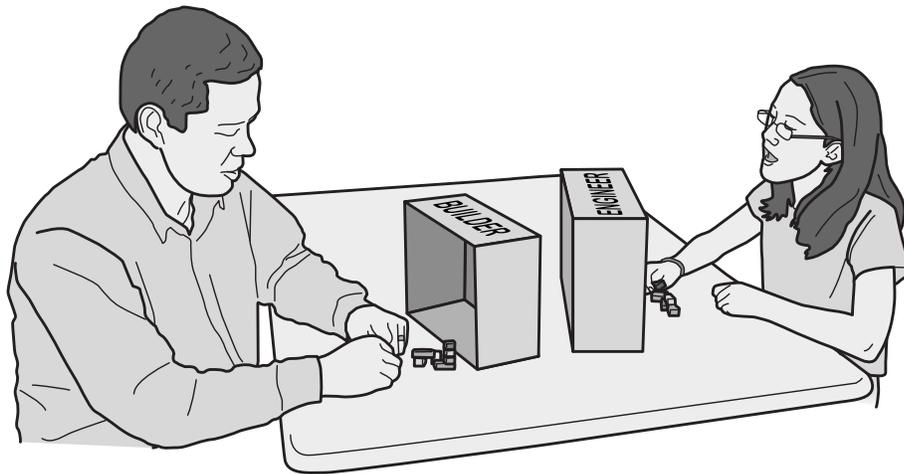


Exploring Engineering at Home: Tips for Parents and Other Adult Caregivers

Encourage and support an interest in engineering

By showing an interest yourself, you'll build a positive attitude toward engineering in your children. Help them explore engineering on the Internet, find books or magazines about science and engineering at the library, watch movies or television programs that involve design and engineering, or try their hand at designing and building an invention of their own. Try out some activities from *Family Engineering* at home.



Model problem-solving strategies

Encourage children to find problems that need solving or ways of doing things that could be improved. Show them different strategies for solving problems:

- draw a picture or diagram
- talk it over with a friend or family member
- find an expert to offer advice
- break the problem down into smaller pieces
- brainstorm multiple options or approaches to a solution
- design and build a prototype for testing

Find opportunities to solve problems together as a family. Recognize when a solution or a design fails. Discuss what didn't work and how to use this experience to learn how to improve the solution.

Encourage questions

Teach children how to seek answers to their questions by reading books, using the Internet, experimenting, or taking things apart. Don't worry if you don't know the answers. Enjoy seeking out an answer with your child. Encourage children to ask good questions by posing open-ended questions yourself.

- *What happened?*
- *What should we try next?*
- *What will happen if?*
- *Can you show/tell me how this works?*

Help children “do it themselves”

Try not to simply give your children a solution or answer to a problem. Instead, encourage them to keep trying to find their own solution. Guide them with questions, hints, or clues. Let them make mistakes and correct themselves. Children who learn to work their way through problems, explore different solutions, and who learn to overcome their fear of failure become more capable and confident learners.



Support science and mathematics learning

Model a “can-do” attitude about science and math, recognizing the ways they are useful in daily life, such as counting change, predicting the weather, cooking, and fixing a flat tire on a bike. Help children develop good study habits and show an interest in what they are learning in school. Encourage participation in science and math activities outside of school, such as clubs, competitions, after-school programs, or museum classes.

Recognize the creative side of engineering

Creativity is important in engineering. Encourage your children’s imaginations by providing open-ended toys, creative materials, and a safe place that allows them to design their own experiences, dream up imaginary worlds, invent interesting products, or design innovative structures.

Demonstrate how engineering improves the way we live

Take time with your child to look around and see how many items you can find that were designed by engineers. Help children see how engineered products are a part of everyday life, and that engineers design things that improve the way we live.

Challenge stereotypes about who does engineering

Find examples of female engineers or engineers from diverse cultures and backgrounds on the Internet, on television, or in your community and share these role models with your children.