

A NOTE ABOUT THE SAMPLE ACTIVITIES

The following are sample activities designed to show you examples of possible activities for each API. You are not required to use these specific activities in your portfolios. The APIs used in this document come from the column for grades 3-5 in the TCAP-Alt Performance Indicators document, which is available on the Tennessee State Department of Education website.

Activities should be written in the past tense (e.g., “[Student’s name] completed . . .”), since the evidence sheet should be filled out after the activity has been completed. Be sure to use the student’s name when describing what he or she did during the activity (e.g., not, “The student counted jellybeans into a plastic cup,” but “Anaxamander counted jellybeans into a plastic cup.”).

Be sure all three activity components are clear: what the student did (i.e., *how* the activity was performed), a clear relationship to the API, and what, if any, materials were used.

Content Standard: NUMBERS AND OPERATIONS

Standard: *The student will develop number and operation sense needed to represent numbers and number relationships orally, symbolically, and graphically in order to compute fluently and make reasonable estimates in problem solving.*

Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.1 *Count how many objects are in a set (1-30)*

Sample Activities:

- Given a box of 20 one-inch rubber balls, [student's name] picked up one ball and dropped it into a coffee can each time the teacher said, "Put one ball in the can."
- With hand-over-hand assistance, [student's name] touched each cotton ball in a row of five cotton balls as the teacher counted them aloud.
- Given 10 wooden blocks, [student's name] dropped the blocks, one at a time, into a pail. The teacher counted the blocks aloud as [student's name] dropped them.
- [Student's name] was given 10 marbles and a jar. As the teacher counted aloud from 1-10, [student's name] dropped one marble into a jar each time a number was spoken.
- [Student's name] was given a set of 1-15 novelty pencils. On request, he/she counted the pencils aloud, touching each one as he/she counted it. He/she counted five sets of 1-15 pencils.
- [Student's name] counted how many objects were in a set (1-25) using buttons. He/she counted ten sets of 1-25 buttons, counting aloud and pointing to each button as he/she counted it.
- [Student's name] was given ten sets of teddy bear counters. Each set contained 1-5 bears. Upon request, [student's name] counted each set aloud and told the teacher how many bears that set contained.
- In preparation for painting a mural, [student's name] orally counted the number of peers at his/her table, gave each peer a paint brush, and told the teacher how many total brushes were given.
- Given a peg board and a number of colored pegs, [student's name] orally counted the number of pegs of each color (e.g., three blue pegs, five red pegs, two yellow pegs) and put them in the peg board.
- Given 15 Nerf balls, [student's name] orally counted the balls and placed them in a basket.
- Given a plastic bag and 30 plastic cups, [student's name] orally counted the cups and placed them in the plastic bag.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.2 *Count to 30 by 1's, 5's, and 10's*

Sample Activities:

- On request, [student's name] turned his/her head toward a group of peers singing the song "Five Little Monkeys."
- [Student's name] sang along as peers sang the song "Five Little Monkeys."
- Given a plastic disc that, when stepped on, makes a ball go up into the air, [student's name] stepped on the disc 10 times and orally counted the number of balls sent into the air each time. When he/she made a counting error, a peer gave verbal prompts as needed. Afterward, [student's name] was asked how many balls had been sent up, and he/she answered correctly.
- Upon request, [student's name] orally counted to 30 by ones with verbal prompts from the teacher when he/she missed a number.
- [Student's name] played "Mother-May-I," counting the correct number of steps as directed each turn (e.g., "Take three giant steps forward"; "Take three scissor steps forward"; "Take two baby steps backward.")
- Given a box of 30 paper clips, [student's name] placed the clips into groups of 10 and used the groups to count to orally to 30 by tens.
- During a game of "hide-and-seek," [student's name] counted orally to 30 when it was his/her turn to be "IT." A peer tutor gave verbal prompts when [student's name] missed a number.
- While a peer did jumping jacks, [student's name] orally counted how many jumping jacks were done.
- [Student's name] played a jump rope game with peers, orally counting how many jumps each child made before "missing."
- Given 30 pennies, [student's name] organized the pennies into sets of five, then used the groupings to count orally by fives to find the total number of pennies. He/she repeated the activity four more times, each with a total number of pennies between 10 and 30, divisible by 5.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.3 *Identify equivalent sets of objects by one-to-one correspondence (1-30)*

Sample Activities:

- Given a bag of miniature marshmallows and a set of number cards, each printed with a number from 1-10 and an equivalent number of dots, [student's name] placed a marshmallow on each dot to create a set equivalent to the number on the card.
- For each of ten sets of 1-10 plastic animals, [student's name] was shown a card with a number (1-10) written on it. [Student's name] answered "yes" or "no" when asked if the number on the card matched the number of animals in the set.
- Given two sets of 1-10 plastic animals, [student's name] indicated whether the two sets had the same number of animals (thumbs up) or a different number (thumbs down).
- Given a pegboard and 30 colored pegs and shown a second pegboard with 1-10 pegs already placed in the board, [student's name] placed the same number of pegs in his/her pegboard.
- Given modeling clay and shown sets of 1-10 clay balls, [student's name] made a number of clay balls equal to the number contained in each set.
- [Student's name] was given a bag of M&Ms and an egg carton with a number from 1-12 written in the bottom of each individual egg cup. On request, [student's name] placed the correct number of M&Ms into each cup, so that the number of M&Ms in each cup was equal to the number written in the bottom of the cup.
- [Student's name] was given a bag of M&Ms. When the teacher showed him/her a number card 1-30, [student's name] counted out a number of M&M's equal to the number on the card.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.4 *Identify numerals 0-30*

Sample Activities:

- When given two number cards (1 and 2), [student's name] pointed to the one named by the teacher.
- [Student's name] was given number cards 1-5. As the song "Five Little Monkeys" was played, [student's name] held up the number card that corresponded to the number of monkeys in each verse.
- Given a walk-on number line, [student's name] hopped, jumped, or stepped from the beginning edge of the line to the number requested by the teacher. The teacher made 15 requests, using each number from 1-10 at least once.
- [Student's name] made numbers 1-10 from modeling clay, using number cards as models.
- [Student's name] traced sandpaper numbers 1-10 with a finger and repeated the name of the number after the teacher said it aloud.
- When number cards 0-30 were held in front of [student's name], he/she orally identified the number on the card. When he/she made an error, the teacher helped by asking guiding questions or giving verbal prompts as needed.
- Given twenty-five laminated cards, each printed with a number between 1 and 30, [student's name] used a dry-erase marker to draw a number of dots on the back of the card equal to the number written on the front of the card.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.5 *Identify and name coins (e.g., penny, nickel, dime, and quarter)*

Sample Activities:

- Given real coins (pennies, nickels, dimes, and quarters) and a card with five realistically-represented coins printed on it, [student's name] matched the real coins to those on the card by placing the real coins on top of their printed counterparts.
- Given a penny and a quarter, [student's name] pointed to the penny on request.
- Given realistic-looking plastic coins (penny, nickel, dime, and quarter) and asked to identify one (e.g., "Show me the dime"), [student's name] pointed to the correct coin.
- While a peer held a handful of various coins, [student's name] picked out five dimes from the mixed change to purchase a brownie from the school bake sale.
- [Student's name] played Money Bingo with three other peers.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.6 *Count pennies, nickels, dimes or quarters with values up to \$1.00*

Sample Activities:

- Given 10 pennies, [student's name] counted them orally by ones.
- Given 20 nickels, [student's name] determined their value by counting orally by fives (e.g., touched the first nickel and said "five," touched the second nickel and said "ten").
- [Student's name] played a money-changing game in which the object was to accrue pennies by answering simple questions correctly at a rate of a penny per answer and "trade up" by exchanging five pennies for a nickel, 10 pennies or two nickels for a dime, etc.
- [Student's name] used dimes and quarters to buy two items from the snack machine with exact change. [Student's name] chose the correct change by matching the coins to cards with pictured coins to equal the cost of the items chosen.
- [Student's name] went to the school bookstore and purchased an item of choice that cost less than \$1.00. He/she chose a spiral notebook. [Student's name] counted out the correct amount of money (with prompts from an adult when he/she made an error or seemed uncertain) and paid the cashier.
- Given real coins and a Money Bingo file folder, [student's name] matched the coins to the pictures on the Bingo game card.
- When provided with plastic pennies, nickels, and dimes, [student's name] orally identified each coin, stated the value of each coin, and counted out a value equal to \$1.00.
- Given real coins and a card picturing the coins required to buy a soft drink from the vending machine, [student's name] placed the appropriate coins on their pictured counterparts to determine how much change was needed, then used the change to purchase a soft drink from the machine.
- With the help of a peer, [student's name] used real coins to count out the exact change to buy a pencil and a writing tablet from the school bookstore.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.7 *Order numbers less than 30*

