By Jonah Ostroff

This is a gallery of things you can do in Google Sheets that are helpful for puzzle hunts.

The first few tabs (in **gray**) contain practical advice that you can implement without too much practice.

The later **orange** tabs contain advanced examples. Don't feel like you have to learn how to reproduce them! Instead, the examples are meant to show what's possible.

If you're solving a puzzle and feel like some Sheets wizardry would make it easier, there's probably someone around who will be happy to implement it. Just ask!

Want your own version of this sheet to mess with? Choose File -> Make a copy.

Date	Change
11/4/2023	Added `VIGENERE`, `SUBTRACT_LETTERS`, `ALTERNATING_LETTERS`, and `BINARY_WOF` to Named Functions.
1/8/2024	Added a changelog.
	Added `COUNT_ONLY` to Named Functions.

General tips/conventions

Put answers (to clues, puzzles, etc.) in a monospace font like `Courier New` or `Consolas` so it's easier to notice things about their lengths.

Capitalize clue answers you're pretty sure about. Put them in lowercase (perhaps with a "?") if you're not at all confident.

Use formulas to avoid errors in indexing. MID() and (sometimes) REGEXREPLACE() are the main tools you need here.

If you have a hunch you want to explore, make (and name!) a new column in the sheet to try it out so other people can see what you're doing.

  Or, if it's complicated to implement, duplicate the tab and try it on your own. Name it something like "[Your name]'s sheet".

Setting up a puzzle

If your text is awkward to copy directly into a sheet (this happens a lot when copying from PDFs), paste it in a text editor first to clean it up.

Consider using **View -> Freeze** if you have some rows or columns that should remain visible as you scroll.

Sometimes it's easier to insert an image from the puzzle instead of trying to duplicate it exactly.

Once you've set up your sheet, **check the original puzzle again to see if there's anything you haven't copied!**

Lists of things

Got a big table that you're not sure how to extract from? Use **Data -> Create a filter** to put it in a filter.

  This makes it much easier to resort it as you try new things.

Before you sort a list, make a column ("Orig.", say) to note its original order so you can recover it later!

If you decide that a column isn't useful, hide it instead of deleting it in case you change your mind later.

When a column is based on another column, use formulas to compute it wherever possible so that your edits propagate.

If someone else has set up formulas in a table, **don't overwrite them!** Please check that a cell is actually empty before you type in it.

  Similarly, if you set up a formula in a table, make it hard to overwrite! Either change the formatting to indicate that it's special, or use **Data -> Protected sheets and ranges** to protect it.

  If you have notes about some items in a list, put them in a new column so it's easier to track (and so they don't get lost when the list is sorted).

If you'd like to mark items in your list as used, it's often easier to use checkboxes or (where appropriate) conditional formatting instead of manual highlighting.

Checkboxes   ☐

To make a checkbox, choose **Insert -> Checkbox**.

Checkboxes are interpreted as true or false based on whether they're checked, so it's easy to use them in formulas.

For example, the contents of the cell below change depending on whether the box is checked:

The box is unchecked.

And this text box uses conditional formatting to turn green when the box is checked.

To see how that works, select the above cell and choose **Format -> Conditional Formatting**.

Crossword puzzles

Make two grids: one for letters, and one for numbers.

Use conditional formatting to shade a cell in the number grid whenever the corresponding cell in the letter grid is filled.

Use lowercase letters for answers/letters you're not sure about.

Logic puzzles

There are lots of ways you can use conditional formatting to make logic puzzles smoother in sheets (see "Some logic puzzles").

However, if it's a standard genre or can easily be represented as one, consider using puzz.link instead.

  Find the genre on https://puzz.link/list.html, set up your puzzle, then use **File -> Network Play** to generate a coop link to share with your team.

Helpful Shortcuts

ctrl+shift+V	Pastes values only (good for copying from webpages, or for pasting without disrupting conditional formatting)
ctrl+alt+V	Paste *formatting* only (without altering cell contents)
alt+shift+1,2,3,4	Places a border on the top, right, bottom, or left of a cell (respectively)
alt+shift+6	Removes borders from a cell
alt+shift+7	Adds all borders around a cell (or block of cells)
ctrl+Y	"Redo", but if you haven't undone anything it'll repeat your most recent action in the current cell. Good for highlighting lots of things.

Helpful Sheets Formulas

`LEN(S)`	Returns the length of S
`MID(S,n,m)`	Returns the substring of S of length m starting at the nth position. Useful for indexing.
`SUBSTITUTE(S,R,T)`	Returns the string S, but with every substring R replaced by the string T.
`REGEXREPLACE(S,R,T)`	Returns the string S, but with every substring matching regular expression R replaced by the string T.
	See the Intro to REGEXREPLACE tab for specific uses.
`CONCATENATE([list])`	Concatenates all of the things in [list]. (Don't use CONCAT().)
`IF(P,A,B)`	Returns A if P is true, B if P is false
`UPPER(S)`	Returns S, but with all lowercase letters capitalized
`COUNTIF(R,S)`	Returns the number of cells in range R that match S
`CHAR(N)`	Returns the symbol whose ASCII code is N. Note: A=65, so add 64 to go from 1-26 to A-Z.
`CODE(X)`	Returns the ASCII code of the letter X. Often useful combined with CHAR above.
`MOD(n,m)`	Returns n mod m. So =CHAR(MOD(CODE("A")-65+n,26)+65) will Caesar shift A by n.
`ISBLANK(C)`	Returns TRUE iff cell C is blank. (Mostly useful for conditional formatting.) Can also use A1<>"" to test if A1 is the empty string.
`VLOOKUP(), INDEX(), MATCH()`	Okay these are complicated, but generally useful for looking up cells in one place and copying them to another.
`ARRAYFORMULA()`	Also pretty complicated, good for applying a rule to every letter of a string.

