

Unit Name/Theme: Puzzles—Comparing and Measuring with Preschoolers

What are we doing?

Preschoolers will practice early math concepts while playing with puzzles and books. They will practice comparing items by various forms of measurement, such as size and length. They will also play with geometric measurement as they put together puzzles and combine shapes to make a different shape.

Purpose/Why?

Puzzles are a fun way to introduce early math concepts. Puzzles also help kids practice persistence, problem-solving, fine motor skills, and hand-eye coordination. Between the ages of 3-5 years, preschoolers are able to compare objects by size, length, and weight. Preschoolers are also able to fill simple pattern block puzzles and put together simple shapes to form larger shapes. These early measurement and geometric measurement skills lay the foundation for more complex math skills that are important for kindergarten readiness. (*Learning Pathways in Numeracy: Addressing Early Numeracy Skills*, Superintendent of Public Instruction for the State of Washington)

Materials provided:

- Melissa and Doug “Sea Creatures” chunky puzzle
- Melissa and Doug “African Plains” jigsaw puzzle
- “Shapes Puzzle” tin with animal pattern blocks

You will need to provide: Items to use for non-standard measurement, such as blocks or Duplo® bricks, a shoe, a board book, etc.

Books:

- “I’m the Biggest Thing in the Ocean” by Kevin Sherry
- “Which One Doesn’t Belong?” by Christopher Danielson



Vocabulary Builder:

Size, length, weight, bigger, biggest, smaller, smallest, longer, longest, shorter, shortest, measure, combine



Quick Start—Comparing & Measurement:

Read, “I’m the Biggest Thing in the Ocean.” As you read, ask your preschooler if the main character (the squid) is correct that he is bigger. Ask them how they know. Compare some of the other sea creatures in the book. Which is bigger? Which is the longest? Next, play with the “Sea Creatures” puzzle. Compare some of the animals. To introduce the concept of measurement ask, “Which animal is longer, the octopus or the sea horse?” These pieces are very close in size. Ask how we can know which is the

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Quick Start—Comparing & Measurement, continued:

longest if it is too close to tell by just looking at them in the puzzle. Explain various ways we can measure objects, such as laying items side by side to compare size or length, or holding items to see which is heavier. Try laying the octopus and the sea horse next to each other. Can you tell which is longest now?



Ask a Question:

- “Which is the smallest animal in the puzzle? How do you know?”
- “Which is the longest animal in the puzzle? How could you test your answer?”
- “Can you arrange the animals from shortest to longest? Show me!”



Deeper Dive:

Now that you’ve introduced your child to the concept of measurement, play with non-standard units of measurement. Most preschoolers can’t yet understand how the numbers on rulers work, but you can use simple, everyday objects as measurement tools. Choose an object from home to measure with, such as a block, shoe, or book. Then, ask your child to help you measure items using your object. How many blocks long is the puzzle? How about the books in the bag? How many blocks long is their foot?

Show Me; Show a Friend:

Ask your child to pick a new object to use for measuring. Based on the size of the tool, work together to make a list of objects to measure. When making the list, you can write the words and they can draw pictures. Keep in mind that measuring something really long with a small tool will be too difficult, and you’ll also want to avoid measuring items smaller than the measuring tool. When the list is finished, have them measure the items and help them record their answers.

Other Activities:

- Introduce the idea of standard measurement by showing them a tape measure, and then use it to measure everyone in your family.
- Plant a fast growing plant, such as a bean, and then use a non-standard measuring tool to measure it as it grows.



Quick Start—Comparing & Geometric Measurement

When kids solve simple pattern block puzzles using trial and error, or combine shapes to make pictures, they are playing around with geometric measurement. As they do this, they compare the shapes and puzzle pieces in order to decide which piece fits where. Before working on the more complex puzzles in this bag, read the book *Which One Doesn’t Belong?* This book asks kids to look at four shapes on a page and decide which

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Quick Start—Comparing & Geometric Measurement, continued

one doesn't belong. Each page could prompt a variety of responses. The only correct answer is the one your child can explain, which means they could have 3 different answers and they can all be right! As you read this book, ask lots of questions and challenge your preschooler to explain their answer with as much detail as they can.



Deeper Dive:

Explore the "African Plains" puzzle with your preschooler. Pick a puzzle piece and ask your child to describe it. Challenge them to not just describe the picture on the puzzle piece, but to describe its shape. Next, take two pieces and ask your child to compare them, how are they the same? How are they different? Take four puzzle pieces, is there one that doesn't belong? Why? After you have explored the puzzle together, give your child a chance to work on it independently. If they ask for help, try prompting them with questions instead of giving them the answer. This gives them a chance to work on their perseverance and problem solving skills.



Ask a Question:

- "How do you know if a puzzle piece is an outside piece or an inside piece?"
- "Which pieces are corner pieces? How do you know?"
- "What is one way you could sort the puzzle pieces? Would that be helpful? Why?"
- "What is another way you can sort the pieces? Which way is more helpful? Why?"



Deeper Dive:

Explore the "Shapes Puzzle Tin" with your preschooler. What shapes do they see? Can they put two shapes together to make a different shape? Show your child one of the simpler pattern cards. On the back, it shows the picture broken apart into shapes. Ask your child to collect all the shapes. Next work together to put them in the correct places. Show them how sometimes the shapes will go next to each other, and sometimes they will need to stack them. Let your child play with the puzzles independently.

Show Me; Show a Friend:

Ask your child to make their own picture using the shapes from the tin. Why did they choose the shapes they used?

Other Activities:

- Choose an object in your house. With your preschooler try to make it using the shapes from the "Shapes Puzzle Tin."
- Have your child draw a picture on cardstock or cardboard. Cut it apart to make a simple puzzle for your child to play with.