GRADE
PreK-K
ACTIVITIES

TEACHING MATH THROUGH LITERACY

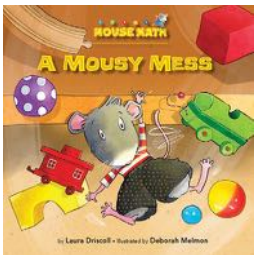
Activities Aligned to Developmentally Appropriate Preschool Goals and Kindergarten Common Core State Standards

LernerClassroom™

SORTING BY SIZE, SHAPE, COLOR, AND USE

LEARNING OBJECTIVE:

We are learning that sorting can be done in many ways. We can sort by size, shape, color, and use.



Sorting

INTRODUCTION:

Children learn that there is more than one way to sort objects. Reading *A Mousy Mess* from the Mouse Math series provides an opportunity for young children to recognize the attributes (size, shape, color, function) of objects in their environment and to use those attributes to sort the objects. Children will recognize that sorting by a new rule can change the way objects are organized.

OPENING ACTIVITY

Before reading the book, play "What's My Rule?" to activate prior knowledge of sorting and to engage children in thinking about the math concept that is highlighted in the book. You may want to first generate some words that children would use to describe themselves, e.g., blond hair (color), four feet tall (size), wearing stripes, plays baseball (activity). Then use the words to sort them into groups. This activity is based on the "What am I thinking?" activity found in *Mathematics Their Way* by Mary Baratta-Lorton.

What's My Rule?

Mark two locations in the classroom in which students will move to create groups and label the groups with numerals 1 and 2. Then think of a rule to sort children into each group, and have them guess the rule. For example:

Say, "Susan can go on in group 1." Susan moves to group 1.
Choose another student. "Marcus doesn't go in group 1; he will go in group 2. " Marcus moves to group 2.
Sort a few more students and then stop to ask, "What's my rule?"
Repeat using different rules, or allow a student to be the sorter.

PREVIEW

Look at the book cover together. Ask children to describe what they notice about the illustration and what they think the story may be about. Then ask the following questions:

What do you think happened to Albert?
Have you ever made a mess with your toys? If yes, how did you clean up the mess?
Do you just put all the toys together in one box or do you have a certain way to store them?

Encourage children to describe how they keep their toys organized and why it may be helpful to sort toys by kind. Allow children time to describe their experiences and then return to the title. Ask, "What do you think the story is about?"

Conduct a picture walk focused on asking questions. Tell children that good thinkers ask questions when they listen and read because it helps them understand. Turn to the following pages and either model thinking aloud or have students generate questions about the illustrations. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: Model: I wonder why Albert looks so excited? I wonder where they are going?
6: What do you wonder about this picture?
10: Is there anything you wonder about this picture?
12: Is there anything you are thinking about this picture that you want to find out?
18: Do you have anything you are wondering about when you look at this picture?
18: Do you have any other questions before we read the story?

Say, "Let's read the story from the beginning to see how Albert cleans up his mess."

Lesson continued on next page

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Lesson continued from previous page

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

5: Why do you think Albert is excited to go to the playroom? What different things do you think he will find there?
7: What do you notice about the way the toys are organized?
14: What do you think Wanda means when she says to make piles of toys that are similar?
16: Do you agree with the rules that Leo and Albert are using to sort the toys? Why?
19: How does Wanda want to sort the toys? Why?
30: Can you think of a different way that you would sort the toys?

AFTER READING: REFLECT AND EXTEND

1. Do the *Sorting Fun* activity as described in the *Try This!* section on page 32 of *A Mousy Mess*.
2. Play *Discover My SORT!* as described in the *Think!* section on page 32.
3. Do some or all of the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children benefit from many opportunities to communicate the attributes of items, sort, compare, and classify. There are many opportunities in daily life in which children can be made aware of how items are classified and can practice sorting/classifying items using different characteristics or rules for sorting.

- Have children sort toys and create labels using either pictures or words to describe the attribute of the items in each collection in a manner similar to those on pages 19 and 23 in *A Mousy Mess*.
- Have children sort blocks or bricks according to different attributes and uses. For example, linking blocks can be sorted by number of connectors, use, color, or size.

Discuss how sorting by use may make more sense than sorting by color, e.g., when trying to locate blocks for building.

- Have children help sort canned foods and other grocery items by type. Encourage them to notice how foods are organized at the grocery store or set up a play store.
- Have children sort a variety of collections by size, shape, color, weight, or texture.

STORIES TO EXTEND

Grandma's Button Box, a Math Matters title, provides an additional literature experience with sorting.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Recognizes and describes how two or more items are similar in some way.
2. Names attributes of objects and places objects together with a similar attribute.
3. Can switch rules for sorting a group of items during a sorting activity.
4. Can sort a group of objects consistently and exhaustively by more than one attribute.

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MATHEMATICS STANDARDS

Kindergarten

K.G.A.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to.*

K.G.A.2: Correctly name shapes regardless of their orientations or overall size.

K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

L.K.5.a: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.

RL.K.1: With prompting and support, ask and answer questions about key details in a text.

RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

Building blocks research site: http://www.buildingblocksmath.org

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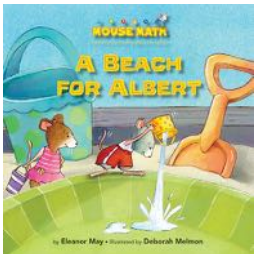
UNDERSTANDING LIQUID CAPACITY

LEARNING OBJECTIVE:

We are learning about liquid capacity, how to estimate the amount of liquid a container holds, and how to compare amounts to determine if one container can hold more, less, or the same as another.



Understanding capacity

INTRODUCTION:

Children develop an understanding of liquid capacity. Reading *A Beach For Albert*, a title in the Mouse Math series, provides an opportunity for young children to understand that liquid capacity refers to the amount of liquid (in this case, water) that a container can hold. They also learn that filling one container with liquid and pouring that liquid into another is a method that can be used to compare the capacity of the two containers. Children follow Albert as he uses containers of various sizes to fill one very large container so as to create a place to swim.

OPENING ACTIVITY

Before reading, use this modification of a common finger play to activate prior knowledge of the characteristics of water and to engage children in thinking about the math concept and vocabulary that is highlighted in the book. (Sing the rhyme below to the tune of "The Wheels on the Bus.")

Splish Splash Song

Oh the water in the cup goes splash, splash, splash
splash, splash, splash, splash, splash, splash.
Oh the water in the cup goes splash, splash, splash
when I pour it out.

Oh the water in the bottle goes splish, splish, splish
splish, splish, splish, splish, splish, splish.
Oh the water in the bottle goes splish, splish, splish
when I pour it out.

Oh the water from the hose goes spurt, spurt, spurt
spurt, spurt, spurt, spurt, spurt, spurt.
Oh the water from the hose goes spurt, spurt, spurt
when I spray it out.

Oh the water from the faucet goes drip, drip, drip
drip, drip, drip, drip, drip, drip.
Oh the water from the faucet goes drip, drip, drip
When I turn it on.

PREVIEW

Look at the cover together and read the title aloud. Ask, "What do you think this story may be about? What is Albert doing? Why?"

Conduct a picture walk pausing to ask questions that focus on what Albert and Wanda are thinking and feeling after children look at the following pages. (Remember: the purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: What is Albert thinking about? Have you ever been to the beach? What are some things you do at the beach?
7: What is Albert's idea? What do you think Wanda is thinking?
9: What do you think is Albert's plan? Do you think it is a good plan?
11: What do you think happened?

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12: What is Albert thinking?
16–17: What do you think Albert will do next?

Say, "Let's read the story from the beginning and see if Albert finds a way to fill the bowl with water."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

5: How is the sandbox like the beach? How is it different?
7: Can you think of something that holds the same amount of water as the bowl? Why doesn't Albert just pour the water into the sand?
9: What happened when Albert dumped the water from the pail into the bowl?
10–11: Albert dumped many pails of water into the bowl; why isn't the bowl full yet?
12–13: Do you agree with Wanda? What makes you think that?
15: Will it be faster if Albert uses Wanda's pail? Why or why not?
16–17: Is the teacup going to be a better choice? What makes you think that?
25: What do you think is Wanda's idea?
28–29: How did the mice manage to fill the bowl so quickly?

AFTER READING: REFLECT AND EXTEND

1. Complete the capacity activity as described in the *Try This!* section on page 32 of *A Beach For Albert.*
2. Complete the capacity prediction activity as described in the *Think!* section on page 32.
3. Do some or all of the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children enjoy measuring and comparing. Providing opportunities to explore capacity reinforces the concepts of size and amount while helping children learn to make comparisons. Children can also explore the concepts of full and empty.

- Have children assist in cooking by measuring and adding liquid ingredients.
- Provide children with a variety of containers with which to explore capacity at bath time or when playing in water or in a sandbox. Have children compare the capacity of different containers using words like *more*, *less*, and *same*.
- Have children select a container and guess how many cups of beans or other pourable materials it will take to fill it. Help them check their thinking.
- Show children a container and have them find another one that will hold more. Then check their thinking.

STORIES TO EXTEND

LuLu's Lemonade, a title in the Math Matters series, provides an additional literature experience with capacity.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Identifies size as an attribute. (For example, the child may describe himself as being tall.)
2. Directly compares two objects and determines which one is taller, bigger, shorter, or longer.
3. Orders three objects by size.

Lesson continued on next page

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MATHEMATICS STANDARDS

Kindergarten

K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has "more of" / "less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

RL.K.1: With prompting and support, ask and answer questions about key details in a text.