Having trouble with a formula? Google Sheets will display the correct syntax as you enter it, and you can click Learn more to see more details.

When solving cryptic clues, it's helpful to indicate in your answers how the wordplay works. This makes it easier for others to check your work.

Feel free to use your own convention if you think it will be clear! This is just a suggested set of indicators.

This notation has the nice side effect that the letters in the final answer are exactly the capital letters. This makes it easier to index, find lengths, etc.

Notation	Mechanic	Answer	Clue	Source
+	Concatenation	YEN+T+A	36 Long time a blabbermouth (5)	*Silk, Send Off Copies*
*	Anagram	MILE*	43 More than 5,000 feet squashed lime (4)	*Trazom, Baker's Dozen Theme and Variations*
( )	Grouping, insertion	T(RU)EST	10. Most accurate experiment involving ruthenium (6)	*Listener 4533, Telling Lies*
<	Reversal	EMIT<	40 Throw out newsmagazine retrospective	*Qaqaq, Matchmaker*
-	Subtraction	S(-h)AKE	36. Firm deal closer rejects hot sushi accompaniment	*Tinhorn, Plainly In The Maine*
WORD	Hidden word	_RA VIOLI_	21 Italian eats extra violin string	*Halpin, Do I Hear a Waltz?*
X_	First letter, etc.	FIR_	1. Douglas, e.g., opening letters from firstborn	*Bartók, Concerto For Orchestra*
(ddef)	Double definition	SALE (ddef)	18 Trade for Red Sox pitcher Chris (4)	*Tortoise, Dropping The Ball*
->	Replacement	POO(h->R)	5. Beggarly husband of Piglet's chum becomes red	*Ucaoimhu, The Second City*
("word")	Homophone	BELLE ("bell")	34 Beautiful girl sounding alarm	*Trazom, The Four Seasons*
(abbr.)	Other clue type	EDD (inits)	8 Announcer Hall initially emulates Dr. Demento	*Jangler, Rise to Power*
//	Ambiguity	TH_+OUGH(-_t) // TH_+O+R	24. But half of them ought to strike right character of "might"	*Ucaoimhu, Full House*
[[ ]]	Puzzle-specific gimmick (e.g. extra letter from wordplay)	S[[m]]LAB<	7. Back ointments put on thickly	*Harth, Party!*

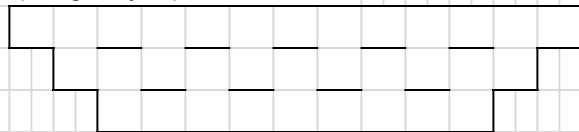Need a hex grid? Just make tiny cells and merge them.
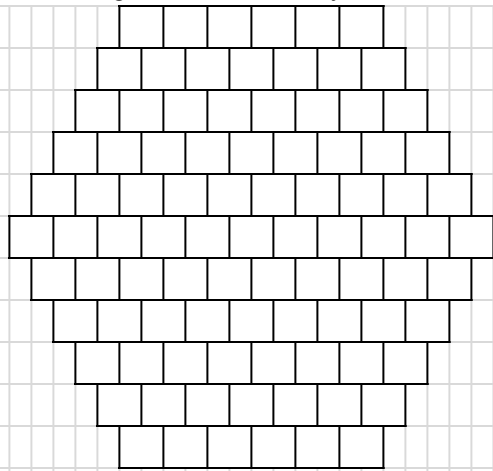
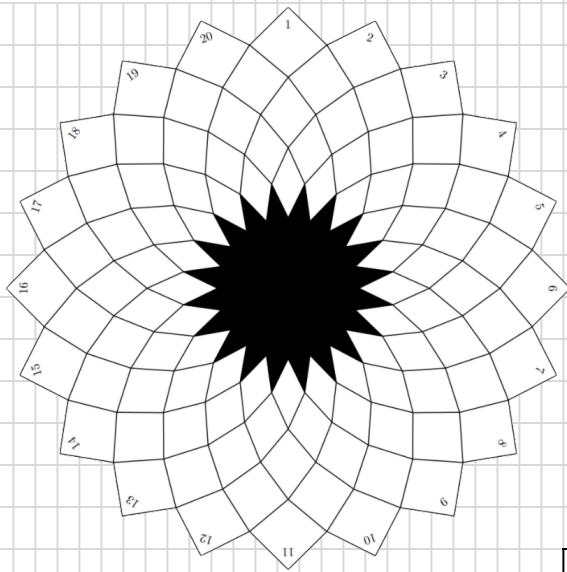Triangular grids are harder. Try using internal borders.
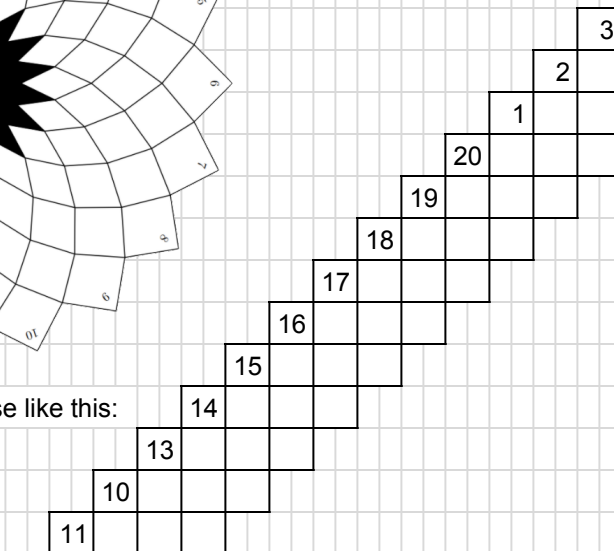
For example, this grid:
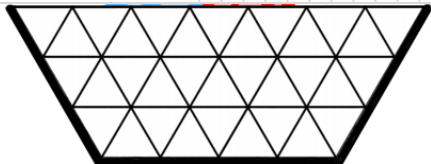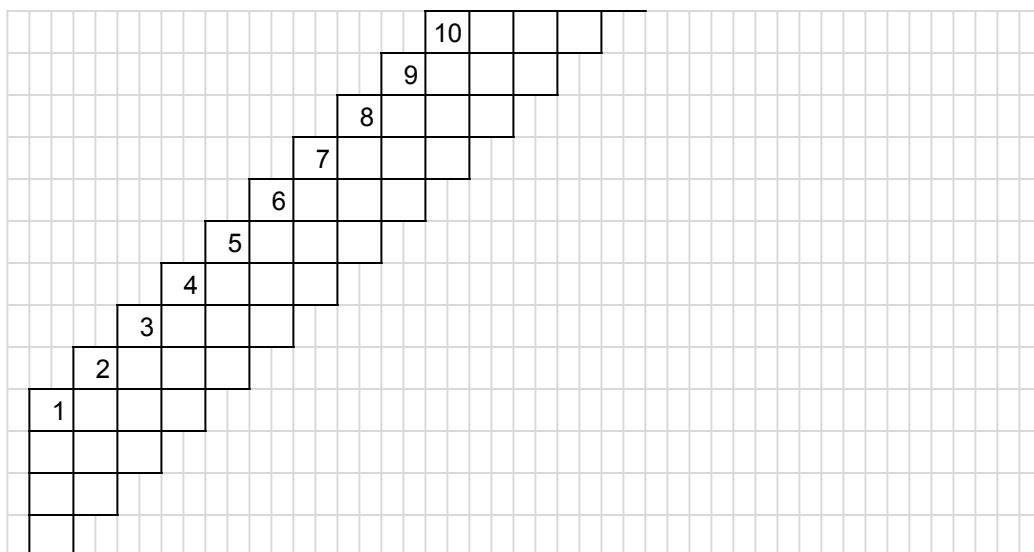
is topologically equivalent to this:

