

Add A Quack, Quack Here

Summary

The math centers the students will be learning in this activity will provide experience and exposure to the connecting and symbolic levels of addition.

Main Core Tie

Mathematics Kindergarten

[Strand: OPERATIONS AND ALGEBRAIC THINKING \(K.OA\) Standard K.OA.1](#)

Materials

Unifix® cube trains of seven cubes for each student

- *Quack and Count*
, by Keith Baker
- [Quack Addition recording sheet for each student](#)
- *Quack Addition*
overhead

Center #1 Adding Beads

- [Adding Beads Addition Cards](#)
Pony beads (several different colors)
Crayons
- [Adding Beads recording sheet](#)
- [Adding Beads Center Instructions](#)
Pencils

Center #2 My Book of 8

- Red/yellow counters
Small paper cups
Red, yellow and orange crayons
- [My Book of 8 book cover & pages](#)
- [My Book of 8 Center Instructions](#)

Center #3 Number Tile Addition

- Number tiles
- [Number Tile Addition cards](#)
- [Number Tile recording sheet](#)
- [Number Tile Center Instructions](#)
Pencils

Center #4 Dice Addition Graph

- Dice (different colors)
Crayons
- [Dice Addition Graph recording sheet](#)
- [Dice Addition Graph Center Instructions](#)
Pencils

Center #5 Addition Concentration

- [Teacher created Addition Concentration Cards](#)
- [Addition Concentration Center Instructions](#)
Paper
Crayons

Pencils

Additional Resources

Books

- *A Collection for Kate*
, by Barbara Derubertis; ISBN 1575650894
- *Adding Animals*
, by J. Y. Morton; ISBN 1567849512
- *Animals on Board*
, by Stuart J. Murphy; ISBN 0439365716
- *Centered on Success Grade K*
, by the Mailbox; TEC 60819
- *Domino Addition*
, by Lynette Long; ISBN 0881068772
- *File Folder Centers Math Grs. K-1*
, by The Mailbox; TEC60923
- *Fish Eyes*
, by Lois Ehlert; ISBN 0152280510
- *Hands-On Math: K-1*
, by Virginia Johnson (Edited by Janet Bruno); ISBN 3055402600 (CTP 2600)
- *The Hershey's Kisses Addition Book*
, by Jerry Pallota; ISBN 0439241731
- *I Can Add*
, by Ray Gibson; ISBN 1580861644
- *Instant Math Centers: K-1*
, by Creative Teaching Press; ISBN 1574716891 (CTP 2597)
- *Jack the Builder*
, by Stuart J. Murphy; ISBN 0060557753
- *Learning Center Collection Math Grade K*
, by The Mailbox; TEC 60863
- *Little Number Stories Addition*
, by Rozanne Lanczak Williams; ISBN 1574710079
- *The M&M's Addition Book*
, by Barbara Barbieri McGrath; ISBN 0881063495
- *Mathematics Their Way*
, by Mary Baratta-Lorton; ISBN 020186150X
- *Mathematics Their Way Summary Newsletter*
, by Cynthia Garland; ISBN 0201861542 ([Available free online](#)).
- *Math: Make It Your Way*
, by Keri King, and Kari Sickman (Edited by Teri L. Fisch; ISBN 1574718991 (CTP 2576)
- *Math Mats and More*
, by The Mailbox; TEC 284
- *Math Tub Topics: K-2*
, by Creative Teaching Press; ISBN 1574719548 (CTP 2812)
- *Mission: Addition*
, by Loreen Leedy; ISBN 0823414124
- *Shoe Box Learning Centers: Addition & Subtraction: 30 Instant Centers*
, by Jacqueline Clark; ISBN 0439537940

- *Take it to Your Seat Math Centers K-1*
, by Jill Norris; ISBN 1557999317
- *20 Instant Math Learning Centers Kids Will Love!*
, by Traci Ferguson Geiser and Krista Pettit; ISBN 0439227291 (Scholastic)
- *Quack and Count*
, by Keith Baker; ISBN 0152050256
- *Ten Black Dots*
, by Donald Crews; ISBN 0688135749
- *Workjobs*
, by Mary Baratta-Lorton; ISBN 0201043114

Articles

"The Building Blocks of Math", by Marilyn Burns; *Instructor*, October/November 2005, 42-43.

Organizations

- [National Association for the Education of Young Children](#)
, 1509 16th St. N.W., Washington, DC 20036 (202) 232-8777 or (800) 424-2460
- [National Council of Teachers of Mathematics](#)
, 1906 Association Drive, Reston, VA 20191-1502 (703) 620-9840,

Background for Teachers

Children are always adding things together without even knowing it. Children are adding together dice as they play games that require dice. As teachers, we need to begin using the language of addition long before we begin teaching the symbols of addition. We can begin by using the language of addition throughout our school day. We can say things like "two snowy days plus three foggy days equals five days all together in January."

