Mohs Mineral Math

You can test the hardness of minerals by scratching one mineral with another. A harder mineral will scratch a softer mineral. In 1822, Friedrich Mohs, a German mineralogist, used this fact to develop a scale of hardness. The Mohs Hardness Scale ranks 10 minerals from softest to hardest, with 1 representing the softest, and 10, the hardest mineral. The hardness of a mineral is established by scratching it with, or allowing it to be scratched by, the minerals on the Mohs scale.

Activity

Use your math skills to discover for yourself the ranking of the minerals on the Mohs Hardness Scale. After completing the activity below, share your responses with the class.

Directions: Determine the rank (from 1–10) of each mineral according to the Mohs Hardness Scale. First, assign each letter in each word a number from the key. Next, add up the numbers for each word to arrive at a sum. (See the example below.) Write the totals for each mineral in the hardness chart below. Use the totals to complete the rank order of each mineral on the scale below.

Example:

$M = 3$
$I = 13$
$N = 17$
$E = 1$
$R = 5$
$A = 1$
$L = 2$
_____
total $= 42$
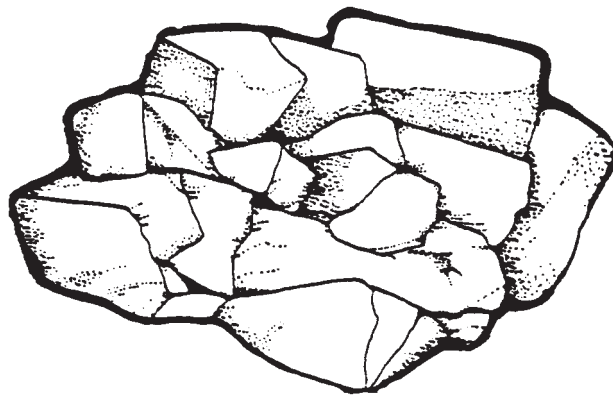
Key

A = 1	O = 4
C = 2	P = 12
D = 7	Q = 8
E = 1	R = 5
F = 2	S = 1
G = 2	T = 1
I = 13	U = 1
L = 2	Y = 2
M = 3	Z = 20
N = 17	

Hardness Scale

Mineral	Total	Rank Order
diamond	_____	_____
talc	_____	_____
quartz	_____	_____
gypsum	_____	_____
fluorite	_____	_____
corundum	_____	_____
feldspar	_____	_____
calcite	_____	_____
topaz	_____	_____
apatite	_____	_____