

# Barnyard Math

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## VELS Number Sense and Quantity

### **“Farmer Hide and Seek” (Gross Motor Game)**

Objective: verbally counts to 10 (or to 20)

Materials: none

Directions: Review the rules for Hide and Seek. The “farmer” is the person who is “IT”. They count up to 10 (or higher) out loud while the animals go and hide. If the animals make it back to the barn without being tagged then they are “safe”. Decide on where the ‘barn’ is before beginning. Consider having the person who is “IT” wear a farmer’s hat. **VELS Number Sense and Quantity: Recite numbers to 10 in correct sequence; Recite numbers to 20 in sequence with only occasional errors**

### **“Dot Cards”**

Objective: Instantly recognize the number of items in a small set (up to five)

Materials: index cards with dots on them

Directions: Explain to the children that you want them to learn how to count small groups without pointing to the objects. Practice with dot cards with few dots (1,2) and then work up to 5 or more.

**VELS Number Sense and Quantity: Quickly identify number of 1-3 objects without counting.**

Quickly identify number of 1-5 objects without counting.

Tips: Use dot markers to make FAST sets to send home for every child to play! Make ‘theme’ related sets by use foam sticker or rubber stamps. I keep a container of dot cards near my easel and a ring of cards near where my students line up to go outside, so I can play “Dot Cards” during transition times. Also practice with dots on dice, pips on dominoes, and studs on Legos!

### **“Ducks in the Tub”**

Objective: Instantly recognize the number of items in a small set (up to five)

Materials: plastic ducks or paper copied ducks

Directions: Explain that you want to count the number of ducks without pointing with your finger. Start with small numbers and practice with more ducks. Do this activity often until they understand how to instantly recognize a small group.

Read more about Subitizing and get your free printable ducks here:

<http://www.pre-kpages.com/subitizing/>

**VELS Number Sense and Quantity: Quickly identify number of 1-3 objects without counting.**

Quickly identify number of 1-5 objects without counting.

### **“Calendar Time & Hiding Number”**

Objective: identifies numerals to 10; say the next number that comes before or after in a sequence of 1-10.

Materials: calendar made on picture frame with string, clothespins, & index cards

Directions: For our 'calendar time' we have just two student jobs and keep it short and sweet so our large group time is DAP for 3 & 4 year olds.

One student points as we read the "Morning Message". This child identifies the numeral for today's date. The second student's job is to write today's numeral onto an index card (with support as needed) and put it onto the clothespin on our calendar.

Afterwards we all play "Hiding Number". I cover up one numeral (from 1-10) and work together to figure it out – "Hmmm, which number comes after \_\_\_? Well we know that it comes before \_\_\_? Let's take a peek to see."

If you were not having the students write the numerals, you can get a free set of farm theme calendar numbers here:

<http://play2learnprintables.com/Farm%20Theme%20page.htm>

VELS Number Sense and Quantity: Say the next number that comes before or after in a sequence of 1-10

### **“How Many Spots?” Cow Game**

Objective: verbally counts to 10; counts up to five objects accurately, using one number name for each object

Materials: cow coloring sheet, black pom poms (or black paper circles)

Directions: Children roll a dice and take pom poms to make that many spots on the cow. Help children identify how many dots are on the dice, and once that is easy, use two dice for them to work with larger numbers. If you want to work on number recognition, use a dice with numerals written instead of dots.

VELS Number Sense and Quantity: Count up to 5 objects using one number for each object independently. Count a group of up to 10 objects and understand that the last number represents the number of objects in the group.

### **“Eggs & Legs”**

Objective: identifies numerals to 10 and connects each to counted objects

Materials: book – “Eggs & Legs”, number cards

Directions: Read aloud the story and discuss how the book is counting the LEGS in each picture. Practice identifying numerals to 10 or higher (the book goes up to 20). Use chips, Unifix cubes, or counters to cover up each leg on the page and count to see if you get the same as the numeral cards on the page. (This book also explores skip counting by 2s and that might be interesting to children who have strong math skills.)

