

Math Activities



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SORTING

Rationales

- Sort a variety of materials using a noticeable attribute (feature) like color.
- Identify objects with similar attributes.
- Identify the attribute that makes objects similar.
- Recognize shapes that are the same size

Activity: Box Sort

Vocabulary

- Alike, put together, belong, sort, same, shape, size, color words

Materials

- One bag/box/container per child with a variety of objects to be sorted.

Directions

- In the box or container, place an assortment of objects for the children to sort.
- After the children have explored the materials, have them sort the objects into different piles.
- Observe and ask the children, "How are the items in your piles alike? What is different about each pile?"
- After the children have finished the sorting, continue to question why they put the items together?
- Children may sort by number, color, shape, type of object or size of object.
- Continue to provide opportunities for the children to sort objects by changing the materials used. As children become sorting experts, ask them to label the sorts. (For example, big bears, little bears, red keys, blue keys, etc.)



Extensions

- Extend sorting activities to include renaming sets so that the children have experiences using different attributes to sort the same material.
- Use two attributes for a set of objects.
- Display several objects such as a car, a bus, an apple, a banana, a baseball, a kite, a fire truck, a plane, a duck and say, "This is a set of things that we ride." Can you find the things in this set that don't belong?"
- Have them find other things to include in the set by taking out the items that are not vehicles.
- Then display the original set again and change what they have to decide between. For example, "Can you find the things that we eat?"



SHAPES

Rationale

- Form patterns with geometric shapes.
- Sort and identify geometric shapes.

Activity 1 (Shape Naming)

Vocabulary

Shape Names

Materials

- Masking Tape
- CD/cassette player
- Lively Music

Directions

- Use the masking tape to create large circle, square, triangle, and rectangle shapes on the floor of a large open area in your room, school or center. Be sure the shapes are big enough for several children to move around in comfortably.
- Make enough shapes so that a large group can play.
- Tell the children to move to the music jumping in and out of the shapes as the music plays and stop when you call, "Freeze!"
- When the children freeze identify those that are inside a shape and those that are outside a shape.
- For example, "Paul and Nancy are inside the circle. Kerry and Juan are outside the circle. Gary is inside the triangle, etc."
- Restart the music and repeat the game for several rounds.
- As the children learn the game instead of stating who is inside or outside the shapes ask the children. "Who is inside the circle?" "Who is outside the rectangle?" so on.



Extensions

- Take this activity outside.
- Draw shapes with chalk on the sidewalk. (Some centers/school will allow spray painting the shapes on the grass or dirt.)
- Have the children walk outside the shapes until you say a shape name.
- Then the children run to the shape. (Explain safety issues with children prior to playing this activity.)

Activity 2 (Length of Shapes)

Vocabulary

long, short, same, different, alike

Materials

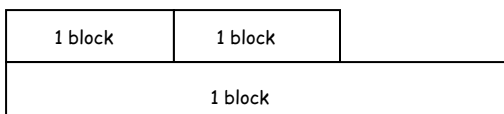
- Blocks from the construction center
- Paper shapes of different sizes
- Attribute blocks

Directions

- Take three rectangle shaped blocks from the construction center that are different lengths and line up the three blocks so that the bottoms of the blocks are even.
- Talk about which block is the longest, which block is the shortest, and which blocks are the same lengths.
- Use other shaped blocks and ask the same questions.
- This activity can also be used with shapes cut from paper or plastic lids.

Extensions

- Place small blocks end to end to make a longer block.
- Compare one long block with the small blocks joined together.



- Change the materials and have the children repeat the same activity. Some children have trouble making comparisons when the materials change.



Activity 3 (Making New Shapes)

Vocabulary

on, off, on top of, over, under, in, out, into, out of, top, bottom, above, below, in front of, in back of, behind, beside, by, next to, between, same/different side, upside down, up, down, turn, flip, slide

Materials

- Cardboard teacher made shapes or shape blocks (geo pattern blocks)

Directions

- Take three rectangle shaped blocks from the construction center that are different lengths and line up the three blocks so that the bottoms of the blocks are even.
- Talk about which block is the longest, which block is the shortest, and which blocks are the same lengths.
- Use other shaped blocks and ask the same questions.
- This activity can also be used with shapes cut from paper or plastic lids.

