



# Archdiocese of Washington Catholic Schools

## Academic Standards

### Mathematics

## Preschool

### **Standard 1 - Number Sense**

*Children learn the meaning of numbers in the everyday experiences that adults provide in the home, classroom, and in their experiences of God's creation. Preschool children need opportunities to watch, play, and interact with adults and other children to learn number vocabulary and to discover number relationships. Developing number sense means more than merely counting. It involves the ability to think and work with numbers easily, to understand their uses, and to describe their relationships.*

- P.1.1 Apply one-to-one correspondence with objects and people and count each object only once.  
Example: Have students count their fingers and have them touch each finger as they count.
- P.1.2 Imitate counting behavior using the names of large numbers.  
Example: Recite with the children the number of days on the calendar while pointing to the number.
- P.1.3 Identify first and last.  
Example: After students line-up, have them identify who is first in line and who is last in line.
- P.1.4 Use whole numbers and match number symbols with amounts up to 5.  
Example: When told and/or shown a number from 1-5, students will draw a set of objects to represent that number.
- P.1.5 Identify when objects are the same number, even if the arrangement is changed.  
Example: Show students two sets of equal number of objects. Discuss how they are the same.
- P.1.6 Give "all" objects when asked. Give "some" and give "the rest" when asked.  
Example: Ask students to take crayons out of their boxes by requesting all, some or the rest.
- P.1.7 Communicate the meaning of "half".  
Example: Give students a snack. Ask them to split the snack in half and share with a friend.
- P.1.8 Identify the concept of "none".  
Example: Place an empty box on a table. Ask students how many apples are in the box.
- P.1.9 Rote counts to 10.  
Example: Ask students to count to 10 on their own from memory.
- P.1.10 Identify the next number in a series of numbers up to 10.  
Example: Ask students what comes next after the number 8.



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P.1.11

Count backward from 10.

Example: Have the students pretend they are astronauts and do the blast-off countdown.

\*whole number: 0, 1, 2, 3, etc.



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#### Standard 2 - Computation

*Learning to model, explain, and use addition and subtraction concepts in problem solving situations begins with the opportunity for young children to count, sort, compare objects, and describe their thinking and observations in everyday situations. In building the foundation for computation, children need opportunities to observe adults and peers applying mathematical concepts and using problem-solving techniques.*

- P.2.1 Trade several smaller items for a larger item.
- P.2.2 Identify and use the concepts of “one more” and “one less”.
- P.2.3 Make a collection of items larger by adding items, when asked.
- P.2.4 Make a collection of items smaller by taking away items, when asked.
- P.2.5 Make guesses related to quantity.
- P.2.6 Describe addition situations for numbers less than 5.  
Example: Put together a pile of 2 books and 1 book and ask students to count how many in all.
- P.2.7 Describe subtraction situations for numbers less than 5.  
Example: From a pile of 4 books, take away 2 books and ask students to count how many are left in the pile.
- P.2.8 Break apart a whole quantity of something into a set.
- P.2.9 Combine a whole quantity of something.



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### Standard 3 - Algebra and Functions

*Young children build the foundation for finding patterns and their relationships by exploring environments that are rich in shapes, sizes, colors, and textures. They learn to identify and describe patterns using mathematical language when there are opportunities to sort, classify, and label things in their environment. Children need hands-on activities to explore and describe patterns and relationships involving numbers, shapes, data and graphs in problem-solving.*

- P.3.1 Follow along and imitate patterns of sound and movement.  
Example: Sing a song that has hand motions and repeats a pattern of movements.
- P.3.2 Reproduce three patterns of sounds and movement.  
Example: Ask students to imitate your body and speech in a game.
- P.3.3 Reproduce simple AB patterns of concrete objects.  
Example: Make a pattern of squares and circles with one square, one circle, one square, one circle and ask students to copy the pattern with their own blocks.
- P.3.4 Predict what comes next when shown a simple AB pattern of concrete objects.  
Example: Make a pattern of squares and circles with one square, one circle, one square, one circle, one square and ask students to guess what should come next.
- P.3.5 Classify categories of objects and name the group of objects.  
Example: Give students a set of objects of various mixed colors and sizes. Ask students to put them into groups by how they are the same (let them decide either color or shape) and then have them explain their sorting decision.
- P.3.6 Sort a group of objects by more than one way.  
Example: Take the same set used in P.3.5 and ask students to sort the objects differently.
- P.3.7 Communicate when something does not belong or should not happen.  
Example: Create a set of four objects, three blue crayons and one red. Ask students to tell you which crayon does not belong and why they made that decision.



