

Playing with Tens and Ones

Summary

Students will participate in a variety of activities to learn more about 2-digit numbers.

Main Core Tie

Mathematics Grade 1

[Strand: NUMBER AND OPERATIONS IN BASE TEN \(1.NBT\) Standard 1.NBT.2](#)

Materials

Unifix Cubes
2 Buckets, bins, or other containers
Math Journals
Base Ten Stamps
Ink pad
Class Math Journal

This Way

10-sided dice
- [Color it This Way](#) (pdf)

Ohhhh -- 99!

10-sided dice
- [0-99 chart](#) (pdf)

Wrap it All Up

Magazine Pictures
Wrapping paper
Scrapbook paper
Vis-a-vis markers
Sharpie Marker

Silly Out of Order Numerals

- [Random Numeral Strips](#) (pdf)
Math Journals

B-I-N-G-O

- [B-I-N-G-O cards programmed with different 2-digit numbers](#) (pdf)
Counters, beans, beads, cereal, M&M's, etc. to use for markers
- [Tens and Ones calling cards](#) (pdf)

OR

10-sided dice

Place Value Bingo

- [Place Value Bingo](#) (pdf)
- [Tens and Ones calling cards](#) (pdf)
- [Numeral Cards](#) (pdf)

Additional Resources

Books

- *A Place for Zero*
, by Angeline Sparagna Lopresti; ISBN 978-1-57091-196-5

Media

- *Curious George Flies a Kite and other adventures*
DVD, PBS, Universal, ASIN B000EW73V8

Background for Teachers

The system of numbers we use is a base ten system. Teaching students to group objects into tens whenever possible, allows them to quickly sort and count a set of objects. Students should be familiar with a representation of ten whether using a ten frame, Unifix Cubes, base ten blocks, beansticks, or other manipulatives. These activities are designed to be introduced and played as a whole class and then used in small group settings (such as centers) throughout the year.

Intended Learning Outcomes

5. Understand and use basic concepts and skills.

Instructional Procedures

Invitation to Learn

Drop and Check

Each time a student leaves the classroom, he/she drops a cube into a bucket. At the end of the day (or at lunchtime and again at the end of the day), the students will sort and count the cubes. Naturally the students will begin counting by ones. Guide the students to group the cubes different ways to count more effectively. Grouping by tens is the fastest, easiest way to complete the Drop and Check activity. Have the students record the results in their math journals. When recording, have the students use both forms of expanded notation. For example: If the total cube count was 45, students would record $40+5$, 4 tens + 5 ones. Compare from day to day.

If you find that there are more than 100 cubes on a daily basis, consider only having the students drop a cube when they leave for the bathroom, drink, etc. instead of EVERY time they leave the classroom. This problem may also be solved by counting the cubes at different intervals during the day.

Of course, students love to figure out that 10 tens is 1 hundred and are quickly able to group them into tens and then make the trade up to hundreds. Guide the students through this process numerous times. As the students catch on, allow a pair (one more capable student with a less capable student) or small group of students to complete the count, record the count in a class math journal, and report back to the class.

Students enjoy using Base Ten stamps to record the results of the daily Drop and Check count. Students are able to use the block, rod, and cube stamps to visually recreate the total number of cubes from the Drop and Check count.

Instructional Procedures

This Way

Give each student a copy of *Color it This Way*.

Using an overhead will help with this activity.

Introduce the 10-sided dice to the students and explain that the dice are labeled with the numerals 0-9.

Ask a student to roll 2 dice and arrange them to make a 2-digit number.

Show the students on the overhead how to color that number on the *Color it This Way* worksheet.

Have students color their page to match.

Repeat until all of the sections on the worksheet are colored in.

Ohhhh -- 99!

Give each student a copy of the *0-99 chart*.

Using an overhead will help with this activity.

Ask a student to roll 2 of the 10-sided dice and arrange the dice to make a 2-digit number.

Color that number on the *0-99 chart*.

Students will continue to roll and color until the chart is full or time has run out.

Remind students that they may use either 2-digit number shown by the dice.

For a quicker game, have the students color BOTH 2-digit numbers shown by the dice.

Wrap it All Up

Purchase wrapping paper or scrapbook paper with small repeated pictures, use magazine pages that have repeated designs, or create your own using small rubber stamps and ink. Cut the paper of your choice into the size you prefer. (8.5x11 seems to work best for storage purposes.)

If the paper is flimsy, mount it on cardstock or poster board.

Laminate the pages.

Hang a laminated page on the board.

Ask the students what they think would be the easiest way to count all of the objects in the picture.

