I’m Making a Track!

What Kids Learn when Playing with Blocks
By Lisa Murphy, M.Ed.

Any time you see children messing around with blocks, or, to be academic, any time a child “manipulates proportional wooden blocks” we say they are engaging in block play. Girls? Boys? Doesn’t matter. When given ample time, space, materials and encouragement, children will enthusiastically accept an invitation to build. Often for hours at a time. So what’s going on in the block corner? Random construction? Or perhaps something deeper? Before we get to that, let’s explore a small chapter of the history of blocks.

Historically, educators like Froebel and Montessori have incorporated blocks and block related activities in their educational programs. However, these activities often had specific instructions and rigid rules. Progressive educators such as John Dewey rebelled by permitting students to use these same materials in any manner of construction they desired! Patty Smith Hill also questioned the lack of free play that occurred with these materials, so she designed and created “Hill Blocks” which were large, hardwood blocks designed with interlocking grooves and steel rods. Hill intended for them to be dragged around and used to make large constructions for children to play in, and even, on!

Inspired by Hill, Caroline Pratt, also wanted to design a system of blocks. She started by designing big blocks intended for large construction but her focus on creating flexible, adaptable materials children could use without adult control led to the creation of what was then, and still called, “unit blocks.” The blocks you still see being used in today’s classrooms and childcare centers are the legacy of Ms. Caroline Pratt.

As early as the 1930’s researchers were identifying the positive developmental benefits of block play! Children progress from carrying blocks around, to lining them up (It’s a track!), to stacking them up (It’s a tower!), to making what we call enclosures (It’s a house!). As children get older and have more experiences the designs become more elaborate and detailed (It’s an airport! It’s a bridge!). These structures are often called “representational” as the child appears to be intentionally constructing a “thing.” Around this same time, children begin to name and label their constructions.

High-quality early childhood programs make sure that children have opportunities that lead to cognitive development (specifically science and math), language/literacy development, social/emotional development and physical development. When children are provided ample time to work by themselves and others with blocks and building materials there are many skills being fostered and developed. Let’s take a look:

Cognitive Development: Math
Block play encourages measuring, classification, counting, ordering, and the use of fractions, thus facilitating the development of skills that will later be required for mathematical thinking. Block play

encourages both abstract and logical thinking and an understanding of size, shape, width, number, order, patterns, and weight. While engaged in block play children are learning about more/less, size, counting, sets, adding
and subtracting, length, shapes, seriation (ordering of size from smallest to largest), categorizing and sorting, measuring, short/tall, and measuring.

Playing with blocks deepens a child's perception of spatial relationships with the use of words such as over, under, through, in, and on. The following math-specific vocabulary can be linked to block play: direction, shapes, solids, estimating, measurement, patterns, relationships, proximity, reversibility, seriation, size, shape, weight, length, area, volume, angles, enclosure, continuum, dimensionality, directional and descriptive language, comparisons, correspondence, classification, matching, parts/whole, grouping, measuring, pattern, number, quantity, grouping, and sets.

Cognitive Development: Science
In the block center children are learning about balance, gravity, stability, and force. They are practicing their ability to make predictions by asking questions such as, "What if….?" and "How high can this get before it falls over?" and "How come the tower with the base stays up longer?" and my favorite, "What happens if I push it?"

When manipulating the blocks, touching them, exploring them, children learn about the various properties of matter and materials. They learn that blocks are hard and smooth, that blocks are predictable in what they can be used for and that their sizes and shapes cannot be altered – meaning children learn that blocks are "unyielding".

Block play deepens a child's basic understanding of action/reaction, cause/effect, and has the potential to expose children to simple machines and other forms of science, technology, engineering, and math (STEM) concepts. The following science-related vocabulary can be linked to a well-equipped block center: equilibrium, balance, stability, spatial relations, size, shape, area, volume, geography, space, distance, direction, grids, patterns, mapping, weight, fulcrum, lever, matching, sorting, physical properties, gravity, reversibility, predicting, proximity, inquiry, observing, comparing, classifying, interpreting, intuition, disequilibrium, counter balance, cause/effect, structural stress, discovery, and verbalizing how they solved a problem.

Language and Literacy Development
A block center typically has traditional unit blocks as well as supplementary items such as cars, people and animals; this can lead to language-rich, dramatic play episodes. As such, the block center becomes a logical place to promote oral language and literacy skills. In my experience as a teacher and observer, children who don't speak at other times in the day will often use language while engaged with other children and materials while engaged in the block center.

The block center encourages children to articulate their ideas, explain them, name their structures, collaborate with others, share information, and practice negotiation skills. In the block center children are exposed to rich language and new vocabulary such as wobble, balance, stack,

over, under, behind, tension, massive, firm, affix, steady, secure, slanting secure, slanting, stable, zone, heavy, length, vertical, and horizontal.

Social and Emotional Development
Blocks are conducive to group play; and group play provides possibilities for cooperation, contribution, adjustment, negotiating, sharing, problem solving, compromising, cooperation, and engaging in self-expression.

A certain level of self-regulation is required when playing with others in the block center as it requires a child to consider the viewpoints of others and put their own needs on “pause” in order to keep the play going. While playing with peers in the block center children are learning how to be a part of a group, competence, executive functioning skills, give/take, acceptance, power, coming to terms with another’s differences, economics, cooperation, flexibility, initiative, self-direction, and dealing with individual rules and the rules of others.

Physical Development: Large and Small Motor Skills
Block play encourages muscular growth, visual perception, balance, and small and large muscle activity. Both fine motor muscles and hand-eye coordination are strengthened when children place small blocks so they don’t tumble, and large motor skills are strengthened when they lift, move, push, carry, and stack larger blocks. Unlike scissors, blocks require the use of the whole hand, and serves as an effective pre-writing activity.

Materials Within the Block Center
Ample access to a well-stocked, sizable block center is an invitation to learning that will last a lifetime. In addition to blocks does anything else need to be there? Well, need is a tricky word, but if you are going to add anything to that big bucket of wooden unit blocks, early childhood experts say that loose parts are the way to go! Fantastic! But what are they? Let’s be honest, to most adults, loose parts look like…. junk. Those bits and bobs of business your kids like to hoard in their pockets! Loose parts are simple, unstructured materials that have no predetermined way of being used. Things like buttons, sliced up tree branches and stumps (often called “tree cookies”), string, the lids to all those dried out markers, pebbles, shells, washers, bottle caps, corks, key chains, and spools are all great examples of loose parts. Nicholson’s Theory of Loose Parts states that the amount of creativity in an environment is directly correlated to the amount of loose parts available for investigation – so save those corks ladies!

Other things you might see in a block area are cars, trucks, trains, animals and people figures. These items increase language, social skills and are an asset to any block play area, yet also will impact, dare I say, influence? the actions that are played out. An elephant is an elephant no matter how you slice it. Blocks + corks + bottle caps + straws + masking tape = innovative thinking, problem solving and creativity. And those are the skills children need as they take the next steps in their overall development.