Petal puzzles like this...

can be "unwrapped" onto a staircase like this:

Clockwise clues read across,

counterclockwise clues read down.

Here are some things you can do with REGEXREPLACE.

This isn't as scary as it looks!

You don't need to learn the entirety of regular expression syntax.

99% of the time you'll just be using [,], and ^.

Short summary: a regular expression is a shorthand notation for strings that follow a particular pattern.

The regular expression [ABC][DEF] means "any two-letter string whose first letter is A, B, or C,

and whose second letter is D, E, or F". Strings like AD, BE, and BF would be said to "match" that regular expression.

[^AB] means "any character that's *not* A or B".

With REGEXREPLACE, we can find all of the substrings in a cell that match a pattern, and replace them with something else.

Example 1: answer cleaning

| A string: | Pack my box with five dozen liquor jugs. |
| Cleaned up: | PACKMYBOXWITHFIVEDOZENLIQUORJUGS |

What happened here? First, we used UPPER() to make all of the lowercase letters capital.

Then, REGEXREPLACE got rid of everything that wasn't a capital letter.

Specifically, "[^A-Z]" means "any single character that isn't a letter between A and Z".

Our REGEXREPLACE function removed all characters of that type, leaving behind just the letters.

(If you're just removing spaces, SUBSTITUTE also works for this. Use REGEXREPLACE if there are punctuation marks, etc.)

Example 2: indexing

A string:	Pack my box with five dozen liquor jugs.
An index:	17
Indexed letter:	E

Here we cleaned up the answer (just like before), then passed it into MID().

MID(string,index,1) then returned 1 character starting at the index-th position of string.

The cleaning step is important! Otherwise your index will include spaces, punctuation, etc.

Example 3: deleting

An almost-pangram:	Pack my box with four dozen liquor jugs.
The alphabet:	ABCDEFGHIJKLMNOPQRSTUVWXYZ
The missing letter:	V

This time, we used the almost-pangram as part of the regular expression!

The regular expression "[PACK MY BOX WITH FOUR DOZEN LIQUOR JUGS.]" matches any letter in that sentence.

Then we deleted all of those letters from the alphabet, and only V was left.

Note the symbol "&" concatenated the strings "[", "PACK MY BOX WITH FOUR DOZEN LIQUOR JUGS.", and "]".

Source: https://crumspuzzlehunt.com/puzzles/6

To set up a Diagramless crossword, make two grids: one to fill with letters, and one to keep track of numbers.

In this setup, entering "." in the top grid creates a black square in both grids, and entering a letter in the top grid makes the corresponding bottom grid cell turn green.

One tricky thing about Diagramless puzzles is that you might not know how big the grid should be!

Fortunately, **insert cells** should more or less keep this conditional formatting intact.

How to set up the formatting: In the top grid, you just want "**Text is exactly: .**"

| W | O | R | D | ■ | | | ■ | | | ■ | |

For the bottom grid: The conditional formatting =B6=" . " checks if the corresponding cell in the upper grid is equal to ".". Why B6? Because for the top-left cell in the bottom grid, we want to compare it to B6. The other cells will look at the corresponding relative position. Likewise, =B6<>"" checks whether the corresponding cell is not equal to the empty string, in which case we shade it green.

