



# Daily Warm-Ups

## MATH

## BRAIN TEASERS

Susan Conover

### Level I

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The *Daily Warm-Ups series* is a wonderful way to turn extra classroom minutes into valuable learning time. The 180 quick activities—one for each day of the school year—review, practice, and teach math concepts. These daily activities may be used at the very beginning of class to get students into learning mode, near the end of class to make good educational use of that transitional time, in the middle of class to shift gears between lessons—or whenever else you have minutes that now go unused.

*Daily Warm-Ups* are easy-to-use reproducibles—simply photocopy the day’s activity and distribute it. Or make a transparency of the activity and project it on the board. You may want to use the activities for extra-credit points or as a check on the math skills that are built and acquired over time.

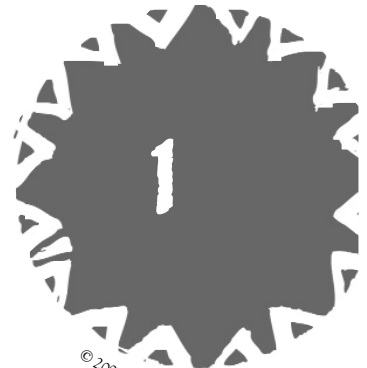
However you choose to use them, *Daily Warm-Ups* are a convenient and useful supplement to your regular lesson plans. Make every minute of your class time count!



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## Numbers, Numeration, Operations, and Patterns

Name a two-digit number less than 1 (that is, to the right of the decimal point) whose mirror image is a correctly written whole number.



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## Numbers, Numeration, Operations, and Patterns

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While washing up for dinner, Bernie notices something very peculiar about the bar of soap and the washcloth. With one swipe of the soap on the washcloth, he creates 10 bubbles. With another swipe, he creates 100 bubbles, yet he pops half of the first swipe's bubbles. On the third swipe, he makes 1,000 bubbles, and half of the second swipe's bubbles are popped.

If this pattern continues, how many bubbles will there be after the sixth swipe of the bar of soap?



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## Numbers, Numeration, Operations, and Patterns

What is the number that is 7 more than one third of one fifth of one tenth of 3,750?



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# Numbers, Numeration, Operations, and Patterns

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Assume that the number 2,100 is the result of a number being rounded. What numbers could have been the original number?



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## Numbers, Numeration, Operations, and Patterns

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Anya was offered a temporary job. The employer said, “We need you for 7 days. I can give you a choice of payment plans. You can get a flat rate of \$20 a day. Or you can start at \$2.00 a day and then have your salary double every day for the course of the week.”

Which payment plan should Anya choose?



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# Numbers, Numeration, Operations, and Patterns

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The cat king of Purrdom told his loyal felines, “I have the power to grant you 1 more life in addition to your current 9 lives, but there is a catch. You must put the digits that make up your 9 lives together in such a way that they make 27.”

How might the cats make 27?



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## Numbers, Numeration, Operations, and Patterns

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A medieval mathematician and businessman by the name of Leonardo Pisano (1170–1250), also known as Fibonacci, came up with the following sequence of numbers to describe phenomena in nature, art, geometry, architecture, and music.

What is the next number in the Fibonacci sequence?

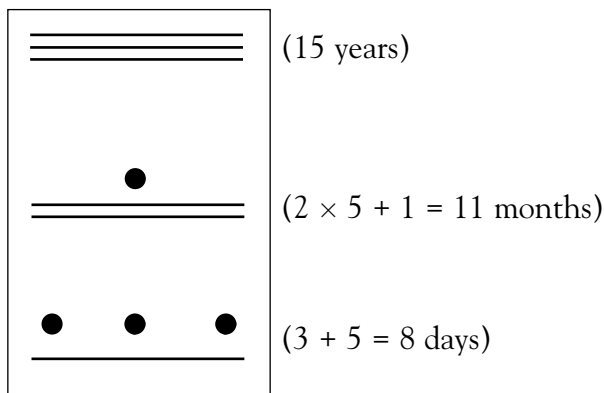
1, 1, 2, 3, 5, 8, 13, 21, 34, 55, . . .