REFERENCES:

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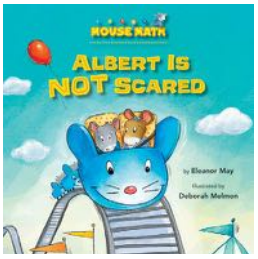
DIRECTION WORDS

LEARNING OBJECTIVE:

We are learning about direction words and how these words help us describe a position, movement, or direction.



Communicating using direction words

INTRODUCTION:

Children develop an understanding of and communicate the spatial relationship between themselves and their environment. They learn that direction words such as *up, down, toward, away, backward,* and *forward* provide a way to describe movement and location. Reading *Albert Is NOT Scared* from the Mouse Math series supports children's understanding by using these words to describe the directions in which amusement park rides move.

OPENING ACTIVITY

Before reading the book, play "Albert Says" to activate prior knowledge of prepositions and direction words and to engage children in thinking about the math concept that is highlighted in the book.

Albert Says

Provide each student with a carpet square or block. This game is played like "Simon Says." One person is Albert and the others are players. Albert tells players what they must do; however, the players only obey commands that begin with the words "Albert says." Students who perform commands that do not begin with "Albert says" are out and sit down until the next round.

Some suggested commands are:

Albert says:

- go 3 steps *left.*
- walk *around* your carpet (block).
- stand *under* your carpet.
- raise your carpet *up* and *down.*
- walk *forward* with your carpet.

PREVIEW

Look at the cover illustration together. (Be sure to cover up the title.) Ask children:

Where do you think this story takes place? What makes you think that?
What do you think this story is about? How might Albert be feeling?

Read the title and ask children the following questions:

Have you ever been to an amusement park?
Was it fun or was it scary?
Did you ever say you were not scared even when you were?

Conduct a picture walk skipping some pages so as to focus on comparing and connecting children's experiences to the text. Pause to ask questions about the following pages. (Remember: the purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

5: Have you ever seen a ride like this? What direction does it go? Is it scary or is it fun? Do you think Albert will be afraid of the ride?
5: What is Albert looking at? How do you think he feels about this ride?
8: Have you ever seen a ride like this? What direction does it go? Is it scary or is it fun? Do you think Albert will be afraid of this ride? What makes you think so?
10: Is this ride scary or is it fun? Do you think Albert will be afraid of this ride?

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12: Is this ride scary or is it fun? Do you think Albert will be afraid of this ride? What makes it fun or scary?
15: Have you ever taken a ride on a train? How does the train move? Do you think Albert will be afraid to ride this train?

Say, "Let's go back to the beginning and read the story to find out what Albert might be scared of."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

6: When the mice take the ride up, are they going toward the top or the bottom of the ride? Can you use your finger to show "up"?
7: Why do you think Albert says he does not like rides that go up and down?
9: What does Albert mean when he says the ride goes side to side?
10: What does it mean to go across the lake? Is there a start and a finish?
11: Can you explain what happens on the Mole Hole ride?
13: What actions occur on the carousel that might scare Albert?
15: What direction is the train going?
16: Can you use your body to show how something can move forward and backward?
17: What do you notice about the sign on this page? What do you notice about the line on the left? What about the line on the right?
18: Can you point to the car that is toward the front?
24: Can you tilt left? Can you tilt right?
30: Do you think Albert may try some of the other rides now that he has gone on the roller coaster? What makes you say that?

AFTER READING: REFLECT AND EXTEND

1. Create a chart or a list of the rides and corresponding directions as described in the *Look Back* section on page 31 of *Albert Is NOT Scared*.
2. Build a mini amusement park as described in the *Try This!* section on page 32.
3. Play the game "Albert Says!" as described in the *Think!* section on page 32.
4. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

There are many opportunities during daily routines for young children to practice giving and following directions. The following experiences can assist children in developing spatial sense by helping them to explore and learn about directions, distance, location, and symbolization. An understanding by young children of spatial concepts and relationships usually predicts later success in math and in following directions.

- Have children hide an object and then give directions to a parent or partner to locate the item. An alternate game is to have the parent or partner guess the location by asking questions. Examples include: Is it across from the lamp? Is it up on the shelf?
- Have children describe the movements of amusement park rides or other moving objects similar to how Albert described the movement of the rides in *Albert Is NOT Scared.*
- Create an obstacle course in which children not only go through the course but also explain their movements and locations.

STORIES TO EXTEND

Lost in the Mouseum, a title in the Mouse Math series, provides an additional literature experience with direction words.

Where's That Bone?, a title in the Math Matters series, provides an additional literature experience with spatial concepts of position and direction.

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DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children natural pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. Attaining the following goals will lead children to new levels of understanding after which they may begin to work on Kindergarten standards. (NOTE: These goals are also influenced by research on spatial development in young children.)

1. Identifies the position of objects in relation to each other (left, right, under, besides, between, toward).
2. Uses and responds to positional words that indicate directions and location or movement.
3. Can turn, slide, or flip one shape to match another shape.

MATHEMATICS STANDARDS

Kindergarten

K.G.A.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to.*

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

K.L.K.1.e: Use the most frequently occurring prepositions (e.g., *to, from, in, out, on, off, for, of, by, with*).
RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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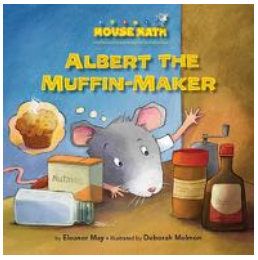
ORDINAL NUMBERS

LEARNING OBJECTIVE:

We are learning that a number can describe an amount of items in a group or the order of one item to others within a group or the steps to complete a task.



Ordinal numbers

INTRODUCTION:

Children learn to recognize ordinal numbers. Reading *Albert the Muffin-Maker* provides an opportunity to introduce children to ordinal numbers. Children learn that the order of the steps in a recipe can be described using ordinal numbers. For example, an ordinal number can be used to describe the first ingredient (item in relation to another) or the first step (order of an action).

OPENING ACTIVITY

Before reading, have children do the following common finger play to activate prior knowledge of ordinal numbers and to engage them in thinking about the math concept that is highlighted in the book.

Five Little Mice

Five little mice were hungry as could be. *(Hold up 5 fingers.)*
"Let's go to the kitchen and see what we can see!" *(Use fingers to make a walking action.)*
The first little mouse found a tasty cookie crumb. *(Act out picking up motion.)*
He ate it right up and said, "Yum! Yum! Yum!" *(Rub tummy.)*
The second little mouse found a piece of jelly bread. *(Act out picking up motion.)*
"Yum. That snack was pretty good," he said. *(Rub tummy.)*
The third little mouse said, "For goodness' sake.
Look at that delicious chocolate cake!" *(Act out looking.)*
The fourth little mouse found a big piece of cheese.
All of a sudden, he started to sneeze! *(Put forefinger under nose.)*
The fifth little mouse hollered, *(Cup mouth.)*
"We'd better scat! Here comes Groucho, that big old cat!" *(Make cat ears.)*

PREVIEW

Look at the cover together as you read the title aloud. Ask the following questions.
What do you think the story is about? What is Albert doing?
Does looking at what Albert is thinking help you figure out what he is doing?
Why do you think he is baking?

Conduct a picture walk focused on asking questions. Tell children that good thinkers ask questions when they listen and read because it helps them understand. Turn to the pages below and either model thinking aloud or have students generate questions about the illustrations. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: Model: I wonder what Albert is looking for? Is Wanda helping him read the recipe?
8–9: Is there anything you are thinking about as you look at these pictures? Is there anything you want to find out?
14–15: Do you have any questions about these pictures?
18–19: What do you want to know about here?

Say, "Let's read the story to find out what Albert and Wanda have to do to make their delicious muffins."

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READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

4: Have you ever baked anything? Did you ever start baking and then find out that you did not have all the ingredients? What did you do?
5: Can you tell by the recipe what the second and third ingredients are that Albert will need?
7: Have you ever borrowed from a neighbor or friend?
10: Do you think Albert was prepared to make the muffins? Why? How do you prepare to bake?
13: Can you count the order of the ingredients while I point to them?
15: Can you count the order of the ingredients here while I point to them?
19: Where do you think Albert will get the milk? What word describes the order of the milk in the recipe?
22: Can you tell how many muffins there are in each muffin tin? Can you tell how many muffins Albert is baking?
25: Can you point to the words *second* and *third*?
28: How many muffins did Wanda and Albert share? How do you know?

AFTER READING: REFLECT AND EXTEND

1. Make the no-bake play dough recipe found in the *Try This!* section on page 32 of *Albert The Muffin-Maker.*
2. Complete the coloring activity as described in the *Think!* section on page 32.
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children need many opportunities to use numbers to tell a sequence or order of events. The following are some activities that you can do to encourage students to count in order while pointing to each item as they count.

- Have children identify ingredients in a recipe. Then have them put the ingredients in a line on the counter in order of use. Have children tell and retell how to make the recipe by pointing to each ingredient and using an ordinal number. For example, "The first ingredient I used was _____."
- Have children use ordinal numbers in an elevator as they make the selection for the desired floor.
- Have children retell stories using ordinal numbers. For example, "First, Albert _____" and so forth.

STORIES TO EXTEND

- *Where's Harley?,* a title in the Math Matters series, provides additional literature experience with ordinal numbers.
- *The Mousier the Merrier!,* a title in the Mouse Math series, provides a literature experience with counting to 15.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. Reaching the goals below will lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Verbally counts with separate words from 1–5.
2. Keeps one-to-one correspondence between counting words and objects.
3. Counts objects to 5 and answers "how many" by stating the last number counted.

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MATHEMATICS STANDARDS

Kindergarten

K.CC.A.2: Count forward beginning from a given number within the known sequence.

K.CC.B.4.b: Understand that the last number name said tells the number of objects counted.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

L.K.5.a: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.

RL.K.1: With prompting and support, ask and answer questions about key details in a text.

RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

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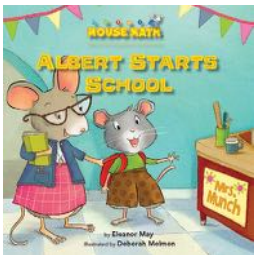
DAYS OF THE WEEK

LEARNING OBJECTIVE:

We are learning about the days of the week and how knowing them can help us plan and understand a schedule.



Days of the week

INTRODUCTION:

Children learn to recite and recognize the days of the week. They recognize that the days of the week are repeated and part of a block of time in a month. Reading *Albert Starts School* from the Mouse Math series supports children's understanding of days of the week and their correct sequential order. Children are exposed to the concept of a schedule and routines that occur in a school setting.

OPENING ACTIVITY

Before reading, have children do the following common finger play to activate prior knowledge of ordinal numbers and to engage them in thinking about the math concept that is highlighted in the book.

Days of the Week
(Stand up.)
Sunday, Sunday,
Clap, clap, clap. *(Clap hands.)*
Monday, Monday,
Tap, tap, tap. *(Tap foot.)*
Tuesday, Tuesday,
Hop, hop, hop. *(Hop on one foot.)*
Wednesday, Wednesday,
Stop, stop, stop. *(Hold up hand.)*
Thursday, Thursday,
Jump, jump, jump. *(Jump on two feet.)*
Friday, Friday,
Thump, thump, thump. *(Pound fists together.)*
Saturday, Saturday,
Turn around. *(Turn around.)*
Now smile quietly
Without a sound! *(Sit down and smile.)*

PREVIEW

Look at the cover together. Read the title aloud and talk about what the story might be about. Guide the discussion by asking children the following questions:

Where is Albert? How do you think Albert might be feeling?
What are some of the activities you do at school during the week?
Did you know what things you would do at school before you started?

Conduct an acting-out picture walk. Tell children to look carefully at some of the activities Albert will do in school and decide what pictures they want to act out. Show pages 4, 6, 12, 16, and 19. Walk around and have children describe the activity they are representing. Encourage some children to share and describe their movement. Ask the following questions:

Have you ever done that activity in school?
How is what you do in your school similar to Albert's school?
How is what you do different?

Say, "Let's read the story to find out more about the fun new activities Albert gets to do in school during his first week."

Lesson continued on next page

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Lesson continued from previous page

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

4: What day of the week is the first day of school for Albert? How do you know?
5: Why is Albert marking an X on the chart?
8: What does Mrs. Munch mean when she says they will paint tomorrow?
9: What do you notice about the board that Mrs. Munch is showing Albert?
9: When will Albert get to paint?
13: Can you find Tuesday on the chart? Can you point to the day that is right before Tuesday? Can you point to the day that will come right after Tuesday?
13: How does Melanie know that tomorrow is Albert's day to feed the fish? What day of the week is Albert's turn to feed the fish?
16: How did Albert know it was music day? Does he now understand the schedule? How do you know?
21: How many days has Albert gone to school? Can you point and say the names all of the days he has gone to school?
23: Albert said Charlie fed Minnie yesterday. What day was that? How does the schedule help Albert?
23: What day did Albert feed Minnie? How do you know?
26–27: How is school different from home? Do you think having a weekly schedule is a good idea when you are in school? Can it help at home?

AFTER READING: REFLECT AND EXTEND

1. Allow children to role-play teaching about the days of the week as described in the *Try This!* section on page 32 of *Albert Starts School.*
2. Create a book as described in the *Think!* section on page 32 of the book.
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children

- Create with the child a weekly chore chart that lists a chore for each day of the week. Make sure the chart is posted and prompt the child to refer to it each day.
- Post a calendar that shows events or activities. Have the child count the number of days up to an event or activity; use vocabulary such as *yesterday*, *today*, *tomorrow*, *past*, *future*. Have the child point to and read the month and days of the week.
- Ask the child to tell the number of days remaining until an event occurs. For example, if today is Monday and we go to music class on Thursdays, how many days until music class? This can be extended beyond a week to events occurring within a month.

STORIES TO EXTEND

Play Date, a title in the Math Matters series, provides an additional literature experience with days of the week, months, and calendars.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. Reaching the following goals will lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Accurately counts verbally to 10.
2. Tells what number comes after a given number in a sequence of numbers up to 10 using a calendar.
3. Identifies *first*, *second*, and *last* in a sequence.
4. Uses the words *yesterday*, *today*, and *tomorrow* to describe personal events or experiences.

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MATHEMATICS STANDARDS

Kindergarten

K.CC.A.2: Count forward beginning from a given number within the known sequence.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

Building blocks research site: http://www.buildingblocksmath.org

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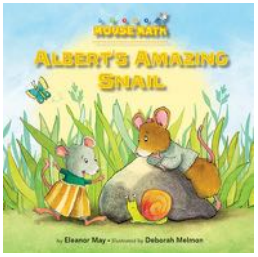
POSITION WORDS

LEARNING OBJECTIVE:

We are learning about words that help us describe position, movement, or direction.



Position words

INTRODUCTION:

Children develop an understanding and communicate the position and location of one object as it relates to another. They learn that position words such as *above, below, in front of, behind, next to,* and *between* provide a way to describe movement and location. Reading *Albert's Amazing Snail* from the Mouse Math series supports children's understanding by using these words to describe the position of Albert and his friends related to objects found outside.

OPENING ACTIVITY

Before reading, use this common finger play to review the concept of speed and build background knowledge highlighting the difference in movement between snails and mice.

The Garden Snail

This can be done sitting down with legs out straight or standing. The snail movement is done with cupped hands slowly moving down and up their legs. The mouse movement is done using fingertips and moving down their legs and up to the top of the their head. When they reach the end of the poem, children can make a triangle with their hands in front of their face for a house and can peek out from behind the house.

Slowly, slowly, very slowly
Goes the little snail.
Slowly, slowly, very slowly
Next to the garden rail.
Quickly, quickly, very quickly
Runs the little mouse
Quickly, quickly, very quickly
Behind its little house.

An alternative launch would be to do the Put It on Paper! movement activity found on the Kane Press website. This activity provides a fun way of engaging children in acting out position words that are highlighted in the book. Go to: http://www.kanepress.com/mousemath-activities.html
Click on the download link under the image of the book *Albert's Amazing Snail*.

PREVIEW

Look at the cover together. Read the title aloud and talk about what it means to be "amazing." Ask the following questions:

How do you think Albert feels about his snail? What things do you know about snails?
How do snails move? How is that different from mice?

Conduct a picture walk focused on asking questions. Tell children that good thinkers ask questions when they listen and read because it helps them understand. Turn to the following pages and either model thinking aloud or have students generate questions about the illustrations.

4: Model: I wonder why Albert looks so excited?
7: What do you wonder about this picture?
11: Is there anything you are thinking about this picture that you want to find out?
14–16: Do you have any questions about these pictures?
30: Do you have any other questions about Albert and his snail?

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Say, "Let's read the story from the beginning to see if we can learn the answers to our questions and find out why Albert's snail is amazing."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading. Be sure to incorporate the questions raised by students during the picture walk.

4: What do you think about the name "Flash" for a snail?
5: Where is Albert in this picture? Where is Wanda?
7: Can you point to a word that tells a position?
7: Why do you think Wanda thinks that Flash would be good at *stay*?
8: Where is Albert if he ran across the yard? How could you do that in your yard?
9: Where did Wanda go? Why?
10: Where is Leo in this picture?
11: We can see that Flash is *far* away from Albert. What position word describes where Leo is?
12: Who can show *beside*?
14: Can we see Albert when he is *inside* the log? Why?
15: How did Albert get to the *bottom* of the pinecones?
16: Do you think it is a harder trick to get *on* or *off* the sunflower?
17: Do you think Flash will be able to swing *under* and *over* the branch? Why?
24–25: What trick does Albert think Flash did? Can you point to the position words?
27: Which picture shows Flash *under* the branch? Which one shows Flash is *off* the branch?
28: Where is Albert looking?
29: Do you agree with Albert that training takes patience?

AFTER READING: REFLECT AND EXTEND

1. Complete the sentences in the *Try This!* section on pages 31 and 32 of *Albert's Amazing Snail.*
2. Create a position words booklet as described in the *Think!* section on page 32 of *Albert's Amazing Snail.*
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

There are many opportunities during daily routines for young children to practice describing the relationship of one object to another or the objects' positions. The following experiences can assist children in developing spatial sense by helping them to explore and learn about directions, distance, and location. An understanding by young children of spatial concepts and relationships usually predicts later success in math and the ability to follow directions:

- Have children create a design or pattern using shape blocks by giving directions such as: "place a red triangle under the orange square."
- Have children model tricks for a pet or a friend similar to what Albert does in the book.
- Play "Follow the Leader" describing movements and locations using position and direction words.
- Create an obstacle course in which children not only go through the course but also explain their movements and locations.

STORIES TO EXTEND

Albert Is NOT Scared and *Lost in the Mouseum*, two titles in the Mouse Math series, provide additional literature experiences with direction and position words.

Where's That Bone?, a title in the Math Matters series, provides additional literature experience with spatial concepts of position and direction.

Lesson continued on next page

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Lesson continued from previous page

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on mathematical learning trajectories research. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards. (NOTE: These goals are also influenced by research on spatial development in young children.)

1. Identifies the position of objects in relation to each other (on, off, left, right, under, beside).
2. Uses and responds to positional words that indicate directions and locations.
3. Can turn, slide, or flip one shape to match another shape.