| 1 | 2 | 3 | 4 | ■ | 5 | 6 | 7 | ■ | 8 | 9 | 10 | 11 | ■ | 12 | 13 |

Answer	Across:	Answer	Down:	Answer	Bonds:
	1. *		1. Duly		– Alternative rock band
	4. IASIP rating		2. DOGE alternative		– Downside
	8. Wash achieved with pumice stones		3. Stimulated, as an appetite		– Fit together
	12. Christian sin and Buddhist hindrance		4. Distinguishing characteristic		– Flip-flop
	14. Muddy the waters		5. 6m circle used in dressage		– Gaze
	15. 1-2-3 of music theory		6. 1/10 of a Maltese cent		– Home run
	18. Pacify		7. Grad, when gender is not given		– Inhabit
	19. Cone-shaped sediment deposits caused by streams (2 wds)		8. Inventors of the shower shoe		– Marine exoskeleton
	22. Tessellate		9. Glide to a halt		– Mined currency
	23. Type of person to have an O-level in camel hygiene		10. Former non-gaming Twitch category		– Patron Saint
	25. Pharmaceuticals, slangily		11. Fly in the face of		– Plantation
	26. *		12. Gathering of snobs		– Promenades
	27. *		13. Hang listlessly		– Sculpting clay
	28. British gallery founder		16. Former Chairman		– Seasonal menu items
	29. Muscles below the delts		17. Memo header		– Well-trained ECHL team?
	31. Fish known for its slipperiness		18. Tropical or Desert, perhaps		– Woolen fabric
	33. Turning point in a palindrome about Napoleon		20. South African prairie		– Young men
	34. Tent anchor		21. Core ingredients in shish kabob		– ?
	35. Best-selling Nintendo handheld		24. Move like a tail or a finger		
	36. Gross river in New Crobuzon		27. Leprechaun-sized		
	39. Royal pronoun		30. Namesake of Stoicism		
	40. Pok´emon game featuring Rayquaza		32. Leave alone (2 wds)		
	43. A short workout, perhaps		34. Richard III or Henry V		
	45. Where you may get into hot water?		37. Giant with a posse		
	46. Literally, literally		38. Echo		
	47. Galloper in the Long Patrol		41. Online newsfeed		
	50. Purveyor of cups and pieces		42. Mimic		
	51. Wrath		44. Colors, Elder Scrolls character		
	52. EMT drop-off sites		47. Napoleon's older brother		
	53. Professional prefix		48. We're in the common one		
	55. Overdue, as taxes		49. Repots a plant		
	58. Fantasy creature sometimes synonymous with goblin		54. Turkish peak		
	60. Pull a leg or a fast one		56. Training grounds of Anthony Bourdain or Anderson Cooper		
	61. What poor Yorick might set a table on (2 wds)		57. Forest Whitaker role		
	63. Aloe Blacc needs one		59. MTV show about celebrity houses		
	66. Array		61. Middle Eastern city built on seven hills		
	68. Ornamental pond fish often known by its German name		62. Chong of Choose Me		
	69. Range home to the world's largest open-pit iron mine		63. Buys the farm		
	70. Complex adjective?		64. Primes, typically		
	74. Short TV spot		65. Hawaiian wreath		
	75. Frisky gov. agency?		67. The oldest of China's historic capitals		
	76. What may come after a Main or before a martyr?		70. He may be Innamorato or Furioso		
	78. Logic gates more likely to return true		71. Stalks		
	79. Bone which may be true or false		72. Party divider		
	80. Catch a crook		73. Matthew Bonifacio film		
	82. Kimchi cabbage		76. Cologne quantity		
	84. Well, this one's a gimme		77. Part of a puppy used to make a little boy		
	86. *		78. Ancient		
	88. *		81. One with no manners		
	91. One of the Everdeens		83. Separate		
	93. Verdi opera		84. Gives four balls to		
	94. Bay		85. Letters for a farmer		
	95. 1978 album by The Residents		86. Mechanically, the opposite of a ladder		
	98. Single, double, triple, e.g.		87. Product designed to be skipped over?		
	100. Comeback		89. Hwy		
	101. Norse trickster		90. Numbers in a set or base		
	102. They're eaten to break sawm		92. Country with the choice of a 3% or 30% tax rate		
	103. 1998 film with animated insects		96. German model of a Dutch van?		
	104. facto		97. What a little bunny might do to a field mouse		
	105. *		99. Color to complement black		

In September 2022, Google added Named Functions! Here are some that are useful for puzzles.

You can copy these into your own solving sheet by choosing **Data -> Named functions -> Import function**, and then choosing this file.

(Thanks to Soni and Level 51 for writing some of these formulas!)

Common puzzly one-cell formulas

Name	Explanation	Example input		Example output	
ANSWERIZE	Capitalizes and removes non-alphanumeric characters.	This Input is 2 Messy :(		THISINPUTIS2MESSY	
INDEX_INTO	Indexes into a string, ignoring non-alphanumeric characters.	Index into me!	5	X	
INDEX_INTO_SENTENCE	Indexes into a sentence (by words), delimited by spaces.	No, index into me instead!	5	instead!	
ALPHABETIZE	Alphabetizes the letters in a string.	Goths		GHOST	
REVERSE	Reverses a string.	Desserts		stresseD	
CAESAR	Caesar-shifts a string.	Nowhere	13	Abjurer	
CYCLE_STRING	Moves some letters from a string to the end.	Respect	2	spectRe	
EIGENLETTER	Given two strings, finds matching letters in matching positions.	COMPILE	FORMULA	OL	
LETTER_BANK	Lists all unique letters in a string in alphabetical order.	TOMTOMS		MOST	
MISSING_LETTERS	Lists letters missing from a string.	The quick brown ox jumps over the lazy dog.		F	
ENUMERATE	Converts a string to an enumeration (like those in a cryptic clue).	Wouldn't it be cool if this was an enumeration?		6'1 2 2 4 2 4 3 2 11?	
	Note: this also works on _s, e.g.:	____ ____ ___ __ __' ____ ____ ___ __ ____		5 5 4 3 2, 5 5 3 3 4	
NGRAMS	Breaks a string into segments of a given length.	Split this up.	4	SPLI TTHI SUP	
NGRAMS_ALL	Shows all substrings of a string of a given length.	This too!	4	THIS HIST ISTO STOO	
SUBTRACT_LETTERS	Subtracts letters in the second string from letters in the first string (with multiplicity).	ERADICATED	AACDEET	RID	
VIGENERE	Encrypts or decrypts the first string, using a Vigenère cipher with the second string as the key.	ENCRYPTME	OKAY	SXCPMZTKS	(Third parameter is 1)
	(Use 1 or -1 in the third parameter to encrypt or decrypt.)	ROJJAQKKDRKWXOKWTRQKPOGOT	PASSWORD	CORRECTHORSEBATTERYSTAPLE	(Third parameter is -1)
ALTERNATING_LETTERS	Reads letters in a string, starting at a given point and skipping by a given amount.	Auto show is broadcast	3	THIRDS	(Third parameter is 3)
		On DVD	1	ODD	(Third parameter is 2)
		New Vienna	2	EVEN	(Third parameter is 2)
COUNT_ONLY	Counts the number of instances of letters from the second string within the first string.	This pangram contains four As, one B, two Cs, one D, thirty Es, six Fs, five Gs, seven Hs, eleven Is, one J, one K, two Ls, two Ms, eighteen Ns, fifteen Os, two Ps, one Q, five Rs, twenty-seven Ss, eighteen Ts, two Us, seven Vs, eight Ws, two Xs, three Ys, & one Z.	S	27	
		ACCORDINGTOALLKNOWNLAWSOFAV	AEIOU	14378	

