerspace in each of our classrooms, as it fosters a whole-child learning approach.”—Amy Benson, center director

“My son loves using his hands and creating, so it is great that he is able to do this in his classroom. Seeing him talk to his friends about what he was creating while they shared about their own projects was amazing. He gets so excited when sharing with me about what he and his friends create in the classroom. As a parent, I like seeing my child being able to use his own strength as part of his learning. It was great to see the excitement from the children as they interacted.”—Erin Skaggs, preschool parent

“For me, the makerspace learning approach is an eye-opening, mind-blowing way to look at how children learn. It takes children’s learning experience to a new level. At first, most children did not know what to do and kept asking for instructions. It was a new kind of freedom, and they had to use their brains to imagine and use their critical-thinking skills. Children seemed more engaged and had longer playtime, which resulted in some awesome conversations and storytelling.”—Sophia Oh, preschool teacher

“The children in my classroom loved every minute of makerspace. They were always excited and would just jump in and start doing things. They were very engaged with the makerspace materials and did things I never thought of doing. Makerspace gave the children the opportunity to be creative, and observing that was my favorite part.”—Charlee Wright, preschool teacher

Keep reading to learn more about how you can enhance your early childhood program with makerspace experiences.

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WHY MAKERSPACE? THE BIG IDEA

Preschoolers enter the Explorer room with anticipation and curiosity; they have been told that today they will be involved in a makerspace. As the children move over to the rug for instructions, they see many interesting materials and tools set out on the tables and floor. One table is set up with blueprints, screwdrivers, magnifying glasses, keyboards, and an old desktop computer. Another table is full of natural materials such as pinecones, twigs, acorns, leaves, and shells. Additional tables are filled with creative art supplies and loose parts, including beads and feathers. On the floor is a large toolbox containing real tools, pieces of wood, protective eyewear, measuring tapes, and more.

The materials have been carefully selected and set out for the children. The teacher, Amy, is nervous. She is not sure how the preschoolers will react to the makerspace. A couple of the children in her class often exhibit challenging behaviors if they are not involved in interesting activities. Will the makerspace be too open ended for these children? Will the children engage with the materials without a lot of instructions and guidance? Amy decides to trust the process and see what happens. She is grateful that teachers Trish and Becca are there to help.

As the children walk into the room, Mario exclaims, “Wow!” Stephanie is pointing excitedly at the woodworking tools. Anthony stops and stares at the electronics. Amy smiles and allows the children to take their time to look at all the new things and then settles the children down at the rug. She tells them that today they will have the opportunity to be makers. She reads *The Most Magnificent Thing* by Ashley Spires. After reading the book, Amy tells the children that they can go to any of the tables and use the materials to make their own most magnificent thing. The only rules are to be safe and have fun. Teachers Trish and Becca will be available to help them use the tools safely.

The children cautiously move to the tables. They appear to be waiting for more instructions or directions. When none come, they eagerly jump into making and creating. For almost two hours, the children are engaged in making. They actively create, explore, and try out their ideas. The teachers are close by, providing support and encouragement but not interfering with the process of making. The teachers occasionally ask open-ended questions to learn more about what the children are thinking and doing. Throughout the makerspace experience, the teachers celebrate the many magnificent things the children are creating. Amy is pleasantly surprised at how involved the children are in the makerspace.

This scenario provides a glimpse into a makerspace. As you read this book, you will discover how you can make space for a makerspace in your early childhood classroom. In this chapter we discuss the “big idea” of makerspaces. Next, we look at drafting the plan to create a makerspace for preschool children. After considering the components of your plan, in the third chapter we guide you through the steps of taking inventory of what you have and what you need to supply your makerspace. Chapter 4 presents four different approaches to makerspaces in early childhood programs: tinker trays, interest centers, designated rooms, and pop-ups. We discuss these approaches in detail throughout the book. Next, we elaborate on how makerspaces promote skill development within the developmental domains of young children. Chapter 6 identifies the different “caps” worn by a preschool teacher while facilitating a makerspace experience. In the final chapter we explore the phases that children go through as they are involved in a makerspace experience. The authors offer examples from their work with a variety of early childhood programs over the past couple of years. You will learn about the experiences of Learn and Grow Child Care*, a private, suburban center with about fifty children; Handprints in the Highlands, a private religious preschool with about 125 children in a large metropolitan area; and Sunny Days Preschool, a state-funded child-care program with about sixty children in a rural community.