MATHEMATICS STANDARDS

Kindergarten

K.G.A.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to*.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

K.L.K.1.e: Use the most frequently occurring prepositions (e.g., *to, from, in, out, on, off, for, of, by, with*).
RL.K.1: With prompting and support, ask and answer questions about key details in a text.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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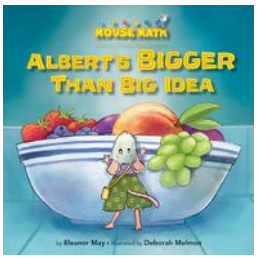
COMPARING SIZES: BIG AND SMALL

LEARNING OBJECTIVE:

We are learning words that help to describe and compare objects by their sizes.



Comparing sizes

INTRODUCTION:

Children develop an understanding of size and how to communicate comparisons between objects by using adjectives. Reading *Albert's BIGGER Than Big Idea* from the Mouse Math series provides an opportunity for young children to use comparative and superlative adjectives such as *smaller* and *smallest*, and to compare and describe two or more objects by their relative sizes.

OPENING ACTIVITY

Before reading, use this modification of a common finger play to activate prior knowledge of right and left and to engage children in thinking about the math concept that is highlighted in the book.

Little, Bigger, Biggest
Leo has a little ball, *(Make a ball with finger and thumb.)*
Wanda has a bigger ball, *(Make a ball with two hands.)*
Albert has a great big ball. *(Make a ball with arms.)*
Now help me count them.
One, Two, Three! *(Repeat gestures for each size.)*

Repeat above with other objects such as:

- A hat (make a triangle with hands on head)
- A shoe (use thumb and forefinger to show about an inch, then two hands)

PREVIEW

Look at the cover illustration together. Read the title aloud and talk about what the story might be about. Ask questions such as:

Where is Albert? What do you think Albert wants?
What might Albert's "bigger than big idea" be?

Conduct a picture walk pausing to ask questions after each of the following pages. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: Where do you think the story will take place?
5: What do you think the characters will do?
8: How do you think Albert is feeling? Why?
11: How do you think Albert is feeling now? Why do you think he feels that way?
12: Does anyone want to make a prediction as to what will happen in this story?

Say, "Let's read the story from the beginning to see if our predictions are correct."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

6: Can you point to the smallest bag? Why do you think Cousin Pete's bag was small and not large?
7: Which mouse is smaller?
8: Do you think the cat is larger or smaller than Albert? What makes you think so?
11: Why does Wanda give Albert the blueberry?

Lesson continued on next page

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15: Now who has the smallest bag?
16: Can you point to the fruit that is the smallest?
18: Do you agree with Wanda that the bag is bigger than Albert?
20: Which of the three fruits is biggest?
22: Why do you think Albert wanted to make such a big bag?
23: Which fruit fits in the bag that is big? That is bigger? Biggest?
26: Is the cat bigger than the peach? What makes you think that?

AFTER READING: REFLECT AND EXTEND

1. Review the story again using the questions in the *Look Back* section on page 31 of *Albert's BIGGER Than Big Idea*.
2. Compare and match different size balls to different size bags as suggested in the *Try This!* section on page 32 of the book.
3. Draw and compare pictures of mice as described in the *Think!* section on page 32.
4. Do some or all of the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

There are many opportunities for children to make and describe comparisons during their daily routines. Children can describe themselves in comparison to other people or objects; they can also make comparisons among objects. An understanding by young children of comparative and superlative relationships will lead to their later success in developing an understanding of geometry, measurement, and data concepts.

- Select an object to show children and ask them to find another object that is either bigger, smaller, longer, shorter, etc.
- Ask children to find three object that can show a superlative relationship, for example: "Find three things that show *small*, *smaller*, and *smallest*."

STORIES TO EXTEND

Too-Tall Tina, a title in the Math Matters series, provides additional literature experience with spatial concepts of position and direction.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research into mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Identifies length and size as attributes. For example, the child may describe himself as being tall.
2. Directly compares two objects and determines which one is taller, bigger, shorter, or longer.
3. Orders three objects by size or length.

MATHEMATICS STANDARDS

Kindergarten

K.G.A.2: Correctly name shapes regardless of their orientations or overall size.
K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

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ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

K.L.K.1.e: Use the most frequently occurring prepositions (e.g., *to, from, in, out, on, off, for, of, by, with*).
RL.K.1: With prompting and support, ask and answer questions about key details in a text.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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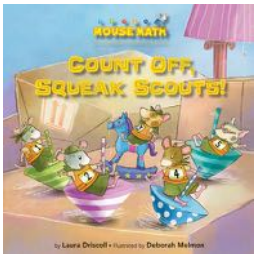
NUMBER SEQUENCE

LEARNING OBJECTIVE:

We are learning how to count in order from 1 to 5 understanding that each number represents the next person or thing in a set.



Counting in order to 5

INTRODUCTION:

Children learn to count forward from 1 to 5 understanding that each numeral has a specific location in the counting sequence. Reading *Count Off, Squeak Scouts!* provides an opportunity for young children to practice the counting sequence and one-to-one correspondence by counting each mouse as the mice count off. Reading this book also provides an opportunity to review the meanings of *before* and *after*.

OPENING ACTIVITY

Before reading, have children do this finger play to activate prior knowledge of counting to five and to engage children in thinking about the math concept that is highlighted in the book. This finger play is a modification to the common "Five Little Bunnies" song.

Five Little Mice Finger Play

One little mouse, wondering what to do. *(Hold up thumb.)*
Another mouse came along and that made two. *(Hold up thumb and forefinger.)*
Count the mice. Count them with me. How many mice do you see?
One, Two is what I see. *(Point with index finger of opposite hand while counting the thumb and finger.)*
Two little mice wiggling like me, *(Wiggle thumb and finger.)*
Another comes along, and now there are three. *(Hold up thumb and 2 fingers.)*
Count the mice. Count them with me. How many mice do you see?
One, Two, Three is what I see. *(Point with index finger of opposite hand while counting the thumb and fingers.)*
Three little mice sneak outdoors, *(Point fingers straight ahead and wiggle slowly.)*
Another joins in and now there are four.
Count the mice. Count them with me. How many mice do you see?
One, Two, Three, Four is what I see. *(Point with index finger of opposite hand while counting the thumb and fingers.)*
Four little mice run from the cat to survive.
They meet up with another and now there are five.
Count the mice. Count them with me. How many mice do you see?
One, Two, Three, Four, Five is what I see. *(Point with index finger of opposite hand while counting the thumb and fingers.)*
Five little mice ready for something yummy,
Each looks for some food *(Put fingers around eyes to make a looking motion.)*
to put in their tummy. *(Rub tummy.)*

PREVIEW

Look at the cover together. Read the title aloud and talk about what the story might be about.

- What do you think Squeak Scouts are?
- How many mice do you see on the cover?
- What do you think it means to count off?

Open to the title page and ask:

- Does this image help you understand what it means to count off?
- Why do you think they are counting in order?

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Conduct a picture walk skipping some pages to focus on comparing and connecting children's experiences to the text. Pause to ask questions on the following pages:

4: What do you think is happening?
5: The label on the suitcase says *Albert's Collection*. What do you think is inside? Have you ever had a collection? What was in your collection?
9: Why do you think the mice are wearing shirts that have numbers on them? Have you ever worn a shirt like that? Can you think of other groups that wear shirts with numbers?
11: Where do you think the mice are going? Can you think of a time when you had to climb up something and needed help?
12: What kind of place does this look like? Do you have a place in your house where you store items? What kinds of things do you store?
13: What do you think the mice will find?

Say, "Let's go to the beginning and read the story to find out more about the adventures of the Squeak Scouts."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

7: What are some of the treasures that Albert found? What might he find in the attic?
9: Who is wearing number 3? What about number 4? Can you point to the mouse that is wearing number 5?
10: Can you count in order while I point to each mouse?
16: Do you agree with Wanda that the number 2 comes after the number 1? What number comes after 2?
17: Let's count in order like the Squeak Scouts.
20: Let's count backward from 5 while I point to each mouse.
25: What number is between 3 and 5? What number is between 2 and 4?
28: What do you think happened? Let's count, in order, the numbers on each mouse.
30: Can you retell the story in order?

AFTER READING: REFLECT AND EXTEND

1. Role-play being Squeak Scouts for a day as described in the *Try This!* section on page 32 of *Count Off, Squeak Scouts!*
2. Create the "How To" booklet as described in the *Think!* section on page 32.
3. Do some or all of the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children need many opportunities to count and to practice one-to-one correspondence. The following are some activities that you can do to encourage students to count in order while pointing to each item as they count.

- Have children count off as they get in and out of the family car, or sit down for a snack, or participate in an activity.
- Play "Spill and Count" by putting a small number of items or snacks such as small crackers into a cup. Have the child spill the items and count them. Children often cannot estimate or determine the amount in the cup without counting, so this is an activity that can be done many times.
- Roll a die and have the child count the dots. Then have the child select or place the same number of items according to the situation. For example: items in the bathtub or chips on a plate.

STORIES TO EXTEND

Count on Pablo, a title in the Math Matters series, provides an additional literature experience with counting as well as skip counting.

Lesson continued on next page

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DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. Reaching the following goals will lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Verbally counts with separate words from 1–5.
2. Keeps one-to-one correspondence between counting words and objects.
3. Counts objects to 5 and answers "how many" by stating the last number counted.

MATHEMATICS STANDARDS

Kindergarten

K.CC.A.1: Count to 100 by ones and by tens.

K.CC.A.2: Count forward beginning from a given number within the known sequence.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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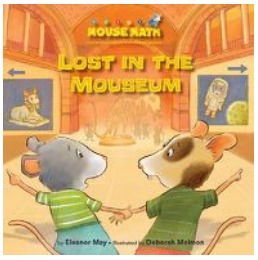
LEFT, RIGHT, STRAIGHT

LEARNING OBJECTIVE:

I am (We are) learning about direction words *right, left,* and *straight* and how these words help us to describe a location or direction.