Extensions

- Have the children make other shapes using two or three shapes.
- Ask the children to try to find a way to use several shapes to make a circle.

Activity 4 (Shapes)

Vocabulary

shape names, position words

Materials

- Cardboard /construction paper shapes
- Programmed spinner with shapes (Teacher made by using a spinner and drawing shapes on it.)
- Number generator (die)



Directions

- Have the children compose pictures using a specific number of shapes.
- Using a spinner divided and labeled with shapes and a die with pips from 1 to 6, the children will spin the spinner and roll the die.
- The die gives the children the number of shapes to collect. The spinner gives the shape.
- Have the children spin and roll two times.
- After collecting the shapes, have the children make a picture and describe their constructions using shape and position words.
- The teacher labels these pictures.

Extensions

- Ask the children to share their picture with a friend and describe to the friend the shapes used.
- Listen for position words and shape names as the children talk with one another.

Activity 5 (Shapes Similarities)

Vocabulary

sides, shape names

Materials

Attribute blocks

Directions

- Using the attribute blocks arrange several shapes (use at least three that are the same size, shape and color) on a table.
- Place a total of 6 shapes on the table.
- Ask the children to pick out the ones that are the same. Ask why did you pick those? What is the same about the objects? What is different about the ones you did not pick?
- Teacher records the responses of the children.

Extensions

- Have the children make other shapes using two or three shapes.
- Ask the children to try to find a way to use several shapes to make a circle.



Activity 6 (Shape Matching)

Vocabulary

shape names

Materials

- shape matching cards
- attribute blocks

Directions

- Using the shape matching cards, have the children match the same shaped attribute block to the picture shapes.
- Question the children as they match, why did you pick that shape? How many sides does the picture have?

Extensions

- Place all the attribute blocks in a bag and have the children choose a block and find a match.



Oral / Rote Counting

Rationale

- Practice the correct order of the numbers
- Say one number for one motion in a one-to-one correspondence

Activity 1 (Count Clapping)

Vocabulary

Number names (1-20)

Materials

- Counting number cards

Directions

- Ask the children to stand.
- Say "I will count to five, and then clap. Join in when you are ready. One, two, three, four, five (clap). One, two, three, four, five."
- Continue until all the children have joined in for several rounds.
- Then show a number card and say, "I am counting this number. When I get to the number on the card, I will clap. Join in when you are ready."
- (Show number card) one, two, three, four, five (clap)
- Continue for several rounds.
- Once children have mastered 1-10, continue with numbers 11-20.

Extensions

- As children learn to count to a number, add objects for one to one correspondence. Have them clap when they reach the target number.



Activity 2 (Number Recognition)

Vocabulary

Number names (1-20)

Materials

- Number cards
- objects to count

Directions

- As you show a numeral, ask the children "What number is this? Wait for a response.
- If no one responds say, "This is the number ____." Can you place a counter as we count out this number?"
- Children choose a counter as everyone counts together.

Extensions

- Have the children march in place and count to the number that is being shown.

Activity 3 (Making Sets)

Vocabulary

Number names (1-20)

Materials

- 2 ice cube trays/ egg cartons
- small objects that fit into the cubes
- tongs
- die (1-6 or dot pips)



Directions

- Call out a number to the children and have them use the tongs to collect that many objects and place in the ice cube tray. After several rounds, have the children use the die to come up with the number of items to count.

Extensions

- Have the children give label names for the set of objects they are counting. For example, "I am counting cars."
- Label the sets with the word *cars* and a picture of a car.

