

Puzzle #2: Over Easy?

This is an optimization puzzle; when you turn in an answer to Eric (**please submit it by midnight**), he will grade it and update your team dashboard with the appropriate score. There is no Clutch-of-Eggs Sticker to obtain. Here is the challenge:

Within a 5×5 grid of squares, place the letters of the alphabet. One letter goes in each cell, and each cell gets a different letter. Consider I and J to be the same letter (just enter it as “I/J”). You may place the letters in any configuration you want.

With the arrangement of letters defined, you then want to form a list of 25 words where each word is as long as possible. How are words formed? For each word start at any letter in your grid. From that point you may hop to any other letter in the grid. **The only restriction is that the length of your current hop must be strictly greater in length than all previous hops thus far in that word.**

For example, if you had the configuration of letters as below, you might start on the L and hop to the A (a distance of 1). From there you could hop to the X, a distance of $\sqrt{2}$, but you could not have hopped to the S from A because that distance is 1 (not greater than your previous hop). You could continue from the X back to the L and end at the Y to spell “LAXLY.” The distances you hopped would have been 1, $\sqrt{2}$, $\sqrt{5}$, and $\sqrt{8}$ -- a strictly increasing sequence of distances.

Note that the I/J space can be considered as either I or J as you need, so you could even start a word with “JI-” and that would count as a first hop of length 0 (“JIBERS” can be constructed in a valid manner as shown).

When you are ready to have your answer scored (you may only submit this puzzle once), bring your grid of letters and word list (up to 25 words long) to Eric. **Your score will be the sum of the lengths of all of your valid words from that list** (if any mistakes in word construction are found, those words are discarded). Your words must be from the North American Scrabble Tournament Word List (<http://www.ericharshbarger.org/epp/2009/TWL06.txt>).

C	Y	R	I/J	H
P	U	B	D	E
O	F	K	L	M
G	N	Q	A	V
T	W	X	S	Z

Examples:

LAXLY and JIBERS are valid word constructions since the hops to create them are strictly increasing in length.

Distances are measured from the centers of the cells.

You are allowed to revisit letters (as long as you follow the increasing-distance rule).

JIBERS illustrates how it is possible to start a word with a 0-distance hop. Words that start with double letters would also have a 0-distance first hop (“OOPS”, for example).