Direction words

INTRODUCTION:

Children develop an understanding of and communicate the spatial relationship between themselves and their environment. They learn that maps can be used to illustrate the location of objects and help you determine a route or direction of travel. Reading *Lost In The Mouseum,* a title in the Mouse Math series, teaches children that direction words can assist in describing direction and location. These words help us to be more precise.

OPENING ACTIVITY

Before reading, use this common finger play to activate prior knowledge of right and left and to engage children in thinking about the math concept that is highlighted in the book.

Right Hand, Left Hand Finger Play

This is my right hand,
I'll raise it up high. *(Raise right hand over head.)*
This is my left hand,
I'll touch the sky. *(Put up left hand.)*
Right hand *(Show right palm.)*
Left hand *(Show left palm.)*
Roll them around. *(Roll hands over and over.)*
Left hand *(Show left palm.)*
Right hand *(Show right palm.)*
Pound, pound, pound! *(Pound fists together.)*

PREVIEW

Look at the cover illustration together. Be sure to hide the title. Ask these questions:

Where do you think this story takes place? (Discuss the types of exhibits that can be seen in a museum.)
What do you think the story is about? What do you think the mice are saying?

Read the title and ask children about a time when they were lost. Ask, "What helped you find your way?" Discuss how museums often have maps to help people find their way around the exhibits.

Conduct a picture walk focused on comparing and connecting children's experiences to the text, pausing to ask questions after the following pages. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: What do you notice about this museum?
6: What do you think is happening in this picture? Did you ever want to go to one place but the person you were with wanted to go somewhere else? How did you decide?
7: What do you think the friends decided to do?
9: What do you think Albert and Leo are doing? Have you ever been to a museum where you could touch and play with the exhibit?
10: What do you think happened? How do Albert and Leo look?

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11: What do you think Albert and Leo are going to do? Have you ever had to look for someone? Have you ever been lost? How did you feel? Did you need to use directions to find your way?

Say, "Let's read the story from the beginning to find out if Albert and Leo find their friend or if they also get lost."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

4: Can you find the arrow that points left? Can you point to Albert's left hand?
5: Which way do you think Penny wants to go? Why?
6: Can you point to the arrow that shows where Penny wants to go? What direction is it pointing?
7: How many mice are going right? How many are going left?
12: In which direction is Albert going to go? Why do you think it is better to use a direction word instead of saying, "I am going that way?"
17: Which direction is the statue pointing?
22: Why do you think the mouse is crying? Can you point to the piece of cheese that is on the right?
25: Are Leo and Albert going left or right toward the doorway?
29: What do you notice is on the wall? What does the red line mean? In what direction is the line going?

AFTER READING: REFLECT AND EXTEND

1. Create a class maze as described in the *Try This!* section on page 31 of *Lost in the Mouseum*.
2. Play "Albert Says" as described in the *Think!* section on page 32.
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

There are many opportunities during daily routines for young children to practice giving and following directions. The following experiences can assist children in developing spatial sense by helping them to explore and learn about directions, distances, locations, and symbolization. An understanding by young children of spatial concepts and relationships usually predicts later success in math and in following directions.

- When taking trips in a car, provide children with a simple map or list of directions, and have them tell the driver whether to go left, right, or straight. This works very well when the trips are to familiar locations.
- Create a treasure map to locate a hidden item. Use symbols to represent common objects found in the location. Add counted-out "feet" from one spot to another for an additional challenge.
- Play "I Spy" in which one person locates an item and the other describes its location. For example, the adult may say, "I spy a red ball." The child can respond, "I see a red ball to the left of the toy box."
- Using tangrams or paper shapes, have children create a design or pattern by giving directions such as, "place a red triangle to the left of the orange square."

STORIES TO EXTEND

Albert Is NOT Scared, a title in the Mouse Math series, provides an additional literature experience with direction words.

Where's That Bone?, a title in the Math Matters, provides an additional literature experience with the spatial concepts of position and direction.

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DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards. (NOTE: These goals are also influenced by work on spatial development in young children.)

1. Identifies the position of objects in relation to each other (on, off, left, right, under, besides).
2. Uses and responds to positional words that indicate directions and location.
3. Can turn, slide, or flip one shape to match another shape.

NATIONAL SOCIAL STUDIES STANDARDS

K–12

NSS-G.K-12: Understand how to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

MATHEMATICS STANDARDS

Kindergarten

K.G.A.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to.*

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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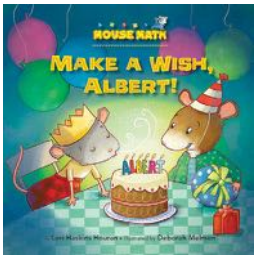
IDENTIFYING 3-D SHAPES

LEARNING OBJECTIVE:

We are learning how to identify and name three-dimensional shapes.



Identifying 3-dimensional shapes

INTRODUCTION:

Children learn about the attributes of three-dimensional shapes. Reading *Make a Wish, Albert!* from the Mouse Math series supports children's understanding that three-dimensional shapes have height, width, and depth. The story provides opportunities to discuss how three-dimensional shapes are similar and different from two-dimensional shapes.

OPENING ACTIVITY

Before reading, have children go on a shape hunt to activate prior knowledge of three-dimensional shapes and to engage children in thinking about the math concept that is highlighted in the book. Children can use a camera, iPad, or other device to take pictures of things in their environment. They can either print out the photos or simply preview them to discuss similarities and/or differences. Children love taking pictures and going back to look at them. If taking pictures is not a possibility, have children post sticky notes on items. They can either draw the shape that matches the item or write the word to describe the shape. Children then compare the items and discuss similarities and difference as they would with the photographs.

PREVIEW

Look at the cover together. Be sure to cover up the title. Ask, "What is Albert doing? Why?"

Reveal the title and ask questions such as: What does the title tell you about the story?
What fun things do you do on your birthday? Have you ever had a party? What did you do at the party?

Conduct a comparing and connecting picture walk to link story details to the children's experiences. Pause to ask questions after the following pages. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: How do you think Albert is feeling? How do you feel on your birthday?
5: It looks like Albert will have a cake. Do you have cake on your birthday?
6: What do you think is happening here?
9: What is happening here? Have you ever gotten so excited that you had an accident like Albert?
Skip to:
16: It looks like Albert has a lot of people at his party. Who comes to celebrate your birthday?
17: What games are they playing at the birthday party? Do you play games on your birthday?
19: What do you think Albert's wish is? Do you think he will get it?

Say, "Let's read from the beginning to see if Albert gets his wish."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

5: This picture tells us the cake is a cylinder. Is there another cylinder in the kitchen?
6: This picture tells us that a balloon is a sphere. How many spheres are there?
7: This picture tells us that the box is a cube. Are there other shapes on this page?
9: This picture tells us that the hat is a cone? Can you think of where you have seen a cone?
10–11: Do you see any 2-D or 3-D shapes on these pages?
12: Why do you think it is difficult for Albert to ride the scooter?
14–15: Can you match the toys with the pictures at the bottom of the page?
20–21: Can you match the toys with the pictures at the bottom of the page?

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24: Why doesn't Albert think his last present is a scooter? What do you think it is?
30: Did Albert's wish come true? Do you think he is thankful? What shapes did we see in the story?

AFTER READING: REFLECT AND EXTEND

1. Play the "Detectives at Work!" game as described in the *Try This!* section on page 32 of *Make a Wish, Albert!*
2. Make clay shapes as described in the *Think!* section on page 32.
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children

- Play "I Spy a Shape" game in which one person says, "I spy with my little eye, a cube." The other person tries to guess the item.
- Encourage children to construct objects using building blocks. Have them describe the shapes in their construction.
- Provide children with different shaped pastas or other collections to sort by shape and size.

STORIES TO EXTEND

Kitten Castle, a title in the Math Matters series, provides an additional literature experience with three-dimensional shapes.

Mice on Ice, a title in the Mouse Math series, provides experience with two-dimensional shapes.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. Reaching the following goals will lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Matches basic shapes with the same size and orientation.
2. Matches a variety of shapes with different sizes and orientation.
3. Matches a given 3-D shape.

MATHEMATICS STANDARDS

Kindergarten

K.G.A.2: Correctly name shapes regardless of their orientations or overall size.

K.G.A.3: Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

L.K.5.a: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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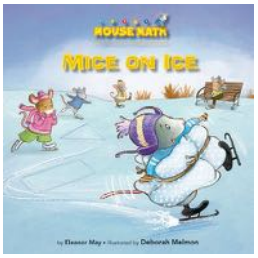
IDENTIFYING 2-D SHAPES

LEARNING OBJECTIVE:

We are learning how to identify and make two-dimensional shapes.



Identifying 2-dimensional shapes

INTRODUCTION:

Children learn about the attributes of basic shapes. They recognize that shapes are found all around us. Reading *Mice on Ice,* a title in the Mouse Math series, provides an opportunity for children to recognize and describe two-dimensional shapes. The book provides opportunities to discuss how shapes are similar and how they are different.

OPENING ACTIVITY

Before reading, use this modification of a common shape song to activate prior knowledge of two-dimensional shapes and to engage children in thinking about the math concept that is highlighted in the book. The song can be stated like a rhyme or sung to the tune of "Twinkle, Twinkle, Little Star." Provide children with paper shapes like those found in the story. Repeat the song with different shapes.

Shape Song

Put your circle shape in the air,
Hold it high and keep it there.
Put your circle shape on your back,
Now please lay it on your lap.
Put your circle shape on your toes,
Now please hold it by your nose.
Hold your circle shape in your hand,
Now will everyone please stand?
Wave your circle shape at the door,
Now please lay it on the floor.
Hold your circle shape and jump, jump, jump!
Now hold your circle shape way, way up.