Students need practice joining sets of concrete objects and using mathematical language to communicate what they are doing. *Math Their Way* encourages teachers to teach numbers and their operations in three steps or levels. The first is the concept level. This is the level where children explore the numbers up to ten with real objects and situations without the use of numerals or mathematical symbols. They practice mathematical language to describe what they are doing. The second level is connecting. Students learn to put objects and numbers together to match equations written with the correct mathematical symbols. At the final level, symbolic, students learn to record their own equations using the correct mathematical symbols. The math centers the students will be learning in this activity will develop a sound basis in the concept level and provide experience and exposure to the connecting and symbolic levels of subtraction.

Important vocabulary terms to use and understand:

addend- "Any number being added. In $32+4=36$, 32 and 4 are addends."

numeral- "A symbol used to represent a number."

sum- "The answer to an addition problem. In $32+4=36$, 36 is the sum."

Other important vocabulary terms that are helpful but not mandatory for Kindergarten students to know and understand: all together, equals, how many, in all, more, plus

Please note that this lesson and center ideas are designed for kindergarten students towards the end of the school year (about the last two or three months). Some students may be ready for formal lessons in addition at the symbolic level earlier in the year but most students will need a lot of practice at the concept level first. Many of the center activities for addition in this lesson can be adapted to fit the needs of the students in your class. Please make adaptations as needed for the ability level of your students.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude.
2. Understand and use basic concepts and skills.

Instructional Procedures

Invitation to Learn

Give each student seven Unifix® cubes (the set of seven may be in a variety of colors) to explore and manipulate. Encourage students to combine them into groups in a variety of ways.

Instructional Procedures

Gather students together on the rug near a whiteboard leaving their Unifix® cubes at their desks.

Read the book *Quack and Count* to the class. Point out the addition problems throughout the story. A student in the class is more than likely going to point out that all the addition problems in the book have a sum of seven. Discuss with the class there are many ways to make seven and we are going to practice them today.

Have one student come up and break your Unifix® cube train of seven cubes into two pieces and say "Quack" when it breaks.

Have the student hide one hand behind his/her back and hold the other hand in front of him/her. Have the class help you count the number of cubes in the student's hand. Write this numeral on the board as the first addend.

Have the student show the cubes behind their back and count them together as a class. Write this numeral on the board as the second addend below the first numeral/addend.

Introduce the numerals on the board as ways to represent the physical Unifix® cubes.

Walk the students through the concept, connecting, and symbolic levels of addition.

Have the class read the addition problem out loud with you (ex. "Two plus five equals seven").

Explain to the class the process of addition. In addition we combine sets of objects together to find out how many we have all together. Explain how we use addition to solve real life problems (e.g. adding coins together to buy a candy bar, adding number of boys and girls in class, adding number of plates needed for dinner, etc.).

As a class, brainstorm a list of ideas of things we combine or add together.

Continue playing "Quack" several more times, giving several students an opportunity to come up and help.

After modeling this procedure several times, introduce the class to the [Quack Addition recording sheet](#) on an overhead. Demonstrate how to record their answers on their paper.

Allow students to return to the desks and their Unifix® cubes and play "Quack" on their own and record their addition problems on the paper.

When students have completed the Quack Addition recording sheet, they may choose a math center focusing on addition.

Center #1 Adding Beads

Students will choose an [Adding Beads Addition Card](#).

They will string one color of pony beads on their card for the first addend.

They will string another color of beads for the second addend.

Students will slide the string through the slit on their card to lock the beads in place.

Students will draw beads on their [Adding Beads recording sheet](#) using the same color of crayon as their actual beads.

Students will write their addition equation on their Adding Beads recording sheet.

Students will add the beads together and record the sum on their paper.

Students will choose another addition card and continue the activity.

*Teacher Preparation: Copy *Adding Beads Addition Cards* on cardstock. Cut cards apart and laminate. Punch a hole in the upper left hand corner of the card. Tie a string or yarn about 6-7 inches

long to the card. Cut a slit about 12 inch deep about an inch from the top right corner where students can lock their beads in place.

Center #2 My Book of 8

Students will take eight red/yellow counters and shake them in a paper cup.

They will spill the counters on the table.

First they will use a red crayon and color in the number of counters red side up on their book page.

Using the red crayon, they will record this numeral on the first addend line of the addition equation.

Then they will use a yellow crayon and color in the number of counters yellow side up.

Then they will write this numeral in yellow on the second addend line.

They will count all the counters and record the sum in orange.

Students will continue the activity by shaking their counters again and recording their equations.

*Teacher Preparation: Copy [My Book of 8 Book Covers](#) on cardstock or regular paper for your class.

Copy [My Book of 8 pages](#), making enough copies for 8-10 pages per student. Cut book covers and pages in half. To assemble book, place one book cover on top of 8-10 book pages and staple.

