

Encourage students who want a challenge to find out why the perfect square lockers remain open. (It is because there are an odd number of factors for perfect squares and an even number of factors for all other numbers.)

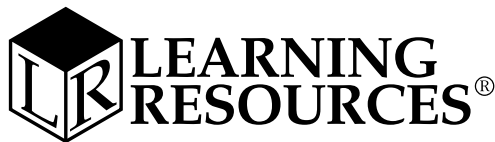
performances, keep track of data collected on plant growth or probability sequences, or do countless other graphing projects. You can monitor returned papers, list student names for jobs and tasks, or list problems to complete for assignments. You can even use your pocket chart to store passes to the office, bathroom, and library!

Keep Track and Get Organized!

The *Hundreds Pocket Chart* can also be used to organize your classroom! Graph student

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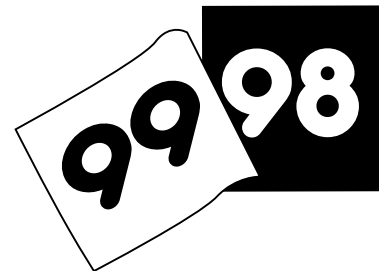
Hundreds Pocket Chart

Teaching Guide

The *Hundreds Pocket Chart* (LER 2208) will provide hours of assistance in the teaching of mathematics!

Your chart features 100 see-through pockets that make it perfect for teaching numbers, odds and evens, the four operations, and much more. Your chart also comes with reversible cards labeled with numbers 1-100, and operation signs.

The *back sides* of the cards feature a reversed color scheme so that number patterns can be easily illustrated to the whole class.



Counting Up

Teach young learners the numbers 1-100. Students will quickly grasp number concepts in this organized pocket chart. Patterns such as one through zero in the “ones” column will be immediately apparent.

Scramble the number cards. Challenge students to place them in order in the pocket chart. Younger children may first need to order small groups of numbers using a number line. More advanced learners can count and place the cards directly in the chart.

Odds and Evens

Introduce the concept of *odds* and *evens* by placing all of the number cards with the “white” side facing out. Then, flip over all the even numbers so that their “red” sides are showing. Students will look at the chart

column patterns with even numbers! With older students, this can lead to a discussion of multiples and divisibility. Use your even/odd chart to divide groups of students into pairs. If there is one student left over the total is odd, not even! Verify your total on the chart.

Multiples

Provide students with practice in counting by *twos*, *threes* or *fives*. Place cards numbered 1-100 in the chart with the same side facing out. Count by fives and flip over the five, ten, fifteen, twenty cards, as you say the numbers. Students will notice the patterns as they count along with you. In a column, the numbers below the five will be flipped, as will all the numbers below the ten. When you count by five, all numbers will end with a zero or a five! Discuss other number patterns.

More advanced students can use this chart to learn the multiplication tables as you count: “One times five is **five**, two times five is **ten**, three times five is **fifteen**,” and so on.

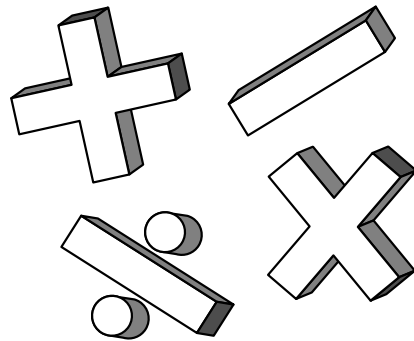
Patterns

Use the reversible number cards to make patterns on your *Hundreds Pocket Chart*. Younger students will be challenged to recreate patterns from the chart,

while older students can try to identify or continue the number pattern that is displayed. You can even demonstrate fractional number patterns! Display the fractions $\frac{1}{2}, \frac{3}{12}, \frac{9}{72} \dots$ and challenge students to find the pattern. Students may say that the denominator is multiplied by six and the numerator is multiplied by three. You are multiplying by $\frac{1}{2}$!

Four Operations

Reinforce students' understanding of operational concepts using the pocket chart to explore the number facts below ten. You can illustrate



the multiplication facts for certain numbers on the chart for students' reference as they learn the concepts. For example, display the multiplication facts for six as you teach students repetitive addition and counting by sixes.

Division can be discussed as the inverse of multiplication. Start each day by putting warm-up or challenge problems on the chart to reinforce students' learning!

Ninety-Nine Chart

Use the *Hundreds Pocket Chart* to explore patterns in a “Ninety-Nine Chart.” Make a number card with the number zero. Encourage students to rearrange the numbers 1-99, adding the zero to the chart. You will not need the number 100. Challenge students to do the following tasks:

- Flip over all the even numbers.
- Flip over all the multiples of three.
- Flip over all the multiples of five.

Examine the patterns that are created by each of the above tasks. Discuss how the patterns differ in the “Ninety-Nine Chart” compared to the “Hundreds Chart.”

The Locker Problem

Challenge your students to explore the concept of factors with the following problem:

There are 100 lockers and 100 students in a school. The first student walks inside and opens all of the locker doors. The second student walks inside and reverses all the doors that are multiples of two. (Locker two is closed, locker four is closed, locker six is closed, etc.) The third student walks in and reverses the lockers that are multiples of three. (Locker three is closed, locker six is opened, locker nine is closed, etc.) This continues until all the students have walked into the building. Challenge your students to find the lockers that remain open.

Your students can accomplish this problem by designating all the open lockers as “red” and all the closed lockers as “white.” Start with the numbers 1-100, red side out. (The first student opened all the lockers.) Flip over all the even numbers so the white side is facing out. (The second student closed all the multiples of two.) Then, flip over all the multiples of three for the third student that walks into the school. After completing the process for all 100 students you should have the following lockers open (red side facing out): 1, 4, 9, 16, 25, 36, 49, 64, 81, and 100.

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