Liam and Liana's 2nd Semiannual Puzzle Party

February 25th, 2006

By now, you have found your team based on the name tag puzzle. It is reccommended that your team selects a name, for in the incredibly unlikely case of a tie, the referees will decide in favor of the team with the cooler name. If that also fails, ties will be resolved by the cat.

Your team should now be in possession of:

3 copies of this booklet
8 pencils
8 pens
50 sheets of blank scratch paper
1 pad of graph paper
3 pads of lined paper
1 large, sealed cardboard box, which should not be opened
1 Zome structure, made of white nodes and colorful plastic struts
1 deck of the game Set
5 brains, with containers
1 twenty-sided die
1 calculator
1 roll of transparent tape
1 dictionary
1 atlas
1 bag of Geomag pieces (30 rods and 12 spheres)
12 Lego pieces
1 pair of scissors
3 DC Metrorail pamphlets
1 periodic table of the elements
1 bag of chits with elements written on them

Replacements for some of these materials are available from the referee station. Due to the nature of these puzzles, use of any other materials, such as cell phones, cameras, PDAs or non-enclosed books, is prohibited. The referees will not rule on whether answers are valid until they are submitted. To determine the validity of word answers, we shall be using the enclosed references, and dictionary.com and answers.com for cases in which these are insufficient. No proper nouns, please, unless specifically directed by the puzzle. In word list puzzles, any given word may be used only once per puzzle.

When your team decides to score a puzzle, bring the solution and its page from this booklet to the referee station and give it to a referee. Once you give a puzzle to a referee, you may not re-submit that puzzle again, even if you come up with a better solution. However, teams that submit puzzle solutions sooner are rewarded thusly:

1st team: 100% of points scored for the puzzle
2nd team: 90%
3rd team: 85%
4th team: 75%

If two teams submit solutions to the same puzzle within five minutes of each other, it will be considered a tie, and they will both have the higher percentage applied to that puzzle's score.

The contest begins at 1:00PM, and runs until 5:00PM. Around 4:00PM, the referees will make sure that everyone who wishes to place an order to the takeaway restaurant has done so, and food will be ordered at 4:30PM, to arrive around 5:00PM.

Team: _____

1. CATALAN NUMBERS

Write, spelled out, a list of cardinal numbers, sequentially, starting with the number 1. Each number must be in a different language. Write down the name of the language next to the spelled-out number in that language.

zerofy (Smurfish)

SCORING: 100 x N, where N is the number of valid sequential numbers with languages, starting with 1.

Team: _____

2. INTO THE BLACK BOX

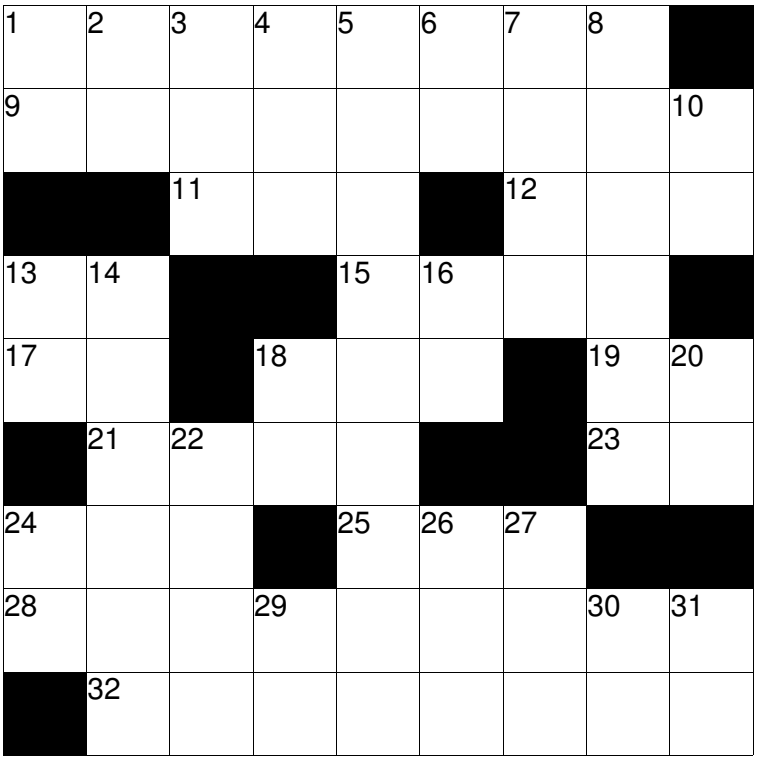
You have been given a pre-built Zome structure, consisting of white nodes that connect colorful plastic struts. You have also been given a sealed box with two holes on opposite sides. Without opening, damaging, or altering the box, reassemble the Zome structure inside the box. You will probably find that this requires two people.

