

Metal: A Perfect Play Material for Children's Improvisation

by Sandra Duncan and Mickey MacGillivray



Photograph by Sandra Duncan at The Adventure Club, Schererville, Indiana

Photograph by Mickey MacGillivray at Hope's Home, Prince Albert, Canada



In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it.

Simon Nicholson, Architect

The development of cognitive concepts and sensory awareness begins in infancy and continues throughout life. Because young children learn through their senses, it is important to provide a multitude of sensorial experiences in the early childhood classroom. In a busy and fast-paced world, early childhood practitioners often rely on early childhood catalogs or local toy stores to find classroom learning materials, while overlooking easily accessible resources that can be found in the home, neighborhood, or in nature — many times inexpensively or perhaps even free. One such material rich in sensory experiences and cognitive opportunities is metal.

Metal comes in many forms, sizes, and textures. From the simplicity of nuts and bolts to the complexity of a bicycle wheel, metal offers kinesthetic experiences, which are rich and varied in texture. Metal items also fit seamlessly into a variety of learning centers such as science, mathematics,

art, and dramatic play. Aluminum pie tins, for example, can serve as dishes in the home living area. Different types of nuts, bolts, and screws can be placed in the mathematics center to use for classifying and categorizing. Large nuts and bolts are also perfect for promoting children's fine motor coordination when placed alongside other manipulatives. There are many benefits of infusing metal into the early childhood environment. (See Sidebar A: *Working with Metal — Benefits and Skill Building* on next page.)



As adjunct faculty, Sandra Duncan works with doctoral candidates at Nova Southeastern University's Fischler Graduate School of Education and teaches early education education at Ivy Tech Community College. She is the co-author of *Inspiring Spaces for Young Children* and *Rating Observation Scale for Young Children*. Proud grandma of Sierra Elizabeth, she can be reached at sandrdun@aol.com.

Mickey MacGillivray is the Director of Education at Hope's Home in Prince Albert, Canada. Hope's Home is the first (and only) medical childcare facility in Canada, which enables medically fragile children and their families to enjoy better lives through integration, acceptance, and involvement in their community. Mickey has extensive experience with Early Childhood Education, education in the Reggio Approach to learning, and is a firm believer in Play & Exploration as mandated by the Saskatchewan Ministry of Education. Her work further includes contributions to the Saskatchewan Early Childhood Association (SECA), wherein she travels to child care centres across the province assisting facilities in their efforts to enhance their own play and exploration based environments.

Working with Metal: Benefits and Skill Building

- Unique and Irresistible Material
- Hand-Eye Coordination
- Open-Ended and Loose Parts
- Problem-Solving and Engineering
- Creativity and Imagination
- Kinesthetically and Visually Rich
- Conceptualization and Implementation
- Cognitive Development

Metal is Authentic

Overreliance on commercially-purchased toys for children may lead to limited kinesthetic experiences. Since many toys are plastic, their surfaces are relatively flat, resulting in limited kinesthetic texture experiences for young children. Plastic is also lacking in visual texture. The surface of a plastic teapot, for example, is smooth to the touch and equally flat to children's eyes. Unlike the plastic teapot, an authentic silver teapot or goblet offers bumps, curves, and many textures to experience with both hands and eyes.

Infusing authentic items aligns with the *Active Learning Approach called LilliWorks* (Nielson, 1992). This approach was developed by Dr. Lilli Nielson who is a recognized world expert in the education of severely disabled children. One of Nielson's basic principles in designing environments is including materials rich in sensory features. Metal household items, according to Nielson, provide strong responses in multiple sensory modes such as hearing, feeling, and seeing.



Photograph taken at Children's Choice, Prince Albert, Canada

In addition to metal household items providing strong sensory responses, they also allow children to learn in genuine ways. Enhancing a dramatic play area to model a fishing cabin by incorporating tin cups, plates, and cutlery; metal cooking grill, spatula, and coffee pot; metal fishing rods and reels; and other metal items encourages children to realistically interact with the environment in relevant and meaningful ways. Because these metal materials are authentic and compelling, young children begin to make valuable connections between their play and the world around them.

Metal objects are irresistible to children because they are unique and offer open-ended provocations for manipulation and exploration. And the possibilities for metal are endless. There are many types of common metals such as



Photograph by Sandra Duncan at Children's Choice, Prince Albert, Canada

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iron, steel, copper, and aluminum. It is just a matter of looking for metal around the garage or kitchen, keeping an eye out for metal objects at garage or estate sales, scouring the automobile junk yard for car grills and hubcaps, finding inexpensive metal items at the resale shop, and asking parents or the local bicycle repair shop for donations. (See list below.)