Sample Activities:

- Given two number cards (1 and 2), [student's name] placed the number cards in numerical order.
- Given 10 two-inch metal train cars, each marked with a number from 1-10, [student's name] placed the cars in numerical order. When the train was correctly assembled, [student's name] "drove" it on a plastic track.
- Given a wooden inset puzzle with slots for the numbers 1-20 in order, [student's name] correctly assembled the puzzle by placing each number in its proper place.
- Given 25 plastic horses, each with a number from 1-25 painted on its back, [student's name] lined up the horses in numerical order.
- Given birthday candles in the shape of numbers, [student's name] placed the candles in order from 1 to 10. Each time [student's name] chose the correct number, the teacher lit the candle and allowed [student's name] to blow it out.
- When shown three 3 x 5 cards, each with a number between 1 and 30 written on it, [student's name] indicated (by pointing) which number came first, next, and last.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.8 *Use concrete objects to develop strategies for addition of whole numbers to 30*

Sample Activities:

- [Student's name] used a walk-on number line to perform simple addition and subtraction problems given orally by the teacher (e.g., for $3 + 2$, [student's name] would start on the number three and take two steps forward).
- Given a pencil and 10 single-digit addition problems on a worksheet, [student's name] worked the problems using one-inch wooden blocks as counters.
- [Student's name] rolled two game cubes and counted the dots on each cube. Then [student's name] stated an addition sentence reflecting the numbers on both cubes and orally solved the addition sentence orally. [Student's name] used computation to solve some problems and counted the total number of dots for others.
- Given Touchpoint cards for the numbers 1-3, [student's name] said each number aloud and counted the corresponding points orally.
- [Student's name] was given an abacus. As the teacher said an addition problem aloud, student's name used the abacus to solve the problem as the teacher stated it. For example, when the teacher said "Three," [student's name] moved three beads to the right; then when the teacher said, "Plus two," [student's name] moved two more beads to the right and told how many beads were there.
- Given 10 two-digit addition problems on the white board, [student's name] used an abacus to correctly solve the problems, then used a marker to write the answers on the white board. The problems did not involve regrouping.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.9 *Represent whole numbers to 30 with models*

Sample Activities:

- After being presented with a visual representation of the number 3 (a card with the number 3 written on it), [student's name] used his/her index finger to draw 3s in a shaving cream tray.
- [Student's name] used his/her index finger to practice writing the number 5 in a salt tray.
- On request, [student's name] made the numbers 1-4 from modeling clay.
- Given a set of 20 Popsicle sticks and asked to show a specific number of sticks no less than 1 and no more than 20, [student's name] picked up a number of sticks equal to the number requested.
- Given cards numbered 1-30 and a jar of uncooked pinto beans, [student's name] laid the cards out on the table and placed a corresponding number of beans on each card.
- After reading the book *Ten Apples Up On Top* by Dr. Seuss, [student's name] practiced balancing 1-10 beanbags on his/her head. Next, [student's name] made a self-portrait from a paper plate using buttons, wiggle eyes, and construction paper shapes for facial features and yarn or fake fur for hair. The paper plate portrait was glued to a larger piece of poster board. [Student's name] used apple halves and red, green, and yellow tempera paint to make apple prints of 1-10 apples "balanced" on the portrait's head. [Student's name] then counted the number of apples on the self-portrait's head. (Idea from Jessica Barrett: <http://www.lessonplanspage.com/LAArtMathPEMDTenApplesUpOnTopK2.htm>.)

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.10 *Read and write numbers to 30*

Sample Activities:

- On a sheet of tablet paper, [student's name] traced a dotted numeral 4 with a highlighter.
- Given a tray filled with sand, [student's name] used one finger to write the number 3 in the sand.
- [Student's name] played a board game in which a number card from 1-6 was drawn to determine the number of spaces to be moved.
- Given a set of 10 Popsicle sticks and shown a numeral from 1 to 10, [student's name] picked up a number of sticks equal to the number shown.
- Given a folder game with 10 pockets, each with a number from 1 to 10, and 10 cards, each with a set of 1-10 items pictured on it, [student's name] placed each card into its corresponding pocket.
- [Student's name] and a peer took turns calling out numbers from 1-30. First the peer called out a number, and [student's name] used chalk to write the number on a lap-sized chalkboard. Then [student's name] called out a number, and the peer wrote the number on the chalkboard. After 10 "calls," the one who had correctly written the most numbers won the set. After four sets, the one who had won the most sets won the game.

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Alternate Learning Expectation (ALE): NO.1 *Understand numbers, ways of representing numbers, relationships among numbers, and number systems*

Alternate Performance Indicator (API): NO.1.11 *Order whole numbers up to 30 indicating more than, less than, or equal to*

Sample Activities:

- When shown two number cards, [student's name] showed "thumbs up" if the numbers on the card were the same and "thumbs down" if they were different.
- On request, [student's name] used a pencil and paper to write the names of six friends and circle the one that had the most letters.
- Given two number cards (1-10) and asked which one was more, [student's name] pointed to the greater number.
- Given two number cards (1-10) and asked which one was less, [student's name] named the smaller number.
- Given a clothesline, 10 "pinch clothespins," and five cardboard shirts numbered 1-5, [student's name] clipped the shirts to the clothesline in numerical order.
- Given 10 "pinch clothespins" and a set of 20 poster board blackbirds numbered 1-20, [student's name] clipped the blackbirds in numerical order to a cardboard tree branch.

Content Standard: NUMBERS AND OPERATIONS

Standard: *The student will develop number and operation sense needed to represent numbers and number relationships orally, symbolically, and graphically in order to compute fluently and make reasonable estimates in problem solving.*

Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.1 *Identify the position of a whole number less than 30 on a number line*

Sample Activities:

- [Student's name] and four peers were each given one of a set of 12"x12" cards numbered from 1-5. Each student held up his/her number card. Then, with help from the teacher, [student's name] and peers lined up so that their cards were in numerical order.
- Five of [student's name]'s peers were each given one of a set of 12"x12" cards numbered from 1-5. Each student held up his/her number card. Then, with help from the teacher, [student's name] led each peer to a place in line so that their cards were in numerical order.
- [Student's name] was given a ruler. The teacher asked [student's name] to show a specific number (1-12) on the ruler, and [student's name] pointed to that number on the ruler.
- Given a walk-on number line with numbers from 1-20, [student's name] moved (by hopping, skipping, stepping, etc.) to the number requested by the teacher.
- Given a laminated number line extending from 1-20 with every other number missing, [student's name] used a dry erase marker to fill in the missing numbers.
- Given a blank number line extending from 1-20, [student's name] used a marker to write each number in its proper position on the number line.

Content Standard: NUMBERS AND OPERATIONS

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Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.2 *Recognize a whole and its parts*

Sample Activities:

- After listening to a peer read *A Apple Pie* by Gennady Spirin, [student's name] touched and held an apple, then watched as the teacher cut it into slices for a snack. [Student's name], the peer, and the teacher discussed how the apple slices were once part of a whole apple.
- Given a wooden pizza puzzle and asked, "May I have the whole pizza?" [student's name] gave the questioner the whole pizza puzzle. When asked, "May I have a slice?" or "May I have two slices?" and so on, [student's name] gave the questioner the requested number of slices.
- After helping make and decorate a chocolate sheet cake, [student's name] orally identified the finished product as a cake, and then helped cut it into slices and distribute the slices among his/her classmates. As they cut the cake, the teacher and [student's name] discussed how the whole cake was being cut into smaller parts.
- With assistance from a peer, [student's name] assembled a Mr. Potato Head. The peer asked guiding questions, such as "What's missing now?"
- With assistance from a peer, [student's name] assembled a snap-together model car. The peer asked guiding questions, such as "What's missing now?"