If necessary, lead them to the conclusion that grouping and then counting by tens and ones is easiest.

Using a Vis-a-vis marker, have a student circle a group of ten on the laminated page.

Repeat until all groups of ten have been circled.

Ask the students to help you count how many objects are on the page.

Count by tens and ones.

Write the final count somewhere on the page.

The final number could be recorded on the back using a Sharpie to make the activity self-checking.

Silly Out of Order Numerals

Call each student over to a workstation to create a number list on the *Random Numeral Strips*.

Encourage the student to tell you any numeral 0-9 in any order.

When each student's strip is complete, laminate the strips for durability.

Place 2 *Random Numeral Strips* next to each other. This will create a series of 2-digit numbers.

For example: Anne's *Random Numeral Strip* has the numbers 3, 4, 6, 5, 9, 7, 2, 8 and Nick's *Random Numeral Strip* has the numbers 3, 1, 8, 4, 6, 5, 2, 7. When these two strips are placed side by side, the series of 2-digit numbers created will be: 33, 41, 68, 54, 96, 75, 22, 87.

Students will record the 2-digit numbers in their math journals along with the expanded notation for each number created. In the case of Anne and Nick's *Random Numeral Strips*, the journal entry could be:

33 3 tens 3 ones $30+3$

41 1 one 4 tens $40+1$

68 6 tens 8 ones $8+60$, etc.

Students may also create the numbers using Unifix Cubes, beansticks, base ten stamps, or other manipulatives.

B-I-N-G-O

Teach the students this new BINGO song:

There was a farmer had a dog and BINGO was his name-o.

BINGO had a lot of spots,

BINGO had a lot of spots,

BINGO had a lot of spots the farmer wanted covered!

Show the students the B-I-N-G-O cards that have been programmed with 2-digit numbers.

Tell the students in order to get "bingo," they have to cover all of B-I-N-G-O's spots!

Give each student a B-I-N-G-O card and enough counters to cover all of the spots.

Use the *Tens and Ones calling cards*, or 10-sided dice. Create a number and sing:

BINGO has _____ tens _____ ones,

BINGO has _____ tens _____ ones,

BINGO has _____ tens _____ ones -- what is that number?

Students that have the newly created number on their B-I-N-G-O cards will cover it with a marker.

Create a new number and sing again.

Play until someone has covered all of B-I-N-G-O's spots and shouts out BINGO!

Place Value Bingo

Give each student a copy of *Numeral Cards 0-9* and *Place Value Bingo*.

Instruct students to cut out the numeral cards along the lines.

Students will place a numeral card in each square of the *Place Value Bingo* game board.

Use the *Tens and Ones Calling Cards*. Instruct the student which number to cover. You'll only read one card each turn.

To get a bingo, the student must have a 2-digit number covered and be able to tell you what the actual number is.

When a student gets a bingo, have everyone clear their boards and rearrange the numeral cards to create new 2-digit numbers.

Extensions

Advanced learners enjoy trying to get a "bingo" on the *0-99 chart* using the 10-sided dice.

Programming the B-I-N-G-O cards using only numbers within a certain range will make the game move more quickly. For example -- using a green background, program all of the cards using only numbers with a 2 in the tens place. When you play, take out all of the *Tens and Ones calling cards* that have something other than 2 in the tens place. Creating the cards on different background colors will make them easier to sort.

Include ideas for integration for other curricular areas (use appropriate subject area headings).

Family Connections

Any of these games are fun for families to play. Simply copy the directions and send the directions and all materials home with the student. Teaching the family to play is a great way to strengthen student skills.

Assessment Plan

Allow students to be the "caller" for the bingo games.

During the activities, observe the students to gauge their understanding.

Check math journals on a regular basis.

Bibliography

Research Basis

Willingham, D. T., (2004). How we learn. Ask the cognitive scientist. *American Educator*.

The author states, "It is difficult to overstate the value of practice. For a new skill to become automatic or for new knowledge to become long lasting, sustained practice, beyond the point of mastery, is necessary." The article points out that through sustained practice past the point of mastery, students have a better chance of meeting three important goals of instruction: acquiring facts and knowledge, learning skills, and becoming an expert.

Megnin, J. K., (1995). Combining memory and creativity in teaching math. *Teaching Pre K-8*, March 1995.

By using free choice (students learning on their own from a variety of learning materials), group learning (students working together to practice or problem solve), and children's choice (students

choosing their own practice materials), students are more likely to improve their skills. Creativity is encouraged and students are taught in a real life situation how to communicate with each other.

Authors

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