Formulas for codes and data sets

Name	Explanation	Example input		Example output	
A1Z26	Converts letters to numbers...		J	10	
	...or vice versa!		15	O	
BRAILLE	Converts letters to Braille Unicode.	Braille this		⠠⠃⠗⠁⠊⠇⠇⠑⠀⠞⠓⠊⠎	
MORSE_TO	Converts characters to Morse code.	Morse me, please!		-- --- .-. ... . / -- . --..-- / .--. .-.. . .- ... . -.- ..	
MORSE_FROM	Converts Morse code to normal characters.	.-- .- .. - --..-- / .--. ..- - / -- . / -... .- -.-. -.- -.-.--		WAIT, PUT ME BACK!	
PERIODIC	Converts atomic numbers to chemical symbols.	6 13 3 7 77 8 7		C Al Li N Ir O N	
ATOMIC	Converts chemical symbols (separated by spaces) to atomic numbers.	W H At		74 1 85	
SCRABBLE	Computes Scrabble score.	AMNESTY SCOOTER		21	
COUNTRY_FLAG	Given a 2-letter country code, outputs its flag.	KG			
COUNTRY_MAP	Given a 2-letter country code, outputs its silhouette.	NZ			

Array Functions *(these take arrays as inputs or outputs, so they need a little more room.)*

Name	Explanation	Example	Output						
SPLIT_INTO_CELLS	Splits a string into cells horizontally, one character per cell.	Split this	S	p	l	i	t	t	h	i	s
DIAGONAL_LETTERS	Diagonalizes an array of words (taking the nth letter of the nth word).	Table below:	HELLO						
		Hungary							
		Benin							
		Moldova							
		Iceland							
		Sao Tome							
WOF	Creates a Nutrimatic string from a (possibly incomplete) table of letters. Multiple letters are treated as separate possibilities.	Table below:	g[aeiou]_[gh]l[def]						
		G							
		AEIOU							
		GH							
		L							
		DEF							

SORT_BY_LENGTH	Sorts an array of strings by (ANSWERIZED) length.	Input:	Output:
		PENNY	DIME
		NICKEL	PENNY
		DIME	NICKEL
		QUARTER	QUARTER

NUMBERED_GRID — Input two grids, the second of which contains numbers. Outputs a table of those numbers and the corresponding contents from the first grid. See table and output to the right.

Inputs:

A	B	C
D	E	F
G	H	I

2		1
	4	
3		

Output:

1	C
2	A
3	G
4	E

Another use case:

G	O	O	G	L	E
				3	
				2	

Output:

1	U
2	
3	E
4	R

In this case, the two "grids" are overlapping! →

P	U	Z	Z	L	E
1					

T	R	I	C	K	S
4					

CYCLIC_ORDER

Sorts a table of data (with two columns denoting consecutive entries) into a cyclical order.

Technical notes:
- **From** should be filled.
- It's ok to have gaps in **To**.
- Outputs pieces if **To** has gaps.
- Breaks if the data contains >1 loop.

(Note: because we're missing 3 **To**s, the output is in three pieces.)

Country	Capital	Next in list
Armenia	Yerevan	
Burkina Faso	Ouagadougou	Fiji
Canada	Ottawa	Armenia
Djibouti	Djibouti	Gabon
Estonia	Tallinn	
Fiji	Suva	Estonia
Gabon	Libreville	Hungary
Hungary	Budapest	

Output:

Country	Capital	Next in list
Burkina Faso	Ouagadougou	Fiji
Fiji	Suva	Estonia
Estonia	Tallinn	
Canada	Ottawa	Armenia
Armenia	Yerevan	
Djibouti	Djibouti	Gabon
Gabon	Libreville	Hungary
Hungary	Budapest	

CROSSWORD_LIST

Input a crossword-like grid of letters, output a list of all words in that grid of length 2 or more.

See table and output to the right.

Input:

P				S		
O	W	O		A	H	A
G	O	O	G	L	E	
	W	H	I	L	E	
Z		T		T		
A			U	S		

Output:

OWO	(This lists all the acrosses in reading
AHA	order, then all the downs in transposed
GOOGLE	reading order. So not quite the same as
WHILE	how crossword ordering works.)
US	
POG	
WOWZA	
OOH	
GIT	
ALL	
SHEETS	

MAKE_CROSSWORD

Given a grid of numbers and lists of across & down numbers and words (some of which may be empty), generates a crossword grid.

See example to the right.