Activity 4 (Number Songs)

Vocabulary

Number names (1-20)

Materials

- pocket chart, sentence strips (with chants written on the strips), pictures or felt pieces

Directions

Using the listed chants, sing with the children. Ask questions like: "Which row has the most ____?" "How did you decide how many ____ to put here?" "What would happen if one more ____ came?" "What would happen if one ____ flew away?"

Chants:

Bats

1 little bat says E,

2 little bats say E,E,

3 little bats say E,E,E,

As they hang upside down in the tree.



Directions (continue)

10 in the Bed" traditional song

There were ____ in the bed

And the little one said,

"Roll over! Roll Over!"

So they all rolled over

And one fell out! So now....

"5 little Monkeys"

Five Little Monkeys jumping on the Bed by Eileen Christelow

"Five little ducks" traditional song

Extensions

- Write the questions on sentence strips leaving a _____ for the number. Laminate
- Write the answers with a word and picture on separate cards. Laminate.
- Have the children select the answer and add to the question.



Discrimination between numerals, letters and symbols

Rationales

- Discriminate between numerals and other objects
- Recognize numeral names

Activity 1 (Show Me the Number)

Vocabulary

number names, letter names

Materials

- Numbers
- Letters
- other sorting materials like bears, pictures of things

Directions

- Place one number, several letters and several sorting items (a total of 9) on a table.
- Ask the children which one is a number?
- Another question to ask "Show me the number ___."
- As children learn to discriminate between the objects add more than one number.

Extensions

- Make a picture with 2 to 3 numbers, 2 to 3 letters, and 2 to 3 symbols or pictures
- Have the children point to the numbers.



Activity 2 (Letter/Number Sorting)

Vocabulary

numbers, same, different, alike

Materials

- counting objects (bear counters, cubes, etc.)
- plastic numbers or number cards

Directions

- Prepare a container with a mixture of plastic numbers, letters and one to three other types of objects. (a total of 10 to 12 items with about 3 or 4 numbers).
- Have the children sort the objects into piles that are the same.
- Watch to see if the children separate the numbers from the other objects.
- If the colors are confusing the children, ask them to think of another way to sort that is different from using the same colors.

Extensions

- Ask the children to look for attributes of number shape, similar to looking at letter formations.



Number Recognition

Rationales

- Recognize the numerals for 0-20
- Relate numerals to a set of objects

Activity 1 (Touch the Number)

Vocabulary

number names

Materials

- number line

Directions

- Fold the number line in half and secure to the floor by taping all sides to the ground.
- Have a small group (2 to 3) children stand beside the mat and listen as you call out numbers.
- If they know the number have them touch the numeral on the number line.
- If a child doesn't know the number, show them the number so that they can touch it.
- Continue calling out numbers for several rounds.
- As children become more familiar with numbers 1-10, show numbers 11-20 and play the same game.

Extensions

- Play the number hop
- Call out a number
- Have the children hop to the number, counting aloud as they hop.



Activity 2 (Match Sets -1)

Vocabulary

number names

Materials

- bear counters
- number cards

Directions

- Give each child a pile of bear counters.
- Tell the children that the bears are dancing the Congo (any line dance name is okay).
- Hold up a number card and ask the children to make a dance line with the bears.
- Once they line up the bears, have them count out loud the bears to check their work.
- Continue to play this game for several numbers.
- Start with numerals 1-5, as the children become comfortable with the smaller numbers add the larger numbers.
- Have the children use the number card to label the line.

Extensions

- Have the children suggest things for the bears to do, such as playing soccer.
- Use the suggestion from the children to line up the bears. For example, "8 bears playing soccer."



Activity 3 (Match Sets -2)

Vocabulary

number names

Materials

- Yarn
- 40 circles made from construction paper or paper plates (Number 20 circles consecutively, starting with 1; on the other 20 circles place dots for each number 1-20. You are making a necklace partner.)

Directions

- Hand each child a plate to wear.
- Have the children walk around and find their partner.
- Mix the plates and play again.

