

# Guidance for incorporating Science, Math and Literacy in the Classroom Environment

## Science in the Classroom Environment

Science occurs throughout the classroom and can include:

- exploration
- analysis
- predictions
- observations
- comparisons
- conclusions
- documentation

Science is directly connected to language and literacy in that all of the above can be included in the use of:

- word walls
- clipboards and paper
- tape recorders
- discussion
- graphing and charting
- storytelling and dictation
- books – resource, developmentally appropriate fiction and non-fiction, and child made books
- writing table with a variety of materials
- teaching easel

Science is incorporated into all interest/learning areas:

Manipulatives:	Puzzles, balance scale, magnets, magnetized letters/numbers (on a cookie sheet), clipboard with paper/pencils, collections, comparison & prediction, puppets to talk about science concepts, matching games, variety of games, teaching easel
Dramatic Play:	Flashlights, bathroom scale, lab coats, measuring, scale for food, fish tank, Dr. kit, “science lab”, microscopes, beakers, etc., sensory table, flower shop, plants to care for, cookbooks, recipes (including rebus recipes), teaching easel
Blocks:	Clipboards and charts, comparisons and analysis, engineering, predicting/following a plan, digital picture, book of “building plans”, bookmaking (children), natural materials (rocks, grass, moss, etc.) collections of animals, things to build environments, landscaping magazines, variety of blocks (number and type), teaching easel
Woodworking:	Measuring tapes, rulers, yardsticks, old machines and appliances to take apart, a variety of nails, glue, variety of wood, sandpaper, Styrofoam, duct tape, pipe insulation, “building plans”, woodworking magazines, clipboards and charts, comparisons, analysis, predicting

- Library: Non-fiction books science books with real pictures, lighting, solar heat, classroom books with nature pictures, collections (rocks, shells, animals), magnets (homemade refrigerator magnets), collages, skeletons (after sterilized), writing instruments, clipboards and paper, recipe books, teaching easel
- Technology: Cause & Effects, iPad apps, computer programs, using center computer for science resources, how does classroom computer work?, setting up folders for each child
- Sensory Table: Multiple materials to use solo or together, heart kit, sources to acquire materials, experiments, measuring tools, scales, water wheels, balance, tubing, writing materials nearby for recording, sinking and floating, melting, colors, books with experiments, charts, gak, teaching easel
- Outdoor: Planting and caring for plants, observation of nature and weather, condensation and evaporation, feeding, collage and rubbings, comparison, collection, different kinds of rocks and bugs, bird watching, bug hunt, listening walks, shadows, hot & cold, field trips, teaching easel
- Creative Art: Color mixing, measuring, experimentation with materials and textures, maps, color coding, pedestrian safety map, map fire exits, bicycle rodeo routes

## Math in the Classroom Environment

Math occurs throughout the classroom and can include:

- explorations
- analysis
- predictions
- observations
- comparisons
- conclusions
- documentation

Math is directly connected to language and literacy in that all of the above can be included in the use of:

- word walls
- clipboards and paper
- discussion
- graphing and charting
- storytelling and dictation
- books – resource, developmentally appropriate fiction and non-fiction, and child made books
- writing table with a variety of materials
- teaching easel

Math is incorporated into all interest/learning areas:

- Manipulatives: Puzzles, balance scale, magnetized numbers (on a cookie sheet), clipboard with paper/pencils, collections, comparison & prediction, labeling, number shapes, sequencing cards, pictures of “creations” with labels, number for lacing, number blocks, lana hoben books, matching games, bingo, lotto, stacking rings, lacing, lacing beads, unifix cubes, counters, people, interlocking beads, dice game, Cuisenaire rods, shape sorters
- Dramatic Play: bathroom scale, measuring, scale for food, fish tank, Dr. kit, “science lab”, microscopes, beakers, etc., flower shop, cookbooks, recipes (including rebus recipes), phone books, shopping lists, scrolls, magazines, calendars, receipt books, menus, day timers, newspapers, child-made books, environmental print (labels from familiar restaurants, stores), phones, mail, bills, junk mail, clothing with labels, invoices, address books, canned food with labels, cartons with labels, photo albums with child & family, child of the week or friend of the day, cash register, adding machine, calculator, keyboard, change sorter, passbooks for savings account, money, clock, old watches, billfolds/wallets/purses, cameras, matching shoes
- Blocks: Clipboards and charts, comparisons and analysis, engineering, predicting/following a plan, digital picture, book of “building plans”, bookmaking (children), collections of animals, things to build environments, landscaping magazines, variety of blocks (number and type), labeling, magazines with house & landscape plans, maps, atlas, number templates, pattern blocks, traffic signs, pedestrian safety signs, cars, trucks, people, teaching easel