VELS Number Sense and Quantity: Read numerals up to 5 and connect them to the quantities they represent. Read numerals up to 10 and connect them to the quantities they represent

### **“Making Numeral Cards for the Classroom”**

Objective: recognizes and names a few numerals

Materials: large index cards, animal stickers

Directions: Create a set of numeral cards with the children by writing a numeral on an index card and adhere a matching number of farm animal stickers. Create a larger version on cardstock, and display these in a prominent place that children will touch and examine.

VELS Number Sense and Quantity: Read numerals up to 5 and connect them to the quantities they represent. Read numerals up to 10 and connect them to the quantities they represent

### **“Clothespin Game to 5”**

Objective: identifies numerals to 5 by name and connects each to counted objects.

(As that is mastered, increase the number to 10.)

Materials: printable cards, clothespins

Directions: Children count the total number of barns on the card, and clip a clothespin onto the correct number.

Source for free printable: <http://play2learnprintables.com/Farm%20Theme%20page.htm>

VELS Number Sense and Quantity: Read numerals up to 5 and connect them to the quantities they represent. Read numerals up to 10 and connect them to the quantities they represent

### **“Chicken Grid Game”**

Objective: combines and separates up to five (or 10) objects and describes the parts; identify which group has more or less, or if they are the same.

Materials: chicken grid sheet (cut in half if only working up to five)

Directions: Roll a die and put that many counters on top of the chicken pictures.

Continue to roll and place counters until the grid is full. (If playing only up to five, use a dice that only has 1 and 2 on it.)

See this website for more detailed ways to play and for a variety of free printable grid games: <http://www.prekinders.com/grid-games/>

VELS Number Sense and Quantity: Compare groups of up to 10 objects and identify which group has *more or less*, or if they are the *same* (equal)

### **“Ten Frames”**

Objective: makes sets of 6-10 objects and then describes the parts; identifies which part has more, less, or the same (equal)

Materials: ten frame sheet, small toys (that fit in boxes on the sheet)

Directions: Children place one toy in each frame and then count the total. Little pigs are fun to use while doing a Farm Unit. Take turns putting in toys and asking how many in all. Then try making two groups and describe the parts – which has more, less or the same.

VELS Number Sense and Quantity: Compare groups of up to 10 objects and identify which group has *more or less*, or if they are the *same* (equal)

### **“Play Dough Number Mats”**

Objective: read numerals to 10 and connect them to quantities they represent

Materials: number mats, play dough

Directions: Print and laminate number mats and add to the play dough table. Show children how to roll small balls to place on each of the dots and count using one to one correspondence. Encourage children to roll out dough to form each number.

VELS Number Sense and Quantity: Read numerals up to 5 and connect them to the quantities they represent.

Free source for number mats: <http://www.homeschoolcreations.net/number-playdough-mats-free-printables/>

## **VELS Number Relationships and Operation**

### **“Five Little Ducks”**

Objective: compare groups and use comparative terms

Materials: Lakeshore “Five Little Ducks” Glove Puppet Set

Directions: Teach the children how to sing the song “Five Little Ducks”. Using the glove puppet, sing the song as you remove the ducks as you sing. Compare the groups and discuss using comparative terms.

VELS Number Relationships and Operations: Use various strategies (e.g., counting, matching) to compare groups as having more or fewer objects. Use a range of strategies such as counting, matching to compare quantity in two sets of objects and describe the relationship with comparative terms (e.g. more, less, fewer, equal)

### **“Comparing Farm Animal Groups”**

Objective: Use various strategies (such as counting, matching) to compare quantity in two sets of objects. Describe which has more, fewer, or equal.

Materials: small farm toys

Directions: Create small groups of plastic farm animals or tractors. Allow children ample time to play and explore the toys. Often they will begin to discuss quantity, or a teacher can prompt them to compare how many animals are in two different groups. Play a game setting up different amounts of animals and take turns telling stories.

