Big Ideas in Number Resource Information

Big Ideas in Number Focus Area: **Multiplicative Thinking**

Name of Game or Activity:

Creating Numerals and Ordering Periods

Instructions:

Students work in small groups and order the number periods how they see fit. Students are then asked to make and read numerals using the 0-9 digit cards. Throughout the process students are reporting to the groups about patterns, mistakes, proof and what they are noticing. Students can check each other's Periods to see if they have gone L-R or R-L. Students then look at patterns that occur when the same digit is placed in the same place in each Period. Focus then shifts to reading numerals and investigating patterns and similarities.

Resources:

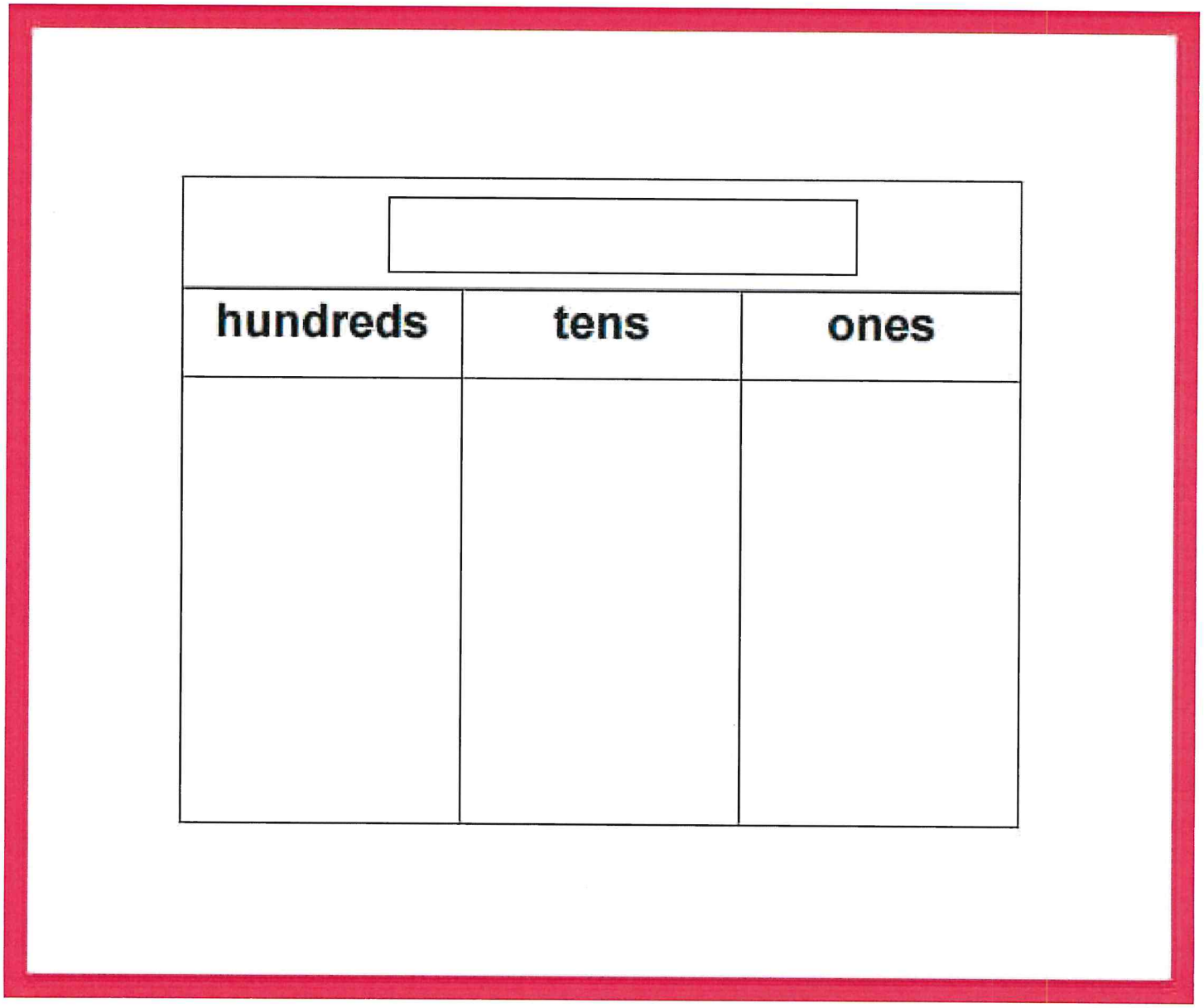
- Photocopies of the number periods from **ones** to **decillions**
- Multiple sets of 0-9 digit cards
- "How to create a Numeral' Poster