Endless Possibilities with Metal

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| <ul style="list-style-type: none"> ■ Locks and keys ■ Bike rims ■ Hubcaps ■ Springs and short chains ■ Tin plates, cups, and bowls ■ Clips and fasteners ■ Gauges and instruments ■ Jewelry ■ Muffin and baking tins ■ Pulleys ■ Cutlery and spatulas ■ Buttons and medals ■ Measuring tapes ■ Bottle caps ■ Stainless steel sinks ■ Spatulas and potato mashers ■ Foil wrapping and wallpaper ■ Bells ■ Curtain rods ■ Plaques ■ Watches and clocks ■ Water spouts | <ul style="list-style-type: none"> ■ Funnels and scoops ■ Wire baskets ■ Key rings ■ Horseshoes ■ Hoses and strainers ■ Pans and buckets ■ Door and cupboard handles ■ Wires ■ Nuts and bolts ■ Garlic presses and whisks ■ Trays and boxes ■ Goblets ■ Thimbles ■ Wrenches and pliers ■ Tin foil ■ Measuring cups ■ Juice can lids ■ Galvanized tubs ■ Washers and eye hooks ■ Empty tackle boxes ■ Ladles and soup spoons ■ Tiaras |
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Note: Be alert to safety considerations and only use objects appropriate for the age group you teach.

Metal is Unique

The block center is a popular area in the early childhood classroom. Recognized for their educational value, unit blocks are the mainstay of a typical block center. Unit blocks help young children practice their fine-motor skills, develop architectural skills, learn about gravity, strengthen mathematical concepts, and increase vocabulary. In addition to unit blocks, this learning center may also include people

figurines, transportation signs (i.e., railroad or stop signs), vehicles, and dinosaurs or animals. Although these uniform types of hands-on, concrete learning materials encourage children to construct and build, adding unique materials such as metal objects offers new possibilities to the block area.

Examples of metal objects include bicycle wheels, automobile hubcaps or grills, flexible air conditioning or heating vents, window screens, and baking racks. Infusing metal objects into the block center will create energy and sustained involvement making the familiar and well-used block center take on a new air of excitement with the children.

Metal Can Improve

Think back to your childhood and your favorite memories. Chances are these memories involve the real world: baking with your grandma, making mud pies in your fort or Easy-Bake Oven™, constructing a birdhouse, or taking apart your bike and putting it back together. For a variety of reasons (i.e., technology, hectic lifestyles), today's young children may be missing out on these real-life experiences. As early childhood educators, we can seek to fill this gap by using authentic and loose metal parts.

Architect Simon Nicholson (1972) developed the *Theory of Loose Parts*. Although this theory was originally aligned with public playgrounds and school designs, the early childhood field has captured this idea in both outdoor and indoor environments. According to Nicholson, loose parts are open-ended materials that can be improvised and easily change direction. They can be moved around, constructed and deconstructed, designed and redesigned, and played with in an infinite number of ways. Metal is an ideal loose part because children can integrate one piece or many pieces into their play stories. Combined with other classroom elements (i.e., unit blocks), metal invites children to trans-

Photograph by Mickey MacGillivray at Hope's Home, Prince Albert, Canada



The Carnival is in Town

In rural Indiana farmland, the carnival rolled into the small town. In preparation for opening night, the carnival workers were busy erecting tents, small concession stands, arcades, and a Ferris Wheel. All of this construction was happening near the early childhood center, and the children were enthralled and excited about going to the carnival with their families. Morning chat consisted mostly about the building of the Ferris Wheel and how big it looked. The children wondered if they were at the top of the wheel, what the people would look like on the ground. They concluded that the people would look like ants! As the day continued, so did the children's conversations about the Ferris Wheel.

Remembering the children's enthusiasm about the Ferris Wheel, the teacher found a bicycle wheel in her garage that evening, brought it into the classroom the next morning, and placed the wheel in the block center. When the children discovered the bicycle wheel, they immediately began to imagine it as a Ferris Wheel — and spent considerable time engineering and constructing the wheel. Much improvisation was happening as they made the wheel using only the resources at hand. Children were using their imagination and creativity to design the wheel, but they were also using engineering skills and working as a team to create it.

Soon it was time for afternoon outside play, so they carefully placed their half-made Ferris Wheel on a table and went out to the playground where they saw a new structure being erected on the carnival grounds. It was a Scrambler ride!

Back inside, the children again improvised. There was a spontaneous moment of sudden inventiveness and creativity. The bicycle wheel went from vertical to horizontal; the seats were positioned differently; and the Ferris Wheel was no longer. It had become a Scrambler. Improvisation at its best!



Photograph by Mickey MacGillivray
Hope's Home, Prince Albert Canada

form their stories by manipulating, constructing, and engineering projects of their imagination or reflections of their real life experiences (Sutton, 2011).

The Power of Metal

Be alert to ways to increase children's opportunities to experience new and unique materials in the early childhood classroom. Metal is an important example of a rich material filled with endless possibilities — both visually and kinesthetically. Metal has boundless potential to engage children's interest and promote sensory experimentation, relevant investigations and experimentation, and life-long learning.

References

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The essence of improvisation is action.

Patricia Ryan Madson