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#### Standard 4 - Geometry

*Young children need opportunities to explore the size, shape, position, and movement of objects within their physical environment. Spatial reasoning begins as children become aware of their bodies and personal space. Children learn to recognize, draw, and describe shapes by manipulating, playing with, tracing, and making common shapes using real objects in a variety of activities.*

- P.4.1 Give clues for finding hidden objects.  
Example: Hide an object in the classroom and play a game that gives students hints on when they are close to the object and when they are far away. Use the computer to play "I Spy"
- P.4.2 Discriminate an object that is pulled apart and one that is put together.  
Example: Show students pictures of objects that are either whole or in parts and ask them to identify the whole and the parts. Discuss the concepts of part and whole.
- P.4.3 Identify parts of an object.  
Example: Name 10 body parts.
- P.4.4 Copy a vertical and horizontal line.  
Example: Imitate the drawing of a cross.
- P.4.5 Identify attributes of an object and sort a group of objects by one attribute.  
Example: From a pile of crayons, have students sort by color.
- P.4.6 Use position words, "in" or "out", "on" or "off", "here" or "there", "beside" or "next to" to indicate where things are in space. Follow instructions to place an object in the indicated space.  
Example: Play a game where you students to move an object according to the teacher's oral directions using position words in the directions, such as "place the crayon on the desk" or "place the crayon next to the book".
- P.4.7 Identify and copy circles, squares, triangles, and rectangles.  
Example: Show students "shape" blocks and ask them to name them. Then have students make a design with the blocks and copy it onto a piece of art paper.



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#### Standard 5 - Measurement

*Children need many opportunities to explore and discover measurement and apply the results to real life situations in order to construct concepts of measurement.*

- P.5.1 Follow steps in a routine, such as a daily schedule. Tell what activity comes first and what follows in sequence in a three-event sequence.  
Example: Create classroom routines for how students will perform tasks, such as hanging up their coats, and unpacking the bags. Establish a three-step routine for a daily activity such as making a sandwich. Ask students to talk about what comes first, next and last.
- P.5.2 Order three objects by size.  
Example: Give students a small, medium and large size book and ask them to line them up in order from smallest to largest (going from left to right).
- P.5.3 Use any descriptive word or gesture to express amount or size and communicate the size of things in relation to self.  
Example: Ask students if an elephant is bigger or smaller than they are.
- P.5.4 Use cups and other measuring tools in the correct context.  
Example: Set up a measuring activity, sand or water table with measuring cups, rulers, thermometers and scales so that students can practice measuring things. Discuss with students which measuring tool is the best for certain situations.
- P.5.5 Identify when something is hot or cold.  
Example: Plan snacks that are both hot and cold and ask students to describe how they feel. Discuss what other foods are hot or cold.
- P.5.6 Sort objects into long and short and use the words to describe what they are doing.  
Example: Hold two books side by side to show which is shorter. Give students two straws and ask them to determine which is shorter.
- P.5.7 Identify when something is too heavy to lift.  
Example: Show students a feather and a teacher desk. Ask them which one they can pick up.
- P.5.8 Relate time to events. Associate time-related concepts.  
Example: Show students a clock and a calendar. Ask students to guess how these things are used to measure time. Talk about concepts like morning, afternoon, week, month, and year.



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## Standard 6 - Problem Solving

*When young children have experiences in collecting objects and information, as well as opportunities to organize, describe, and graphically represent these collections, they succeed in building a foundation for problem-solving situations. To build this foundation, young children need opportunities to hear, use, and apply relevant vocabulary while formulating questions and possible solutions with others based on observations.*

- P.6.1 Identify the missing parts of an object or the missing object in a set.  
Example: Show students a picture of a face without any lips. Ask them what is missing.
- P.6.2 Make simple cause and effect predictions.  
Example: Place an ice cube in a cup. Ask students what will happen to the ice cube if it is not put back into a freezer. Ask them what they think makes the ice cube melt.
- P.6.3 Find an indirect way to obtain an object.  
Example: Place a ball beyond the students' arm reach. Ask them to think of ways they could get the ball without getting out of their chair. Let them be as imaginative and creative as they like. If possible, let them test their ideas.
- P.6.4 Use trial and error to solve problems and use a secondary strategy when the first one fails.  
Example: As students test their ideas from P.6.3 discuss why things worked or didn't work and what changes can be made to their ideas to make them better. Let them test their second idea.
- P.6.5 Generalize a solution to a new situation.  
Example: Once students are successful in getting the ball, ask them how their solution could be used to get a pencil that is out of their reach.