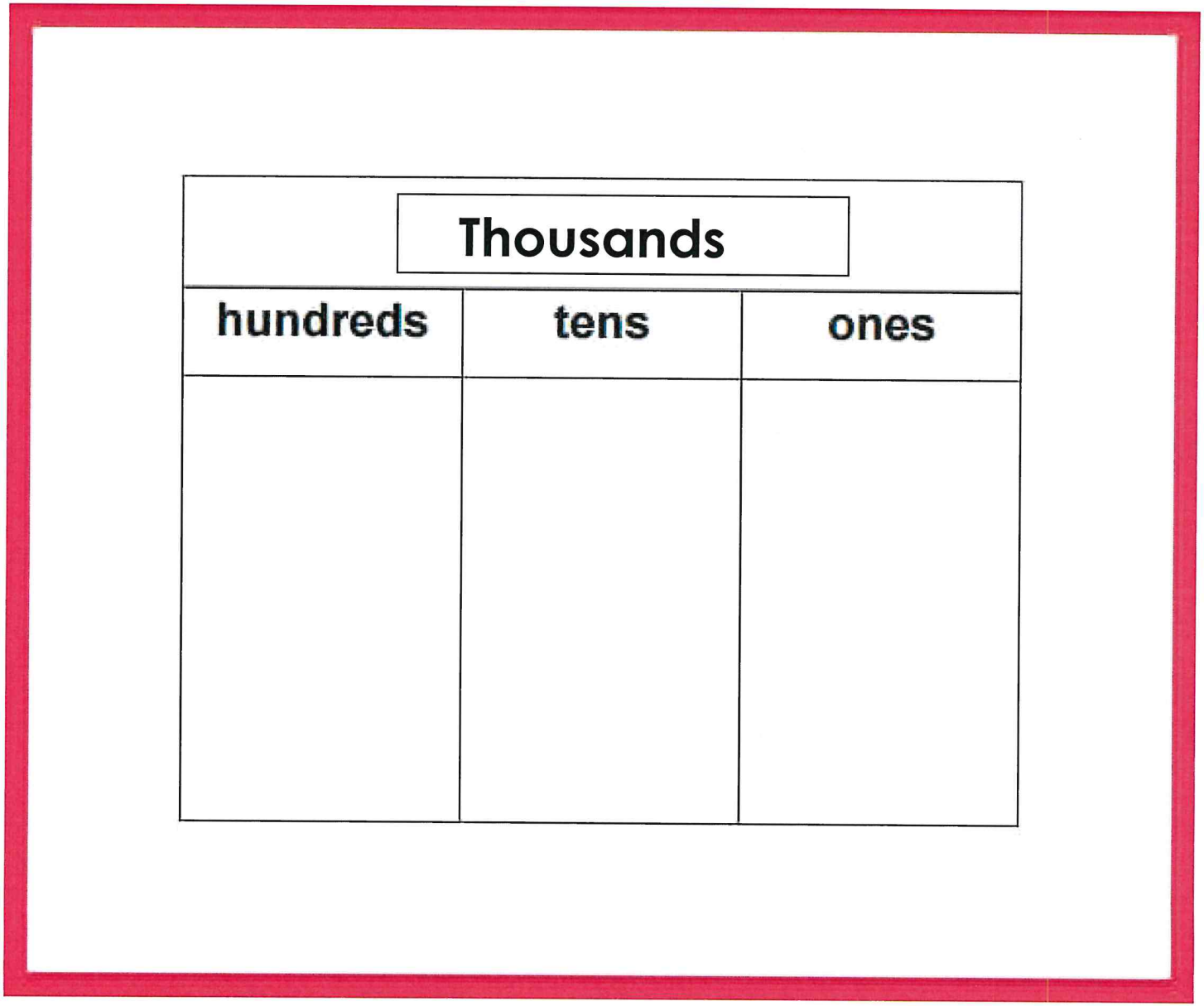
BliN Micro Content

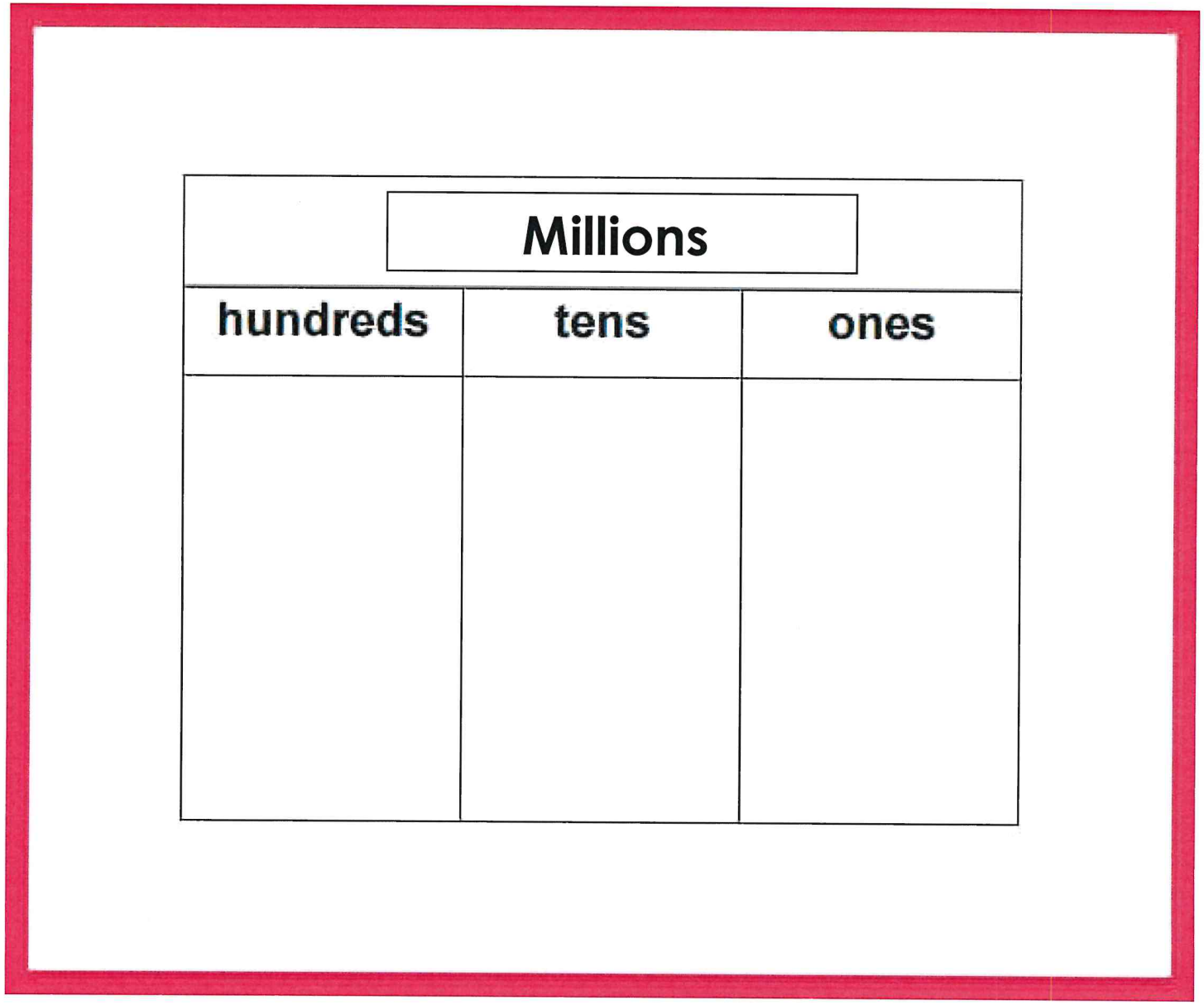
Cyclical pattern of 100-10-1 is repeated from ones to thousands	
Cyclical pattern of 100-10-1 is repeated beyond 100s to millions	
Ten times multiplicative relationship exists between places	
The multiplicative relationship extends to numbers less than one, that is to the right of the decimal point	
There is symmetry in the place value number system based around the ones place so that the patter in naming wholes is reflected in naming decimals	
Double count by representing one group (e.g. hold up 4 fingers) and counting repetitions of that group, simultaneously keeping track of the number of groups and the number in each group	
The multiplicative relationship between quantities is expressed as 'times as many' and 'how many times larger or smaller' a number is than another number	
Numbers move a place each time they are multiplied or divided by 10	
Basic number facts to 10x10 are recalled and patterns in number facts are investigated	
Number facts can be extended by powers of 10	

