# More or Less Pigs in the  Pen

## Summary

Students will practice simple addition and subtraction.

## Main Core Tie

Mathematics Kindergarten
Strand: OPERATIONS AND ALGEBRAIC THINKING (K.OA) Standard K.OA.1

## Additional Core Ties

Mathematics Kindergarten
Strand: OPERATIONS AND ALGEBRAIC THINKING (K.OA) Standard K.OA.2
Mathematics Kindergarten
Strand: OPERATIONS AND ALGEBRAIC THINKING (K.OA) Standard K.OA.4
Mathematics Kindergarten
Strand: OPERATIONS AND ALGEBRAIC THINKING (K.OA) Standard K.OA.5

## Materials

- *Pigs on the Farm*
  Cookie sheet
  Plastic pigs
  Pig Pen (tray)
  Individual student pens
  Cut out pigs for each student
- *The Farmer and the Pigs* worksheet (pdf)

Resources

- Book: *Pigs on the Farm*
  , by Mari C. Schuh and Gail Saunders-Smith;
  ISBN 0736809937

## Background for Teachers

Students need to see and talk about the quantity of items as they increase and decrease. They must experience "adding" and "subtracting" before they are required to complete math problems with pencil and paper. When students are required to "find the answer," that is what they attend to. They do not focus on what is actually happening. They focus on getting an answer even if their answer is incorrect. And they do not learn why their incorrect answer does not make mathematical sense.
Students need time to explore adding and subtracting. They need to see the quantity of items increase, get larger, etc. They need to watch and participate in subtracting items. They need to see the items decrease in quantity. And they need to talk about what is happening.
When we rush right into adding and subtracting without allowing students to explore and become familiar with what actually takes place when you add or subtract, students simply learn the algorithm. They learn the memorized pattern to follow in order to create an answer, even if their answer is incorrect.
When students spend time watching, making, and talking about the quantity of items increasing, they will truly understand the concept of addition. They will understand why the total number (the cardinal number) needs to be larger than the parts that make up that number.
And likewise, when students spend time watching, making, and talking about the quantity of items

increasing, they will gain an understanding of why the amount that is left is a smaller amount (a smaller number).

Intended Learning Outcomes

5. Understand and use basic concepts and skills.

Instructional Procedures

Invitation to Learn

Read *Pigs on the Farm*.

"What would your mom and dad say if you took some pigs home with you? What would they do you in your house? Where would they want to sleep?"

I have more pigs that we will be using soon. I'm keeping these pigs in this bag so they don't escape. We're going to be using them soon.

Instructional Procedures

Pigs in the Pen

Have students sit in a circle.

Who remembers what this is? Yes, this is my pig pen. Today I'm going to let you add some pigs to my pen. I'll go first. (Place 3 pigs in the pen.)

How many pigs are in my pen? (Make sure students respond using complete sentences, "There are 3 pigs in the pen.")

I'm going to pass the pen and my special pig sack to _____. You may reach into my special pig bag and add some pigs to our pen, or you may take some pigs out of the pen and put them back into the special pig sack.

Allow the student to either add pigs to the pen or take some away. At this point you'll be tempted to count the pigs in the pen. Don't do it. Simply use the words, start building their vocabulary.

"Oh, ____ has added some pigs. We have more pigs in our pen now."

"Oh, ____ has taken some pigs away. We have fewer pigs in our pen now."

Continue this activity around the circle letting students add or take pigs away. Remember do not count the remaining pigs. This will come later. You may find students doing this on their own. Just let them watch the quantity of pigs increase and decrease.

Musical Pigs

Show a pig pen. Show some pigs. Then start singing…

(sing to "The Ants Go Marching")

The Farmer, he has many pigs. Hurrah! Hurrah!

The Farmer, he has many pigs. Hurrah! Hurrah!

The Farmer, he has many pigs.

Put ____ in the pen and touch them all.

Count--one by one!

There sure--are lots!

Sing the song aloud as you track the words. Invite the students to sing along with you. Sing a few times until the students become familiar with the song.

Using your big pig pen, call on a student to put some pigs in it. Have everyone sing the song while that student touches each pig. Continue this a few times.

Pass out individual pig pens and pigs. Call on a student to pick an amount or roll a dice. Have everyone sing the song and count the pigs.

Class Estimation Jar

Have a brightly colored decorated jar and tell students, "This is our Class Estimation Jar."

Everyday, students write an estimation on a piece of paper and put it in the box next to the jar.

Provide a prize at the end of the week for the person whose estimation is the closest to the

number of objects in the jar.

## Extensions

Materials

- *Bean Drop* worksheet

Extensions

Have students create their own pens. Students put different items in their pen and count each others' items.

Three Tall Towers: Students roll a dice. They then have to build three different towers using only Unifix® cubes. Tower 1 = two colors, Tower 2 = three colors, and Tower 3 = four colors.

Comparing Stacks: Student rolls a dice, then connects that many Unifix® cubes and set out the matching number card. Roll the dice again and build another tower, setting out the matching number card. Roll the dice for the third time, build the tower, and match the number card. Put the towers in order from shortest to tallest with the number cards.

My Favorite Number Book: Students pick their favorite number. Show all the different ways/combinations to make that number using animal stamps, shapes they draw, or shapes they cut out. A staggered page book works great for this activity!

Bean Drop: Two students work together. They put a given (you decide) amount of two-sided/colored beans in their cup. Shake the beans out and write down what they have on the *Bean Drop* worksheet. If their combination is different, they both get a point. If their combination is the same, no one gets a point. Play for 9 rounds before they change to another number of beans. (Here is a chance for students to use math. They need to work together in deciding how they will keep track of their turns in order to change numbers.)

Family Connections

Send home *The Farmer and the Pigs* handout with a pen and some pigs for the student to repeat the activity with family members.

Have student make a "My Favorite Number" book at home.

Send home two-sided/colored beans and have students play Bean Drop at home with family members.

## Assessment Plan

As you are doing the activity keep track of students who count using one-to-one correspondence. After the activity, call on individual students to come and participate in the activity with just you. Listen to the words they use. Record and provide feedback if they understand the concept.

## Bibliography

Research Basis

Richardson, K. (1997). Too Easy for Kindergarten and Just Right for First Grade. *Teaching Children Mathematics*, 3(8). 432-7.

Richardson states that children understand math at three levels. Children at level 1 count, and count, and count, and then land on a number. They do not know whether the number they landed on is reasonable. Children at level 2 can decide whether their answer is reasonable. They think about the quantities with which they are working. Children at level 3 take numbers apart and put them back together flexibly. Teachers must observe students and watch what approach they are using to perform the tasks. Level 1 requires the least complex thinking. Students simply count things. Children at level 2 need to estimate. They need to be provided opportunities to adjust their answers as they consider new information. Estimating first and then finding the answer builds number concept. Children at level 3 need to work with smaller numbers in more complex ways. These children need to internalize (not memorize—memorized things can be forgotten!) combinations for numbers.

## Authors

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