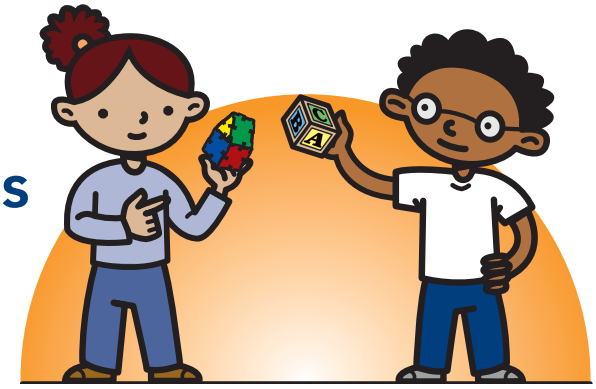
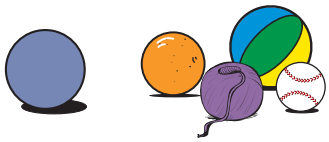
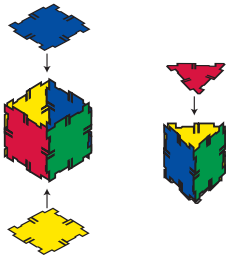
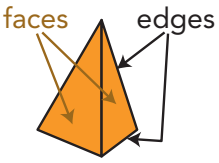
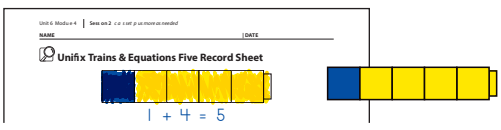
Bridges in Mathematics
Kindergarten Unit 6

Three-Dimensional Shapes & Numbers Beyond Ten

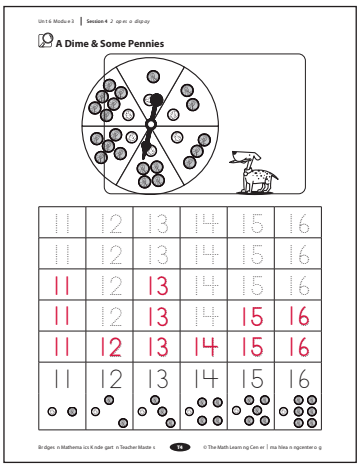


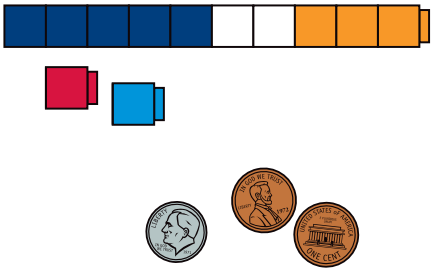
In this unit your child will:

- Identify, name, and describe objects in the environment using the names of shapes
- Explore the difference between two-dimensional (flat) and three-dimensional (solid) shapes
- Build three-dimensional shapes
- Understand the numbers from 11 to 20 as "10 and some more"
- Solve number combinations within 10

PROBLEM	COMMENTS
Find things that are shaped like a sphere. 	Geometric shapes are all around. The homes we live in, the schools we attend, toys we play with, and foods we eat are three-dimensional shapes. This month, students go on a 3-D shape hunt looking for shapes in their environment.
How are the objects being sorted?  *"The ones on the blue paper have straight sides, and the ones on the yellow paper have curved sides."*	Several lessons in this unit are designed to help students think about the attributes or features of shapes. In the sorting activity, students try to guess the "rule" as objects are sorted into two groups. In this example, the "secret attribute" is straight sides and curved sides. Other attributes could be 2-D or 3-D, or "has a triangle face" and "does not have a triangle face."
Use the Polydrons to build three-dimensional shapes. *"I made a cube with 6 squares."* *"This triangular prism has 3 square faces and 2 triangle faces."* 	Students use two-dimensional plastic shapes called Polydrons to build three-dimensional shapes like the cube and triangular prism shown. The sides of 3-D shapes are called faces. 
Color the cubes to show one way to make 5 with two colors. Write a matching equation.  *"I colored 1 blue and 4 yellow to match my cubes. Then I wrote 1 + 4 = 5."*	By the end of kindergarten, students are expected to fluently add and subtract within 5. This means they are able to find the sum of a problem such as 1 + 4 with ease. They also work with combinations within 10. While previous units have developed an understanding of number combinations using various math models, this unit asks students to write equations to match these models. When working with your child, help her to see how the numbers in the equation match the pictures or objects being described in the equation.

PROBLEM	COMMENTS
Spin the spinner. Count the dimes and pennies. Trace the number. *"I got a dime and 4 pennies. I counted 10… 11, 12, 13, 14. I can trace 14!"*	The activities in this unit help students recognize that teen numbers are composed of 1 ten and some more ones. Dimes and pennies, as well as stacks of 10 cubes and some loose cubes, provide visual models of this place value structure.



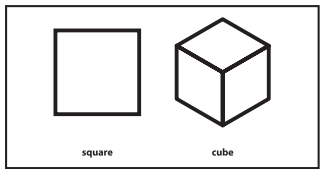


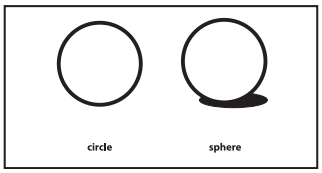
"10 … 11, 12."

FREQUENTLY ASKED QUESTIONS ABOUT UNIT 6

Q: My child calls 3-D objects by 2-D names. Why is this, and how can I help?

A: Children are generally taught the names of two-dimensional shapes in their preschool years. When looking at 3-D items, young children are likely to talk about the faces of the objects, and will most likely refer to the sphere and cylinder as circles, the cube as a square, and so on. Help your child recognize the similarities and differences. For example, a square is a rectangle with equal side lengths, and it is flat. A cube is a rectangular prism with equal edge lengths, and it is solid. Learning the correct terms consistently both models the language of geometry accurately and avoids future misconceptions.





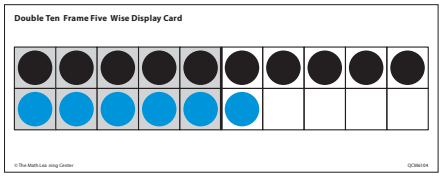
Q: I can't remember what so many of the geometry words mean. Where can I go for help?

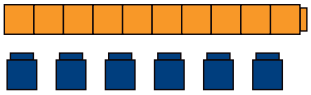
A: There are many words that we use specifically in geometry class. These words are important because they let us name shapes and talk about them in precise ways. See the list from Unit 5 for a refresher.

Q: My child has a hard time remembering the names of the teen numbers and writing them correctly. Why is this?

A: The teen numbers confuse many young children. The names do not follow the rules of other 2-digit numbers. Forty-six sounds and looks like 46, yet 16 is read as "sixteen" rather than "tenty-six." Likewise, thirteen sounds very similar to thirty, as does fourteen to forty, fifteen to fifty, and so forth. Adding to the confusion is the fact that the words for numbers 11 and 12 sound nothing like other teen number names.

Even when young students learn to name and recognize the teen numbers, they may confuse the quantity that the symbols represent. These lessons help students recognize that teen numbers are composed of 1 ten and some more ones. For example, 16 is made of 10 + 6, as shown in the models used in this unit.





Students will also learn that numbers in the twenties are composed of 2 tens and some more ones, and so on. Understanding this structure of numbers is the beginning of learning about place value (the value of each digit in a number depends on its place in the number).