Center #3 Number Tile Addition

Students will choose a [Number Tile addition card](#).

They will count the number of objects on the card for the first addend.

They will find the corresponding numeral tile and place it in the box.

They will count the number of objects for the second addend and place the correct numeral tile in the box.

Students will count the sum and place the correct numeral tile in the box.

Students will record their equation on their [Number Tile Addition recording sheet](#).

Students will continue the activity by choosing a new addition card.

*Teacher Preparation: Copy [Number Tile Addition Cards](#) on cardstock. Cut cards apart and laminate.

Center #4 Dice Addition Graph

Students will choose two dice of different colors and choose the corresponding colors of crayons.

They will shake the dice.

Students will color in the first column of the [Dice Addition Graph](#) for the number of dots on one die using the matching color of crayon.

Students will write the total number of boxes colored for the first addend.

They will color in the graph for the number of dots on the second die with the matching color of crayon.

Students will write the total number of boxes colored for the second addend.

The students will record the sum rolled at the end of their addition equation.

Students will continue the activity by rolling the dice again and recording a new equation.

Center #5 Addition Concentration

Students will lay all the cards face down on the floor or table.

The first student will draw two cards. If the equation and the answer match, the student keeps the cards and draws again. If the equation and the answer do not match, the student returns the cards, face down on the floor or table and it is the next students turn.

Students continue taking turns until all of the equation and answer cards have been matched together.

Students can then choose one or two of their equation cards and draw pictures to represent the equation.

Students can record the equation below their drawing.

*Teacher Preparation: Copy [Addition Concentration cards](#) on cardstock. Laminate and cut apart.

Extensions

Curriculum Extensions/Adaptations/ Integration

Additional cards can be made for advanced learners by using sums larger than 10.

Teachers can make a special activity tub for children who are struggling by placing only facts up to five in their center materials.

Teachers can use manipulatives in math centers that correlate with their current topics or themes. Make a "Quack and Count" class book by having students make up equations using a specific number of ducks. A class book could be made by using another animal (e.g. "Moo and Count" or "Hiss and Count").

Adding Beads can be adapted for a subtraction center. The Subtraction Beads materials are on the [Core Academy website](#) under Materials 2006.

Family Connections

Prepare a Take Home Backpack, which includes addition activities for students to share with their families. You could include books on addition, addition flash cards, and addition games.

The [Addition Homework assignment](#) can be sent home for the students to complete and return.

Assessment Plan

- [Math Center Observation Sheet](#)

can be used to record a student's thought processes, accuracy, and/or areas of difficulty as they complete the addition problems. The following questions or statement starters can be used to assess students learning:

What are you doing?

How did you do that?

What would happen if...?

Can you do it another way?

What are you thinking?

Does that make sense to you? Why?

Do you think this will happen every time? Why?

Tell me more about....

Why do you think that will work?

I wonder

Student's recording sheets can be collected for assessment and placed in a portfolio.

Observe students and listen to the interaction and conversation they are having during Math Centers.

Bibliography

Research Basis

Canobi, K. H., Reeve, R.A., & Pattison, P.E. (2002). Young children's understanding of addition concepts. *Educational Psychology*, 22 (5), Pages 513-532.

Young children, ages four to six, were studied to find out their understanding of additive composition ("larger sets are made up of smaller sets"), commutative ($a+b=b+c$) and associative properties (problems can be recombined in different ways ie: $(a+b) +c= a+(b+c)$) of addition. One group was given manipulatives to work through the addition problems while the other group was not. The study found that students who had the use of physical objects used the objects in the beginning to complete their addition problems. After using the manipulatives for a time, they started using other strategies to complete the addition problems without the use of the manipulatives.

National Association for the Education of Young Children and National Council for Teachers of Mathematics (2002). Early childhood mathematics: Promoting good beginnings. A joint position statement of the NAEYC and NCTM. Washington DC: Author.

The NAEYC and the NCTM came together and defined their positions on mathematics for children ages three to six. They state, "early childhood programs should furnish materials and sustained periods of time that allow children to learn mathematics through playful activities that encourage counting, measuring, ...playing board and card games..." (pg. 11) The groups also suggest that mathematics programs for young children "provide carefully planned experiences that focus children's attention on a particular mathematical idea or set of related ideas...in large and small group activities and learning centers."

Rillero, P. & Allison, J. (1997). Creative Childhood Experiences in Mathematics and Science: Projects, Activity Series and Centers for Early Childhood. ERIC Source (ED 411 145). Retrieved January 2, 2006, from <http://www.eric.ed.gov>

Rillero discusses the use of activity centers in early childhood classrooms. He defines activity centers as areas for children to investigate in a self-directed manner, with greater autonomy, which promotes learning. He suggests using a skills approach where certain mathematical or science skills are the focus of the center. He also encourages the use of mathematical manipulatives as a foundation for more abstract thinking in the activity centers.

Authors

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