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Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.3 *Recognize plus sign*

Sample Activities:

- Given a magic marker and a “hidden picture” with 10 “plus signs” hidden in it, [student’s name] found and circled all 10 plus signs.
- Given magic markers and a large piece of butcher paper, [student’s name] drew plus signs in a variety of colors and sizes all over the butcher paper.
- [Student’s name] used his/her index finger to draw plus signs in shaving cream slathered across his/her desk.
- Given 10 single-digit addition problems written on a whiteboard, [student’s name] used a dry-erase marker to circle the plus sign in each problem.
- Given 10 single-digit addition problems and 10 single-digit subtraction problems, in random order on the whiteboard, [student’s name] used a dry-erase marker to circle the plus signs in the addition problems.

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Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.4 *Determine if a figure has been divided into halves*

Sample Activities:

- During a field trip to Pizza Hut, [student's name] was given a Personal Pan Pizza. [Student's name] discussed with peers and the teacher what the whole pizza looked like and what half a pizza looked like.
- The teacher gave [student's name] a brownie to share with a peer. Before dividing the brownie, the teacher moved the knife to various positions and asked [student's name] if both portions would be equal. When [student's name] answered "yes" incorrectly, the teacher and peer used guiding questions to help [student's name] realize that one portion was larger and one portion was smaller. When [student's name] correctly identified the point at which the brownie would be divided into halves, the teacher cut the brownie and gave half to [student's name] and half to the peer.
- Given 25 photographs of objects (e.g., apples, oranges, melons, pizzas, cookies), some of which were whole and others of which had been divided into halves, thirds, and quarters, [student's name] placed the items that had been divided into halves into one pile and the rest of the objects into another.

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Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.5 *Recognize and identify fractions as parts of wholes (e.g., $\frac{1}{2}$, $\frac{1}{4}$)*

Sample Activities:

- [Student's name] was given a cardboard "apple pie" cut into quarters. When the teacher presented one of several fraction cards (e.g., $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$), [student's name] gave the teacher a number of slices equal to the fraction shown.
- [Student's name] was given a set of fourteen 4" diameter cardboard "pizzas" with lines drawn on each to show eight equal slices. When the teacher requested a certain fraction of the pizza (e.g., $\frac{1}{8}$, $\frac{3}{8}$, $\frac{1}{4}$), [student's name] used scissors to cut that many slices from one of the pizzas and give them to the teacher.
- With the help of a peer partner, [student's name] completed an origami project while a teacher-written story about paper cranes was read aloud to the class. As the story progressed, it included instructions for creating an origami crane. [Student's name] used the instructions to fractionally fold and tear his/her paper. With each fold and/or tear, students were asked to orally identify fractional amounts of the whole created. When [student's name] had trouble identifying the fraction, the peer partner asked guiding questions and gave verbal prompts to help [student's name] arrive at the correct answer.

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Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.6 *Using objects or pictures, identify that $\frac{1}{2}$ is greater than $\frac{1}{4}$*

Sample Activities:

- During preparation for a class snack, two watermelons were cut. One was cut in half, the other into quarters. [Student's name] was asked which was larger, $\frac{1}{2}$ or $\frac{1}{4}$ of the watermelon. The teacher used guiding questions and statements as needed to help [student's name] come to the realization that $\frac{1}{2}$ is larger than $\frac{1}{4}$.
- Given four symmetrical cardboard shapes, each divided into quarters, [student's name], on request, pointed to $\frac{1}{2}$ and $\frac{1}{4}$ of each shape and then told which was greater.

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Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.7 *Connect written and pictorial representations of fractions with denominators up to 2*

Sample Activities:

- When asked to give the teacher $\frac{1}{2}$ a chocolate chip cookie, [student's name] broke the cookie in half. [Student's name] kept half the cookie and gave the teacher the other half. (Prerequisite)
- [Student's name] used fraction tiles to model the fractions $\frac{1}{2}$ and $\frac{2}{2}$ as represented on index cards.
- Given a folder game with ten simple fractions written on the pockets and ten pictures representing the various fractions, [student's name] placed each picture in the correct pocket.

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Alternate Learning Expectation (ALE): NO.2 *Understand meaning of operations and how they relate to one another*

Alternate Performance Indicator (API): NO.2.8 *Recognize operational signs (e.g., add and subtract)*

Sample Activities:

- [Student's name] was given a marker and a list on the whiteboard of 50 horizontal math sentences involving various combinations of addition and subtraction. On request, [student's name] circled the signs that mean addition in blue and the subtraction signs in red.
- When provided with a pencil, a calculator, and a worksheet of 20 horizontal math sentences involving various combinations of addition and subtraction, [student's name] used a calculator to complete the math sentences.

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Standard: *The student will develop number and operation sense needed to represent numbers and number relationships orally, symbolically, and graphically in order to compute fluently and make reasonable estimates in problem solving.*

Alternate Learning Expectation (ALE): NO.3 *Solve problems, compute fluently and make reasonable estimates*

Alternate Performance Indicator (API): NO.3.1 *Solve simple word problems involving whole numbers 0-30*

Sample Activities:

- [Student's name] used one-inch blocks to solve 10 simple word problems orally presented by the teacher (e.g., "You have six blocks. I have two blocks. If I give you one of my blocks, how many will you have?")
- [Student's name] and a peer took turns creating simple word problems. One presented a word problem by writing it on a lap-sized chalkboard, and the other wrote the answer using colored chalk. Then the roles were reversed. [Student's name] solved the problems using Popsicle sticks as counters.

Content Standard: NUMBERS AND OPERATIONS

Standard: *The student will develop number and operation sense needed to represent numbers and number relationships orally, symbolically, and graphically in order to compute fluently and make reasonable estimates in problem solving.*

Alternate Learning Expectation (ALE): NO.3 *Solve problems, compute fluently and make reasonable estimates*

Alternate Performance Indicator (API): NO.3.2 *Add whole numbers up to 30*

Sample Activities:

- The teacher orally presented single-digit word problems, and [student's name] used Popsicle sticks to solve them.
- [Student's name] used a pencil to complete a TouchMath worksheet of addition problems without regrouping. Upon completion, the work was checked by a peer, who helped [student's name] correct the problems missed.
- [Student's name] was given a dry-erase marker to use on the whiteboard. The teacher called out a number, and [student's name] drew a number of dots equal to the number called. Then the teacher called a second number, and [student's name] drew a number of dots equal to that number. Finally, [student's name] orally counted the total number of dots and explained how the two numbers were combined to make a third, larger number.
- [Student's name] used a calculator and a dry-erase marker to solve 10 addition problems written on the whiteboard.
- [Student's name] was given a basket and five plastic apples. The teacher orally presented [student's name] with addition sentences that could be solved using the five apples as counters. With verbal and physical prompts as needed, [student's name] solved each problem by adding the correct number of apples to the basket.

Content Standard: NUMBERS AND OPERATIONS

Standard: *The student will develop number and operation sense needed to represent numbers and number relationships orally, symbolically, and graphically in order to compute fluently and make reasonable estimates in problem solving.*

Alternate Learning Expectation (ALE): NO.3 *Solve problems, compute fluently and make reasonable estimates*

Alternate Performance Indicator (API): NO.3.3 *Solve real-world problems using addition or subtraction of whole numbers up to 30*

Sample Activities:

- [Student's name] used a calculator to add the cost (rounded to the nearest dollar) of two books he/she planned to buy during the school book drive.
- Given a pencil and paper, [Student's name] used addition and subtraction to plan items needed for an imaginary birthday party. The teacher told [student's name] how many guests would attend, and then asked the student to adjust his/her numbers based on emerging events (e.g., "Suzy is allergic to chocolate and can't eat a cupcake. Now how many do you need?").

