

Examples of Engineering Design in the Classroom:

1. Asking questions (for science) and defining problems (for engineering)	“I can’t reach the water,” when trying to wash hands and the stepstool is missing.
2. Developing and using models	Examples include children’s drawings of the game controller they use at home, the house (or castle) they would like to live in, or the robot they want to build, and then showing how they use the controller, or using blocks to build the castle, and making a robot with cardboard tubes and boxes.
3. Planning and carrying out investigations	Child says, “I’m going to find a leaf that floats for my doll to ride in,” and demonstrates testing various leaves to find one that does.
4. Analyzing and interpreting data	After several attempts, children notice that a tall block by itself is not a stable support for a ramp structure and begin using a stack of smaller blocks
5. Using mathematics and computational thinking	“We should go this way (back to the classroom) because it’s shorter.”
6. Constructing explanations (for science) and designing solutions (for engineering)	“The roly-polies (aka pillbugs or isopods) need more places to hide so I’m going to make them a house from mulch.”
7. Engaging in argument from evidence	“The water makes the sand stick together because I made the tallest sand castle with the wet sand.”
8. Obtaining, evaluating, and communicating information	Children’s drawings of their tube structures, and their writing or dictation about how well their designs worked to move water as intended are documents that can be used for evaluating their own work, and communicating about it with others.

Resources

Blogs:

Mud, mud glorious mud, a blog post by Sherry Hutton and Donna Ridley at *Irresistible Ideas for Play Based Learning*, Australia.

www.playbasedlearning.com.au/2009/09/mud-mud-glorious-mud/

7 tips for mud play at preschool, a blog post by Jenny Kable at *Let the Children Play!* Australia.
<http://childhood101.com/2014/02/our-play-space-outdoor-play-mud-kitchen/>

Children's books:

Spires, A. 2014. *The most magnificent thing*. Kids Can Press.

Bunting, E. 2006. *Pop's bridge*. HMH Books for Young Readers.