

Kindergarten

Kindergarten Curriculum Focal Points

- **Numbers and Operations:** Representing, comparing, and ordering whole numbers and joining and separating sets
- **Geometry:** Describing shapes and space
- **Measurement:** Ordering objects by measurable attributes



At the kindergarten level, the curriculum focuses on counting activities, creating and comparing sets, ordering numbers, and classifying objects into sets. Simple readiness activities for addition and subtraction and identifying and counting coins are emphasized as well. Simple concepts are taught. Students begin to understand measurement by learning that a measurement can be expressed as a number and objects can be compared by their height or weight. Geometry activities are designed to help students learn vocabulary and how to identify and describe simple two- and three-dimensional shapes.

One kindergarten teacher in our workshop planned a lesson around units of money that focused on enhancing her children's use of mathematical language. She integrated various storybooks into her reading block and developed mathematics centers using the books and mathematical manipulatives such as play money, counting bears, and number tiles. She read stories such as *A Chair for My Mother* by Vera Williams (1982) to embed mathematical language into storytime. Her children engaged in learning about the value of money as they connected to the characters and the language in the story. The teacher discovered that by becoming engaged in conversations about the story, her children also developed important processes of reasoning and explaining mathematical relationships. In short, the kindergarten children were enhancing their understanding of mathematics through communication.

LESSON PLAN: Kindergarten Example

BOOK: Chen, C.-Y. (2004). *Guji Guji*. La Jolla, CA: Kane/Miller. (Cover art reproduced by permission.)



SYNOPSIS: When a crocodile egg rolls into a duck nest, the emerging baby, Guji Guji, is raised by a mother duck and plays happily with brother and sister ducklings. One day some scary, snarling, creatures inform Guji Guji that he is not a duck but a misplaced crocodile. Also, the crocodiles insist that Guji Guji bring all the ducks to the crocodiles so that they might enjoy a meal of duck. Instead, Guji Guji thinks and thinks and figures out a way to save his duck family.



NUMBERS AND OPERATIONS: Representing, comparing, and ordering whole numbers and joining and separating sets

MATERIALS: Cutouts of rocks with numbers 1–12 on them

Guji Guji does not look like the other baby ducks. What does Guji Guji look like? There were other baby ducks, some with stripes and some with spots. Guji Guji tried to count them all and said he counted 12 ducklings. Let's see if we can all count to 12.

Children count to 12.

Guji Guji wants to know if we can help him figure something out. He counted three ducklings with spots and four ducklings with stripes, and he wants to know if there are more ducklings with stripes or spots? How could we find this out? Can you show this with your counters?

Children work on comparing the numbers 3 and 4. The teacher can pose other similar questions with different pairs of numbers.

Guji Guji counts 12 ducks on the bridge. He knows that each duck wants to sit on one of those heavy rocks near the bridge. The rocks are numbered from 1 to 12. I have cutouts of ducks with numbers 1 to 12 on them and cutouts of rocks with numbers 1 to 12 on them. Work with your partner to match each duck's number with the same number on the rock.

Children take time to pair the ducks and rocks. The teacher can have a Velcro version to demonstrate or use an interactive board with 12 ducks and 12 rocks numbered.

In the story, there are crocodiles that show up and have their eyes on the ducks. The crocodiles think the ducks might make good dinner. Guji Guji wants to make sure that the crocodile teeth do not bite his family of ducks. So, Guji Guji calls a dentist to ask if the crocodile teeth could be made less sharp so the ducks could be kept more safe. Of course, the dentist would want to know how many teeth each crocodile has. The dentist would probably also want to know the total number of teeth. Let's see how many teeth we see in the pictures. How could we find out how many teeth each crocodile has and also the total number of teeth the dentist would have to fix? Let's write the numbers on a Post-it note and add to this page in the book so that the next time we read it, we will know exactly how many teeth to worry about.



GEOMETRY: Describing shapes and space

MATERIALS: Pattern blocks, three-dimensional objects, die-cut shapes (optional)

Did you notice in the story that the crocodiles were sharpening their teeth on the trees in the neighborhood? Maybe Guji Guji could think of some way to trick the crocodiles. Maybe he knows that some shapes have very sharp corners, and maybe he could glue the shapes to the trees. Maybe the shapes are made of metal or wood. Do you think that they might hurt a little if a crocodile bit down on a sharp corner? Each time the crocodile would bite the sharp shape

on the tree, the corner might hurt the crocodile's mouth a little. Maybe you could help Guji Guji figure out which shapes have sharp corners that he could tie or glue to the trees. Would a circle have a sharp corner? How about a triangle? How about a rectangle? Square? What about a cone? Cylinder?

The teacher can hold up different shapes from pattern blocks, die-cuts, or three-dimensional objects to pose the questions.



MEASUREMENT: Ordering objects by measurable attributes

MATERIALS: String, straws, measuring tape, paper, pencils or crayons

I wonder if Guji Guji ever wondered why he was so much bigger than his other family members. Let's pretend that we happened to be visiting the lake where Guji Guji sat down to think. Maybe he is thinking he wants us to help him find out if he is really a duck or really a crocodile. Do you think we would say something about how tall he was compared with his duckling brothers and sisters? I am holding up some strings, some are as tall as Guji Guji, some are as tall as the ducklings with spots, and the other are as tall as the ducklings with stripes. Which string do you think is as tall as Guji Guji? How do you know?

Children should be able to determine that the longer string is the one that represents Guji Guji.

I'm going to pass these strings out, and I would like you to search for things around the room that are as long as your string. Then we can tell Guji Guji that he and the ducklings are as tall as the objects you find that are the same lengths.

Have the children find objects in the classroom that are the same length as the strings. The teacher can have three strings taped to the board that represent the two ducklings and Guji Guji. Students can tell the teacher what to write next to each string that they find in the room as the same length.

Now, Guji Guji wants to know if he is taller than the distance around your head. This long string is the one we said is as long as Guji Guji. Here is one string for each pair of students. Use the string to determine if Guji Guji is taller than the distance around your head.

Children can compare the length of the string (representing Guji Guji's height) and the distance around their head. Next you can have them see if Guji Guji is taller than the distance from the floor to their belly buttons.

What would we say if Guji Guji said that he did not want to be a big, bad crocodile? We could show him that we are all bigger than ducks too, and we could tell him that we are good people. What if he would want to know how big we are? We could measure ourselves—our height, neck, leg, mouth—right?

The teacher could have tape measures or straws to represent tall blades of grass or thin branches of trees—the perfect size for measuring.

What if Guji Guji lived where there were no big rocks? Do you think we could help Guji Guji find some way to convince the crocodiles to move to some other place to live? Do you think that a wise old owl might come along and remind the crocodiles that the water is deeper and better for hiding in the lake 2 miles away? How far do you think 2 miles is? Guji Guji wants to know how far it is from the school to your home. He wants you to make a map of the route from your home to the school to show him how far it is. Let's work on drawing a map of the route from your home to the school, and let's estimate how far it is. Draw your map and put the estimated number of miles you think it is between your home and school on the bottom.