Content Standard: NUMBERS AND OPERATIONS

Standard: *The student will develop number and operation sense needed to represent numbers and number relationships orally, symbolically, and graphically in order to compute fluently and make reasonable estimates in problem solving.*

Alternate Learning Expectation (ALE): NO.3 *Solve problems, compute fluently and make reasonable estimates*

Alternate Performance Indicator (API): NO.3.4 *Add and subtract whole numbers (no more than two digits) up to 30*

Sample Activities:

- [Student's name] worked with a small group of peers to take turns solving two-digit addition and subtraction problems (without regrouping). The problems were presented on laminated flashcards, and the students wrote the answers with a grease pencil.
- [Student's name] played a *Math Blaster* computer game involving addition and subtraction of whole numbers.
- [Student's name] played the addition game "Hidden Picture" on the website www.aplusmath.com. In this game, each correctly answered addition problem uncovered a section of a hidden picture.

Content Standard: NUMBERS AND OPERATIONS

Standard: *The student will develop number and operation sense needed to represent numbers and number relationships orally, symbolically, and graphically in order to compute fluently and make reasonable estimates in problem solving.*

Alternate Learning Expectation (ALE): NO.3 *Solve problems, compute fluently and make reasonable estimates*

Alternate Performance Indicator (API): NO.3.5 *Use calculator in problem-solving situations (i.e., add and subtract)*

Sample Activities:

- Given a pencil and a Math Menu worksheet with basic purchasing problems about menu planning and grocery shopping, [student's name] used a calculator to solve the problems and complete the worksheet.
- [Student's name] used a calculator and a pencil to complete twelve addition and subtraction problems from page 39 of his/her mathematics workbook.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.1 *Sort and classify objects by size, number, and other properties*

Alternate Performance Indicator (API): A.1.1 *Indicate awareness of and react to color, size, and shape*

Sample Activities:

- Two different colors, red and blue, were displayed in [student's name]'s light box. [Student's name] was presented with three objects: a large red apple, a fuzzy red scarf, and a red ball. [Student's name] was encouraged to touch and explore the red objects as the teacher discussed the color red. Then [student's name] was asked to gaze at the matching color in the light box as the teacher placed the object near the matching color.
- When the teacher projected two different colored beams of light onto the wall, [student's name] turned his/her head toward the color requested. For example, the teacher would say, "Look at the blue light," or "Look at the red light," and [student's name] did so. A paraprofessional provided verbal and touch prompts as needed to complete the task.
- [Student's name] used a writing utensil of choice (a blue crayon) to trace a wooden shape onto paper with assistance.
- Given art paper and a set of colored pencils, [student's name] used appropriate colors to complete a realistic drawing during art class. A peer guided him/her by asking questions, such as "What color is the sky?" and "What color is grass?"
- Given a variety of crayons and markers, [student's name] orally identified the color of each when the teacher pointed to it and said, "What color is this?"
- [Student's name] sorted large stenciled shapes into separate compartments of a sorting tray.
- A number of precut shapes of laminated card stock—triangle, circle, rectangle, square, oval, diamond, semicircle, and hexagon in different sizes and colors—were placed on the floor in front of the [student's name] and his/her classmates. The teacher explained that the class was going to learn a new song, and when a certain shape, color, or size was called, each student needed to find the shape in his/her pile, hold it up, and do the actions in the song. The song was sung to the tune of "The Hokey Pokey," but was modified to use size, shape, and color words (e.g., "Put your small blue circle in; pull your small blue circle out..."). [Student's name] followed the directions given in the song, with peers as models.
- Given 10 coins, four of which were quarters, [student's name] identified the four quarters—larger than the other coins—and used them to make a soft drink purchase from the vending machine.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.1 *Sort and classify objects by size, number, and other properties*

Alternate Performance Indicator (API): A.1.2 *Sort objects by two attributes (e.g., color, size, or shape)*

Sample Activities:

- Given 50 plastic bears and a compartmentalized sorting tray, [student's name] sorted the plastic teddy bear pieces according to color.
- Given 64 crayons in eight different colors and a set of eight colored cups to match the crayons, [student's name] placed the crayons into the matching cups.
- Given a deck of UNO cards containing only the colored number cards, [student's name] sorted them into piles by color—red, blue, green, yellow.
- [Student's name] sorted wooden shape pieces into separate trays according to color and size (e.g., large yellow stars and circles; small yellow stars and circles; large red stars and circles; small red stars and circles).
- [Student's name] assisted the P.E. teacher in sorting softballs and basketballs into separate baskets and putting them away.
- [Student's name] assisted the P.E. teacher in sorting a variety of gym balls (e.g., footballs, soccer balls, basketballs, kickballs) into separate baskets and putting them away.
- [Student's name] sorted blue soft-touch round balls and yellow soft-touch footballs from an assortment of soft-touch balls in P.E. class.
- Before purchasing a pencil and erasers from the school bookstore, [student's name] separated his/her coins by size and value.
- [Student's name] sorted paper clips by size and color into plastic containers.
- During a visit to the kitchen to make snacks, [student's name] used the “yes/no” buttons of his/her programmed communication device to identify sets of two given food items as the same or different (e.g., salt & pepper, sugar & sugar, Oreos & carrot sticks) upon request. (Prerequisite)

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.1 *Sort and classify objects by size, number, and other properties*

Alternate Performance Indicator (API): A.1.3 *Identify how objects or numbers have been sorted by two to three attributes*

Sample Activities:

- Three sets of colored plastic shapes—red squares, blue circles, and yellow triangles—were placed on the table in front of [student's name]. [Student's name] was given five colored shapes, each of which belonged in one of the three groups. On request, [student's name] placed each shape with its correct group. (Prerequisite)
- A set of blue plastic circles in various sizes were placed on the table in front of [student's name]. The teacher asked, "How are these things alike?" If [student's name] answered, "Color" or "Shape," the teacher would say, "Yes! And how else are they alike?" If [student's name] missed either answer ("color" or "shape"), the teacher asked guiding questions and prompting statements to lead [student's name] to the correct answers.
- [Student's name] worked in a cooperative learning group to classify shoes. Students in the group took off their shoes and sorted them by size, color, and type. After the shoes were sorted by their properties, [student's name] identified the attribute by which each group of shoes was sorted.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.2 *Represent and analyze patterns and functions*

Alternate Performance Indicator (API): A.2.1 *Indicate awareness of and react to a pattern*

Sample Activities:

- [Student's name] was shown a solid-colored canvas and a canvas printed with a high-contrast geometric pattern. With verbal encouragement and physical prompts from the teacher, [student's name] focused on the canvas with the pattern.
- Given a set of 1" colored wooden cubes, [student's name] and a peer took turns arranging the blocks in a variety of patterns.
- Given a bag of blue beads, a bag of green beads, and a string of colored beads strung in a repeating pattern (e.g., blue-green, blue-green; blue-blue-green, blue-blue-green), [student's name] added 10 beads, continuing the pattern. A paraprofessional provided verbal and touch prompts as needed to complete the task.
- Given five pattern cards and cardboard shapes to complete the patterns, [student's name] stated what would come next in a given pattern and placed the pattern piece that should come next on the card.
- [Student's name] used parquetry blocks to match patterns on parquetry cards.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.2 *Represent and analyze patterns and functions*

Alternate Performance Indicator (API): A.2.2 *Recognize two- or three-part repeating pattern*

Sample Activities:

- [Student's name] repeated a three-beat clapping pattern modeled by the teacher. The teacher gave assistance and encouragement as needed.
- Given a bag of blue beads, a bag of green beads, and a string of colored beads strung in a repeating pattern (e.g., blue-green, blue-green; blue-blue-green, blue-blue-green), [student's name] added 10 beads, continuing the pattern.
- On the whiteboard, the teacher drew a series of two-part repeating patterns (e.g., EAEAEA; $\bigcirc \square \bigcirc \square$). [Student's name] used a dry-erase marker to correctly continue each pattern.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.2 *Represent and analyze patterns and functions*

Alternate Performance Indicator (API): A.2.3 *Identify objects as same or different*

Sample Activities:

