

The Magic of Numbers

Summary

The magic-themed activities in this plan help students improve their number sense.

Main Core Tie

Mathematics Grade 1

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

Additional Core Ties

Mathematics Grade 1

[Strand: OPERATIONS AND ALGEBRAIC THINKING \(1.OA\) Standard 1.OA.5](#)

Mathematics Grade 1

[Strand: OPERATIONS AND ALGEBRAIC THINKING \(1.OA\) Standard 1.OA.6](#)

Mathematics Grade 1

[Strand: OPERATIONS AND ALGEBRAIC THINKING \(1.OA\) Standard 1.OA.7](#)

Materials

Out of the Hat

- "12 Ways to get to 11"

Magician's cape

Magic hat

Items to pull from hat

- [Card Stack 1](#)

- [Card Stack 2](#)

- [Card Stack 3](#)

Magic wand

- [Magic Journal](#)

- [Out of the Hat](#)

Magic Signs

Magician's cape

Magic hat

- [Magic Signs \(+\)](#)

- [Magic Signs \(-\)](#)

Items to pull from hat

- [Magic Journal](#)

Magic wand

Pick a Card any Card

Magician's cape

Magic hat

- [Magic Journal](#)

Deck of cards

- [Card Stack](#)

Large -/+ sign

- [Pick a Card Any Card -](#)

- [Pick a Card Any Card +](#)

Magic Number Sentences

3x5 cards
Magician's cape
Magic hat
Magic wand
M&Ms, Skittles, etc.
Small baggies

- *Magic Number Sentences*

Magic Hat Worksheets

- [Magic Hat \(+\)](#)
- [Magic Hat \(-\)](#)
- [Magic Hat Problem Solving](#)

Boxes
Dry erase markers

___ Ways to get to ___

- [Ways to Get to](#) [title page](#)

Materials to write and illustrate book (e.g. markers, crayons, watercolors, etc.)

Additional Resources

Books

12 Ways to get to 11, by Eve Merriam; ISBN 978-0-689-80892-0

The Hershey's Kisses Addition Book, by Jerry Pallotta; ISBN 0439267285

MATH-terpieces The Art of Problem-Solving, by Greg Tang; ISBN 0-439-44388-1

Background for Teachers

In order for a student to perform math operations and problem solving, they must first have number sense. They must have an understanding of basic number and numeration concepts. Giving students a concrete representation of what makes up a number will help develop required number sense. Teachers need to provide students the opportunity to explore with objects and different representations of numbers. By taking students through concrete, representational and abstract methods of learning, they will develop a deep understanding of the concept. Through experiences provided in the classroom they should be able to transfer knowledge to real-world quantities.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude.

Instructional Procedures

Invitation to Learn

Read "*12 Ways to get to 11*". As you read the story have the students' count the items listed and make sure there are 11.

Instructional Procedures

Out of the Hat

Refer back to the page of the magician in "*12 Ways to Get to 11*." Tell the students that you are going to be a magician to see if you can make different numbers other than 11. Put magician cape and hat on and pick up the magic wand.

Fill a magic hat with different types of items. (Fill hat with nine items-three different types. Make sure items are simple and the students will be able to draw them in their journals quickly without a lot of detail.)

Tell students that you will need a volunteer from the audience.

Chose a student to come and draw a number from *Card Stack*.

Using magic wand, say "Abracadabra the items will appear." (Or some magic phrase that will make the experience more magical.)

Pull the number of items from your hat that is shown on the card.

The students count aloud with you as you take the items from the hat.

Do a quick draw of the items on the board to show students how to draw them in their *Magic Journal* on the *Out of the Hat* journal page. Each student will need nine copies of this page for their *Magic Journal*.

Students will record in their *Magic Journal* the number that is drawn, and then draw the items that were pulled from the hat to represent that number.

Pull items from the hat until numbers have been represented from one to nine.

Magic Signs

Wearing a magician's cape, have a magician's hat with the large plus/addition, and equal sign in it, along with two different types of items. (Fill hat with 18 items -- two different types)

Tell students that you are going to see what kind of magic can be pulled from the hat today.

Pull the plus/addition sign out of the hat and tell the students it is a magic sign that helps complete a number sentence to find how many in all.

Next, take the equal sign from the hat and explain that this magic sign helps complete the number sentence by making both sides equal, and the same.

Explain to students, that now we have our magic signs we need some numbers so the magic signs can do their magic.

Pull items from your hat as the students count the items with you. (Make sure that you pull different items from the hat.)

Count the items (e.g. two bugs and five blocks) Write the number of items in the blank number sentence and then have students count and find how many in all.

Do several of these as a class, then split class into learning groups with their own hat and have them develop their own number sentences.

In the groups they will take turns drawing items from their magic hats and the group will record in their *Magic Journal* the number sentences that they make. Emphasize that the number sentences all have to be different.

At the bottom of the *Magic Signs* journal page complete the blank number sentences, as a class to demonstrate the commutative property of addition. (e.g. $3+2=2+3$)

Pick a Card any Card

Dressed in magician cape and hat, start lesson by doing a magic card trick for the students.