Some notes:
- If there's a conflict between across and down entries, the two possibilities are separated by /.
- You can make rebus squares by surrounding groups of letters with [].
- Emoji are represented as two characters in Google sheets, so you'll need to put them in []s.
- The formula only creates letters. Bars and black squares must be copied separately with CTRL+ALT+V.
- You can make a diagramless this way! Just add the numbers as you go, and the letters will fill in.
- Currently times out at medium-size grids.

Source: https://www.7xwords.com/daily/02/02-02.html

Across

#		clue
1	[BL]OB	Dollop
4		Some printers and computers, briefly
7		Plata's partner
8	PARSLEY	Key herb for pasta sauce
10		Humble pie?
11		Japanese food that the English dub of Pokémon localized as "jelly donuts"
12		Neat drinks lack this
13	EYE	Tuber protuberance
14	LES	"___ Misérables"

Output:

Down

#		clue
1		Guard who wears shin guards
2		Stubborn as a mule
3		Itty bitty baby sock
4		Necessity for cooking beignets
5	PRANCE	Move about like a particular reindeer
6		"Ramy" or "The Queen's Gambit", for example
9		"I bid thee farewell", online

COMPONENT_COUNT

Counts the number of orthogonally connected components in a grid whose cells match a particular string.

See example to the right.

(Mainly useful for shading logic puzzles.)

Input:

A	A	A	A	A	A
A	B	B	B	C	C
A	C	C	C	C	B
B	A	C	A	C	B
B	A	C	C	C	B
B	B	A	A	B	B

Outputs:

A	4
B	3
C	1
D	0

ALPHABET

Prints the alphabet as one column.

Usage is just =ALPHABET() but I don't feel like fitting it on this page.

SHARPEN

The opposite of FLATTEN(). Reshapes a range to use the given number of columns.

See examples to the right.

Input:	Output (3 columns):			Input:	Output (4 columns):			
A	A	B	C	A	B	A	B	C	D
B	D	E	F	C	D	E	F	G	H
C	G	H		E	F	I	J	K	
D				G	H				
E				I	J				
F				K					
G									
H				↑ This still works if the input has multiple columns.				

CAESAR_ALL

Returns all possible Caesar shifts of a string

See example to the right.
I've SHARPENed it to take up less space.

Input:	Output (6 columns):					
BN	BN	CO	DP	EQ	FR	GS
	HT	IU	JV	KW	LX	MY
	NZ	OA	PB	QC	RD	SE
	TF	UG	VH	WI	XJ	YK
	ZL	AM				

BINARY_WOF

Returns all possible letters whose 5-bit binary form could match a given 5-cell array, treating blank cells as unknowns.

See four examples to the right.

Input:					Output:
0		0	1		BCJK
		1		1	IKMOY
1	0	1		0	TV
1		0	1		RSZ

Want to perform some operation on all the letters of a string? Meet `ARRAYFORMULA`, the horrifying command who can do that for you! It can...

...Caesar shift:

			Letter	Morse
			A	•–
Some word:	PRIMERO		B	–•••
Some Caesar shift:	3		C	–•–•
The result:	SULPHUR		D	–••
			E	•
...convert letters using a lookup table:			F	••–•
			G	––•
Some word:	MOOT		H	••••
That word in Morse:	–– ––– ––– –		I	••
Another word:	HISSES		J	•–––
The other word in Morse:	•••• •• ••• ••• • •••		K	–•–
Okay one more time:	EXAMPLE		L	•–••
In Morse:	• –••– •– –– •––• •–•• •		M	––
			N	–•
...find letters where two words agree:			O	–––
			P	•––•
First word:	HELLO		Q	––•–
Second word:	WORLD		R	•–•
Common letters:	L		S	•••
			T	–
...reverse a string:			U	••–
			V	•••–
Some word:	REVILED		W	•––
That word, reversed:	DELIVER		X	–••–
			Y	–•––
...sort the letters in a string:			Z	––••
A word:	BESIEGING			
Sorted:	BEEGGIINS			
Sorted without repeats:	BEGINS			

You know those puzzles where you have two lists of clues, or maybe one list of clues and another list of things they should match?

Formulas and conditional formatting can make it significantly easier to keep track of which items you've paired, or whether your matches actually work.

For example, in this puzzle you can type your answer in column C, and automatically see whether its digits (as written on a phone) match something in the bank.

(By Tiralmo, who made this when I complained that all the examples I could think of would spoil an existing hunt puzzle.)

Clue	Answer	Digits	Bank	Lookup table	
Awaken			276873	A	2
Impotent	UNABLE	862253	346948	B	2
Showed surprise			427733	C	2
Idiot	DUMMY	38669	727437	D	3
Sword			752837	E	3
Hawk, e.g.	FALCON	325266	862253	F	3
				G	4
				H	4
				I	4
				J	5
				K	5
				L	5
				M	6
				N	6
				O	6
				P	7
				Q	7
				R	7
				S	7
				T	8
				U	8
				V	8
				W	9
				X	9
				Y	9
				Z	9

Source:

Bigram finder:

A B (enter two letters to highlight all places in the grid where they're adjacent)

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

A sudoku. Source:

You can use conditional formatting to...

...automatically highlight errors.

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

A battleship. Source:

...color-code cells,

...highlight easy deductions,

...and keep track of ships.
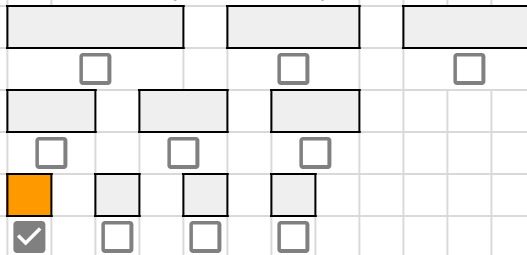
A star battle. Source:

...automatically shade cells around a star

An akari. Source:
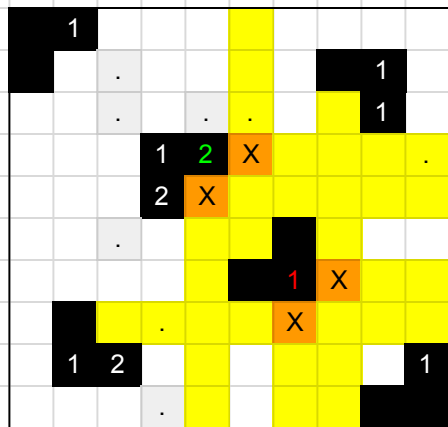
...automatically indicate illuminated cells,

...highlight satisfied clues,

...and highlight broken clues.