- Given five sets of two concrete objects each—ball and book, pencil and toy car, comb and eraser, two matching ceramic frogs, and two identical coffee mugs—[student's name] signaled “thumbs up” to identify the objects as the same or signaled “thumbs down” to identify the objects as different.
- Given a set of 50 cards, each of which had two objects pictured on it, [student's name] put the cards with two matching objects in one pile and the cards with two different objects in another pile.
- [Student's name] played “Concentration,” a matching and memory game, with a peer.
- [Student's name] and a peer played picture dominoes, which required [student's name] to match the picture on one end of the domino being placed to a picture on a domino on the board.
- During a visit to the kitchen to make snacks, [student's name] used the “yes/no” buttons of his/her programmed communication device to identify sets of two given food items as the same or different (e.g., salt & pepper, sugar & sugar, Oreos & carrot sticks) when requested to do so.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.2 *Represent and analyze patterns and functions*

Alternate Performance Indicator (API): A.2.4 *Identify a numerical or geometric pattern*

Sample Activities:

- The teacher began a pattern using geometric blocks. On request, [student's name] chose and placed correct blocks to complete the pattern.
- Using geometric blocks, the teacher placed 13 blocks in a three-block repeating pattern (e.g., red-yellow-blue, red-yellow-blue). The teacher used guiding questions and statements to help [student's name] extend the pattern by placing the next two blocks in the sequence.
- When presented with a pencil and a worksheet of five different numerical patterns, each with the last number missing, [student's name] filled in each blank with the correct number. The teacher helped [student's name] correct each pattern missed.
- [Student's name] used a marker to copy three geometric patterns from the board onto construction paper, then discussed the patterns with a peer. With the peer's help and encouragement, [student's name] then drew the next three shapes in each pattern.
- [Student's name] made a bead necklace by repeating a five-bead pattern of choice until the necklace was complete.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.2 *Represent and analyze patterns and functions*

Alternate Performance Indicator (API): A.2.5 *Solve addition and subtraction problems which involve zero*

Sample Activities:

- Given a pencil and a worksheet of five addition problems and five subtraction problems, each involving zero (without regrouping), [student's name] used Pixie Stix as counters to complete the worksheet. When all the problems had been worked correctly, [student's name] chose a Pixie Stick to eat.
- Given a pencil and a worksheet, [student's name] solved 20 single-digit addition and subtraction problems that involved zero (without regrouping). [Student's name] used manipulative blocks as needed to help solve the problems.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.3 *Use concrete, pictorial, and verbal representations to develop an understanding of the language and symbols of mathematics*

Alternate Performance Indicator (API): A.3.1 *Use concrete objects or pictures to demonstrate addition number sentences involving numbers 0-30*

Sample Activities:

- Given a bowl of uncooked pinto beans and a sheet of paper to place them on, [student's name] used the beans to represent single-digit addition problems orally presented by the teacher. For example, the teacher would say, "Two," and [student's name] would place two beans on the paper; then the teacher would say "Plus three," and [student's name] would add three beans, for a total of five.
- Given plastic counters and 10 addition number sentences, each written on a separate card, [student's name] placed the correct number of counters beneath each number written, then placed the correct number of counters to the right of the equal sign to complete the number sentence. For example, given $2 + 7 = ?$, [student's name] placed two counters on the number 2, seven counters on the number 7, and nine counters to the right of the equal sign.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.3 *Use concrete, pictorial, and verbal representations to develop an understanding of the language and symbols of mathematics*

Alternate Performance Indicator (API): A.3.2 *Solve open sentences involving addition up to 30*

Sample Activities:

- [Student's name] played the computer game "Algebra Planet Buster" at www.aplusmath.com, which involved solving addition and subtraction problems with one variable.
- [Student's name] used a pencil to complete a worksheet of 10 subtraction problems involving one variable. A peer tutor helped [student's name] correct the problems missed.

Content Standard: ALGEBRA

Standard: *The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.*

Alternate Learning Expectation (ALE): A.3 *Use concrete, pictorial, and verbal representations to develop an understanding of the language and symbols of mathematics*

Alternate Performance Indicator (API): A.3.3 *Connect open sentences to real-world situations*

Sample Activities:

- Using grocery ads and a calculator, [student's name] calculated the cost of multiple items on a predetermined grocery list and used a pencil to write the total cost at the bottom of the list. (Prerequisite)
- When working with a peer to stockpile stocking items on the shelf in the classroom grocery store, [student's name] orally answered open sentences given by the peer and related to the task at hand (e.g., "There's space for six cans of corn. There are already two there. How many cans do you need from the box?" or "If I get six boxes of macaroni and you get four boxes, how many will the two of us together put on the shelf?" or "If there are six boxes of macaroni on the shelf, and I put three of them there, how many did you put there?").

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.1 *Analyze characteristics and properties of geometric shapes*

Alternate Performance Indicator (API): G.1.1 *Identify and/or name given shapes (i.e., circles, squares, triangles, and rectangles)*

Sample Activities:

- The teacher presented [student's name] with a tennis ball (a circular object) and told him/her it was shaped like a circle. With encouragement from the teacher, the student grasped the tennis ball.
- On request, [student's name] removed wooden blocks (spheres and cubes) from a pail and placed them into two groups: round and square.
- [Student's name] identified circles and squares by pointing to the correct shape on a shape board when the teacher named that shape.
- [Student's name] played catch with a peer using rubber toys in a variety of geometric shapes—circle, square, triangle, and rectangle. [Student's name] called out the name of each shape as he/she caught it.
- [Student's name] was given three construction paper shapes—circle, square, and rectangle. When the teacher named an object, [student's name] held up the shape that best represented the objects. For example, if the teacher said, “window,” [student's name] would hold up the rectangle. If the teacher said “pancake,” [student's name] would hold up the circle.
- Using magnetic shapes and a whiteboard, [student's name] correctly identified a circle, square, triangle, and rectangle by placing the shape on the board when the teacher named it.
- Using magnetic shapes and a whiteboard, [student's name] correctly identified a circle, square, triangle, and rectangle by naming each shape as the teacher placed it on the board.
- Given crayons and a worksheet with a variety of shapes, [student's name] colored only the squares on the worksheet.
- On request, [student's name] orally identified circles and squares in a winter picture he/she completed by pasting geometric shapes onto construction paper.
- Cardboard shapes in a variety of colors were placed around the room. The teacher called out a color and shape and [student's name] went to the cardboard shape that matched the description.
- After listening to a recording of the book *The Speedy Triangle*, [student's name] constructed triangles from pipe cleaners.

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.1 *Analyze characteristics and properties of geometric shapes*

Alternate Performance Indicator (API): G.1.2 *Recognize and/or name circles, squares, triangles, and rectangles in the environment*

Sample Activities:

- [Student's name] was given a cardboard circle, square, triangle, and rectangle and asked to find objects in the room with the same shape. [Student's name] pointed to each object and said its name, and a peer wrote the names of the objects on the corresponding cut-out shape.
- During a walk with a peer around the school, [student's name] accurately identified the shapes of various objects, such as the rectangular glass in a classroom window or the circular shape of a paper plate, by pointing to and naming the objects, along with their shapes.
- [Student's name], accompanied by a peer helper, located different shapes in the classroom to match a set of construction paper shapes—circle, square, triangle, rectangle—in [student's name]'s math folder. When a match was found, the peer asked [student's name] to point to it in the folder, asked [student's name] to name the shape, and gave [student's name] a sticker to put on it.

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.1 *Analyze characteristics and properties of geometric shapes*

Alternate Performance Indicator (API): G.1.3 *Reproduce and create circles, squares, triangles, and rectangles*

Sample Activities:

- Given a highlighter and four shapes (two circles and two squares) drawn by an adult on unlined paper, [student's name] used the highlighter to trace each of the shapes.
- [Student's name] made wrapping paper by making potato prints on butcher paper. To make a potato print, the teacher cut a potato in half. On the flat part of half the potato, the area around a geometric shape was cut away, leaving a raised shape. [Student's name] grasped the half-potato, dipped it in paint, and used it as a stamp. [Student's name] used circle, square, and triangle stamps.
- [Student's name] combined Colorform circles, squares, triangles, and rectangles to make pictures on a plastic mat. (Prerequisite)
- [Student's name] used colored chalk to make sidewalk pictures using circles, squares, triangles, and rectangles.