SCORING: N x 100, where N is the number of white nodes in your reconstructed structure whose configuration of outgoing struts uniquely matches a node in the original structure.

Team: _____

3. AT CROSS PURPOSES

Instead of filling the grid below with letters, place one digit from 1 to 9 in every space. No zeros are used. Also, one of the digits from 1 to 9 is entirely absent from the answers in the grid.



ACROSS

1. The digits are all different and in no particular order
9. Each digit is less than or equal to the one preceding it
11. A number that is not divisible by 3
12. The sum of 26-Down and 27-Down
13. The sum of the digits is 3
15. The number formed by the last two digits is divisible by, but not equal to, the number formed by the first two digits
17. A number less than 10-Down
18. A number that is the same when reversed
19. See 3-Down
21. The number formed by the last two digits is divisible by, but not equal to, the number formed by the first two digits
23. The sum of the digits is 16
24. The first and third digits are even
25. The last two digits are even
28. Each digit is less than or equal to the one preceding it
32. The digits are all different and in no particular order

DOWN

1. The sum of the digits is 11
2. A prime number
3. A multiple of 19-Across
4. The second digit is the average of the other two digits
5. Three consecutive perfect squares
6. A number larger than 19-Across
7. Two consecutive perfect squares
8. Six consecutive digits
10. Twice 31-Down
13. An odd number
14. Six consecutive digits
16. An even number
18. Less than 30-Down
20. An odd number that is greater than 23-Across
22. Two consecutive perfect squares
24. The sum of the digits is at least 15
26. Less than 27-Down
27. See 26-Down and 12-Across
29. An even number that is not divisible by 4
30. A perfect cube
31. See 10-Down

SCORING: N x 60, where N is the number of answers that satisfy their clue.

Team: _____

4. AAAVIAN FLEW

Neghd bgc flzcgjld, aicgc ncefo fcbgkx acf aijldbfh (zbqefo bf bvvgjpezbaejf) dvcmecd. Aicx bgc mibgbmacgeych nx ibrefo ijkkju njfcd, uefod (wkeoia jvaejfbk), bfh bkdj wcbaicgd. Ncbqd mla, acbg jg vgjh wjjh, bfh dbwcqccv hckercgx jw nbnecd' dfbmqd. Aic brebf efackkeocfmc ed zjgc aibf djzc slhoc: djzcaezcd, bkaijloi mldajzbgx vigbdc ezvkecd dalveheax, negh-ngbefd hedvkbx b ibghkx agerebk mkcrcgfcdd, efmklhefo zefjg ajjk ldc, deofewembfa mjzzlfembaejfd, bfh bnkc zczjgx. Neghd. huckkefod bgc hercgdc, bgawlk mjznefbaejfd jw zbacgebkd, efmklhefo daemqd, gcchd, wcbaicgd, crcf wlg. Jg, mcgabef zedmgcbfad hj fja bvvkx aiczdckrcd aj daglmalgbk hcdeof, nla dkev aiceg cood mlffefokx efaj wjdacg alackboc, dfcbqekx gcvkbmefo aic kcoeaezbac jwwdvgefo. Bhheaejfbkkx, aic brebf vgjmcdd jw mjzzlfembaejf mbf nc tleac baagbmaerc, uicaicg aic ncibrejg efacfhd aj ngefo ickv, cdabnkedi vjdeaejf djmebkkx, jg mbvaerbac zbacd.

Fju aiba xjl ibrc weolgch aied jla, ngcbq ead mjhc!

SCORING: N x 50, where N is the number of decrypted letters
700, if found
N x 50, where N is number of distinct items

Team: _____

5. MATH, BASICALLY

The following are simple and correct multiplication problems in which the digits are represented by letters. In each problem a letter corresponds to exactly one digit, and vice versa. However, not only can they be different between problems, but the each problem is in a different number base. "Translate" all the problems to numbers.

```
    ALL
×   ZPU
   ZKUU
  KZPP
 LPZZ
ZUAPLU
```

```
    IXX
×   FYO
   YOUR
  XRYX
 HURR
FFIUHR
```

```
    EDA
×   GHM
   EDA
  BASE
 CDED
CEDHEA
```

```
    TWT
×   ARE
   AAWW
  WNVN
 LVTV
WWTLIW
```

```
    SZL
×   NBN
   BNZG
  AHBS
 BNZG
BELONG
```

```
    QJQ
×   IUT
   QJQ
  TOTO
 USUS
UQTSOQ
```

SCORING: 500 x N, where N is the number of fully decoded problems.

Team: _____

6. THIS LAND IS EVERYONE'S LAND

Using the included map of the Washington, DC, Metrorail system, trace a path between two different stations. You may only travel on a section of railway line once and once only, but traveling between two stations twice on different lines is allowed. Rearrange the letters of the names of the stations (as they appear on this page) that you pass through to form the names of countries. You have been given an atlas as a spelling reference; use the name that appears at the top of a given page.