Extensions

- Hand each child a necklace.
- Then have the children collect objectives for that number.
- After collecting the objects, have the children write their number on a card and label the objects collected with numerals

Activity 4 (Towering Numbers)

Vocabulary

number names

Materials

- blocks from construction center
- number cards



Directions

- Add number cards to the construction center.
- The teacher explains that the number cards are used to help the children build towers or buildings.
- The children choose a number card and build towers or buildings with that number of blocks.
- If the children are building towers have them compare the heights.

Extensions

- This activity can be used with objectives other than construction center blocks, Legos or similar connecting blocks.
- Have the children label structures by writing the number of blocks used.

Activity 5

Vocabulary

number names

Materials

- magazines/ newspapers/ pictures from the internet

Directions

- Have the children go on a scavenger hunt in magazines or newspapers to find numerals.
- Children cut out what they find and paste on charts labeled with Look at our hunt for ____ or WOW, I found a ____.
- Teachers will discuss what the children found and verify that the children are finding the correct numerals.

Extensions

- Post the charts in the writing center so that the children can use the numerals in their writing.



More / Less

Goals

- Understanding one more or one less

Activity 1 (Take Me Away)

Vocabulary

More, less

Materials

- counting objects
- number card

Directions

- Place a specific number of counters on the table and show the numeral for that number of counters.
- Ask "How many are in this set?"
- Remove one block. "This set has one less." How many are in this set?
- Change the numeral card as the total changes.
- Continue removing one block and asking how many are in the set? Start with the number 5.
- Once children can tell you how many one less is with numbers 1-5, start with 6, then 7 and continue with large numbers.

Extensions

- Using snap cubes or Unifix cubes, connect 5 cubes
- Make another tower of 5 cubes
- Ask the children if the towers have the same number of cubes.
- Take one away from one tower.
- Compare the towers.
- Ask "Which has more? Which has less?"



Activity 2 (I Spy More)

Vocabulary

More, less

Materials

- Peg board/Pegs
- Snap Cubes

Directions

- Using the peg board mat and pegs, have the children make two rows with the pegs.
- Make sure that they use a different color for each row. For example, using red and blue to make the rows, ask the children to remove one blue peg.
- Now ask, "Which row has more pegs?"

Extensions

- Remove or add two pegs at a time.
- Continue to question, "Which row has more?"

Activity 3 (Pom-Pom Math)

Vocabulary

More, less

Materials

- pom-poms
- yarn circle (teacher made)



Directions

- Place pom-poms in the yarn circle (The number of pom-poms in the circle is determined by the number of children in the small group. Place 12 pom-poms for every child, if you are working on numbers 1-10. If you are working with numbers 11-20, place 22 pom-poms per child.)
- Call out a number
- Have every child take that number of pom-poms.
- Then direct the children to look at the pom-poms left in the circle.
- Everyone counts what is left. Ask, "Do I have more or less than you?"
- Children respond.
- The children then place all the pom-poms back into the circle.
- The teacher continues the game for several rounds.

Extensions

- Add number cards

Activity 4 (I Grid It)

Vocabulary

More, less

Materials

- Ten frame grid (Teacher made by dividing a half sheet of construction paper into a ten frame. 5 squares in a row with 5 squares in a row underneath.)

- Counters
- Number die



Directions

- Have the children each roll a die, and place the number of counters on their ten frames.
- Have the children compare their numbers.
- The teacher asks, "Who has the most?" "Who has the least?" "How do you know?"

Extensions

- Have the children start with a counter in each frame.
- Roll the die.
- Use the rolled number to remove that many counters.
- Have the children compare their numbers.
- Ask, "Who has the most?" "Who has the least?" "How do you know?"

Activity 5 (Spinners and Counters)

Vocabulary

More, less

Materials

- spinner (teacher made) divided into two sections labeled 1 and 0
- counters

Directions

- The children start out with 5 counters each.
- Each child takes turns spinning the spinner and taking that number of counters.
- After everyone has had a turn, the teacher asks, "Who has the most?"
- Everyone counts their counters and determines who has the most.
- Continue to have the children spin and collect counters for several rounds.
- The teacher asks, "Who has more?" or "Who has less?" throughout the round.
- After the children have collected several more counters, change the game so that when the child spins the 1 represents one less.
- Ask questions as the children play for several rounds.