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.1 *Analyze characteristics and properties of geometric shapes*

Alternate Performance Indicator (API): G.1.4 *Identify two- or three- dimensional shapes given defining attributes (e.g., square, triangle, circle, and rectangle)*

Sample Activities:

- [Student's name] walked through the school grounds trying to identify the following environmental/survival word signs orally and by pointing: stop (octagon), warning (triangle) railroad crossing (circle). Flash cards and duct tape were used to provide some signs not typically found in the school environment. (Prerequisite)
- [Student's name] and a peer played a guessing game in which one player orally described a geometric shape ("e.g., I am round, with no corners or edges"), and the other guessed which shape was being described.

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.1 *Analyze characteristics and properties of geometric shapes*

Alternate Performance Indicator (API): G.1.5 *Recognize geometric figures that are the same size and shape*

Sample Activities:

- Given a basket containing plastic geometric shapes—triangles, circles, rectangles, and squares—in a variety of colors and sizes, [student's name] sorted the items according to size and shape. After the shapes had been sorted, the teacher removed any that had been incorrectly placed and helped the student sort them correctly.
- Given a set of laminated cards, each with a pair of geometric shapes (with some pairs being identical in size and shape and others being different), [student's name] used a grease pencil to circle the pairs that were the same and put an "x" on the pairs that were different.
- On a worksheet that had five shapes on the left and five identical shapes on the right in a different order, [student's name] used a marker to draw a line from each shape to its match.

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.1 *Analyze characteristics and properties of geometric shapes*

Alternate Performance Indicator (API): G.1.6 *Identify if a geometric figure has been divided into two equal parts*

Sample Activities:

- [Student's name] was given a file folder with a pocket on each side, one marked "yes" and one marked "no." He/she was also be given a set of 20 cards printed with geometric shapes. Some of the shapes were divided into two equal parts, and others were not. [Student's name] placed the shapes that had been divided into two equal parts into the pocket marked "yes" and the rest into the pocket marked "no." Then the teacher removed any that were incorrectly placed and used guiding questions and statements to help the student place them correctly.
- The teacher drew a series of geometric shapes on the whiteboard, and [student's name] used a dry-erase marker to divide them into two equal parts.

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.2 *Specify locations and describe spatial relationships*

Alternate Performance Indicator (API): G.2.1 *Recognize and show terms of relative position and direction in a variety of situations (e.g. over, under, left, right, above, below, forward, backward, between, before, after)*

Sample Activities:

- Given a basket of colored blocks, [student's name] played a game in which a peer named a block color and position (e.g., "blue block, under the desk" or "red block, between the pencil sharpener and the Kleenex box") and [student's name] placed the correct block in the position given.
- [Student's name] entered his/her assigned number into the cafeteria keypad by following verbal instructions from a peer, who used the directions "above," "below," "beside," "top," and "bottom" to direct [student's name] to the position of each number on the keypad.
- While playing a Jr. Monopoly board game with peers, [student's name] orally described the relative position of the other players (e.g., "Joey is between Mitch and Susan," or "Joey is in front of me") when requested to do so.
- Given a box containing several toy animals and a set of 20 direction cards, a peer read the cards aloud, and [student's name] used the toys to follow the directions (e.g., "Put the dog in the box and a rabbit under the table").
- Given a set of 10 cards, each with a position word written on it, [student's name] chose the card that matched a position or direction modeled by a peer. For example, if the peer held a kickball under his/her foot, [student's name] would hold up the word "under." If the peer held the kickball on top of his/her head, [student's name] would hold up the word "over" or the word "above."
- When given a teddy bear and verbal instructions to place the bear in a given location, [student's name] placed the bear in the appropriate location (e.g., "Put the bear on top of the pencil sharpener.").
- Given a pencil and a worksheet with objects in the over and under positions, and asked to mark the ones that are "under," [student's name] placed an "X" on the objects that were under something.

Content Standard: GEOMETRY

Standard: *The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one, two, and three dimensional figures.*

Alternate Learning Expectation (ALE): G.2 *Specify locations and describe spatial relationships*

Alternate Performance Indicator (API): G.2.2 *Identify a line*

Sample Activities:

- [Student's name] used art paper, colored pencils, and a ruler to make a design composed only of straight lines.
- Given five lines and five solid shapes drawn on the whiteboard, [student's name] used a laser pointer to identify the lines.
- The teacher drew a series of lines and shapes on the chalkboard, pointed to each one in turn, and asked, "Is this a line?" [Student's name] orally stated whether or not it was a line.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.1 *Demonstrate understanding of units of measure and measurable attributes of objects*

Alternate Performance Indicator (API): M.1.1 *Identify which is larger/smaller, longer/shorter, taller/shorter, heavier/lighter, or which holds more/less when given two similar objects*

Sample Activities:

- When presented with two colored straws of different lengths, [student's name] pointed to the longer straw on request.
- During P.E., the teacher presented [student's name] with five sets of two balls visibly different in size. For each set of two, [student's name] orally stated which was bigger and which was smaller when requested to do so.
- Given a series of objects of varying weights—a block, a brick, a playground ball, a basketball, a pencil, a feather, an iron, a teddy bear, a paperback book, and a heavy dictionary—[student's name] lifted each one and orally stated whether it was lighter or heavier than each of the others.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.1 *Demonstrate understanding of units of measure and measurable attributes of objects*

Alternate Performance Indicator (API): M.1.2 *Indicate awareness of and react to temperature*

Sample Activities:

- [Student's name] reacted with facial expressions and vocalizations as the teacher touched [student's name]'s hands and cheeks with, alternately, a cool washcloth and a warm buckwheat pillow.
- Given a bowl of ice and a bowl of warm cooked rice, [student's name] used his/her hands to explore the two materials with hand-over-hand assistance. [Student's name] indicated the change in temperature with changes in facial expression.
- Given a choice of two cartons of milk (one cold and one room temperature) and asked which was cold, [student's name] touched each carton and then handed the teacher the one that was cold.
- Given a toy boat and two bowls of water, one hot (but not scalding) and one cold, [student's name] tested each with a finger, then, on request, played with the toy boat in the cold water.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.1 *Demonstrate understanding of units of measure and measurable attributes of objects*

Alternate Performance Indicator (API): M.1.3 *Recognize clocks and watches as instruments for measuring time*

Sample Activities:

- When given 10 items (watch, digital clock, analog clock, hourglass, globe, book, candle, pencil, coffee cup, and camera) and asked which ones were used to tell time, [student's name] separated the watch, the two clocks, and the hourglass from the other items.
- Given markers, glue, poster board, scissors, and a catalog of gift items, including clocks and watches, [student's name] made a collage of clocks and watches and labeled it, "Things that Tell Time."
- Given a stack of sixteen picture cards—four clocks, four watches, and eight miscellaneous items that are not used for measuring time—[student's name] placed the pictures of "things we use to tell time" in one stack and the other items in a different stack.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.1 *Demonstrate understanding of units of measure and measurable attributes of objects*

Alternate Performance Indicator (API): M.1.4 *Recognize a thermometer as a device to measure temperature*

Sample Activities:

- When given 10 items (watch, digital clock, analog clock, hourglass, globe, book, candle, coffee cup, thermometer, and camera) and asked which one is used to measure temperature, [student's name] pointed to the thermometer.
- The teacher helped [student's name] and a peer make cardboard thermometers with a movable red bar to represent the mercury. When asked, "What do we do with a thermometer?" [student's name] responded by saying that a thermometer is used to tell the temperature or to tell how hot or cold it is. [Student's name and the peer took turns making the "mercury" in the thermometer go up or down in response to various scenarios provided orally by the teacher (e.g., it's snowing outside; you and your friends are going swimming.)
- Given a stack of sixteen picture cards—eight thermometers of different types and eight miscellaneous items that are not used for measuring temperature—[student's name] placed the pictures of "things we use to tell how hot or cold something is" in one stack and the other items in a different stack.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.1 *Demonstrate understanding of units of measure and measurable attributes of objects*

Alternate Performance Indicator (API): M.1.5 *Identify the days of the week on a calendar*

Sample Activities:

