

Count Like an Egyptian

Grade Levels

This lesson is intended for grades 2-4.

Common Core Standard(s)

- 2nd Grade:
 - 2.NBT.A.1.B - The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
 - 2.NBT.A.4 - Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.
- 4th Grade:
 - 4.NBT.A.2 - Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

Objectives and Topics

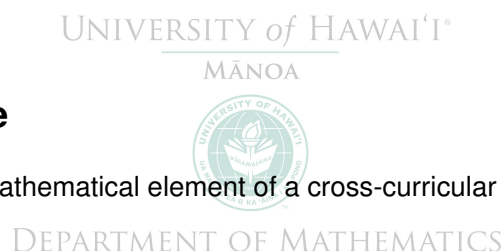
Students use a place-value strategy to compare and order multi-digit whole numbers.

Materials and Resources

- access to reference books, articles, etc. that describe how different cultures have used symbols to represent numbers (optional)
- Internet access (optional)
- world map or globe
- base-10 blocks

Introduction and Outline

This lesson can be used as the mathematical element of a cross-curricular unit.



0.1 Student Investigation (optional)

How do other cultures from the past and present use symbols to represent the number 4,125?

Project and read the investigation question. Organize students into small groups and have them work together to research different ways that numbers can be represented using symbols. Encourage students to consider how different civilizations (example: the Romans, Chinese, etc.) have represented numbers. Have students use the symbols to represent the number 4,125 on a sheet of paper and then share with the whole class as they display their representations on the board.

Online resource: <http://gwydir.demon.co.uk/jo/numbers/index.htm>

0.2 Introduction to Ancient Numerals

- Project the Mayan, Babylonian, and Egyptian symbols for the number 4,125. Explain that these numbers come from civilizations that lived thousands of years ago.
- On the world map or globe, point out the regions where the Mayans, Babylonians, and Egyptians lived.



The number 4,125 each written using a different ancient numeral system

0.3 Writing Egyptian Numbers

This lesson focuses primarily on the Egyptian numeral system, which was an additive base-10 system. (The Mayans and Babylonians had base-20 and base-60 systems, respectively, so understanding their numeral systems are beyond the scope of these grade levels. Nevertheless, they provide nice examples.)

- Project the following table listing the Egyptian hieroglyphic numerals.








	1
	10
	100
	1,000
	10,000
	100,000
	1,000,000

Figure 2: Egyptian Numerals

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- Have students guess what each symbol is a picture of before describing what they actually are. (It may also be helpful to show a real-life picture of the object so that students can compare the abstraction with its real-life counterpart.)

The symbol for one was a simple stroke or line, but the symbols get more complicated as the numbers get bigger. The exact origin of the symbol for ten is unclear. Some texts refer to it as a heel bone, horseshoe, cattle yoke, or piece of rope. (We will leave this up to the reader.) The symbol for a hundred is a coil of rope. The symbol for a thousand is a lotus flower or water lily. The symbol for ten thousand is a single, large finger. The symbol for a hundred thousand is a tadpole, and the symbol for a million is 'Heh', the Egyptian god of infinity.





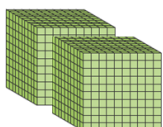
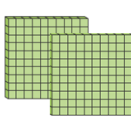


- Explain that separate symbols were used for ones, tens, hundreds, thousands, etc., and the amount of each symbol tells you how many ones, tens, hundreds, thousands, etc. you have. (Example: Two lotus flowers and three coils of rope stand for $2 \times 1,000 + 3 \times 100 = 2,300$.) Compare that to how students use base-10 blocks.
- **Activity:** Have students practice drawing various Egyptian numbers. (This could be part of an art assignment as well.)

0.4 Comparing Numbers

- Project the following two Egyptian numbers, and ask students which is greater and why they think so. Have students tell you which standard numbers these symbols represent and also to show the amounts using base-10 blocks.



For scaffolding, organize each Egyptian number along with its equivalent standard number and base-10 blocks into a place value chart.

THOUSANDS	HUNDREDS	TENS	ONES
2	2	2	1
			
			

- Repeat with the following two Egyptian numbers. Encourage students to reason that the more complicated symbols are “worth more” than the simpler symbols. Extend this idea to our standard place value system.

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- Repeat with the following two Egyptian numbers.



Problems

See attached worksheet.

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Name: _____ Date: _____ # _____

Count Like an Egyptian

Convert the Egyptian hieroglyphics into modern day numbers.
 Then circle **is less than** or **is greater than** to make the statement true.

1. 








is less than / is greater than



2. 

is less than / is greater than



	1
	10
	100
	1,000
	10,000
	100,000
	1,000,000

Cut out the Egyptian hieroglyphics and paste them in order from **least to greatest**.
 Then convert them into modern day numbers.

paste here paste here paste here

< <



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