

Instructional Recipe

Do Numbers Have Nicknames?

4th Grade
Math

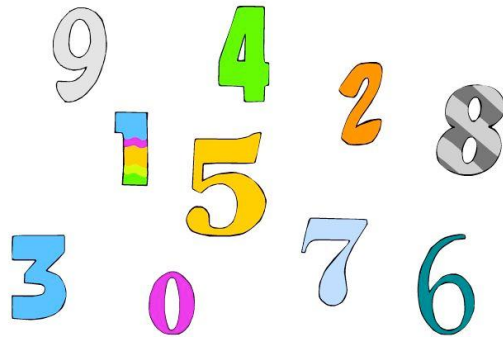


Online research and information resources available through a partnership between the Texas State Library and Archives Commission, the Texas Education Agency and Education Service Center, Region 20
<http://web.esc20.net/k12databases>

Step 1 – Ask

Objectives: Students will read and write numbers using standard form, word form, and expanded notation. Students will compare and order whole numbers through the millions place. Students will write their own addition and subtraction word problems.

Introduction: Ask students if they have any nicknames? Allow students to respond. People often have more than one way to identify themselves. Do numbers have nicknames?



Ask:

- ★ What are various ways we can express numbers?
- ★ How do you write numbers in standard form?
- ★ How do you write numbers in word form?
- ★ How do you write numbers in expanded notation?

Vocabulary:

- ★ Standard form
- ★ Word form
- ★ Expanded notation

Math TEKS:

(4.1) **Number, operation, and quantitative reasoning.**
(A) use place value to read, write, compare, and order whole numbers through the millions place
(4.3) **Number, operation, and quantitative reasoning.** (A) use addition and subtraction to solve problems involving whole numbers
(4.14) **Underlying processes and mathematical tools.** (A) identify the mathematics in everyday situations

Technology Application

TEKS:

4A Apply appropriate electronic search strategies in the acquisition of information including keyword and Boolean search strategies
4B Select appropriate strategies to navigate and access information on local area networks (LANs) and wide area networks (WANs), including the Internet and intranet, for research and resource sharing
5A Acquire information including text, audio, video, and graphics
7A Use software programs with audio, video, and graphics to enhance learning experiences
7B Use appropriate software to express ideas and solve problems including the use of word processing, graphics, databases, spreadsheets, simulations, and multimedia
7C Use a variety of data types including text, graphics, digital audio, and video
11A Publish information in a variety of media including, but not limited to, printed copy, monitor display, Internet documents, and video

Step 2 – Investigate

Have students watch the slideshow about writing the names of numbers at <http://www.beaconlearningcenter.com/WebLessons/WhatsYourName/default.htm>
Ask students to make up a number that is in the millions (or billions for 5th grade). Select students to share their numbers with the whole class. Guide students as they practice writing each number in standard form, word form, and expanded notation.

K-12 Databases Resources:

- ★ [Reading and Writing LARGE NUMBERS](#). World Almanac for Kids, 1999, p149-149, 1/2p, 1 chart, 1bw; Reading Level (Lexile): 600; (AN 14316693)
- ★ [READING AND WRITING LARGE NUMBERS](#). World **Almanac** for Kids, 2001, p172-172, 1/2p, 1 color; (AN 15345247)

Additional Websites:

- ★ <http://www.aaaknow.com/plc31ex2.htm>



Step 3 – Create

Search EBSCO Kids Search for “expanded notation.” The following article provides an independent practice activity for students.

- ★ [Disneyland Turns Fifty](#). By: Entin, Carli. Scholastic DynaMath, Sep2005, Vol. 24 Issue 1, p10-11, 2p; (AN 17919280)


Have students complete the problems in the article and compare and discuss answers.