VELS Number Relationships and Operations: Use various strategies (e.g., counting, matching) to compare groups as having more or fewer objects. Use a range of strategies such as counting, matching to compare quantity in two sets of objects and describe the relationship with comparative terms (e.g. more, less, fewer, equal)

### **“Snack Counting”**

Objective: Demonstrate understanding of the concepts of one, two, or more

Materials: snacks

Directions: When handing out snacks explain how many of each you will hand out. “Here are two apple slices for each of you.” Then have conversations over snack about one, two, more, less, etc. Start with small numbers until children are successful. Take note of how many a child can count before they lose track or forget the next number. Teach strategies for counting small groups, such as lining up the objects and finger pointing.

VELS Number Relationships and Operations: Match two equal sets using one-to-one correspondence and understand they are the same.

### **“Muddy Pigs, Clean Pigs”**

Objective: demonstrate that a set can be combined or separated; identify the resulting number in the group

Materials: miniature pigs, brown & green felt sheet

Directions: Lay down a brown felt ‘mud puddle’ and call all the pigs placed onto the felt “Muddy Pigs”. Lay down a green felt piece to be the ‘grass’ where the clean pigs lie. Play with the child to combine and separate groups of pigs onto the mats and discuss.

VELS Number Relationships and Operations: Demonstrate knowledge that objects or sets can be combined or separated. Combine and separate small groups of objects to make new groupings, and identify the resulting number in the group.

### **“Farm Story Math”**

Objective: children create mathematical stories and communicate how they solved the problems.

Materials: farm set of toys (or Felt Farm set such as Judy/Instructo Storyboard)

Directions: Children create a farm scene with farm set of toys. Talk about how many of each animal there is, add together a couple of types of animals and compare number. Make sure children are counting using 1:1 correspondence and using the correct number name. If ready, you could use some subtraction stories as well. (Think of addition and subtraction story problems you could discuss at whole group time, or with small groups using animal counters, Goldfish snacks, Animal crackers, or even the small world play. Help children use math words in their play.)

VELS Number Relationships and Operations: Use emerging reasoning skills to determine a solution to a mathematical problem. Use simple strategies to solve mathematical problems and communicate how they solved the problems

## **VELS Measurement and Comparison**

### **“Exploring Weight”**

Objective: compare and order a small set of objects according to weight

Materials: balance scale, plastic animals of different sizes

Directions: Model how to use the balance scale and how the lower side is heavier. Practice weighing different sized animals.

**VELS Measurement and Comparison:** Sort objects by one attribute such as color, length, weight or size. Compare and group objects using attributes of length, weight, and size, and explain reasoning (e.g., “I put all the big black buttons in this pile and the small black ones there.”)

### **“Comparing Sizes”**

Objective: make simple comparisons between two objects

Materials: plastic farm animals

Directions: Discuss size of plastic farm animals. Sort the animals into two piles, such as big/little or tall/short

**VELS Measurement and Comparison:** Use language to label objects according to an attribute

### **“Farmer Sorted His Animals”**

Objective: sort the animal counters by color and animal type

Materials: Thinking Kids' Farm Animal Counters

Directions: work with a small group of children to sort the animal counters. Begin by sorting by animal type (all cows together, all sheep together, etc.). Then look at one of the groups, such as cows and sort again by color. Discuss with the children, and then try sorting another animal group by color. Compare number of objects in each set.

**VELS Measurement and Comparison:** Sort objects using two or more attributes (e.g., sets of large blue bears, small blue bears, large red bears, small red bears) and compare number of objects in each set

### **“Old MacDonald Sorted His Animals – Using a Glove Puppet”**

Objective: sort the animal counters by color and animal type

Materials: Thinking Kids' Farm Animal Counters, Lakeshore Old MacDonald Glove Puppet Set

Directions: give each child a handful of animal counters. Sing the song “Old MacDonald” and put the animal you name onto the glove. The child then looks for the animal you named in their pile and holds it up. Sometimes instead of saying an animal, say “Old MacDonald had some Yellow Animals” and they have to hold up all the yellow animal counters in their pile.