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# Numbers, Numeration, Operations, and Patterns

The Mayans of Mexico used a method of dots and lines to show a period of time. Each dot represents a unit, and each bar represents 5 units. From the bottom position to the top position, the symbols refer to the number of days, months, and years, respectively. The example below shows 15 years, 11 months, and 8 days.



If today is April 23, 2006, write the exact age of a person born on March 9, 2001, using the Mayan method of calendar time. (Assume there are no leap years.)





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## Numbers, Numeration, Operations, and Patterns

The Chinese calendar is based on a 12-year cycle. Each year in the cycle is associated with an animal: rat, ox, tiger, rabbit, dragon, snake, horse, sheep, monkey, rooster, dog, and pig. The order of the animals never changes.

If the rooster marks the year 2005, what animal will mark the year 2068? \_\_\_\_\_



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## Numbers, Numeration, Operations, and Patterns

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A farmer has a super-chicken named Harriet. Harriet can lay 10 eggs at one time, all of which hatch female chicks. When the chicks grow up, they too will be able to lay 10 eggs that hatch hen chicks, and so will the generations to follow.

The farmer numbers his chicks consecutively. Assuming that each hen takes a break after laying her first 10 eggs, how is chick number 2 related to chick number 602?



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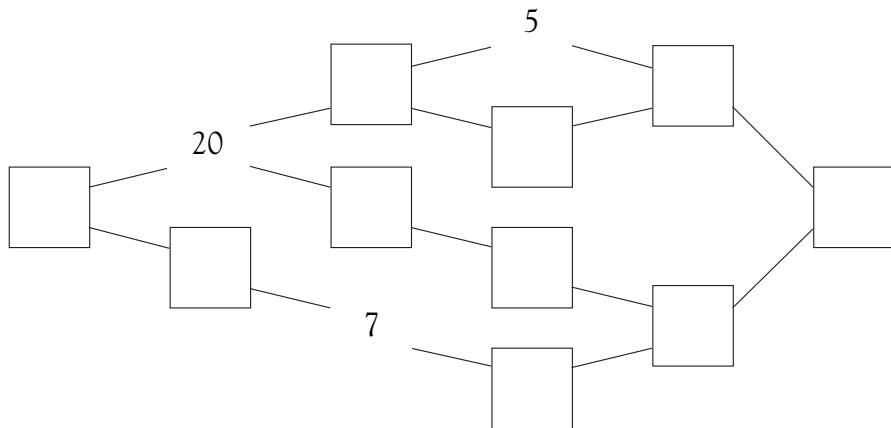
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## Numbers, Numeration, Operations, and Patterns

*Prime factorization* is finding the factors of a number that are all prime numbers.

To find the prime factors of a number, you start by finding two factors. If either factor is not a prime number, find factors for that factor. Continue the process until all your factors are prime.

Find factors and multiples that will correctly complete the prime factorization diamond below. *Hint:* The same number appears in the boxes at both ends.



## Numbers, Numeration, Operations, and Patterns

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The Wizard Wesley told his young apprentice that the gates to his castle can only be opened by creating a palindrome (a word or a number that reads the same forward and backward—for example, Hannah or 545). The wizard said, “Using the digits 1 through 4, find two 4-digit numbers that are palindromes and whose sum is a palindrome.”

The young apprentice successfully opened the gates to the castle. Name two numbers that she might have used.

\_\_\_\_\_ and \_\_\_\_\_



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## Numbers, Numeration, Operations, and Patterns

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Carmen is planning a neighborhood block party for 50 guests. She needs to buy hot dogs and hot dog buns. Inconveniently, hot dogs come in packages of 10, and buns come in packages of 8.

How many packages of hot dogs and hot dog buns should she buy so that each of her guests gets the same number of hot dogs on a bun? (In other words, assume no leftovers.)



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# Numbers, Numeration, Operations, and Patterns

Melinda, Melony, Melody, and Melana are playing a game much like the television game show *Jeopardy*. The scorekeeper, Melicent, spilled her coffee on the scorecard. The names on the scorecard were blotted out, but the scores are still visible. Melicent remembers the following about the scores: Melody had a low score. Melana's score was greater than Melony's score. Melony's score was 100 points greater than Melinda's score.

Which score belonged to which girl?



<u>Names</u>	<u>Points</u>
[blotted out]	-40
[blotted out]	100
[blotted out]	60
[blotted out]	-10

