

Ready Set ..Let 's Explore

Math and Science  
For  
Infants and Toddlers



# What Is Math and Science For Infants and Toddlers

## Math

- Counting and Comparing numbers
- Representing numbers in equivalent forms
- Concepts of numbers and relationships
  - Computation
  - Estimation
  - Measurement
  - Problem solving
- Organization Display Of Data
  - Basic Geometry

## Science

- Living and Non Living
  - Genetics
  - Chemistry
  - Physics

# How To Support Math In Your Class

## Counting and comparing numbers

Provide plenty of sound-makers e.g. wrist bells, pots and pans, wooden spoons and rhythm and beat

Talk with children and describe what they are doing ("Shake, shake, you made your own music")

Describe comparisons during playful interactions

Count for children as they pound on musical instruments or push buttons

Describe objects by characteristics, such as the red bead or the round ball

Use numeric words during routine interactions, such as "Do you want more milk?"

Count objects in children's environment

Rote count with young learners daily

Engage children in exploration supporting imaginative play

Play and manipulate different materials

Provide numeral and number materials in environment

Big Idea:

# Representing numbers in equivalent forms

Provide a safe and stimulating environment for children to explore and discover

- Provide symbols in classroom and review frequently (washing hands, listening station, shelf pictures, center symbols)
- Play games that use objects as symbols

Model using math and writing numerals in daily activities

Provide numeral activities in learning centers

Practice holding up number of fingers or showing a given number of objects in

Big Idea:

# Concepts of numbers and relationships

Provide experiences with materials that demonstrate the relationships of objects, such as stacking cubes or simple puzzles

Play games that encourage object permanence such as peek a boo

Pair objects during activities, such as one child gets one snack cup

Pose questions that involve simple mathematical problems, such

as "Who has more?"

Ask children how many objects they have

Demonstrate how to sort objects by common characteristics, such as gathering all the round ones in this pile and all the square ones in another

Big Idea:

## Computation

Try to push Pop-It beads together

Attempt to pull toys or objects apart

Pull out and group all the bears from a pile of animal counters

Put the cups, napkins and spoons in separate piles

Compare everyday objects, such as the size of children's shoes to discover who has the biggest or smallest feet

Count and group objects in child's environment

Use a variety of objects for learners to manipulate

Help children notice the differences in objects' characteristics and show them how to sort them by a common characteristic

Sing finger plays that include animals adding on, such as Three

Little Monkeys

Count during book readings

Provide multiple toys that have incremental sizes for stacking and sorting

Big Idea:

## Estimation/Measurement

Provide a variety of objects of varying sizes and colors

Ask questions about size, weight, color

Praise and encourage responses

Pose questions to children about what happens next

Maintain daily routines

Provide opportunities for exploration of objects of various sizes and weights

Provide picture books/board books with mathematical concepts

Read the Three Bears or the Three Billy Goats Gruff

Explore pegboard holes with fingers and then look for something to fit in holes

Explore measuring tools

Play with puzzles up to 6 pieces

- Practice describing the size, volume, weight and length of people, toys and objects

Attempt to follow directions to games that require moving different

Distances or locations, such as hop 2 times towards me or take 1 step backward

Measure children with growth charts and talk about how they've grown

Provide objects for learners to describe, weigh and measure

Provide toys that will allow children to explore and discover  
what fits together

Engage learners in measurement activities

Engage learners in gross motor activities involving distances,  
locations, heights

Provide encouragement and praise for accomplishments

Big Idea:

## Problem solving

Move rattle from one hand to another to make noise

Use mouth and hands to learn about object proportions

Gesture to adult for a second cookie or cracker

Ask questions

Provide time to manipulate object

Practice organizing objects to stack, nest or pile

Sort by shape or color when asked, such as "Can you find a brown

bear? Can you find a red circle?"

Big Idea:

## Basic Geometry

Put together simple puzzles with assistance

Stack and build with various block sizes and shapes

Manipulate soft, foam or hard shapes

Put together snap beads, magnetic blocks or other objects that fit together and are taken apart with adult assistance

Offer puzzles, shape sorters and shape blocks that can be put together and taken apart

Describe objects by shape and name

Demonstrate how shapes are similar and different

Play movement games during the daily routine

Identify direction while children are moving, such as "Let's look under the table for the spoon"

Play hide and seek games by hiding toys and describing where they are hidden, using directionality terms, such as "Look on top of the shelf"



Provide large muscle toys that encourage climbing and crawling:

Provide opportunities for movement of body during the daily routine

Model the movements

Provide music for young learners to move bodies

Big Idea:

# How to Support Science in your Classroom

## Living and Non Living

Reach for objects

Put objects in mouth to discover its properties

Roll objects in hands

Reach for people

Touch and grasp face, glasses, jewelry of adult holding infant

Provide materials and toys for infants to explore and discover

Engage with infant while holding

Name body parts when playing or diapering

Recite simple rhymes or games that include body parts, such as

Name body parts when playing and diapering

Provide dolls and toys for children to identify body parts

Include songs, finger plays and games that include body parts "This Little Piggy"

Big Idea:

# Genetics

Look at self in mirror

Look for family member when caregiver says, "Here's Mommy!"

Direct gaze to named person when asked, "Where's your brother?"

Provide mirror at eye level for infant to look into

Talk with infant while looking into mirror

Identify family members by name when they are present

Display family pictures and talk about who is in the picture and

what they're doing

Point to adult or baby animals in pictures when asked

Identify the names of family members in pictures

Name a dog or cat when seen outside on a walk

Tell that a cow says, "moo"

Match a cat and kitten or a dog and puppy

Provide pictures of adult and baby animals

Use appropriate terms when identifying animals

Provide literature connections

Big Idea:

# Chemistry

Pat or hit a toy that squeaks

Visually explore a toy in hand

Explore the different textures of objects, such as hard or soft and wet or dry

Provide toys that squeak or make noise when used

Use facial expressions to show pleasure and happiness when talking with an infant

Provide materials of different textures to explore

Talk about the way objects or materials feel, such as "This is really hard" or "Now your bottom is nice and dry"

Use a stick to investigate a worm

Shake a rhythm instrument to hear its sound

Use a fork to put a crumb to the nose

Try mixing red and blue paint with a brush

Notice the texture and feel of different objects and materials

Provide new materials and instruments for children to explore, such as different textures of fabrics or a new vehicle in the block area

Encourage children to use the sand or water table to pour or scoop

Include a variety of tools throughout the environment for children to use in their play

Mix water and sand together

Mix paint colors

Combine different types of blocks to create a structure:

Provide opportunities for children to mix water and sand or soil

Include simple cooking experiences where children can observe the changes, such as mixing water into jello

Big Idea:

## Physics

Use push or pull toys, such as pretend vacuum cleaners or pull toys with strings

Use feet to push a wheeled toy around the play yard

Manipulate pop-up toys, such as jack in the boxes, and notice how the clown appears after moving the crank

Move small cars or trucks around during block play

Include push and pull toys for outside play

Encourage children to use string toys or inside push toys

Demonstrate how pop-up or other toys that change with movement work and include in play areas

Play with magnets and magnetic items

Use magnetic letters /numbers on cookie sheet or refrigerator

Provide magnets, magnetic items and magnetic letters or numbers  
for children to explore

Watch a ball roll that has been bumped

Bat a mobile and watch it move

The adult will:

Recognize what the child has made happen and verbalize it, "You  
made the ball roll!"

Big Idea:

# Ideas For Environmental Changes

Thank you for Attending the  
**Ready.. Set.. Let's Explore Session**

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