Repeat with another shape.

PREVIEW

Look at the cover together. Ask the following questions:

What do you think the story is about?
What are the mice doing? Have you ever gone ice skating? What was it like?
What do you notice about Albert? Why do you think he is dressed that way?
Can you spot anything in the ice?

Conduct a picture walk pausing to ask questions after the following pages. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

Title page: What do you think is happening here? Where do you think the story will take place?

4: How do you think Albert is feeling? Do you notice any shapes on this page?
5: What do you think Wanda is thinking?
7: What do you notice on this page?
8: Do you think the mice are good skaters? What makes you think that?
9: Do you think it is easy or hard to ice skate? Is it hard to make shapes in the ice? Do you think Albert will be good at skating? What makes you think so?

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10: What happened?
12: What do you think the mice will do?
16: Did Albert help make the square?
18: What do you think Wanda is doing? Do you think Albert can make a circle?

Say, "Let's read from the beginning to see if Albert learns to skate and can make shapes on the ice."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

4: How does Albert know that he and Wanda can go ice skating?
7: What are the other mice doing? What shapes do you notice that the mice made in the ice?
8: Why does Wanda think a triangle is a perfect shape for the triplets?
12: How do you think the mice will skate out a square? Why are there four mice making the square?
16: Were the mice able to make a square? Why?
22: How is the oval different from the circle? How is it similar?
29: How many sides does Albert's rectangle have? How is the rectangle different from the square?

AFTER READING: REFLECT AND EXTEND

1. Complete the shape activity as described in the *Try This!* section on page 32 of *Mice on Ice.*
2. Go "rice skating" as described in the *Think!* section on page 32.
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children

- Play the "I Spy a Shape" game in which one person says, "I spy with my little eye, a square." The other person tries to guess the item. This game can be played anywhere and can be expanded from two- to three-dimensional shapes.
- Provide children with paints and with shapes cut from sponges. Have children stamp-paint a picture made up of the various shapes.
- Have children draw large shapes outside like the mice in the story using sidewalk chalk.
- Make shape cookies using shape cookie cutters.

STORIES TO EXTEND

Math Fair Blues and *Kitten Castle,* two titles in the Math Matters series, provide additional literature experiences with two-dimensional and three-dimensional shapes.

Make a Wish, Albert!, a title in the Mouse Math series, provides an additional literature experience expanding learning to three-dimensional shapes.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Matches basic shapes with the same size and orientation.
2. Matches a variety of shapes with different sizes and orientation.
3. Draws or makes a shape that matches a given shape and names the shape.

Lesson continued on next page

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Lesson continued from previous page

MATHEMATICS STANDARDS

Kindergarten

K.G.A.2: Correctly name shapes regardless of their orientations or overall size.

K.G.A.3: Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

L.K.5.a: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.

RL.K.1: With prompting and support, ask and answer questions about key details in a text.

RL.K.10: Actively engage in group reading activities with purpose and understanding.

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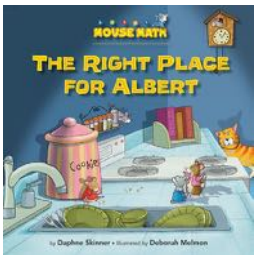
ONE-TO-ONE CORRESPONDENCE

LEARNING OBJECTIVE:

We are learning how to match to make a pair or to fit one item into one space.



One-to-one correspondence

INTRODUCTION:

Children learn one-to-one correspondence by matching up two items. Reading *The Right Place For Albert* from the Mouse Math series supports an understanding of one-to-one correspondence by following characters as they apply the rule of matching one mouse to one hiding place.

OPENING ACTIVITY

Before reading, have children do this finger play to activate prior knowledge of counting and one-to-one correspondence as well as to engage children in thinking about the math concept that is highlighted in the book.

Start the activity with five fingers on the left hand pointing down toward the floor. Grab or point to each finger as you tell about each mouse.

Five Little Mice

Five little mice on the pantry floor, *(Point left hand fingers down and wiggle.)*
This little mouse peeked
behind the door.
This little mouse nibbled at the cake.
This little mouse not a sound did make.
This little mouse heard the cat sneeze.
"Ah-choo!" sneezed the cat,
And, "Squeak!" they all cried,
And they found a hole and ran inside. *(Point left hand fingers down and wiggle.)*

PREVIEW

Look at the cover together. Read the title aloud. Ask questions such as:

Where do you think the story takes place?
Do you see any other mice?
Where are they?

Return to the title. Ask: "What do you think the story is about?"

Conduct a picture walk skipping some pages to focus on comparing and to connect the children's experiences to the text. Pause and ask questions as children look at the following pages:

6: What do you think Wanda and Albert are thinking about? Why?
8: What do you think is happening on this page? Who do you think they are hiding from?
9: Have you ever hidden from someone? What makes a good hiding place?
12: Do these mice have good hiding places? What makes you think so?
15: Do these mice have good hiding places? Why?
18: How does Albert look? Why might he be scared?
19: Do you think Albert found a good hiding place?

Say, "Let's read the story from the beginning and see if Albert finds a place to hide that is safe from the people *and* the cat."

Lesson continued on next page

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Lesson continued from previous page

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

7: Why do you think the mice have the rule: "one mouse, one hiding place?" What had happened before the rule was made?
12: How many mice are hiding? Let's count each mouse and their hiding place.
13: Why can't Albert hide with Wanda?
14–15: How many more mice are hiding? Is the rule like matching? How?
19: What do you think of Albert's hiding place? Does it follow the rule?
21: How do you think the cat found Albert? What do you think will happen next?
25: What do you think of Albert's hiding place under the fridge?
29: Why do the mice think the rule is a good rule?

AFTER READING: REFLECT AND EXTEND

1. Complete the egg carton activity in the *Try This!* section on page 32 of *The Right Place for Albert.*
2. Complete the snail hiding activity as described in the *Think!* section on page 32.
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children need many opportunities to count and practice one-to one correspondence through matching. There are many ways that matching can be practiced at home and in school.

- Have children assist matching the family socks or clothing, such as one shirt for one pair of pants.
- Line up a row of items, such as small crackers or blocks, and have the child count out the same amount by matching each item in the row and counting.
- Play a "match my movement" activity in which you clap, snap, hop, or stamp a specific number of times and the child copies the movement while counting.
- Have children count out items for daily activities such as setting the table or putting out cups for snack time.

STORIES TO EXTEND

Count on Pablo, a title in the Math Matters series, provides an additional literature experience with counting.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Verbally counts with separate words from 1–5.
2. Keeps one-to-one correspondence between counting words and objects.

MATHEMATICS STANDARDS

Kindergarten

K.CC.A.2: Count forward beginning from a given number within the known sequence.

K.CC.B.4.b: Understand that the last number name said tells the number of objects counted.

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ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

L.K.5.a: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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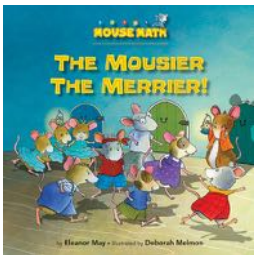
COUNTING TO FIND A TOTAL

LEARNING OBJECTIVE:

We are learning how to count to find a total when we add more to a group.



Counting to 15

INTRODUCTION:

Children learn to count forward from 1 to 15 and understand that each numeral has a specific location in the counting sequence. Reading *The Mousier the Merrier!* from the Mouse Math series provides an opportunity for young children to practice the counting sequence and learn that each time one or more mice are added to the group the total increases.

OPENING ACTIVITY

Before reading, have children do this modification to a common finger play to activate prior knowledge of counting to 10 and to engage children in thinking about the math concept that is highlighted in the book.

I Can Count

I can count. Want to see?
Here are my fingers, one two three. *(Hold up one hand; count fingers with other hand.)*
Four and five, this hand is done. Now I'll count the other one!
Six, seven, eight, and nine.
Just one more, I'm doing fine. *(Use other hand to count.)*
The last little finger is number ten.
Now I'll count them all again: 1 2 3 4 5 6 7 8 9 10. *(Put up one finger for each number.)*
That's ten! *(Hold up both hands and press them forward.)*

PREVIEW

Look at the book cover together and read the title. Ask the following questions:

What do you think the story is about?
Have you ever heard the phrase "the more the merrier"? What do you think it means?
What does it mean to be merry? What about merrier?

Say, "Now let's do a picture walk and see what Albert and Wanda are thinking and if they are merry."

Conduct a picture walk pausing after the following pages to ask questions that focus on what Albert and Wanda are thinking and feeling. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: How do you think Albert feels? Why do you think he is bored or sad?
6: What is Albert's idea? What is Wanda thinking?
9: How do Albert and Wanda look? Why?
12: What is Albert thinking now?
16: What is Albert thinking about all the friends?
18: What is Wanda thinking about all the friends?
20: Are Wanda and Albert thinking the same thing? What do you notice about Wanda's thinking?

Now that the children are actively engaged, stop and say, "Let's read the story to find out if having more friends to play with is merrier."

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READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

6: Let's point and count the number of mice playing the game.
7: How many mice will play the game if Lucy and Wanda play?
7: What do you think Albert's mom means when she says, "the mousier the merrier"?
11: How many mice will play the game if Charlie joins the group of four?
13: Let's point as we count each mouse.
16: How many mice will play the game if Rachel and Ronald join the group of five?
17: How many mice will there be if the triplets join the group of seven mice? How do you know?
19: Now how many mice will be playing if the band members join the 10 mice?
20–21: Let's point as we count each mouse.
24–25: Let's count all the mice.