**VELS Measurement and Comparison:** Sort objects using two or more attributes

### **“Fruit Matching Bingo Game”**

Objective: classify objects into categories

Materials: Melissa & Doug Press and Spin Picture Match Fruit

Directions: play the fruit match game with a small group of children. Then sort picture cards of fruits and veggies into two categories. (Extend this activity by bringing in grocery store circulars to cut and sort.)

VELS Measurement and Comparison: Classify familiar objects into categories (e.g., fruits or vegetables) with modeling and assistance. Classify familiar objects into categories (e.g., fruits or vegetables). Free source of fruit and veggie sorting cards:

[http://homeschoolcreations.com/files/Fruit\\_and\\_Vegetable\\_Matching\\_Cards.pdf](http://homeschoolcreations.com/files/Fruit_and_Vegetable_Matching_Cards.pdf)

### **“Nonstandard Measurement”**

Objective: use multiples of the same unit to measure

Materials: paper clip chain (OR straws, cubes, links, paper chain)

Directions: Measure various objects in the classroom using the paper clip chain.

Measure different sized tractors or plastic farm animals, then compare the objects lengths.

VELS Measurement and Comparison: Use Standard and non-Standard ways and tools to measure and compare (e.g., 3 hands long) with modeling and assistance. Use Standard and non-Standard ways and tools to measure and compare (e.g., 3 hands long)

### **“Horse Hands” Measuring Height**

Objective: Measures using non-standard units

Materials: hands chart

Directions: Create a ‘hands growth chart’ by using a large piece of easel paper. Stamp kid hands next to one another until the paper is filled. Number the hands and allow to dry. The kids stand next to the chart to measure themselves.

VELS Measurement and Comparison: Use Standard and non-Standard ways and tools to measure and compare (e.g., 3 hands long) with modeling and assistance. Use Standard and non-Standard ways and tools to measure and compare (e.g., 3 hands long)

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### **“Milking the Cow” (at the water table)**

Objective: show an understanding of variations of full (such as a little full, very full, just a little, etc.)

Materials: water table, small cups, glove filled with water and small amount of white paint, knot closed. Pin prick one of the fingers of the glove.

Directions: Child experiments with getting the water out of the glove into the cup.

Attempt to fill cup with ‘milk’ and discuss how full the cups are

VELS Measurement and Comparison: Show an understanding of variations of full

### **“Ordering by Length”**

Objective: compare and order a small set of objects according to length

Materials: set of straw sticks varying in size from 2 inches – 12 inches

Directions: Children take set of straw sticks and order them by length from smallest to largest.

Discuss why they are sorted in that way. {For younger children, have fewer types of straws and focus on matching straws of similar size}

VELS Measurement and Comparison: Match objects of similar size. Order objects by size or length (i.e., seriation)

### **“Ordering by Size”**

Objective: compare and order a small set of objects according to size

Materials: nesting cookie cutter set (could also use nesting boxes or plastic nesting/stacking cups, or a Matryoshka doll set)

Directions: Children take the ‘nesting’ cookie cutters and order them by size from smallest to largest. Discuss why they are sorted in that way

VELS Measurement and Comparison: Match objects of similar size. Order objects by size or length (i.e., seriation)

### **“Visual Schedule”**

Objective: predict upcoming events; use terms such as after, now, later

Materials: an important part of my classroom is the visual schedule. Our daily schedule remains mostly the same but some days there are changes. The pocket chart schedule with picture prompts shows children what is happening now (since Mr. Alligator clip tells us) and what is next. I use this tool often to reinforce the terms first, next, before, after, now, later.