It's also good for highlighting
letters in an extraction grid.

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

Here's a conditional formatting-enhanced dropquote. This can be useful for larger puzzles.

C		A		A		C	E		A
F		E		I	I	D	I	L	E	L
L	O	F	D	N	T	I	O	N	G	O	I
O	O	N	M	P	T	T	R	N	P	Q	O
S	T	R	O	R	U	Z	Z	O	T	S	U
C	O	N	D	I	T	I	O	N	A	L

N O P E

You know, those crosswords where all the clues are split in half, and the grid numbers tell you the sums of the clue numbers?

Here's how VLOOKUP and conditional formatting can make it easier.

Source: https://www.nytimes.com/premium/xword/Sep0411.2.pdf

Enter numbers here to copy the fragments over ⤵ (Sums turn red if they're not satisfied.)

Use the filter to move used clues to the bottom.
(Don't hide them, or you'll hide rows from crossword grid too!)

Sum	#1	#2	Clue	Answer
9	6	3	Disney Deer	BAMBI
14	9	5	Sin Of party for men	
22	13	14	College whose name is an anagram of Dream	MADRE
25			? ?	
33			? ?	
39			? ?	
45			? ?	
47			? ?	
50			? ?	
59			? ?	
61			? ?	
63			? ?	
64			? ?	
65			? ?	
66			? ?	
69			? ?	
74			? ?	
75			? ?	
76			? ?	
78			? ?	
80			? ?	
81			? ?	
84			? ?	
86			? ?	
87			? ?	
93			? ?	
95			? ?	
98			? ?	
100			? ?	
105			? ?	
110			? ?	
125			? ?	
126			? ?	
128			? ?	
130			? ?	
133			? ?	
137			? ?	
139			? ?	
146			? ?	
154			? ?	
155			? ?	
159			? ?	
161			? ?	
170			? ?	

Number grid shades in as you fill out the upper grid:

84	137	95	25	69	64	170	81	45
14				128				
125		66			110			
100		50		155	87		59	
61	76	154		75	159	98		
33	86							
47		130	63		78		93	
74	22	161	139		80		133	
146			65			9		
126		105		39				

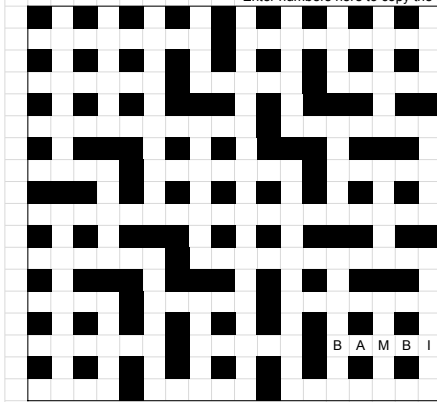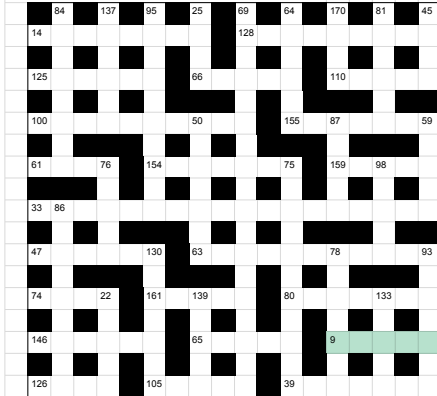| Used	#	Fragment
0	1	Common order of
0	2	With needles
1	3	Deer
0	4	Animal
1	5	Of party for men
1	6	Disney
0	7	Out of marble
0	8	Basketball
1	9	Sin
0	10	With a good memory
0	11	Block from a
0	12	"Moving right"
1	13	College whose name is an anagram of
1	14	Dream
0	15	Person who
0	16	Henry
0	17	Distinctive feature of
0	18	Recall
0	19	Speaker with a famous
0	20	Kind
0	21	Roses or doughnuts
0	22	Rudolph
0	23	In fiction
0	24	Musical
0	25	Unusually
0	26	Lettuce but not carrots
0	27	Music maker
0	28	Subway
0	29	Fight
0	30	Trellis
0	31	Florida
0	32	Little
0	33	Person with a
0	34	Number
0	35	College athlete
0	36	A deadly
0	37	That holds a bag
0	38	Fine
0	39	Freezer tray
0	40	Cut
0	41	Sheepskin
0	42	At the bottom of a column
0	43	VIII, for one
0	44	Drinking vessel
0	45	About dogs
0	46	Occasion for a
0	47	Rider
0	48	Abbr. that may appear after a
0	49	Preaches
0	50	Noted writer of fiction
0	51	Perfect
0	52	Duck
0	53	Word that may follow
0	54	School parade
0	55	Crane
0	56	Neat, as a
0	57	Show to be false or
0	58	Wooden
0	59	Time to collect
0	60	Low digit
0	61	Gun
0	62	Instrument with a bellows
0	63	Pattern
0	64	In an Italian city
0	65	Ivory
0	66	Record
0	67	Hamster
0	68	Push out of bed?
0	69	Candy
0	70	Protective covering for a
0	71	Church
0	72	Film hero with a machine
0	73	It's white and makes
0	74	Coast neighbor
0	75	Of an airplane
0	76	Play executed in mid-air
0	77	Under par
0	78	Quotation

In the upper crossword grid, the filled letters spell: B A M B I

0	79	Like	
0	80	Front part	
0	81	Tree with cones?	
0	82	Square	
0	83	Who shares a name with a car	
0	84	Score of two	
0	85	Plants	
0	86	Rain	
0	87	President	
0	88	Players	

Wanna see another setup? There's a hidden sheet using INDEX and MATCH instead of FILTER.

