

Sensational Subtraction Centers

Summary

The math centers the students will be learning in this activity will provide experience and exposure to the connecting and symbolic levels of 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.3](#)

Mathematics Kindergarten

[Strand: OPERATIONS AND ALGEBRAIC THINKING \(K.OA\) Standard K.OA.5](#)

Materials

- *Elevator Magic*
Masking tape
- [*Smiley Face, Heart and Star* pictures](#)
Overhead projector
- *Subtraction Math Mat*
overhead
Overhead manipulatives
- *Subtraction Sentences*
overhead
Vis-à-vis marker
- [*Subtraction Math Mat* for each student](#)
- [*Subtraction Sentence* sheet for each student](#)
10 manipulatives for each student

Center #1 Bingo Marker Subtraction

- Bingo markers
- [*Bingo Marker Subtraction Cards*](#)
- [*Bingo Marker Subtraction* recording sheets](#)
- Stapler
- [*Bingo Marker Subtraction Center Instructions*](#)
- Pencils

Center #2 Macaroni Subtraction

- Dyed salad macaroni
- Pipe cleaners
- Dice
- [*Macaroni Subtraction* recording sheet](#)
- [*Macaroni Subtraction Center Instructions*](#)
- Crayons
- Pencils

Center #3 Golf Tee Subtraction

- [Golf Tee Subtraction cards](#)
Golf tees
- [Golf Tee Subtraction recording sheet](#)
- [Golf Tee Subtraction Center Instructions](#)
Pencils

Center #4 Subtraction Stamp Book

- [Subtraction Stamp Book pages](#)
- [Subtraction Stamp Book Cover](#)
Various stamps
Stamp pads
Number stamps
- [Subtraction Stamp Book Number Cards 0-9](#)
- [Subtraction Stamp Book Center instructions](#)
Pencils

Center #5 Domino Subtraction

- Dominos
- [Domino Subtraction recording sheet](#)
- [Domino Subtraction Center Instructions](#)

Additional Resources

Books

- *Centered on Success Grade K*
, by the Mailbox; TEC 60819
- *Elevator Magic*
, by Stuart J. Murphy; ISBN 0590512358
- *File Folder Centers Math Grs. K-1*
, by The Mailbox; TEC60923
- *Five Little Ducks*
, by Raffi; ISBN 0517583607
- *Five Little Monkeys Jumping on the Bed*
, by Eileen Christelow; ISBN 0395557011
- *Hands-On Math: K-1*
, by Virginia Johnson (Edited by Janet Bruno); ISBN 3055402600 (CTP 2600)
- *Have You Seen My Ducklings?*
, By Nancy Tafuri; ISBN 0688109942
- *The Hershey's Kisses Subtraction Book*
, by Jerry Pallota; ISBN 0439337798
- *Instant Math Centers: K-1*
, by Creative Teaching Press; ISBN 1574716891 (CTP 2597)
- *Lights Out!*
, by Lucille Recht Penner; ISBN 1575650924
- *Little Number Stories Subtraction*
, by Rozanne Lanczak Williams; ISBN 1574710087
- *The M&M's Subtraction Book*
, by Barbara Barbieri McGrath; ISBN 1570913595
- *Mathematics Their Way*
, by Mary Baratta-Lorton; ISBN 020186150X

- *Mathematics Their Way Summary Newsletter*
, by Cynthia Garland; ISBN 0201861542
- *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)
- *Monster Musical Chairs*
, by Stuart J. Murphy; ISBN 0064467309
- *Rooster's Off to See the World*
, by Eric Carle; ISBN 0689826842
- *Shark Swimathon*
, by Stuart J. Murphy; ISBN 006446735X
- *Shoe Box Learning Centers: Addition & Subtraction: 30 Instant Centers*
, by Jacqueline Clark; ISBN 0439537940
- *Subtraction Action*
, by Loreen Leedy; ISBN 0823417646
- *Take it to Your Seat Math Centers K-1*
, by Jill Norris; ISBN 1557999317
- *Ten Little Ladybugs*
, by Melanie Gerth; ISBN 1581170912
- *20 Instant Math Learning Centers Kids Will Love!*
, by Traci Ferguson Geiser and Krista Pettit; ISBN 0439227291 (Scholastic)
- *Workjobs*
, by Mary Baratta-Lorton; ISBN 0201043114

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

Subtracting, like adding, is a task children are always doing without even knowing it. As teachers, we need to begin using the language of subtraction long before we begin teaching the symbols of subtraction. We can begin by using the language of subtraction throughout our school day. We can say things like "20 total students minus 3 absent students equals 17 total students at school today." Students need practice taking sets of concrete objects apart 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:

difference- "The amount that remains after one quantity is subtracted from another."

numeral- "A symbol used to represent a number." (K-2 Integrated Core, 121)

Other key words to know and understand:

Equals, left, take away, remain, minus, separate

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 subtraction 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 subtraction 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

Who has ever ridden on an elevator? Where were you when you rode in the elevator? How many of you have pushed the buttons in the elevator? Today we are going to read a story about a boy named Ben who is riding an elevator with his mother. Ben gets to push the buttons as they stop on several floors on their way down. Read *Elevator Magic* to the class. While reading, emphasize the subtraction problems in the book. Have the class figure out one or two of the problems with you.

Instructional Procedures

Using masking tape, make a large [Subtraction Math Mat](#) on the floor (large enough for several students to stand inside each box.) Tape the [Smiley Face, Heart and Star icons](#) in the corresponding boxes. (See *Subtraction Math Mat* for a template to make the floor model.)