- [Student's name] was given a current calendar and number tiles 1-31. He/she placed each number in its correct position on the calendar by matching the dates.
- [Student's name] delivers items to different classrooms daily as an office worker. On this day, prior to beginning his/her "delivery route," the teacher asked [student's name] what day it was. With prompts as needed [student's name] pointed to the current day on the calendar and orally stated what day of the week it was and which classrooms were to be served on that day.
- Given a one-month calendar and the days of the week on Velcro-backed index cards, [student's name] put each day of the week in its correct location when it was read aloud to him.
- On request, [student's name] independently walked to the calendar and placed the Velcro-backed "days of the week" cards in their proper spots on the calendar.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.1 *Demonstrate understanding of units of measure and measurable attributes of objects*

Alternate Performance Indicator (API): M.1.6 *Demonstrate awareness of measurement using a measuring tool*

Sample Activities:

- Given a computer-based measuring program on a laptop computer, [student's name] matched measuring tools to the objects they would be used to measure (e.g., teaspoon to sugar, thermometer to temperature).
- Given a ruler and a tape measure, [student's name] and a peer measured the following 10 everyday objects: pencil, table, book, spoon, basketball, a peer's shoe, his/her own foot, the class aquarium, stapler, and teacher's desk. The peer wrote the name of each item and its measurements on notebook paper and the two of them discussed how each item compared to previously measured items.
- [Student's name] used a ruler and a yardstick to measure the distance a Matchbox car could travel on various surfaces, such as fabric, wood, grass, sand, and linoleum. He/she made ramps from books and blocks and used them to determine their effect on the car's distance. Results were discussed with the teacher and a peer.
- [Student's name] helped a small group of peers make a cake, using a variety of measuring cups and measuring spoons to measure ingredients. A peer told [student's name] how much of each ingredient was needed, and [student's name] chose the appropriate tool and measured the correct amount, with verbal and touch prompts as needed.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.1 *Demonstrate understanding of units of measure and measurable attributes of objects*

Alternate Performance Indicator (API): M.1.7 *Demonstrate the understanding of time (e.g., use of digital clock, analog clock)*

Sample Activities:

- While out on the track with the P.E. teacher, [student's name] used a stopwatch to measure the running speed of peers for 100 meters and told the teacher the results.
- During music class, [student's name] looked at the clock and told the teacher when it was time to change classes by raising his/her hand when the hands on the classroom clock matched the sample clock taped to [student's name]'s wheelchair tray.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.1 *Use words to describe time (e.g., day, night, morning, afternoon, yesterday, today, tomorrow)*

Sample Activities:

- [Student's name] was shown five pictures clearly representing day and five pictures clearly representing night. As each card was shown, the teacher asked whether the picture represented day or night, and [student's name] orally answered correctly and explained how he/she could tell which it was.
- [Student's name] used colored pencils on butcher paper to illustrate different times of day. Then he/she labeled each picture with the correct word for the time illustrated by the picture (e.g., morning, afternoon, evening, night).

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.2 *Use words to describe temperature (e.g., hot, cold, cool, warm)*

Sample Activities:

- When shown pictures of people dressed for various weather conditions, [student's name] stated whether the temperature was probably hot or cold, based on the clothing worn by the subjects of the pictures.
- When 10 picture cards depicting various temperatures (e.g., a steaming pie, a boy building a snowman, a girl swimming in the ocean on a hot day) were held up in front of [student's name], he/she orally described each picture, including an explanation of what temperature was being depicted and what evidence in the picture supported this conclusion.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.3 *Measure length of an object to the nearest foot and/or inch*

Sample Activities:

- The student used paperclips to measure various objects in the classroom (e.g., a pencil is two large paperclips plus one small paperclip). (Prerequisite)
- Using a pencil and a paperclip, the student worked with a peer to measure classroom objects (e.g., a stapler is as long as one pencil plus one paperclip). (Prerequisite)
- The student used a tennis shoe to measure the length of five different vehicles parked in the parking lot. Permission from the owners was obtained prior to the activity. (Prerequisite)
- [Student's name] used a 12-inch ruler and 60-inch measuring tape to measure various objects in the classroom (e.g., pencil, belt, shoe, pen, sheet of paper) to the nearest $\frac{1}{2}$ inch. A peer recorded the measurements on tablet paper.
- Using a ruler, [student's name] worked with a peer to measure various cars pictured on a workbook page. Each car was measured to the nearest inch, and each measurement was recorded with a pencil on a blank beneath the picture measured.
- [Student's name] used a tape measure to measure the length of five different vehicles parked in the parking lot to the nearest foot. A peer tutor recorded the measurements on a photocopied chart. (Permission from the owners was obtained prior to the activity.)

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.4 *Tell time to the hour and half hour*

Sample Activities:

- [Student's name] made a paper plate clock from construction paper, a brad, and a paper plate. He/she wrote numbers on the face of the clock with a marker. Then [student's name] set the clock to various times (to the hour) as requested by the teacher.
- Using a computer program and a switch adapted for his/her wheelchair, [student's name] matched pictures of digital clocks to pictures of analog clocks showing the same time. The clocks depicted times to the hour and half hour. A peer used the mouse to move the cursor over each answer choice, and [student's name] used the switch to click on the correct answer.
- When the teacher orally presented various times (in half-hour increments) to [student's name], [student's name] set a small, hand-held analog clock to each stated time.
- Ten cards with clock faces on them (showing different times by the quarter hour) were laid out on [student's name]'s desk. A peer would ask [student's name] to point to the clock showing a specific time, and [student's name] would point to the requested clock (e.g., "Point to the clock that says 4:30.").

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.5 *Mark specified days/dates on a calendar*

Sample Activities:

- Given a list on notebook paper of 10 specific dates (e.g., holidays, half-days, ball games), [student's name] used a pencil to copy the dates on the appropriate calendar pages of his/her agenda book.
- Given a calendar for the month of December, [student's name] used stickers to mark the following special dates: Christmas day, the school play, winter break begins, Christmas party, a peer's birthday.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.6 *Count units to find the perimeter of a square using a grid*

Sample Activities:

- After a discussion of perimeter, [student's name] walked around the perimeter of five various-sized squares (from 3'x 3' to 10'x 10') outlined in masking tape and discussed with a peer tutor whether each perimeter was greater or less than the previous one.
- With help from a peer tutor, [student's name] used a ruler to measure the perimeter (in feet) of five various-sized squares (from 3'x 3' to 10'x 10') outlined in masking tape on the floor. [Student's name] told the peer his/her measurements, and the peer wrote down the measurements on an index card.
- The teacher showed [student's name] a quilt made up of equal-sized squares. The teacher helped [student's name] measure the perimeter of the quilt, using each quilt square as one unit of a grid.
- Given a sheet of graph paper with 10 straight lines (five vertical and five horizontal) drawn on it, [student's name] orally counted the units of the grid to measure each line and told the teacher how many units long each line was.
- Given a sheet of graphing paper with five squares drawn on it, [student's name] counted the units of the grid to measure each side of each square and told the teacher how many units long each side was.
- Given a sheet of graphing paper with five squares drawn on it, [student's name] counted the units of the grid to measure the perimeter of each square and used a pencil to write in the center of each square how many units its perimeter was.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.7 *Use standard units to measure length*

Sample Activities:

- With the help of a peer, [student's name] measured a table, a puzzle box, and the distance from the window to the door using each of the following items as units of measure: paperclips, unsharpened #2 pencils of the same size, and a mass market paperback book. The peer recorded the measurements. Then [student's name] and the peer compared the measurements and discussed how varying the unit of measure influences the numbers, but that the relative sizes of the measured objects remained the same (e.g., the longest distance was always the biggest number). (Prerequisite)
- [Student's name] used a 12-inch ruler and 60-inch measuring tape to measure the length of various concrete objects in the classroom (e.g., pencil, belt, shoe, pen, sheet of paper) to the nearest inch. He/she reported his/her measurements to a paraprofessional, who recorded them on a photocopied chart.
- As part of a group activity, [student's name] lay down on a sheet of butcher paper while a teacher used a marker to outline [student's name]'s body. [Student's name] used markers, crayons, colored pencils, yarn, buttons, and other materials to add clothing, hair, and features. All the class "portraits" were attached to the wall. Then [student's name] and peers used measuring tapes to measure and compare the lengths of their portraits.