VELS Measurement and Comparison: Predict upcoming events based on prior knowledge (e.g., pick up toys and then sit on rug for story time) Use terms such as *before, after, now, later, tomorrow, and yesterday* accurately



## VELS Geometry and Spatial Reasoning

### “Shape Matching”

Objective: Matches two identical shapes

Materials: printable shape tracers (laminated so reusable)

Directions: Children match objects in the classroom to the shape tracer cards. Then using dry erase markers, trace the shapes. Free printable here:

<http://www.1plus1plus1equals1.net/2010/07/preschool-printables-shape-tracers/>

VELS Geometry and Spatial Reasoning: Name common two-dimensional shapes (e.g. square, rectangle, circle, triangle) regardless of orientation

### “Lucky Ducks Game”

Objective: identify basic shapes (square, triangle, circle, star) and match shapes

Materials: Lucky Ducks Game

Directions: Teach the children how to play this matching game. If they pick a duck with the shape they are looking for, they get to keep the duck. If not, the duck goes back into the pond. Discuss the different shapes and talk about the attributes of each shape.

VELS Geometry and Spatial Reasoning: Name common two-dimensional shapes (e.g. square, rectangle, circle, triangle) regardless of orientation.

### “Color Farm – exploring shapes”

Objective: name common 2D shapes

Materials: book – “Color Farm” by Lois Ehlert

Directions: explore 2D shapes through cutout designs in this wonderful book. Identify the barnyard animal and then name the geometric shapes that were used to create the images. After exploring the book, encourage experimentation with ways to combine paper shapes to make collage art!

VELS Geometry and Spatial Reasoning: Name common two-dimensional shapes (e.g. square, rectangle, circle, triangle) regardless of orientation. Use two- and three-dimensional shapes to create pictures and structures. Combine (i.e., compose) and separate (i.e., decompose) shapes to make other shapes.

### “Rosie Takes a Walk”

Objective: use positional words indicating location, direction, and distance

Materials: chart paper, book – “Rosie's Walk”

Directions: create a large map of the farmyard on a piece of chart paper or poster board. Be sure the map is BIG so the kids can maneuver a cut-out of Rosie and the fox around the map to emphasize the positional words. See full lesson at:

<http://www.mathathome.org/LessonPlans/WalkWithRosie/LessonPlanWalkWithRosieWeb.php>

VELS Geometry and Spatial Reasoning: Use position words such as *behind*, *in*, *on* accurately. Use terms such as *on top of*, *beside*, *in front of*, etc. to communicate ideas about the relative position of objects

### **“Positional Words at Play dough”**

Objective: children use positional words while describing their play

Materials: play dough, tractors, fences, small farm toys

Directions: Encourage the children to describe what is happening with the farm toys as they play at the play dough table. (on top, under, behind, next to, in front of) **VELS Geometry and Spatial Reasoning:** Follow simple directions related to relative position (*beside, between, next to, etc.*)

### **“Foam Shapes to Build Barns”**

Objective: describe two and three-dimensional shapes by using own words; build a new shape using foam shapes. Show that shapes remain the same when they are flipped, slid, or rotated.

Materials: foam shapes

Directions: Children use foam shapes to build barns or houses. Copy their design down onto paper by either tracing shapes or free drawing. {Use Magnatiles to build 3D shapes, then flatten to trace onto paper. Cut out shape, fold, and create paper version of 3D shape.}

**VELS Geometry and Spatial Reasoning:** Use two- and three-dimensional shapes to create pictures and structures. Combine (i.e., compose) and separate (i.e., decompose) shapes to make other shapes.

### **“Shape Tractor”**

Objective: identify a few basic shapes (circle, square, rectangle)

Materials: Shape Tractor sheet

Directions: Children trace and color their own tractors. Then try cutting out the shape sheet and build a unique tractor using geometric shapes. For younger children pre-cut shapes that they can use to collage their own pictures.

**VELS Geometry and Spatial Reasoning:** Use two- and three-dimensional shapes to create pictures and structures. Combine (i.e., compose) and separate (i.e., decompose) shapes to make other shapes.

Source for Shape Tractor= 2 Teaching Mommies

### **“Farm Themed Puzzles”**

Objective: complete 5-7 (or 9-12) piece jigsaw puzzle

Materials: puzzles

Directions: offer a variety of farm puzzles for the child to complete

**VELS Geometry and Spatial Reasoning:** Complete a 5-7 piece connecting puzzle by looking at the picture and/or shapes. Complete a 9-12 piece jigsaw puzzle by looking at the picture and/or shapes