Acrostics are always *kind* of a pain to set up in Sheets, but here's one way to do it:

1	2	3	#	4	5	6	7	8	9	10	11	12	13	14	#	15	16	#	17	#
18	19	20	21	22	#	23	24	#	25	26	27	28	29	30	#	31	32	33	#	34
35	36	37	38	#	39	40	41	42	43	44	#	45	46	47	48	49	50	51	52	53
54	55	56	57	58	59	#	60	61	#	62	63	64	65	66	67	68	#	69	70	#
71	72	73	74	75	76	77	#	78	79	#	80	#	81	82	83	84	85	86	87	88
89	90	#	91	92	93	94	95	96	97	98	99	100	101	#	102	103	104	105	106	107
#	108	109	110	111	112	113	114	#	115	116	#	117	118	119	120	121	122	123	124	#
125	126	127	#	128	129	130	#	131	132	133	134	135	136	137	138	139	#	#	#	#

Step 1: Make a grid like the above.
Put "#"s (or some other symbol) in all the black squares. We'll need them later.

Step 3: Set up the extraction grid as shown above. Here's what it's doing:
First, the IF checks whether the corresponding square in the number grid is a # sign. If so, leave this blank.
If not, take the table of letters and FLATTEN it into a long array.
Then use FILTER to only find the cell immediately below the one that matches the correct number.
Do this by comparing a FLATTENed table one row higher with the corresponding cell in the number grid.
Note: if your acrostic is the kind with cells like "A124" instead of "124",
replace Y3 *in the formula with* VALUE(RIGHT(Y3,LEN(Y3)-1)).

Step 2: Make a table where you'll put your answers, like this.

Clue											
1. Browning's Sonnet 43, e.g. (2 wds.)	124	75	13	3	28	27	52	41			
2. Dish of potatoes (2 wds.)	24	19	103	126	10	89	79	116	105	9	34
	E	X	A	M	P	L	E	W	O	R	D
3. Drink made from grapes	31	92	65	106							
4. Drink with milk and fruits	108	42	62	60	73	32	66	100			
5. Electrical appliance that makes people or things cool down	61	49	44								
6. Footwear	102	43	76	56	114						
7. Handwear	18	104	67	133	136	139					
8. Kind of fish	130	118	137	128							
9. Kind of tablet	98	25	125	91							
10. Large, printed pictures	81	115	59	111	14	48	86				
11. Official procedure or system of rules	22	53	71	51	132	45	78	119			
12. Pendant that brings fortune (2 wds.)	74	72	94	77	90	50	82	17	70	113	
13. Picture holder (2 wds.)	88	2	85	120	33	16	6	123	135	26	
14. Pocket change (2 wds.)	84	23	87	110	38	58	15	57	68	7	
15. Small bag	4	69	21	117	46						
16. Small house animals	131	83	39	30							
17. Soft paper	138	12	93	55	121	134					
18. Something the audience throws to the stage during Ig Nobel Prize Ceremony (2 wds.)	96	47	63	5	122	8	29	80	99	112	
19. The page number of a printed book	107	20	97	95	40						
20. Unisex clothing (hyph.)	11	101	35	54	37	1					
21. You write it and keep it to yourself	127	64	36	129	109						

Letter grid (partial, visible letters):
R P
X E D
E
L A O
W
M

Source: https://2019.galacticpuzzlehunt.com/puzzle/reunited.html

In a puzzle with a long list of words that must be matched or transformed, conditional formatting and formulas can make extraction faster and less error-prone.

Unhide columns F, J, and K to see what's going on.

This will spoil how the puzzle works.

Answer	Clue	Num	Answer	Clue	Enum	
CART	Helpful device for shopping	4	SENTIMENT	Tender or romantic emotion	9	
	Pirate's storage container	1	THAILAND	Country in Southeast Asia	9	← One non-spoilery feature: automatic enumeration checking.
	Test version	1		Benjamins	9	
	Currency denomination smaller than a dollar	1		Someone with a lot of property	9	
	Complete	6		Settings of many horror movie scenes	10	
	Sad	6		National pride	10	
	State also known as "the zone"	4		Type of art or architecture	10	
	Fraction of an SI base unit	3		Commonly referred to	10	
	Sage, for instance	3		Water intaking machine that eases dry skin	10	
	Spanish greeting	3		Mysterious, despite investigation	11	
	Unit of speed	6		Computer component	11	
	Opposite of dark	5		Educational grant	11	
	Longer than a yard	5		Scripting or brainwashing	11	
	Technical standard or skirt	5		Commotion	11	
	Most frequent	5		A narrow tube	9	
	International alliance	4		Oriental area of a city	9	
	Nice way to describe something small?	5		Famous ship of the Pilgrims	9	
	Prescription unit	4		Type of jelly or oil	9	
	Undecorated	3		Famous Beatle	9	
	All according to __	1		Product used to make non-Newtonian fluid	10	
	Give up	5		Contest participant	10	
	MOBA game developer	5		Pleasing or charming	10	
	Part in a movie	4		Omnipresent	10	
	Review symbol	5		Wealthfront alternative	10	
	Temporary accommodation	1		Delta accumulations	9	
	University period	5		Clear, level space, often by the seaside	9	
	__zone	6		Concern of HR departments	9	
	__ legend	3		Unspeakable villain	9	
	Word class	5		Large musical group	9	