Using any deck of cards, have a student draw a card from the deck. Tell the student to look at the card closely and make sure they do not forget it. Make sure they remember the color, number etc. While you are emphasizing this, glance at the card that will be above that card when they put their card back into the pile. Mix cards up a little by taking a couple off the top and bottom, but not moving the cards where the student placed the card they drew. From top of deck turn cards over one at a time, when you see the card you looked at the student's card will be the next one. Your students will be so impressed.

Tell students that there are many ways we can make number sentences. We can make them by counting objects, as we have just learned. But, what are we going to do if we don't have blocks, bugs, etc? (elicit responses) We can use our math magic to find how many in all without objects to count.

Using *Card Stack*, have a student draw from your hand two cards then put them on the board on either side of the addition sign.

Show students how they can count the items on the cards to find how many in all or the total.

Put equal sign on board.

Count the shapes and draw the shapes on the board to represent the card, and then write the total number of shapes in the answer blank. (Show students a quick draw of how to make the shapes.)

Do several of these as a class.

Pair students giving each pair their own Card Stack.

Students will take turns drawing two cards from their partner and filling in their *Pick a Card Any Card* journal page in their journals. Each student will need four copies of this page for their *Magic Journal*. They will draw in the number of shapes from the card that they drew from their partner, and then write the answer. (Some students will have difficulty drawing the shapes. As a modification, those students can draw circles or use a tally mark for all cards instead of drawing the shape. Make sure the focus is not on drawing the shapes.)

Walk around the classroom observing that students are correctly drawing shapes and counting them correctly.

Magic Number Sentences

Wearing magician's cape, give students a 3 x 5 card to write two of their own number sentences on. Make sure students write their name on their card (for assessment).

After they have completed the number sentences have the students drop them into the magic hat, tap the hat with your magic wand saying "This number sentence will magically appear again."

Using the students number sentences make representations of the sentence using M&Ms, Skittles, or some other type of treat, and put them in a baggie. Write students name on the baggie.

At the beginning of math, circle time or whenever you chose, tap hat and tell the number sentences to magically appear. Each day pull out two or three baggies, and have the students use the representations of the treat to write the number sentence on their *Magic Number Sentences* journal page. Each student will need three copies of this page for their *Magic Journal*. Everyone will write the number sentence in their journals and solve it, and the student who put that number sentence in will get the treat.

After the students have written the sentence and solved it, ask the student who wrote the number sentence to talk about how they solved the problem. Use effective questioning to have the students talk about the commutative property of addition. Encourage the students to use appropriate math terms.

Magic Hat Worksheets

Use the *Magic Hat Worksheets* for assessment and fluency. You may choose to laminate the worksheets and have them in Magic Math Boxes.

The students will go to a box and take out a hat to work on with a dry erase marker. You could have the boxes colored according to the level of difficulty.

There is a blank worksheet for you to add any variety of problems you would like to use.

___ Ways to get to ___

For a language arts connection, students will make their own book about "eight ways to get to seven," "nine ways to get to eight," etc.

Do not put limits on this activity. Let students explore with different options, not just using two numbers to get the answer.

Differentiate this activity by assigning out different books titles. For the advanced learners give them the higher numbers, and for those that struggle give them the lower numbers to work with.

Have a class read aloud and let the students share their books as a celebration of learning.

Extensions

Curriculum Extensions/Adaptations/ Integration

This unit can be used for subtraction using the subtraction black line masters.

Advanced learners could add 3 or more digits together, and use subtraction reciprocally.

Allow advanced learners the opportunity to develop their own magic numbers trick.

Provide students who struggle concrete objects for a longer period of time.

At the end of the unit have a magic show that students will participate in.

Family Connections

Send home *Magic Hat worksheets* for homework practice.

Send home blank *Pick a Card Any Card* journal pages and have students complete them with their family members.

After completing the unit using both addition and subtraction, have a magic show. Send home a celebration letter to parents telling them the students know the magic of numbers, and to celebrate they would like to have a magic show. Ask parents to help the students develop and practice a magic trick to perform. Invite parents to attend the show.

Assessment Plan

Check responses in *Magic Journals* for completeness and correctness.

Observation of students, making sure students are completing activities correctly and not practicing mistakes.

Student responses to effective questioning as you move around the classroom during completion of activities.

- *Magic Sentence*

3x5 cards

- *Magic Hat worksheets*

To assess student's " ___ Ways to Get to ___ " books, develop a rubric to meet your specifications.

Bibliography

Research Basis

Burns, M., Silbey, R., (2001). Math Journals Boost Real Learning. *Instructor*, April 2001, Vol.110, Issue 7.

This article explains that a math journal is one of the best ways to introduce writing into a math class. It helps students expand their thinking and make sense of problems that sometimes leave them confused and/or frustrated.

Bender, W., (2005). *Differentiating Math Instruction*. p.14-20.

The importance of developing number sense is addressed in this part of the book. Bender explains that without number sense, the child may never succeed in math at even the lowest levels, since concepts such as numeration, addition, or subtraction would have no substantive meaning. Clearly, development of number sense is a critically important first step in math instruction.

Authors

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