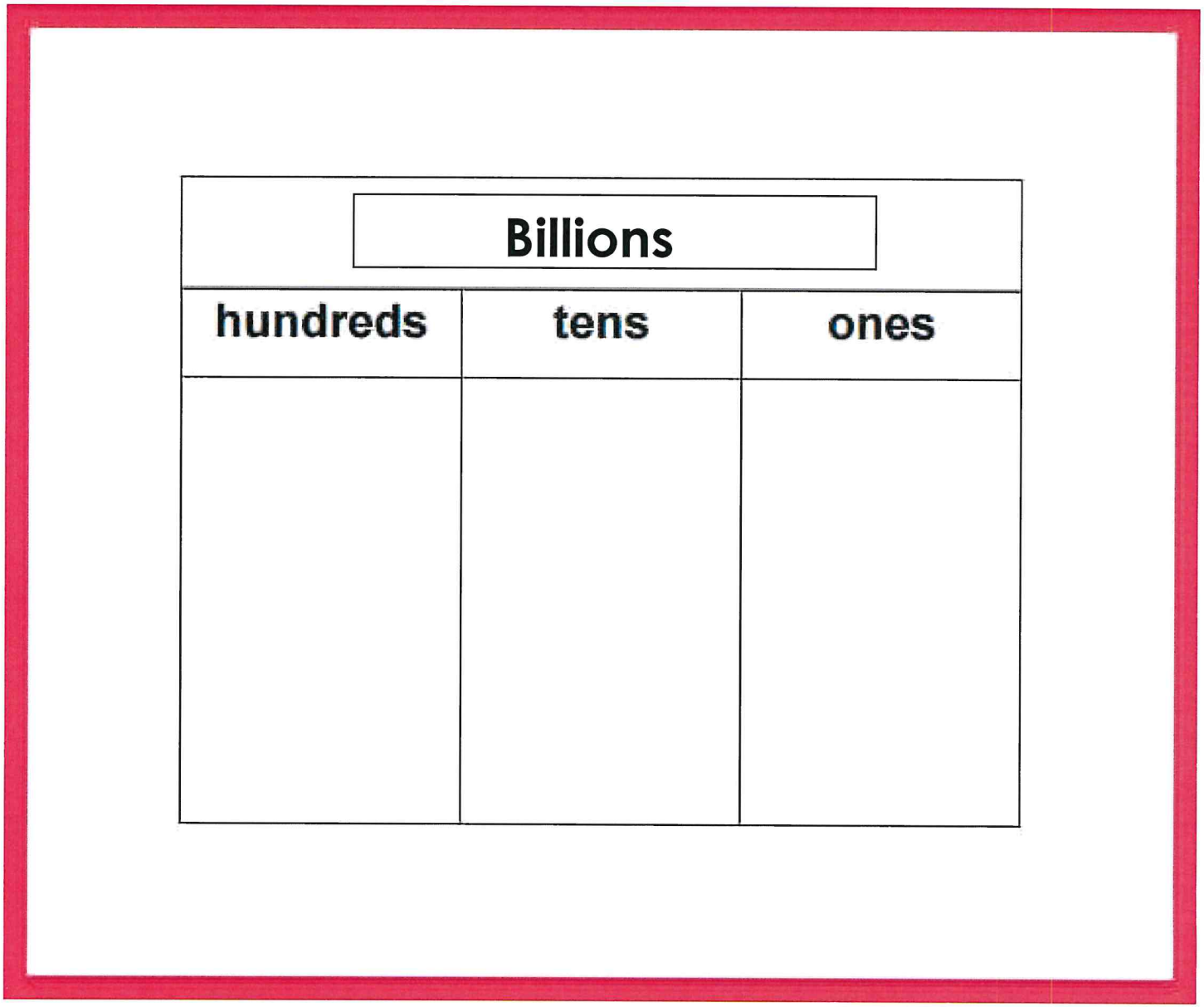
Big Ideas in Number Resource Information