Extensions

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Addition/Subtraction

Rationales

- Join sets to find how many in all
- Separate sets to find how many in all

Activity 1 (Math Stories)

Vocabulary

join, add, take away, subtract

Materials

- Counting Bears/ vehicles/ fruits/ animals
- teacher made story mats (Make story mats by drawing simple background pictures on a pieces of construction paper. For example, a park mat could be made by drawing a tree, grass and maybe a swing.)

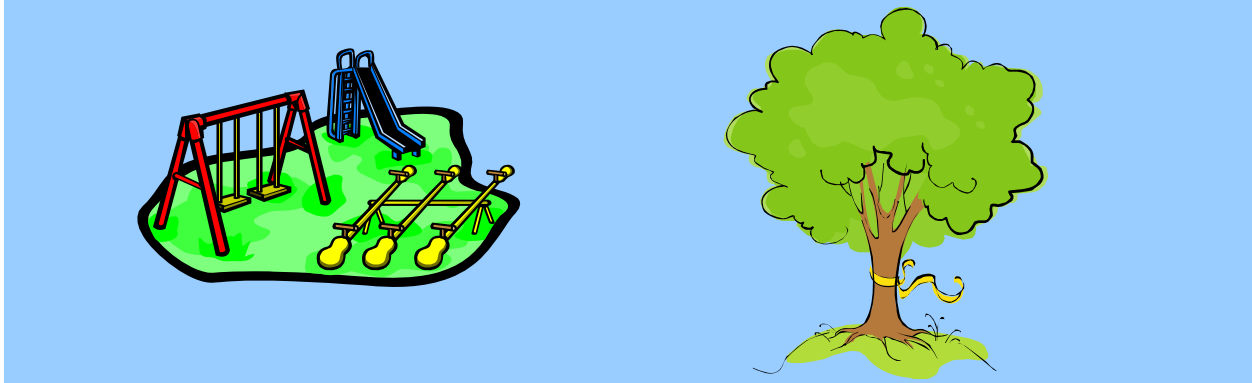
Directions

- Problem solving simple addition and subtraction stories are fun when using a story mat.
- Keep the stories short and simple for the children to manipulate.
- Allow the children time to move the bears and count.
- Using the counting bears and a mat with a tree, grass and swings, have the children act out the following stories:
- Two bears were at the swings. One more bear came to join them. How many bears are at the swings now? (answer: 3)
- Three bears are having a picnic under the tree. Two bears came and joined them. How many bears are under the tree? (answer: 5)
- Four bears went walking through the park on the sidewalk. One bear ran over to the swings. How many bears are still on the sidewalk? (answer:3)



Directions cont

- Allow the children time to move the bears and count.
- At this point many of the children will not be able to hold the numbers in the heads and will need the support of the counters.



Extensions

Use more difficult sets of number combinations (e.g. $4+4$ vs. $2+1$).

Activity 2 (Adding with Friends)

Vocabulary

Add

Materials

- Yarn
- 20 circles made from construction paper or paper plates (on the circles place dots for each number 1-10 with the number.)

Directions

- Hand each child a plate.
- Tell them that we are adding numbers together.
- Have the children find a partner and add the total number of dots between them.
- Once all the partners have added their dots, play the game again either with new partners or mixing the plates and redistributing.



Extensions

- Use with subtraction by showing a plate. Have the children count the dots (example 8).
- Then say, "If I take two dots away whose number will I have."

Activity 3 (Number Pictures)

Vocabulary

Number names

Materials

- colored cubes/fingers/ counting objects

Directions

- Children will use a variety of materials to represent a number in as many ways as possible.
- They then record the method they used to represent the number by drawing a picture (Teachers will want to draw the first few times so that children understand the concept of representing numbers with pictures and words.)
- For example, the teacher may ask the children to represent the number 5. The child might use two red and three blue cubes to represent 5. Another child might use four red and one blue to represent 5.
- The teacher models and asks questions to encourage the children to represent the number in different ways.