*The center names are pseudonyms.



BECOMING A MAKER

Making things is not new. Humans have a history of making and creating. Think about the pyramids of Egypt and the Taj Mahal in India. Many of you have probably engaged in one or more do-it-yourself projects. Ask yourself the following questions:

- Do you enjoy making things or tinkering with a new item until you figure out how it works?
- Have you ever been told you are creative?

If you answered yes to either question, you are probably a maker! Makers are individuals who like to make, create, invent, and innovate. Makers build furniture, gardens, pet beds, art displays, and countless other specialty items. Makers have a mindset—a way of viewing the world—as a place to create, to take things apart and put them back together. They know how to persevere and try, try, try again. A maker mindset requires critical thinking, problem solving, and curiosity. As you can see, a maker mindset is imaginative, playful, and curious.



CREATING A MAKERSPACE

The space or surface where we make things is often called a *makerspace*. According to Makerspaces.com, “Makerspace is a collaborative workspace inside a school, library, or separate public/private facility for making, learning, exploring, and sharing that uses high-tech to no-tech tools.” Within these locations, specific areas are set up with materials and tools where makers can tinker and share their skills with others. Some makerspaces have specific times set up for collaboration with other makers. Makerspaces in schools encourage students to put learning into practice and to test their ideas. Some community makerspaces are run completely by volunteers, who host events and classes for like-minded people in topic areas such as robotics, woodworking, and metalworking. Some community makerspaces even include specialty items, such as laser cutters and 3D printers, to use for making.

There are many different kinds of makerspaces that can offer a diversity of experiences from coding to sewing, from woodworking to building robots, from inventing to taking apart and exploring materials. In early childhood classrooms, makerspaces will look different, depending on the needs and interests of the children in the classroom.

Makerspaces should reflect the unique interests of the participants within the space. The best types of materials for a makerspace are those that reflect your community and the cultural backgrounds of families within your program. Makerspaces include both permanent tools and consumable materials. Most materials are open ended, and many are relatively inexpensive.

Remember, a makerspace is not a kit. The spirit of a makerspace is to foster creativity and provide opportunities for children to make their own unique and original creations. Barbara Carey, coauthor of *Thinkers and Tinkers: The Maker Movement*, once said, “What do you do with a makerspace? The simple answer is you make things. Things that you are curious about. Things that spring from your imagination . . . that inspire you and things that you admire. The informal, playful atmosphere allows learning to unfold rather than conform to a rigid agenda. Making, rather than consuming, is the focus. It is wonder-driven.” A makerspace is a combination of exploratory and constructive play. It involves manipulating materials to see what will happen.

History of Makerspaces

The maker movement is linked to the do-it-yourself culture. The maker movement became more formalized in 2005 with the launch of Dale Dougherty’s *Make* magazine. In 2006, Dougherty and his team held the first Maker Faire in San Mateo, California, where more than twenty thousand makers came together to share what they had made. At the Maker Faire, individuals had opportunities to display their creations, converse about their ideas, and celebrate together. In 2016, more than 1.4 million people attended one of the many Maker Faire events held around the world. Whereas in the past makers were more isolated, makers of today are often part of a community of makers. Events such as the Maker Faire have brought people together to collaborate in the making process. Dougherty and others like him continue to build communities of makers with the purpose of elevating creativity, igniting curiosity, and promoting innovation.

The maker movement was also born out of the idea that, although we are not able to predict what future jobs will be needed in our ever-changing world, we can prepare our children for an economy that will value creativity, problem solving, and innovation.

Tinker, fiddle, play, and learn!

What can you add to your early childhood classroom that will immerse children in rich learning, reduce challenging behaviors, and develop confidence as well as critical thinking and problem-solving skills? A makerspace!

Filled with colorful photographs taken in real early childhood settings, this book will guide you step-by-step in making a makerspace that invites young children to boldly explore materials and create something only they can imagine. Discover how to:

- Draft a plan and gather materials
- Set up your makerspace
- Garner administrator and parent buy-in
- Focus on goals and support specific skill development
- Facilitate children's learning to deepen understanding

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—Amy Benson, Center director

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—Sophia Oh, Preschool teacher

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—Erin Skaggs, Parent



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