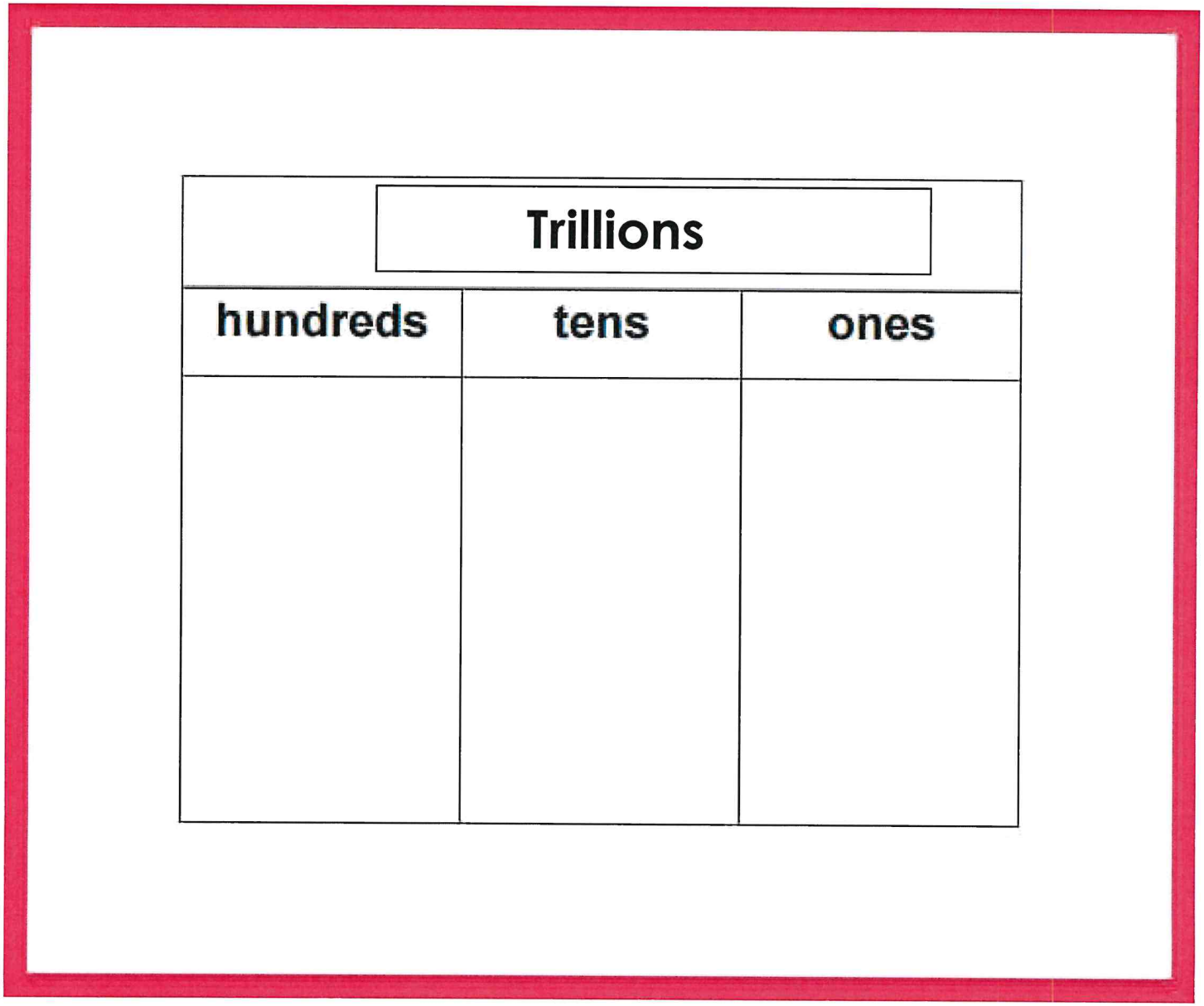
Multiplicative situations can be represented as equal-groups problems, comparison problems, combinations (Cartesian) problems and area/array problems	
The multiplicative situation is understood (factor X factor = multiple) with the meanings of the terms clearly understood.	
Multiplication arrays are used to visualise and represent multiplication situations	
Division and multiplication are known as the inverse of one another	
The communitive property of multiplication is understood and can be shown to be linked to arrays	
Partition division involves finding the size of each group and quotition division involves finding the number of groups and can be also expressed in terms of factors and multiple	
Quotition division can be considered in terms of fractions so that a quantity can be split by 'halving', 'thirding', 'fifthing' etc.	
Prime and composite numbers can be linked to multiplicative arrays – prime numbers can be made only with a single row array	
Distributive property of multiplication over addition is applied and shown by a multiplicative array	
Multiplicative arrays are linked to the concepts or area and volume	
Measurement units have the same multiplicative relationship as the Base 10 system	
Cartesian products can be represented symbolically and in tree diagrams	