Extensions

- Have the children describe their pictures.
- Encourage their language usage.
- Scaffold when needed. For example, "My picture has 2 red cubes and 3 blue cubes. That's 5 cubes all together."



Activity 4 (Royal Numbers)

Vocabulary

Number names, add, subtract (take away)

Materials

- Teacher made game board -one per child (On a piece of construction paper cut in half, place 9 dots in a row. For the 10th dot draw a crown with at least 5 points.)

Directions

- Teach the children to play this game.
- Each child rolls the die and moves a counter across the dots toward the crown.
- Once at the crown the counter is placed on one of the points.
- The child who places a counter on all the points wins the round.
- Let the children play several times.
- Question the children with addition statements. For example, "How many more moves until you are on the crown?" "How many points need a counter?"
- After the children learn to play using addition reverse the game.
- Have the children start with a full crown.
- Then move the counters one at a time.

Extensions

- Change the crown to match something in the current theme.
- Program boards with more than 10 dots.



Patterns

Goals

- Observe, describe and repeat objects in a sequence using one or more attributes.
- Explore growing patterns formed by increasing numbers and identify the relationship between pairs of elements in a sequence.

Activity 1 (Pattern Play)

Vocabulary

next, patterns, attributes of shapes, colors, repeating, copying

Materials

- None

Directions

- Have children sit on the floor in a circle.
- Explain that they are forming child patterns.
- Pick a child to begin counting-off, starting with "one," the next child says "two", next child "one", and so forth.
- When all the children have counted off, ask the twos to stand and say "Does anyone know what the pattern is now?"
- Scaffold the children to label the pattern as sit, stand, sit, stand..... Encourage the children to come with new ways to make the pattern.
- For example, two children standing, one sitting, two standing, one sitting... and so on.
- This is a great activity for transitions to calm children down from outside play or highly active play in the classroom.

Extensions

- Using puppets have the children create patterns by stating actions for the puppets. For example, run, jump, run, jump



Activity 2 (Pattern Making)

Vocabulary

next, patterns, attributes of shapes, colors, repeating, copying

Materials

- Cardboard or foam shapes to make patterns
- blue and white pattern cards

Directions

- Using two or three different objects have children make A, B, A, B or AA, BB, AA, BB patterns.
- Once the children have made the pattern have them tell you the pattern, checking for accuracy.
- Correct if the children forget the pattern they are working with.

Extensions

- Have the children change one part of the pattern and describe the new pattern. For example: A,B,A,B,A,B change to AA,B,AA,B,AA,B

Activity 3 (Shapely Patterns)

Vocabulary

same, different

Materials

- colored cubes/fingers/ counting objects

Directions

- Using one of the materials listed, have children make a snake or caterpillar using an A, B, A, B or any pattern designated by the teacher.



Directions

- Have the children describe their pattern with some type of labeling, for example, A, B, A, B or red, blue, red, blue or square, triangle, square, triangle.
- Have the children redesign their creature and describe the new pattern.

Extensions

- Have children use a different attribute other than color to create patterns.

Activity 4 (Bean Patterns)

Vocabulary

- next, same, different

Materials

- variety of dried beans (lima, kidney, pinto)

Directions

- Use the beans to make patterns.
- Have the children describe their patterns either by type of bean or by color.
- Explain to the children that you can call the pattern different names by using color names, bean type names, or size.
- Ask the children why they choose the beans they picked.
- Encourage them to talk about the patterns.

Extensions

- Have the children draw the pattern on paper.
- Check for understanding by having the children describe the pattern drawn on paper. (Note sometimes children have trouble drawing a pattern even though they are looking at the pattern made with manipulatives.)
- Help the children correct the drawn pattern by questioning.

