

Scientists have to use mathematics to analyze data, and to build models of the phenomena they are studying. Can you solve this crossword puzzle using the mathematical clues provided? When you're finished, color the blank squares with your favorite aurora colors!

												L							
									d				m						
	z			J															
									e										
	v												s						
											x								
											f								
a					n														
													g					u	
									h		r								
	b											k				T			
c	y								p										
									w										

Extra Credit Problem

Word Bank:

+4 proton	- 14 RPI	+6 ionosphere	-1 plasma
-16 FUV	11 photons	+27 spectrum	-27 beams
+3 radiation	0 flares	-10 field	-7 magnetism
-6 earth	-8 solar	-13 envelope	-2 current
-3 aurora	- 23 cone	+2 corona	10 humanity
+1 rays	13 oval	-11 Plasmasphere	-26 echos
-9 polarity	+23 STP	-17 CMEs	+26 UT
+19 TOD	9 ions	-19 sunspot	+25 ENA
-21 FAC	-5 IMAGE	-4 neutron	+8 electrons
+14 watt	17 UV	+7 crown	+5 magnetosphere

The numerical answer to each problem below will tell you which word to use in the word bank to fill in the row or column with the indicated letter.

Down:

l) $- 2 (- 5 + 3)$

r) $- 3 (- 12 + 9)$

m) $- 4 (3 - 1)$

T) $+ 2 - 3 + 5 - 10 + 2$

e) $+ 2 (- 6 + 3) + 4$

u) $+ 4 (- 5 + 3) - (- 7 + 6)$

n) $- 3 (- 5 + 2) + (- 4 + 3)$

v) $+ 3 (- 8 + 6) - 3$

g) $+ 5 - (- 8 + 2)$

x) $+ 4 (8 - 3) - 3 (+ 6 - 8 + 12)$

o) $- 4 (7 - 3) + (8 - 3)$

y) $+ 2 (+ 8 - 5 + 10) - (+ 10 + 5 - 2)$

p) $+ 1 - 1 + 3 + 4 - 5 - 8$

J) $- 2 (- 3 + 2 - 5 - 6) + 2 - 2 (+ 26)$

Across:

a) $+ 2 (- 3 + 8) - 5$

g) $(+ 1 - 1) + (+ 1 - 2)$

b) $+ 3 (+ 2 + 1) - 2 (- 3 + 9)$

h) $+ 4 (+ 5 - 2) - 3 (+ 3)$

c) $- 15 (- 2 + 3) + 3 (- 2 + 9)$

k) $+ 5 (+ 8 - 5) - 4 (- 6 + 8)$

d) $- 1 + 1 - 1 + 1 - 1 + 1$

s) $- 1 + 1 - 1 + 1 + 1 - 1 + 1$

e) $- 6 + (+ 11 - 3)$

w) $+ 3 (- 2 + 8) + (- 12 + 4)$

f) $- 3 (- 8 + 11) + 4$

z) $- 5 + 2 (- 8 + 4)$