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.8 *Solve real-world problems involving temperature (e.g., Fahrenheit)*

Sample Activities:

- During a class discussion in Science class, [student's name] helped troubleshoot problems cold weather might cause for horses and helped brainstorm solutions (e.g., windbreaks, blankets). (Prerequisite)
- Given five pictures of thermometers, each representing a different temperature (Fahrenheit), [student's name] orally stated which of the thermometers represented cold weather, and which represented hot weather. (Prerequisite)
- Given a paper chart with temperatures (Fahrenheit) for December 25 and July 25, [student's name] used a pencil to calculate questions asked orally by the teacher (e.g., "Which day was hotter?", "Which day was colder?", "How much warmer was it in August than in December?")

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.9 *Solve real-world problems involving addition and subtraction of measurement using inches*

Sample Activities:

- With help from a peer, [student's name] used a ruler to determine how many inches to cut from each of six gingerbread squares in order to make a gingerbread house. The student used a plastic knife to mark a line on each square where it should be cut.
- During a class project in which an elderly neighbor's backyard was turned into a hummingbird garden, [student's name] used a measuring tape to help measure the distance between various elements of the landscaping (e.g., the distance between the hollyhocks and the butterfly weed).

Content Standard: MEASUREMENT

Standard: *The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.*

Alternate Learning Expectation (ALE): M.2 *Apply appropriate techniques and tools to determine measurements*

Alternate Performance Indicator (API): M.2.10 *Read temperatures on a thermometer to the nearest 10 degrees*

Sample Activities:

- With help as needed, [student's name] made a construction paper thermometer with a red strip that could be manipulated (by sliding more or less of it into a slot) to represent various temperatures. Then the teacher named temperatures (in 10-degree increments), and [student's name] "set" his/her thermometer to the given temperature.
- [Student's name] completed a worksheet by drawing a line from pictures of thermometers to the corresponding temperatures.
- Given a set of 10 cards picturing thermometers showing various temperatures, [student's name] told the teacher what temperature was represented by each thermometer.

Content Standard: DATA ANALYSIS AND PROBABILITY

Standard: *The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.*

Alternate Learning Expectation (ALE): DAP.1 *Develop, select, and use appropriate methods to collect, organize, display, and analyze data*

Alternate Performance Indicator (API): DAP.1.1 *Recognize representations of data using concrete objects, pictures, and simple graphs (e.g., pictographs)*

Sample Activities:

- [Student's name] used various magazines and newspaper supplements to locate ads about personal items, food, and clothing. [Student's name] then cut them out and pasted them into a journal for a later discussion. (Prerequisite)
- Given a simple pictograph representing one child with red hair and three children with brown hair, [student's name] pointed on request to the column that showed how many children had red hair and then to the column that showed how many children had brown hair.

Content Standard: DATA ANALYSIS AND PROBABILITY

Standard: *The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.*

Alternate Learning Expectation (ALE): DAP.2 *Apply basic concepts of probability*

Alternate Performance Indicator (API): DAP.2.1 *Determine whether an event is possible or impossible*

Sample Activities:

- After listening to the legend of Pecos Bill, [student's name] orally discussed which events in the story could actually happen and which could not.
- The teacher orally described 10 separate events, some of which were possible (e.g., "the horse ate some grass") and some of which were impossible (e.g., "the rabbit spread its wings and flew away"). After each event was described, [student's name] told whether or not the event could happen. Upon request, [student's name] explained why the event could or could not happen.

Content Standard: DATA ANALYSIS AND PROBABILITY

Standard: *The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.*

Alternate Learning Expectation (ALE): DAP.2 *Apply basic concepts of probability*

Alternate Performance Indicator (API): DAP.2.2 *Interpret data displayed in simple pictographs*

Sample Activities:

- Given a simple pictograph representing one child with red hair and three children with brown hair, [student's name] orally told (on request) how many children had red hair and how many children had brown hair.
- [Student's name] took part in a class project in which each student tried four different pies—chocolate, pecan, pumpkin, and custard—and placed a paper pie cutout in a pictograph column representing his/her favorite kind of pie. [Student's name] used the completed pictograph to determine how many students in the class favored each kind of pie.

Content Standard: DATA ANALYSIS AND PROBABILITY

Standard: *The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.*

Alternate Learning Expectation (ALE): DAP.2 *Apply basic concepts of probability*

Alternate Performance Indicator (API): DAP.2.3 *Interpret bar graphs with no more than two data items*

Sample Activities:

- The teacher asked each student in the class if he or she preferred cats or dogs. She wrote each answer in the appropriate column of a bar graph on the white board. [Student's name] looked at the bar graph and orally indicated which animal was preferred by more classmates.
- Given a page with a bar graph comparing people who preferred to get up early and people who preferred to sleep late, [student's name] orally indicated which group was the largest, how many were in each group, and the difference (in units) between the two groups.
- The class was given two different flavors of pancakes—banana and blueberry—to sample. [Student's name] chose his/her favorite flavor and used a marker to graph it as the first bar of a bar graph made on poster board. Then [student's name] asked his/her classmates which flavor they liked best and graphed their responses along with his/her own.

Content Standard: DATA ANALYSIS AND PROBABILITY

Standard: *The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.*

Alternate Learning Expectation (ALE): DAP.2 *Apply basic concepts of probability*

Alternate Performance Indicator (API): DAP.2.4 *Connect data in tables to pictographs*

Sample Activities:

- [Student's name] was given a completed table showing students who preferred bicycles, students who preferred skateboards, and students who preferred rollerblades. The teacher and [student's name] discussed the information given in the table. Then [student's name] used the information given in the table to correctly complete a blank pictograph (on poster board) by drawing (with a marker) the correct number of icons in each row of the pictograph.
- [Student's name] was given a completed table showing the number of macaws in the wild, the number of cheetahs in the wild, and the number of black rhinos in the wild. Then he/she was given a marker and a page with an unlabeled pictograph that had three rows of icons representing the numbers in the table. When asked to do so, [student's name] correctly labeled each row of the pictograph.
- [Student's name] was given a completed table showing the number of macaws in the wild, the number of macaws in zoos, number of macaws kept as pets in the U.S. Given a marker and a page with a blank pictograph, [student's name] used the information in the table to label the rows in the pictograph and draw the correct number of icons in each row.

Content Standard: DATA ANALYSIS AND PROBABILITY

Standard: *The student will understand and apply basic statistical and probability concepts in order to organize and analyze data and to make predictions and conjectures.*

Alternate Learning Expectation (ALE): DAP.2 *Apply basic concepts of probability*

Alternate Performance Indicator (API): DAP.2.5 *Determine if an event is likely or not likely using simple experiments (e.g., coin toss)*

Sample Activities:

- [Student's name] and three peers took turns reaching blindly into a container of 10 marbles (2 green, 3 red, 5 blue) to select a colored marble (replaced after being drawn). Each student drew 10 times. For each marble picked, they colored the appropriate square in a bar graph with a marker that matched the color of the marble picked. (The graph was drawn on chart paper and had labels for each of the three possible colors.) The teacher asked guiding questions, such as "Did some results happen more often or less often than others? Do you think some results are more likely to happen than others?" [Student's name] and peers repeated the experiment, this time without replacing the marble, and compared the results.
- [Student's name] and three peers spilled out the contents of cups containing five two-colored counters and used a pencil and paper to record the number of red sides up and the number of yellow sides up. They performed the experiment 20 times, examined their data, and then discussed questions such as "Does getting four red sides up happen more often than two red sides up?" They discussed their reasoning.
- [Student's name] and a peer were each given a spinner with four numbered sections. The students spun their spinners simultaneously, and together they used a pencil and paper to record whether they had a match. After doing this several times, they predicted how many times they would have a match in 20 spins. Then they compared their prediction with what happened when they actually spun the spinners 20 times. They repeated the activity with a different number of equal sections marked on their spinners.

*These activities were adapted from the New Jersey Mathematics Curriculum framework, copyright 1996 by the New Jersey Mathematics Coalition, web address http://dimacs.rutgers.edu/nj_math_coalition/framework/ch12/ch12_k-02.html.