

## Helping Your Child Become Mathematically Powerful

At this session you will participate in games and activities that will help your child develop good number sense. In order to do that, it is very important for children to be able “see” how to take numbers apart and put them back together again in many different ways. For example: A child with good number sense will realize that the number 16 could be broken into  $10+6$  or  $8+8$  or  $5+5+6$ . In solving the problem  $8+9$ , that child might think “I know that  $8+8$  is 16, so  $8+9$  is one more than that, so it is 17.” That same child might solve  $16+35$  by thinking “I know that 16 could be  $5+5+6$  and  $35+5$  is 40 and I just need to add on 11 more, so it’s 51.”

Helping your child learn to solve problems, to communicate mathematically, and to demonstrate reasoning abilities are also fundamental to learning mathematics. These attributes will improve your child’s understanding of and interest in math concepts and thinking. Communicating mathematically isn’t just about giving an answer. It means to use words or mathematical symbols to explain your mathematical ideas; to talk about how you arrived at an answer; to listen to others’ ways of thinking and perhaps change you own thinking when you hear what others have to say. It is important that children learn to justify and explain their thinking about math; to think logically and be able to explain similarities and differences about things; and to think about relationships between things and talk about those relationships.

As a parent, one of the ways you can help your child become Mathematically Powerful is to encourage positive habits of mind and promote mathematical reasoning and communication. Below is a list of Habits of Mind written in kid-friendly language. In addition, there is a list of questions that will prompt mathematical thinking. Using these kinds of questions often will help your child become good at mathematical reasoning and at communicating their mathematical ideas. When you ask these kinds of questions, be sure to give your child plenty of “think time” before prompting them for a response.

### Habits of Mind

**Patience** – I am kind to myself and others even when things get tough or frustrating.

**Perseverance** – I keep on trying even when things get tough or frustrating. I know when to take a break, but I always try again afterward.

**Positive Attitude** – I tell myself “I CAN” even when I don’t quite believe it. I smile even if it is through a grimace.

**Respectful** – When I disagree with an idea or solution, I speak kindly and I tell why I disagree. When others disagree with me, I listen to their ideas with an open mind.

**Responsible** – I know that I am responsible for my own learning. It takes a lot of effort to become mathematically powerful.

**Risk-taking** – I am willing to share my thinking even if I’m not sure it’s “right” because I know that I can learn when I recognize my own mistakes.

**Flexibility with Numbers** – I can break numbers apart and put them back together in lots of ways. I have a lot of thinking strategies to use with numbers.

**Fluency with Numbers** – I work with numbers efficiently. I am quick with:

- ★ Adding and subtracting numbers
- ★ Multiplying and dividing numbers

### Questions that Prompt Mathematical Thinking

What do you notice?

What do you think? Why?

Do you see any patterns here?

How did you figure it out?

Can you convince me?

Can you think of it another way?

Does your answer make sense? Why?

Can you make a model/draw a picture to show that?

Does that always work?

Do you agree or disagree? Why?

Why do you think that? Can you prove your answer?