SCORING: N x 100 / (L + 1), where N is the number of distinct country names, and L is the number of unused letters.

Team: _____

7. GAME, SET, MATCH

One of your materials is a deck of the game Set. Take as many cards out of the deck as you like, secure them in a rubber band, and hand them in (along with this sheet) at the referee station. Your score will be calculated by the following rules, in order, starting with a score of 0. All scoring refers to the cards turned in; the leftover cards do not affect your score.

1. Add 8 points for each red card.
2. Subtract 9 points for each card with squiggles on it.
3. If you turn in any green cards, halve the current score (round down).
4. If you turn in any purple cards, add 3 points for each card with diamonds on it.
5. Subtract 5 points for each red card.
6. Add 10 points for each green card that has squiggles on it.
7. Multiply the current score by the number of cards turned in.
8. Add 30 times the number of all symbols on all cards turned in.
9. If you turn in the green card with two stripe-shaded ovals, multiply the current score by -1.
10. Add 5 points for each card that has more than one oval on it.
11. Subtract 7 points for each card that does not have three symbols on it.
12. Add 4 points for each stripe-shaded card that has ovals on it.
13. If you turn in the purple card with two open-shaded ovals, multiply the current score by -1.1 (round down).
14. Multiply the score by the number of oval symbols on the cards that are turned in.
15. Divide the score by the total number of symbols on the cards that are turned in (round down).
16. If your score is currently negative, multiply it by -0.5.

SCORING: N, the total after step 16

Team: _____

8. ELEMENTS, MY DEAR WATSON

One of your materials is a bag of chits, each of which is an element from the periodic table of elements. Arrange as many elemental symbols as you can into rectangles, such that each row and each column of every rectangle make an English word. Each symbol may only appear once in the entire solution. You have been given a roll of tape; tape your answer grids to this sheet when to turn it in.

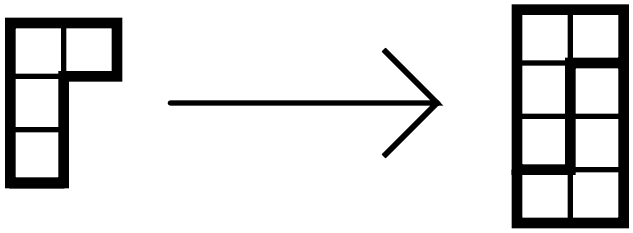
SCORING: Each word rectangle scores ((M - 1) * (N - 1) * S)/2, where M and N are the width and height in elements, and S is the sum of all atomic numbers in that rectangle. The score for this puzzle is the sum of the scores for all rectangles.

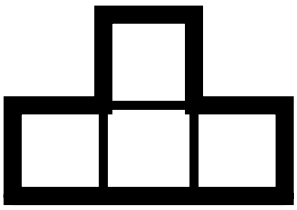
Team: _____

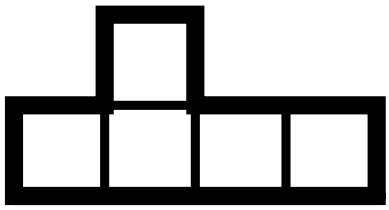
9. TILED OF LIFE

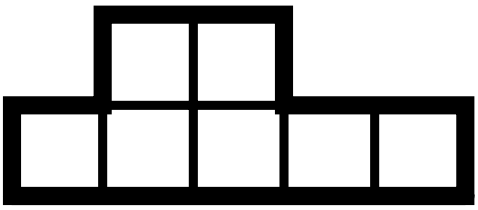
For each of the six following polyominos, use only that shape to create a rectangle. Draw your answers on graph paper to turn them in. You have been given a pair of scissors; it might be easier to see solutions if you cut similar shapes out of graph paper. Mirror images are allowed: you may flip the tiles over.

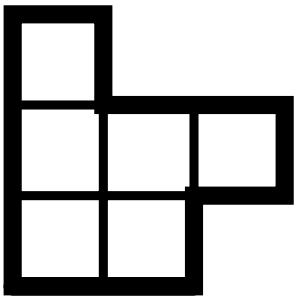
Example: if you were to create a rectangle out of the following shape, it might be done thusly:

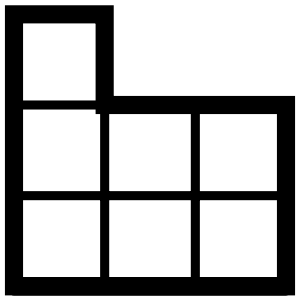


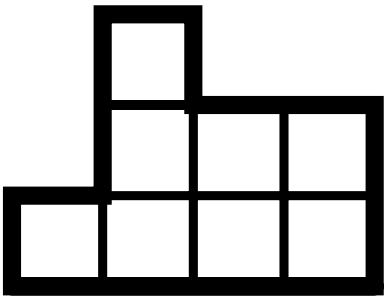












SCORING: 70 x 2^N, where N is the number of solved shapes.