AFTER READING: REFLECT AND EXTEND

1. Count the mice on pages 24–25 as described in the *Try This!* section on page 31 of *The Mousier the Merrier!*
2. Have a child retell the story as described in the *Think!* section on page 32 of *The Mousier the Merrier!*
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children need many opportunities to count and practice one-to-one correspondence. The following are some activities that you can do to encourage students to count in order while pointing to each item as they count.

- Have children count steps as they climb.
- Have children play hopscotch counting the numbers aloud as they jump.
- Have children count out items such as chips at snack time, buttons on clothing, or houses on a street. Then ask them to say how many they would have if they were given X more.
- Have children count the number of people in a line. How many people are in front of them? How many are behind? Recount as the line decreases and increases.

STORIES TO EXTEND

Count Off, Squeak Scouts!, another book in the Mouse Math series, provides a literature experience with counting to five, while the book *Albert Adds Up!* provides a literature experience with addition and subtraction.

Count on Pablo, a title in the Math Matters series, provides an additional literature experience with counting as well as skip counting.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Counts verbally from 1–10.
2. Keeps one-to-one correspondence between counting words and objects.
3. Counts objects to five and answers "how many" by stating the last number counted.
4. Solves joining problems to five and then to 10 by using objects and applying a "counts all" method. (For example, if Albert had two blocks and found one more block, the student would count out two blocks, then one block, and finally count all three blocks to determine the total number of blocks.)

Lesson continued on next page

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Lesson continued from previous page

MATHEMATICS STANDARDS

Kindergarten

K.CC.A.1: Count to 100 by ones and by tens.
K.CC.A.2: Count forward beginning from a given number within the known sequence.
K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations, using as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

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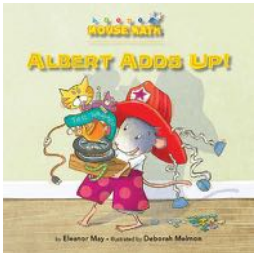
ADDING AND TAKING AWAY

LEARNING OBJECTIVE:

We are learning how addition is used to find how many in all when we join groups of objects, and how subtraction is used to find how many are left when we take away objects.



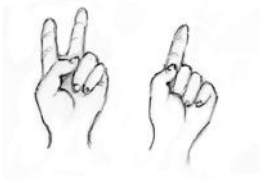
Addition and subtraction

INTRODUCTION:

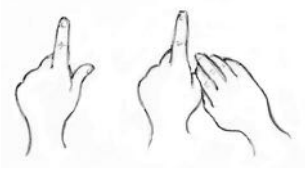
Children are introduced to addition and subtraction operations through a real-world situation in which Albert adds and removes one or two toys of a collection. The operations are introduced through language and action and are represented as equations. Reading *Albert Adds Up!* from the Mouse Math series provides an opportunity for young children to discover how addition and subtraction are related operations. They see that as Albert adds toys to a collection the total increases, but when he removes toys from the same collection the total decreases.

OPENING ACTIVITY

Before reading, use this finger play to activate prior knowledge of joining to add and taking away to subtract to engage children in thinking about the math concept that is highlighted in the book.
Action: Use fingers on the left hand to keep the total. For joining, hold up one finger on the right hand and line it up with the total fingers on the right hand. For subtraction, use the right hand to cover a finger to show taking away.



Addition: two fingers, then one more joins by sliding one finger over to join two.



Subtraction: First two fingers, then cover one with right hand.

<u>One Lonely Mouse</u>

One little mouse, lonely living at the zoo,
He met a friend, and that made two.
Two little mice, a he and a she,
Another one joined and that made three.
Three little mice crawled under the door,
Met another mouse and that made four.
Four little mice getting honey from a hive
Joined with another, and that made five.
Five little mice, now not just one,
Lonely no more, has four friends to have fun.
The five little mice at the zoo now play,
A tiger catches one and four run away.
Four little mice at the zoo now play,
A lion catches one and three run away.
Three little mice at the zoo now play,
An eagle catches one and two run away.
Two little mice at the zoo now play,
A bobcat catches one and one runs away.
One little mouse left lonely at the zoo.

Lesson continued on next page

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PREVIEW

Look at the cover together. Read the summary on the back cover ("Wanda has brought home an awesome new book from the library—and Albert would trade anything for it! But will adding toy after toy get him any closer to the book?")

> Ask: "What do you think this story is about? Do you have a favorite book or series of books that you really love?"
> Tell children that Albert has a favorite series that he loves to read. He will trade almost anything to get the newest book.

Conduct a picture walk. Pause on each page below to have students create mind pictures linking what they see in the illustrations to their own experiences. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

4: Can you tell how Albert feels in this picture? Can you think of a time when you felt that way?
4: Can you think of your favorite book and what it was like to read it?
8: Why do you think Albert is trying to give his toys to Wanda? Can you think back to when you traded for something? Why did you want to trade?
10: It looks as if Albert made one of his toys. Have you ever made a toy?
13: It looks as if Albert wants to give Wanda his pets. How would you feel about sharing or giving away your pet? What does that tell you about how Albert feels about the new book?
13: Do you think Wanda will trade with Albert?

Say, "Let's read the story from the beginning to see if our prediction is correct."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

6: Who can show how many toys Albert will give Wanda if she lets him read the book first?
8: What does this sign mean? (Point to the plus sign and discuss both the word *plus* and the word *and*.)
8: What does this sign mean? (Point to the equals sign and discuss the word *equals* and the term *is the same as*.)
8: Now that we understand the signs, who can say what the number sentence means? (Be sure to reinforce that the sum of two represents the total number of toys.)
11: Can you read the number sentence? (Emphasize the unit of the sum: Listen for 2 toys plus/and 1 hat (or secret sucker) equals 3 things. OR: 2 toys plus 1 toy equals 3 toys.)
13: Do you agree with Albert that he has 5 things altogether? How do you know?
16: First Albert offered Wanda 5 things and now he added a gumball. How many things will he give Wanda so he can be the first to read *Captain Slime*?
18: How can we read this number sentence?
19: How can we use "counting on" to check Albert's thinking? (Point to the group of 7. Say "seven" and continue counting the remaining items.)
20: Why do you think Albert counted the puzzle as 1 more thing and not as 500 more?
21: What does this sign mean? (Point to the minus sign and discuss the word *less* and the term *take away*.)
22: How can we read this number sentence? (11 things less 1 thing is 10 things left.)
23: How many things are left now? How do you know?
24: How can we read this number sentence?
26: What happens when Albert takes the last 3 things away?
27: Why isn't Wanda willing to make a trade with Albert?
30: Can you say a number sentence that tells how many animals are reading the book? (1 mouse plus 1 mouse is 2 mice reading OR 2 mice plus 1 snail equals 3 animals reading.)

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AFTER READING: REFLECT AND EXTEND

1. Create an addition chart like the ones suggested in the *Look Back* section on page 31 or a subtraction chart suggested in the *Try This!* section on page 32 of *Albert Adds Up!*
2. Do some or all of the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children need many opportunities to combine and separate objects in order to understand part/whole relationships leading into an understanding of addition and subtraction.

The following list provides some examples of when children can be prompted to combine items (compose) to find a total or to separate items (decompose) into smaller groups.

- Have children build using a specific number of building bricks. Have them verbalize while building: "I am adding one yellow brick to my building so now it has seven." An alternate activity is to provide children with a structure and have them take away bricks.
- Provide children with a collection and have them sort in many different ways. Have children verbalize their sorts, for example, "I have three yellow buttons, two red buttons, and three blue buttons. I have eight buttons in all."
- Have students state the total for those items they want more of. For example, the child wants one more pancake. Say, "You had two pancakes and now you have one more. How many pancakes is two plus two?"
- Have children make a list of their favorite toys. How many toys are favorites?
- Provide oral story problems and have children act out adding and subtracting by physically moving into (joining) a group or leaving a group. For example, say, "Five children are sitting on the rug, three go home on the bus. How many children are still on the rug?

STORIES TO EXTEND

A Collection for Kate and *Lights Out!,* two titles in the Math Matters series, provide additional literature experiences with addition and subtraction.

DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research into mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Solves joining problems to five and then to 10 by using objects and applying a "counts all" method. (For example, if Albert had two blocks and found one more block, the student would count out two blocks, then one block, and finally count all three block to determine the total number of blocks.)
2. Solves take-away problems within five and then within 10 by separating objects from a starting amount to determine how many are left.
3. Solves addition problems to five and then to 10 by using objects and "counting on" by adding onto a number without having to begin at one. (For example, if the student was asked to solve a problem in which Albert had two blocks and found one more block, the student would point to the group of two, say "two," and then point to one and count on by saying "three."

Lesson continued on next page

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MATHEMATICS STANDARDS

Kindergarten

K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations, using as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

K.OA.A.2: Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

RL.K.1: With prompting and support, ask and answer questions about key details in a text.

RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

Building blocks research site: http://www.buildingblocksmath.org

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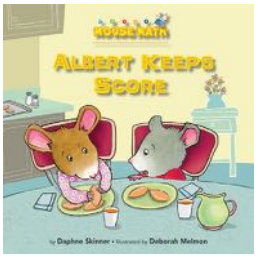
COMPARING TO DETERMINE MORE, LESS/FEWER, OR THE SAME

LEARNING OBJECTIVE:

We are learning how to tell when a group is more, less/fewer, or the same by matching and counting.



Comparing numbers

INTRODUCTION:

Children learn to identify whether the number of objects in one group is greater than, fewer/less than, or equal to the number of objects in another group by using matching and counting strategies. Reading *Albert Keeps Score* from the Mouse Math series provides an opportunity for young children to practice counting using one-to-one correspondence between counting words and numbers beginning with sets to five. Children may be still developing the concept of "how many" and may need help in recognizing that the last number counted determines the total.

OPENING ACTIVITY

Before reading, use this finger play poem to activate prior knowledge of counting to 10 and to engage children in thinking about the math concept that is highlighted in the book.