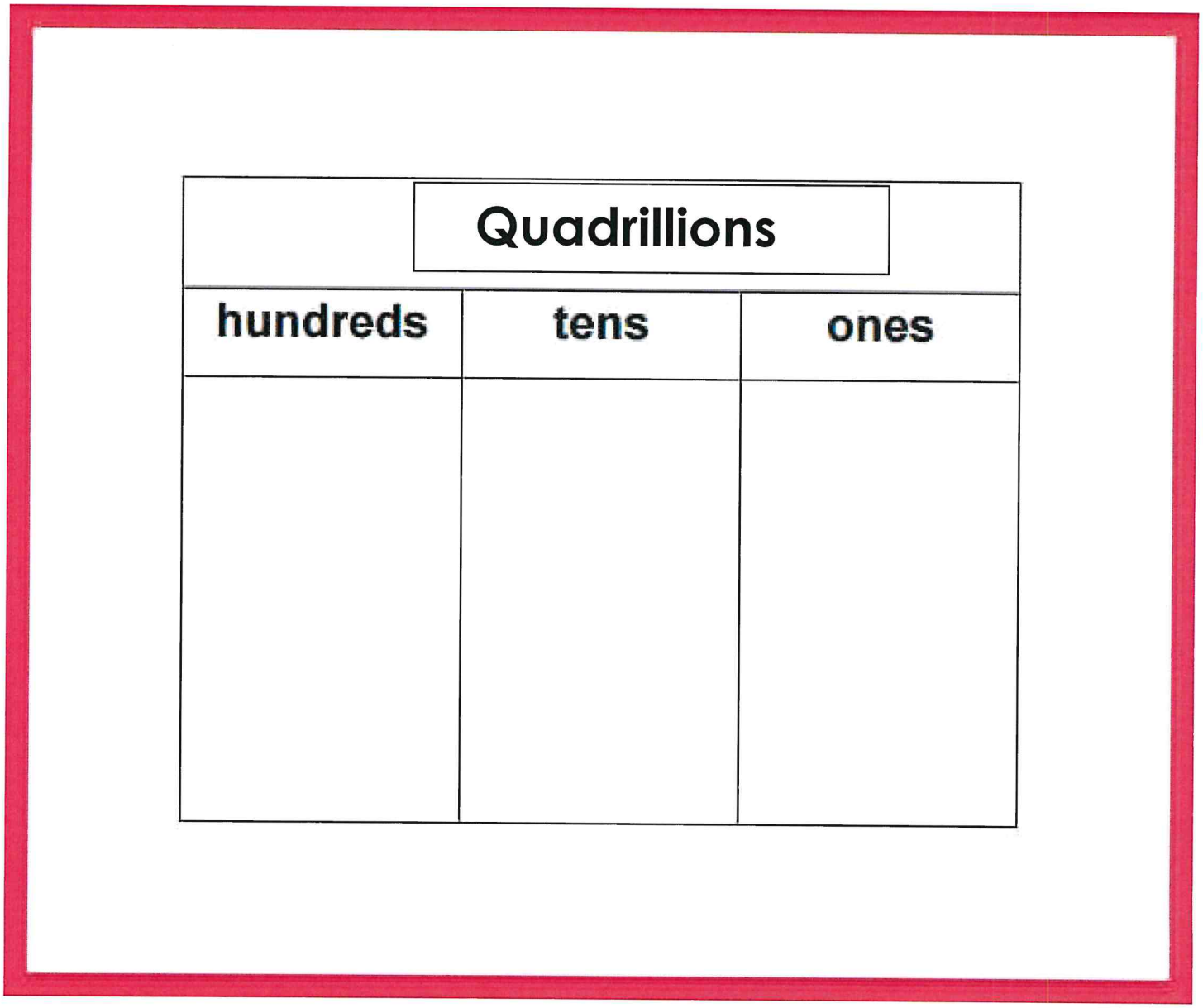

hundreds
tens
ones

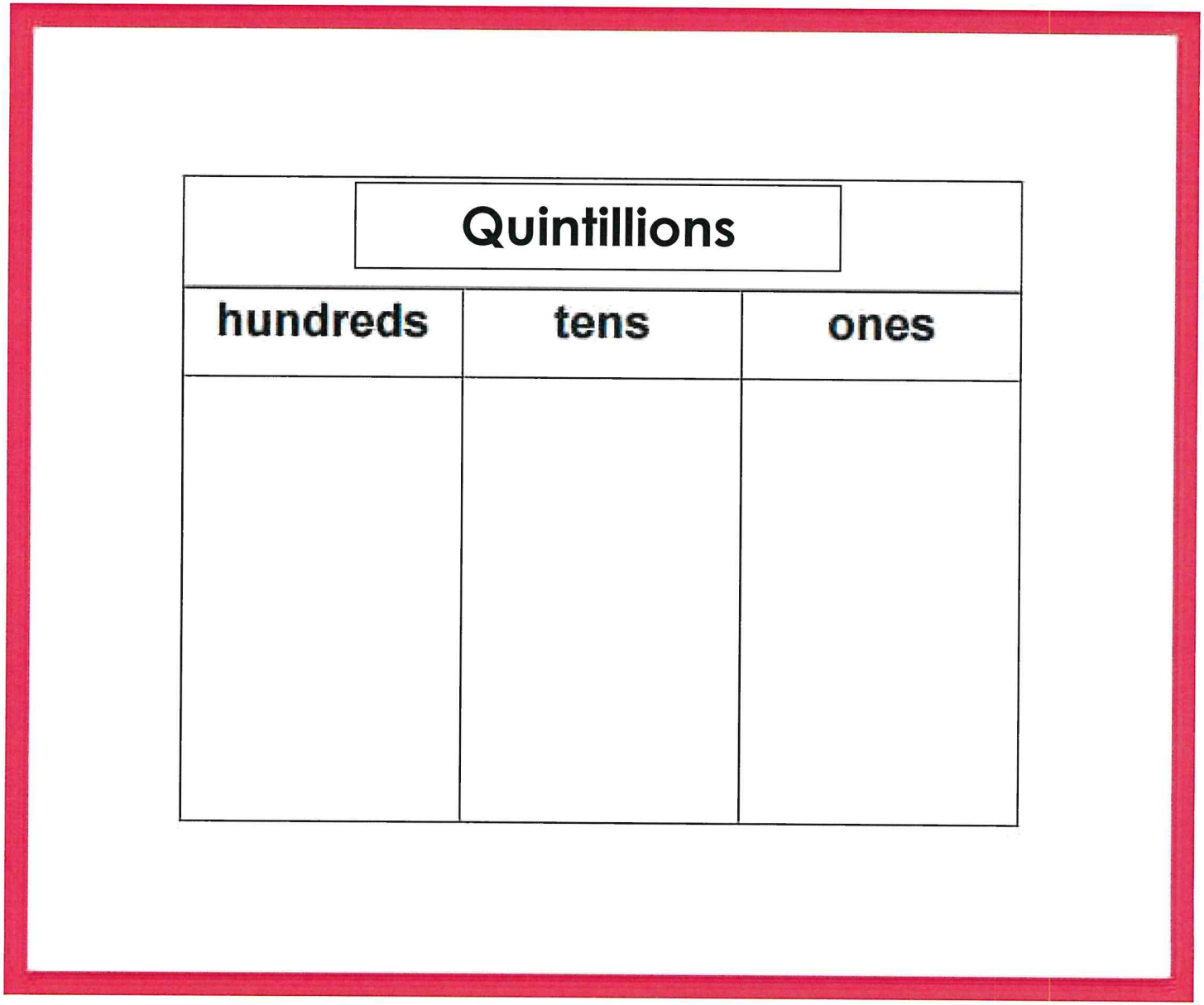

Thousands
hundreds
tens
ones


Millions
hundreds
tens
ones


Billions
hundreds
tens
ones