Woodworking:	Measuring tapes, rulers, yardsticks, a variety of nails, variety of wood, sandpaper, duct tape, pipe insulation, “building plans”, woodworking magazines, clipboards and charts, comparisons, analysis, predicting, gears, nuts and bolts
Library:	Non-fiction books science books with real pictures, classroom books with nature pictures, collections (rocks, shells, animals), writing instruments, clipboards and paper, recipe books, sorting books by type or topic, pillows (sizes, shapes), teaching easel
Technology:	iPad apps, computer programs, setting up folders for each child
Sensory Table:	Heart kit, experiments, measuring tools, scales, water wheels, balance, tubing, writing materials nearby for recording, sinking and floating, melting, colors, books with experiments, charts, gak, number sponges, number cookies cutters, playdoh, hide numbers in table material, a small number line above the sensory table, sandpaper numbers, scavenger hunt with icon/word list, straws or sticks to write in the sand, blowing letters and numbers (water, paint, etc.) bathtub paints, teaching easel
Outdoor:	Planting and caring for plants, observation of nature and weather, condensation and evaporation, feeding, collage and rubbings, comparison, collection, different kinds of rocks and bugs, bird watching, bug hunt, listening walks, shadows, hot & cold, field trips, basket of books, chalk, water and paint brushes, outdoor easels, spray paint in bottles, making numbers with bodies, labeling outside, outdoor traffic signs, thermometers, outdoor weather chart (make), letter and number writing in sandbox, digging with treasure map, games, hopscotch, skipping rope, balls (sizes, shapes)
Creative Art:	Color mixing, measuring, experimentation with materials and textures, maps, color coding, pedestrian safety map, map fire exits, bicycle rodeo routes, magazines, number recognition, books (includes child-made), real photos of objects, scrap booking, number stencils, sandpaper numbers, number to collage on, collage numbers with magazine pictures that include that number, number stamps and stickers

## Literacy in the Classroom Environment

Literacy occurs throughout the classroom and can include:

- analysis
- predictions
- observations
- comparisons
- conclusions
- documentation

Language and literacy can be included in the use of:

- word walls
- clipboards and paper
- tape recorders
- discussion
- graphing and charting
- storytelling and dictation
- books – resource, developmentally appropriate fiction and non-fiction, and child made books
- writing table with a variety of materials
- teaching easel
- book reading strategies and techniques to incorporate knowledge of: the cover, author, title, illustrator, literal, inferential, and evaluative comprehension, and dialogic reading strategies
- graphic practice

To make all interest areas print rich and tie in letter and sound recognition, literacy is incorporated into all interest/learning areas:

Manipulatives:	Puzzles, magnetized letters/numbers (on a cookie sheet), clipboard with paper/pencils, collections, comparison & prediction, puppets to talk about science concepts, letter shapes, labeling, number shapes, sequencing cards, pictures of “creations” with labels, letters and number for lacing, alphabet and number blocks, lana hoben books
Dramatic Play:	Bathroom scale, measuring, scale for food, Dr. kit, “science lab”, microscopes, beakers, etc., flower shop, plants to care for, cookbooks, recipes (including rebus recipes), phone books, phone books, shopping lists, scrolls, magazines, calendars, receipt books, menus, day timers, newspapers, child-made books, environmental print (labels from familiar restaurants, stores), phones, mail, bills, postcards, envelopes, junk mail, stationery, stamps, writing instruments, clothing with labels, invoices, address books, canned food with labels, cartons with labels, photo albums with child & family, child of the week or friend of the day, cash register, adding machine, calculator, keyboard, change sorter, passbooks for savings account
Blocks:	Clipboards and charts, comparisons and analysis, predicting/following a plan, book of “building plans”, bookmaking (children), labeling, magazines with house & landscape plans, maps, atlas, letter and number templates, pattern blocks, traffic signs, pedestrian safety signs

- Woodworking:** Measuring tapes, rulers, yardsticks, old machines and appliances to take apart, sandpaper, “building plans”, woodworking magazines, clipboards and charts, comparisons, analysis, predicting
- Library:** Non-fiction books science books with real pictures, classroom books with nature pictures, collections (rocks, shells, and animals), magnets (homemade refrigerator magnets), collages, writing instruments, clipboards and paper, recipe books, teaching easel
- Technology:** iPad apps, computer programs, using center computer for science resources, how does classroom computer work? (putting in ink cartridge), setting up folders for each child
- Sensory Table:** Heart kit, experiments, measuring tools, scales, writing materials nearby for recording, sinking and floating, melting, colors, books with experiments, charts, gak, letter and number sponges, alphabet and number cookies cutters, playdoh, hide letters and numbers in table material, a small alphabet and number line above the sensory table, sandpaper letters and numbers, name cars, scavenger hunt with icon/word list, straws or sticks to write in the sand, blowing letters and numbers (water, paint, etc.) bathtub paints, teaching easel
- Outdoor:** Planting and caring for plants, observation of nature and weather, condensation and evaporation, feeding, collage and rubbings, comparison, collection, different kinds of rocks and bugs, bird watching, bug hunt, listening walks, shadows, hot & cold, field trips, basket of books, chalk, water and paint brushes, outdoor easels, spray paint in bottles, making letters with bodies, labeling outside, outdoor traffic signs, thermometers, outdoor weather chart (make), letter and number writing in sandbox, digging with treasure map, teaching easel
- Creative Art:** Color mixing, measuring, experimentation with materials and textures, maps, color coding, pedestrian safety map, map fire exits, bicycle rodeo routes, magazines, letter and number recognition, books (includes child-made), real photos of objects, scrap booking, letter and number stencils, sandpaper letters and numbers, letters and number to collage on, collage letters with magazine pictures that start with that letter, letter and number stamps and stickers

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