Counting Mouse Finger Play

Hold up a finger for each number.

Counting mice is so much fun.
I think I'll count them one by one.
Here is 1 little mouse *(Hold up 1 finger.)*
Here are 2 little mice.
Here are 3 little, 4 little, 5 little mice.
Here are 6 little mice.
Here are 7 little mice.
Here are 8 little, 9 little, 10 little mice.
Here are Albert and Wanda *(Wiggle a thumb for Albert and a thumb for Wanda.),*
and all of their friends. *(Wiggle all your fingers for their friends.)*
And now our poem is at the tail end! *(Wiggle 1 finger behind body for tail.)*

PREVIEW

Look at the cover together. Read the title aloud and talk about what it means to "keep score." Ask:
Did you ever keep score? (Allow children time to describe their experiences and then return to the title.)
What do you think the story is about?

Conduct a picture walk pausing to ask questions after the pages indicated below. (Remember: The purpose of this exercise is to actively engage students. It is not necessary for them to be accurate regarding the events represented by the illustrations.)

6: So far, who is in this story?
7: What do you think is happening in this picture? What do you notice about these numbers?
9: What do you think Wanda and Albert are doing? What do you notice about these numbers?
11: What do you think is happening here? What do you notice about these numbers?
13: What do you think Wanda and her friends are doing?
17: What do you think Albert is doing with his friends? So far, where does the story take place?
19: What do you think is happening here? Are the mice still at home? What do you notice about these numbers?

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21: What do you think Wanda and Albert are doing with their friends?
23: What do you think happened?

Say, "Let's read the story from the beginning to find out if our thinking was correct and how the story ends."

READ ALOUD

Ask the following questions after reading the corresponding pages to guide discussion about math concepts during reading.

5: How do we know that Albert gets the same amount of extra time to sleep as Wanda? *(Encourage children to use one hand to count to five for Wanda and the other to count to five for Albert.)*
6: How many pumpkin seeds does Wanda have? How many does Albert have? Who has the most seeds on their plate? Who has the same amount as Mom has on the tray? How do you know?
6: Do you agree with Albert that to be fair he needs to have the same as Wanda?
7: How do we know that Albert now has the same as Wanda?
9: How do we know that Albert did the same number of chores as Wanda?
11: Which is greater, three cheese doodles or four? How do you know?
11: Why do you think Albert always wants the same as Wanda?
12: How many friends did Wanda have at her tea party?
19: Are Wanda and Albert holding the same number of books? How can you use counting or matching to prove your thinking?
24: How do you think Wanda feels? What about Albert? Have you ever had a splinter?
27: Why does Albert have zero for a score?
30: What did Albert learn about being fair?

AFTER READING: REFLECT AND EXTEND

1. Do the compare activity described in the *Try This!* section on page 32 of *Albert Keeps Score*.
2. Play the card game described in the *Think!* section on page 32 of the book.
3. Do some or all of the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children need many opportunities to count and use the results to make comparisons. Following are some examples of when children can be prompted to first count the number in two collections, think about the quantities, and verbalize the comparison. For example, "I counted four cans of corn and three cans of beans, so we have more corn because four comes after three when we count."

- Have children count out snack items such as cheese doodles like Albert and Wanda did to make sure each person has the same number of items.
- Ask children to count out and build using a specific number of blocks. Then ask them to build using more or fewer blocks. Count and compare.
- Have children build lengths using a variety of toys such as links or train cars, count the number, and compare.
- Have children go on a nature walk and collect items such as leaves, shells, or stones to sort, count, and compare.
- Have children count the number of items in a box, such as donuts, and then remove an item to make fewer and recount. Reinforce by saying, "First we had six donuts, and now we have five, which is one less than six."

STORIES TO EXTEND

Henry Keeps Score, a title in the Math Matters series, provides additional literature experience with comparing.

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DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Accurately counts verbally to 10.
2. Tells what number comes after a given number in a sequence of numbers up to 10.
3. Makes and counts small collections of up to five items using one-to-one correspondence between counting words and the objects in the collection.

MATHEMATICS STANDARDS

Kindergarten

K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

K.CC.C.7: Compare two numbers between 1 and 10 presented as written numerals.

K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

RL.K.1: With prompting and support, ask and answer questions about key details in a text.

REFERENCES:

Clements, H. H., & Sarama, J. (2009). Learning and teaching early math: The learning trajectories approach. NY: Routledge.

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LINEAR MEASUREMENT USING NONSTANDARD UNITS

LEARNING OBJECTIVE:

We are learning how we can use one item to measure another in order to find the distance from one end of an object to the other and make comparisons.

Measurement

INTRODUCTION:

Children learn about using nonstandard units to determine the length of objects. Reading *If the Shoe Fits,* a title in the Mouse Math series, provides an opportunity for children to learn that measurement can not only determine size, but can also be used to compare lengths to solve problems. In this story the characters use nonstandard units to determine whether a shoe will fit into their playroom.

OPENING ACTIVITY

Before reading, use these common finger play activities to activate prior knowledge of comparing sizes and to engage children in thinking about the math concept that is highlighted in the book.

Stretching, Shrinking

When I stretch up I feel so tall, *(Reach high.)*
When I bend down I feel so small, *(Crouch.)*
Taller, taller, taller, taller, *(Reach high.)*
Smaller, smaller, smaller, smaller, *(Crouch.)*
Into a rubber ball.

As High as a House

As high as a house. *(Reach high.)*
As small as a mouse. *(Crouch.)*
As wide as a barn. *(Feet apart, spread out.)*
As thin as a pin. *(Stand erect.)*

PREVIEW

Look at the cover together. Be sure to hide the title. Then ask the following questions:

What do you think this story is about?
Why do you think Albert is holding a paper clip?

Reveal and read the title.

What does the title tell you about the story?
Why do you think Albert may need to measure the sneaker?

Tell children you are going to do a picture walk to see what Albert measures and what he uses to measure. Conduct a picture walk pausing to ask questions. Focus on the pages below. (Remember: The purpose is to actively engage students. It is not necessary to be accurate regarding the events represented by the illustrations.

4: What is Albert using to measure the sneaker? What objects could you measure with your feet?
12: Now what is Albert using to measure the sneaker?
17: Why do you think Albert and Wanda are measuring their playroom? Do you think paper clips are a good choice? What could you measure with paper clips?
19: Why do you think they are measuring the sneaker with paper clips? What do you think will happen next?

Say, "Let's read the story to find out if our predictions are correct and if the shoe fits in the playroom."

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READ ALOUD

Ask the following questions after reading the corresponding page to guide discussion about math concepts during reading.

7: Do you know what a clubhouse is? What does it look like? Are all clubhouses the same?
10: Why do you think Albert decided to use his feet to measure? What makes measuring with feet a good idea?
11: Do you agree with Albert that it takes fewer Wanda feet because her feet are bigger? How does that work?
12: Why do you think Albert thinks the cheese stick is a better tool for measuring?
15: Why can't they use the cheese stick to measure the playroom?
17: Why did Albert only use the purple paper clips?
26: What does it mean to "cram" the shoe through the doorway?
30: Do you think Albert and Wanda could have used their feet to measure instead of the paper clip? How?

AFTER READING: REFLECT AND EXTEND

1. Complete the measurement activities as described in the *Try This!* section on pages 31 and 32 of *If The Shoe Fits*.
2. Create dream clubhouse designs as described in the *Think!* section on page 32.
3. Do some or all the related activities found on the Kane Press website. http://www.kanepress.com/mousemath-activities.html

LINK TO EVERYDAY LIFE

Young children enjoy measuring objects. Providing opportunities to measure with nonstandard units reinforces the concept of size and helps make comparisons more accurate. Counting nonstandard units allows us to determine if and by how much one object is longer than or shorter than another.

- Have children measure three objects using nonstandard units and order the objects by size with both standard and nonstandard units. Encourage the use of comparison words such as *short*, *shorter*, and *shortest*. Have students tell how many more clips or blocks one item is than another.
- Create clay "snakes" that are long, longer, and longest. Measure using a common object like a paper clip or a block, similar to the way Albert and Wanda measure in *If The Shoe Fits*.
- Make a nonstandard ruler by linking paper clips. Have children measure items and create a chart with drawings and their correlated measurements. Challenge children by having them make predictions of the object's length prior to measuring.

STORIES TO EXTEND

Too-Tall Tina, a title in the Math Matters series, provides additional literature experience with measurement and comparisons of length.

Albert's BIGGER Than Big Idea, a title in the Mouse Math series, provides additional literature experience in describing and comparing objects by size.

Lesson continued on next page

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DEVELOPMENTALLY APPROPRIATE PRESCHOOL GOALS

The following goals are based on research on mathematical learning trajectories. The trajectories outline the developmental progressions children naturally pass through as they gain mathematical understanding. Parents and teachers are encouraged to meet children where they are and enable them to reach the next goal. The following goals lead children to new levels of understanding after which they may begin to work on Kindergarten standards.

1. Identifies length and size as attributes. For example, the child may describe himself as being tall.
2. Directly compares two objects and determines which one is taller, bigger, shorter, or longer.
3. Compares the length of two objects by measuring them with a third.

MATHEMATICS STANDARDS

Kindergarten

K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has "more of" / "less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

K.CC.A.2: Count forward beginning from a given number within the known sequence.

K.CC.B.4.c: Understand that each successive number name refers to a quantity that is one larger.

ENGLISH LANGUAGE ARTS-LITERACY STANDARDS

Kindergarten

L.K.5.a: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.

RL.K.1: With prompting and support, ask and answer questions about key details in a text.

RL.K.10: Actively engage in group reading activities with purpose and understanding.

REFERENCES:

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