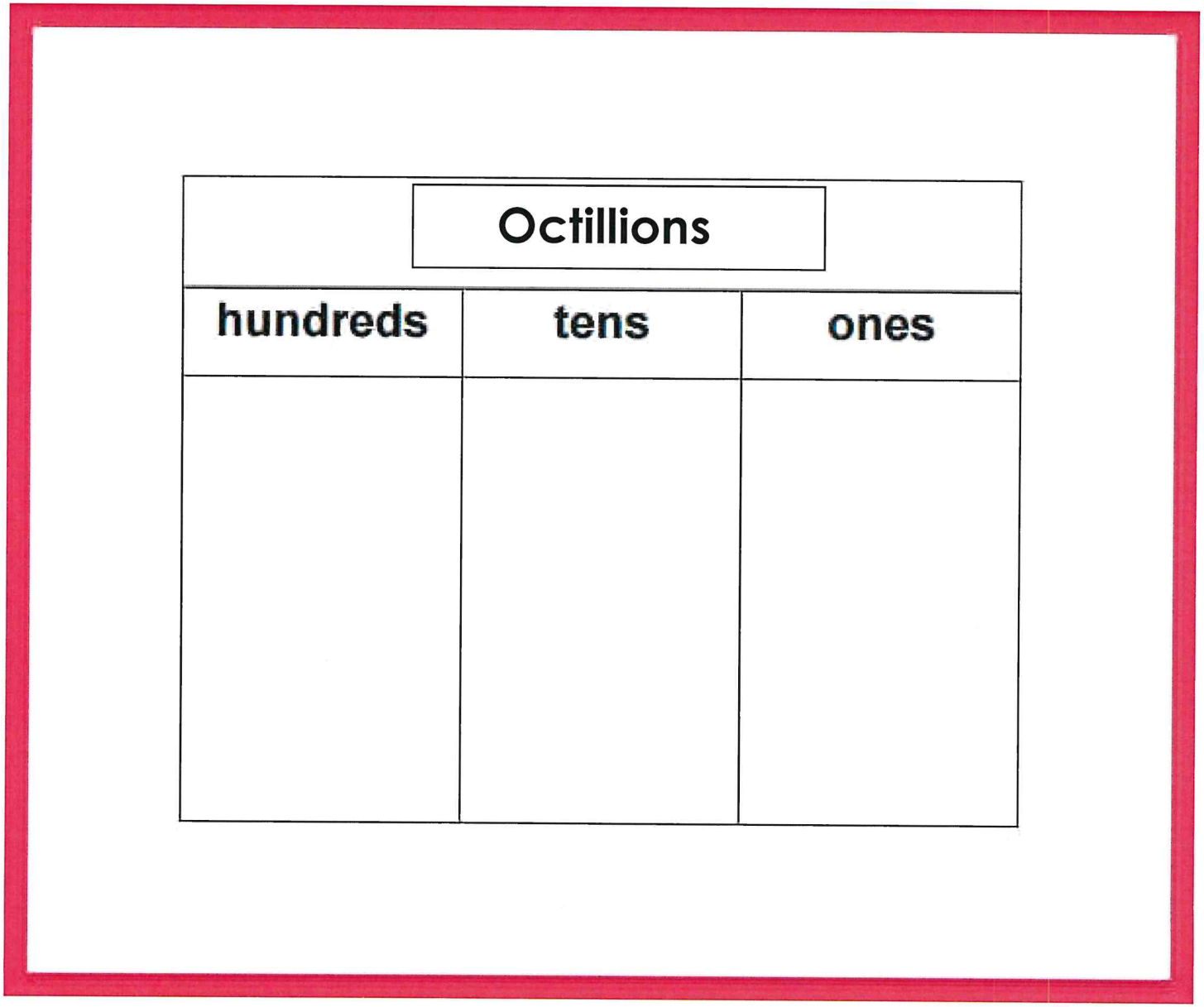

Trillions
hundreds
tens
ones


Quadrillions
hundreds
tens
ones

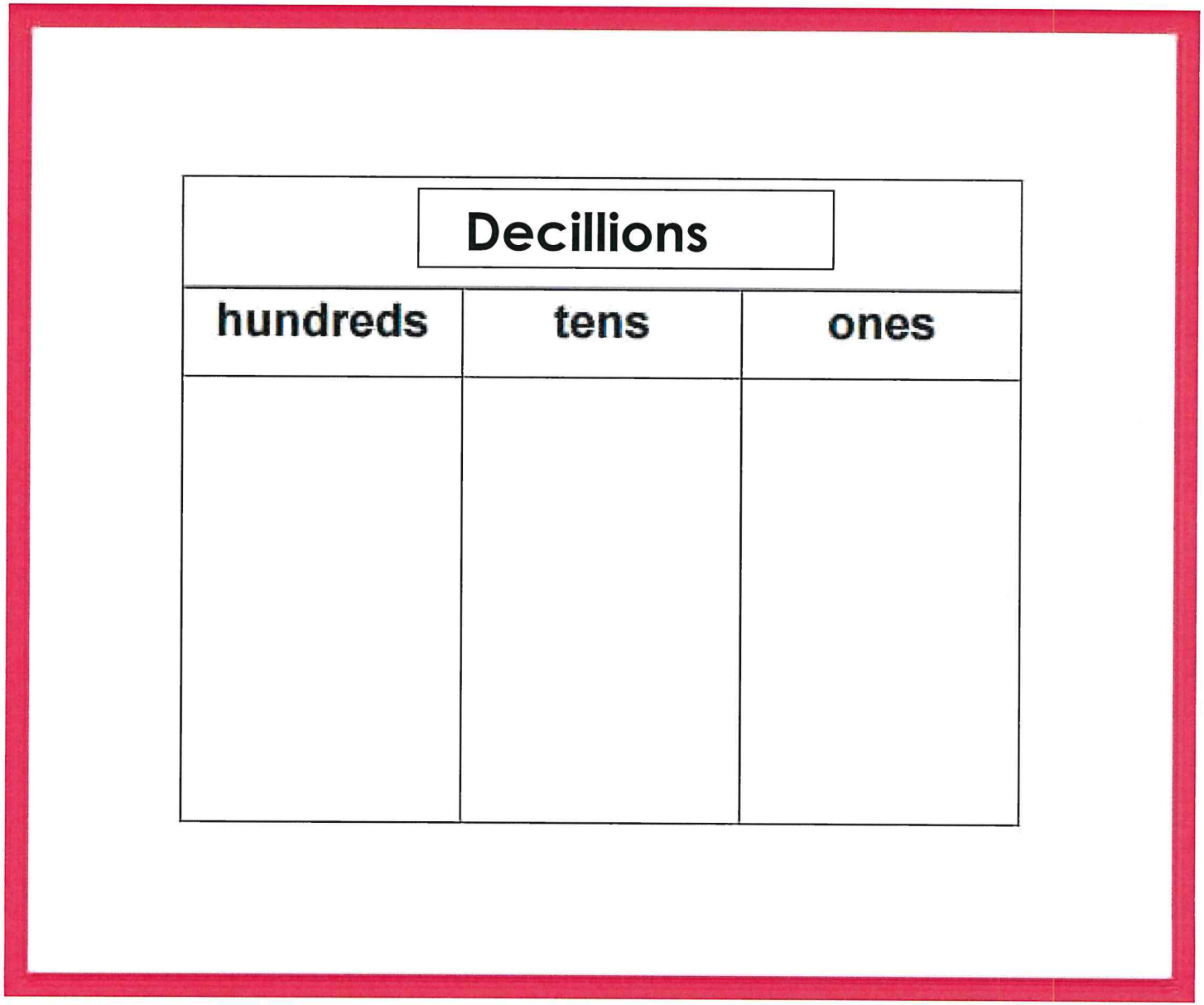

Quintillions
hundreds
tens
ones

Sextillions		
hundreds	tens	ones

Septillions		
hundreds	tens	ones


Octillions
hundreds
tens
ones

Nonillions		
hundreds	tens	ones


Decillions
hundreds
tens
ones

1	2	3	4	5	6	7	8	9	0
1	2	3	4	5	6	7	8	9	0
1	2	3	4	5	6	7	8	9	0
1	2	3	4	5	6	7	8	9	0