

Can you build it?

Prek - 1st engineering activities

Young learners engage in the engineering process naturally, organically, and through play every day in their environment. Block play provides opportunities for children to gain The Three C's of 21st Century Learning: Communication, Collaboration, and Creativity. Children are learning about math concepts such as mapping, area, negative space, seriation, patterns, order and space. Using and building with blocks provides wonderful opportunities for young minds to gain science skills such as spatial visualization, cause and effect, gravity, balance, and measurement. Block play provides a chance for a young mind to test ideas and observe the causes and effects of those ideas.

How do adults and teachers talk about and provide opportunities for children to learn and experience physics? Children experience physics by acting on objects, materially and mentally. Children observe and analyze their experience. What are they thinking? Providing children with materials to explore, manipulate and build fosters critical thinking patterns, problem solving, tool usage, and ways to observe the effects of force and motion.

Try these at home or in the classroom!

1. Encourage students to explore building with blocks in a new direction. Challenge them to build as high as their knee. "Can you build higher or taller?" When they have built high and tall, challenge them to balance "Up on Top". The teacher's role can be one of facilitator by asking reasoning questions like " I wonder if a small toy or figurine can stand on top? I wonder how many can fit up there? Which tower is bigger? Smaller? Is that taller than your friend? "
2. Provide golf balls and pool noodles cut length wise for students to construct a golf ball run. You may need duct tape, lots of masking tape, and various sizes of large blocks to help provide some height for the runs. Students can work solo or together in small or large groups. As the students make their constructions, other types of rolling objects may be added. In addition cardboard for diverting the golf balls, or changing the course of a ball, or for constructing a new rolling object can be added to the materials.
3. Laminate several photos of castles from around the world. In the block center, gather the students who have shown an interest in seeing the photos. Show the students the castles and ask if they'd like to hang them up around the block center so they can see them better. Teachers can help facilitate castle building by asking "reasoning" types of questions: "I wonder which blocks would make a good castle? Which part of the castle should we start making first? I wonder what we could do to make the castle stronger, more stable, or taller?"
4. Provide bendy straws and various materials for the students to make their own type of ball such as foil, masking tape, scrap paper, Kleenex or tissue paper. The materials can be left at a table station for the students to discover and explore on their own. In addition an adult can provide some guidance by asking questions such as; I wonder what I can do with all this stuff? I wonder what shapes I can make? Is there a hole in the straw? Students may discover that they can make a straw ball blower using some of the different materials. They may make their own creations unintended by the teacher.

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