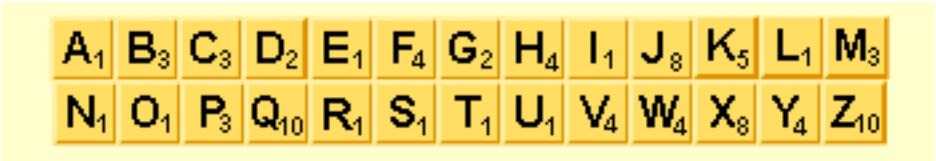
Team: _____

10. SCRAMBBLE

Insert a different letter of the alphabet into each of the following words and rearrange the letters to form a brand-new word.

Additionally, you may use a single "wild" letter to stand for, and assume the value of, any other letter. The "wild" may be inserted into any word like any other letter, or even in combination with another letter (the wild is the only letter that can be combined with another inserted letter). Words with the wild letter must still be valid word. The word using it, however, may not be triple-scored (see below).

LADDERS	ASSURE
CARROT	RETIES
SUMMER	NOOSED
WINTER	STEAMY
CLUSTER	JINGO



LEAST	TREAD
DETOUR	ROACH
ERECT	SOLED
MOOED	OCEANS
PIRATES	CARPETS

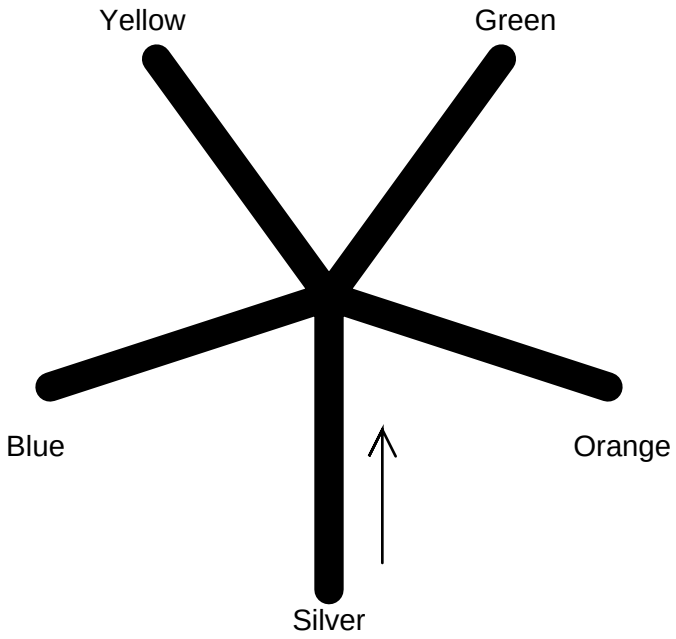
SCORING: Each new word scores 10 x S, where S is its point value in Scrabble. As a bonus, you may select one letter of the alphabet whose value is 3 or less, and one whose value is 4 or more. The two words that use those chosen letters will have their score tripled. (Mark those two words clearly.)

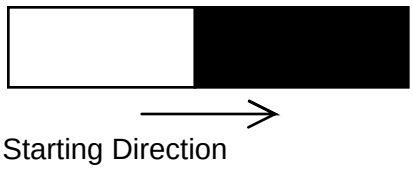
Team: _____

11. GEOMAGNETIC PERSONALITY

Among your props is a bag of blue magnetic rods and metal spheres, called 'Geomags'. Using these, construct a regular icosahedron, which is a twenty-sided figure with triangular faces. A twenty-sided die is included as reference, and there will also be an example copy available at the referee station built of these geomags. Then, trace a path along the rods and spheres, starting from the green rod that is half-painted black (the starting direction is towards the colored end), and finishing at the green rod. Your path must end at the green rod for credit. You have 30 rods (including the start and end), and 12 spheres of different colors: 2 orange, 2 blue, 2 silver, 3 green, and 3 yellow.

As you traverse the path from start to finish, the color of each sphere you move to determines which rod to go to next. If you come to a green sphere, make a gentle right. If you come to an orange sphere, make a hard right. If you come to a yellow sphere, make a gentle left. If you come to a blue sphere, make a hard left. If you arrive at a silver sphere, turn around and go back the way you came. See the diagram for reference; the arrow indicates the direction you are coming from.





SCORING: 75 x N, where N is the number of times you move over a bar. Count each time you move over a bar: if you move over a bar, hit a silver sphere, and then return over that bar, it counts as two.