Tell the class they we are going to practice subtraction. Have the class sit where they are able see the large *Subtraction Math Mat* taped on the floor. Introduce the class to the *Subtraction Math Mat* by showing them the box with the smiley face. Explain this is where we will put the total number of manipulatives we are starting with. Point to the box with the heart and explain that the number of objects taken away will be moved here. In the final box with the star, we will move the remaining manipulatives to find the difference or how many remain for our answer.

Demonstrate with the following story problem how to use the *Subtraction Math Mat*. Five children were playing basketball at recess (Place five children in the smiley box). Two children left to go down the slide (Move two of the five children down in the heart box). How many children are left playing basketball (Move the remaining three children down into the star box)? Write the subtraction sentence on the white board where everyone can see.

Make up several scenarios for the students to act out on the large *Subtraction Math Mat*.

Have the class sit where they are able see the overhead projector. Demonstrate how to use the *Subtraction Math Mat* with several other examples using the overhead projector and overhead manipulatives.

Have one student choose a number between 1-10. Place that number of manipulatives in the smiley face box. Have another student choose a number lower than the number in the smiley box and move the manipulatives to the heart box. Move the remaining manipulatives into the star box.

Introduce the class to the [Subtraction Sentences sheet](#). Show the class how to record the numerals for the subtraction problems on their sheets.

Handout a *Subtraction Math Mat*, 10 manipulatives (choose the number of manipulatives for your class depending on their abilities with subtraction) and a *Subtraction Sentences* sheet to

each student. As a class do three or four subtraction problems together with the teacher demonstrating on the overhead. After doing several together, allow the class to finish filling out the *Subtraction Sentences* sheet by choosing a number between 1-10 and then a lower number than previously chosen.

When students have completed the *Subtraction Sentences* sheet, they may choose a math center focusing on subtraction.

Center #1 Bingo Marker Subtraction

Students will choose a [subtraction card](#) from the box.

Using a Bingo Marker, students will dot the total number of circles on the [Bingo Marker Subtraction recording sheet](#).

Students will then write the total number of dots on the subtraction sentence on their recording sheet.

Students will cross out the number of dots that are taken away.

Students will write the number on the number sentence.

Students will count and write the total number of dots left on their recording sheet.

Students will return the subtraction card to the box, choose another subtraction card and continue the activity.

At the end of Math Centers, students can staple all their *Bingo Marker Subtraction* recording sheets together to make a subtraction booklet.

Center #2 Macaroni Subtraction

Students will roll two dice.

Students will lace macaroni noodles on a pipe cleaner for the largest number.

Students will record the total number of macaroni noodles on their pipe cleaner on their [Macaroni Subtraction recording sheet](#).

They will draw the macaroni noodles on their *Macaroni Subtraction* recording sheet.

Students will subtract the lower number on the dice of macaroni noodles from the pipe cleaner.

Students will record how many macaroni noodles they took away.

Students will cross out the correct number of macaroni noodles on their drawing.

Students will count the macaroni noodles to determine how many are left and record it on their *Macaroni Subtraction* sheet.

Students will continue rolling the dice and recording their subtraction problems until Math Centers are over.

Center #3 Golf Tee Subtraction

Students will choose a [Golf Tee Subtraction card](#).

They will place golf tees in the holes of the card for the first number, placing their tees from left to right.

They will take golf tees out of the holes for the number that are taken away, making sure all the golf tees remaining are placed in each hole from left to right.

Students will turn the card over to check their answer on the back of the card.

They are correct if the holes with golf tees in them are colored on the back.

Students will record their subtraction problem on their [Subtracting Golf Tees recording sheet](#).

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

*Teacher Preparation: Copy *Golf Tee Subtraction Cards* onto cardstock (choose a darker color like green, blue, red, etc.). Cut cards apart. Using a paper punch, punch out all the black circles on each card. Color several Hole Reinforcements with a marker a color that can be easily seen on your cardstock. Leave several Hole Reinforcements white. On the back of each Golf Tee Subtraction Card, place a colored reinforcement for the solution to the subtraction problem (starting with the hole on the right hand side of the card). Place a white reinforcer on the remaining holes. For example, if the problem is $4-2=$, you will place two colored reinforcers on the last two holes on the right. The first 8

holes will have a white reinforcer on them. Laminate and cut out your cards. You will need to punch your holes again after laminating your cards.

Center #4 Subtraction Stamp Book

Students will begin by stamping 10 objects on one page of their [Subtraction Stamp Book](#).

Students will record the total number of stamps on their subtraction sentence.

Students will choose a [number card](#) from the box (numbers 0-10).

They will cross out this number of objects on the book page.

Students will record how many were taken away and write how many objects are left.

Students will continue this activity until their booklets are filled.

*Teacher Preparation: Copy *Subtraction Stamp Book Covers* on cardstock or regular paper for your class. Copy Subtraction Stamp Book 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 #5 Domino Subtraction

Students will choose a domino.

Students will duplicate the dots on their domino onto their [Domino Subtraction recording sheet](#).

They will count the total number of dots on their domino.

Students will write the total number of dots in the subtraction sentence.

Students will cross out the dots in the bottom section of their domino.

They will write how many dots were crossed out in the subtraction sentence.

Students will count the remaining dots and write that number in the subtraction sentence.

Students will continue this activity by choosing another domino.

Extensions

Curriculum Extensions/Adaptations/ Integration

Additional cards can be made for advanced learners by using subtraction problems 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 add thematic manipulatives to the math centers to correlate with their current theme. •

Several of the subtraction centers can be adapted into addition center. The Bingo Marker Addition and Golf Tee Addition materials are on the [Core Academy website](#) under Materials 2006.

Family Connections

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

Prepare a Take Home Backpack, which includes subtraction activities for students to share with their families.

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 subtraction 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

National Association for the Education of Young Children and National Council for Teacher 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 [the ERIC website](#).

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 promote 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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