

# QUICK GUIDE

As children are working through the **Think, Make, Try**® process, they will be using and developing cognitive skills that are important not only for the engineering design process, but will prepare them for all aspects of school and life. Use this quick guide to support their development during both formal and informal activities at school and home.

## THINK



### Encourage children to draw or take notes.

Children will build **metacognitive skills** as they use their notes and drawings to reflect on their thinking and to share with others as they describe their process and how their design turned out.



### Make perspective taking explicit.

Have conversations with children about what other people, or characters in a story, know or feel about a problem, or what picture they have in their head. This helps children understand that people's behaviors are guided by their thoughts, and that different people might have different thoughts, which is called **theory of mind**.



### Support children in thinking flexibly about multiple solutions.

Strengthen children's **executive function** skills by asking them to consider different materials or different designs that might work to solve their problem (e.g., "Are there other materials that might work for this design?")

## MAKE



### Explore the idea that one thing can stand for something else.

Assist children in developing their understanding of **representation** through exploration of objects in drawings, photographs, and maps. For example, ask them to draw a map of their room or house and ask how the representation is connected to its original source.



### Practice identifying and drawing shapes.

Promote **spatial reasoning** by working with shapes while drawing or playing with blocks or tangrams. Use words that describe the shapes and relationship to one another (e.g., "Squares and rectangles both have four sides") as well as spatial language (e.g., above, below, on top of).



### Discuss the order of steps in a task or event.

Ask children to describe (or draw) the sequence or steps involved in everyday tasks. For example, getting dressed, taking a bath, or making and eating dinner. Use books to prompt discussions of **sequencing** by recalling what happened at the beginning, middle, and end of the story.

## TRY



### Set up stations for children to play and explore objects.

Children learn about cause and effect through exploration. Facilitate **causal reasoning** with questions such as "How do you think this works?"



### Discuss how small parts make up the whole.

Make **systems thinking** part of everyday observations and conversations by talking about things such as getting water from a sink, riding a bike, or how a block structure stands. Ask children to explain how each part plays a role in making the system work.



### Discuss failure and perseverance.

Promote **growth mindset** through process praise such as "You worked really hard on your design." Discuss examples of people who have worked hard and experienced failure before (and after) achieving success. Remind children that they can "try again" when designs do not work out as expected.