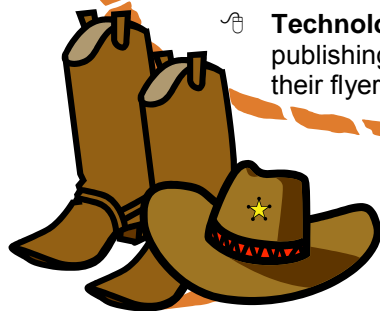
Step 4 – Discuss

Ask students to find examples of large numbers they might encounter in real life, such as population of states. Search the World Almanac for Kids in EBSCO Kids Search to find some amazing facts. Here are a few suggestions:

- ★ [FACTS About the STATES](#). World Almanac for Kids, 2005, p274-290, 16p, 51 maps; Reading Level (Lexile): 2740; (AN 13989062)
- ★ [Facts About Nations](#). World Almanac for Kids, 2005, p154-173, 20p; Reading Level (Lexile): 1420; (AN 13988967)
- ★ [TALLEST, LONGEST, HIGHEST, DEEPEST](#). World Almanac for Kids, 2003, p81, 1/3p, 1 map; Reading Level (Lexile): 200; (AN 8590728)
- ★ [All About...ROLLER COASTERS](#). World Almanac for Kids, 2002, p237, 1p, 1c; Reading Level (Lexile): 350; (AN 8540182)
- ★ [THE PLANETS](#). World Almanac for Kids, 2002, p205, 2p, 2c; Reading Level (Lexile): 260; (AN 8540080)


Students will design a flyer that lists several fun facts they read. For each fact, they should write the number in standard form, word form, and expanded notation. Ask students to present their facts in order from the least to the greatest. At the bottom of the page, students can write an addition and subtraction word problems using some of the facts.

 **Technology Link** – Students could use a word processing program or desktop publishing program, such as AppleWorks or Microsoft Publisher, to design their flyer.



Step 5 – Reflect

Allow students to present their projects to the rest of the class. Use the following suggested rubric to assess the students' work. Make sure that the students are familiar with the rubric *before* they begin creating their project. They should refer to the rubric repeatedly to monitor their progress in creating their project.

 **Technology Link:** You can also create your own rubric with your students at <http://rubistar.4teachers.org/index.php>.

Intel Education: Assessing Projects tool also has a library of rubrics and checklists. <http://educate.intel.com/en/assessingprojects/>

Fun Facts Flyer

CATEGORY	4	3	2	1
Content	Student includes at least 10 facts.	Student includes 8-9 facts	Student includes 6-7 facts.	Student only includes 5 or less facts.
Accuracy	At least 90% of the facts are accurately written in standard form, word form, and expanded notation.	80-89% of the facts are accurately written in standard form, word form, and expanded notation.	70-79% of the facts are accurately written in standard form, word form, and expanded notation.	Less than 70% of the facts are accurately written in standard form, word form, and expanded notation.
Ordering	All of the numbers are correctly listed from least to greatest.	1 number is listed in the incorrect order from least to greatest.	2-3 numbers are listed in the incorrect order.	4 or more numbers are listed in the incorrect order.
Addition Problem	The student includes a detailed and creative addition word problem involving facts from the flyer. The student provides an accurate solution to the problem.	The student includes an addition word problem involving facts from the flyer. The student provides an accurate solution to the problem.	The student includes an addition word problem involving facts from the flyer, but the word problem is difficult to understand. Or, the student provides an inaccurate solution to the problem.	The word problem is so poorly written that it cannot be understood, or it is not really an <i>addition</i> word problem. The student does not include a solution to the problem.
Subtraction Problem	The student includes a detailed and creative subtraction word problem involving facts from the flyer. The student provides an accurate solution to the problem.	The student includes a subtraction word problem involving facts from the flyer. The student provides an accurate solution to the problem.	The student includes a subtraction word problem involving facts from the flyer, but the word problem is difficult to understand. Or, the student provides an inaccurate solution to the problem.	The word problem is so poorly written that it cannot be understood, or it is not really a <i>subtraction</i> word problem. The student does not include a solution to the problem.
Neatness	The flyer is clean, neat and attractive. It is free of erasures and misspelled words. It looks like the author took great pride in it.	The flyer is readable, neat and attractive. It may have one or two misspelled words, but they are not distracting. It looks like the author took some pride in it.	The flyer is readable and somewhat attractive. It looks like parts of it might have been done in a hurry.	The flyer is not neat or attractive. It looks like the student just wanted to get it done and didn't care what it looked like.