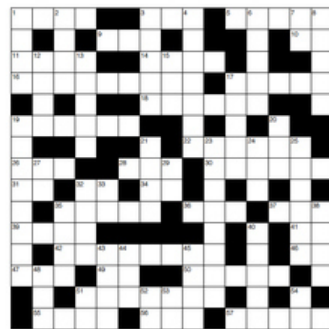




# How to Construct Crosswords & Word Searches

Created by John Park



## Adafruit

### Across

- 1 Bendable resistance sensor, or way to bulge your muscles?
- 3 \_\_\_\_ for attention
- 5 Very focused dot or beam
- 9 Arduino board with 328p chip
- 10 ~ \_\_\_\_ Or \_\_\_\_ not. There is not try." -Master Yoda
- 11 Botherome pizza mascot from the 80s and 90s
- 14 Type of rechargeable power source
- 16 Test lead clip, or dangerous reptile
- 17 Macro's opposite
- 18 Music to both ears
- 19 It makes a hot connection
- 22 These can turn on command
- 26 Accelerometer & gyroscope combined, for short
- 28 Bright electronic component
- 29 Sources of bad signals
- 31 One of Ladyada's two majors at MIT
- 32 Short unit for short
- 34 Superglue's proper name, as initials
- 35 Capacitive \_\_\_\_ sensor
- 36 It listens to you, and you can drop it to make a point
- 37 Common computer port

- 39 Flat, round battery type
  - 41 Disjunction logic gate
  - 42 Mathematician and Adafruit namesake
  - 46 Tiny state, initials.
  - 47 Test, or orbiting object for short
  - 49 Computer's net address
  - 50 Frequency measurement unit
  - 51 Lightweight microcontroller ecosystem
  - 55 Unfreeze
  - 56 Measure of resistance
  - 57 Prefix with "type"
- ### Down
- 1 GSM breakout
  - 2 \_\_\_\_ Mad Scientist
  - 3 Differences in electrical potential
  - 4 CircuitPython-ready boards, or a direct train
  - 6 The "A" in AI
  - 7 Suffix with "phys"
  - 8 Electromechanical friend
  - 12 Butter substitute
  - 13 Component that mostly conducts current one way, blocks the other
  - 15 Global system of connected devices, for short
  - 17 Line of microcontrollers, or a public transportation system

- 19 Biology, physics, and others, collectively
- 20 It may run your mobile phone or tablet
- 21 Glare "bot"
- 23 One with a technical degree
- 24 PCB routing path
- 25 Component used to detect its environment
- 27 "Moi", aux Etats-Unis
- 29 "Yes," I want!
- 32 Music for just one ear
- 33 CircuitPython editor of choice
- 35 Simple switch to measure orientation
- 38 One from the land of the Raspberry Pi, for short
- 40 Small engine
- 43 All you can see
- 44 Gov. grp. created to protect land
- 45 Short name for class about compounds
- 46 "A" in S.T.E.A.M.
- 51 Fourth note in a scale
- 52 "\_\_\_\_ be or not \_\_\_\_ be?"
- 53 Extremely rare blood group
- 54 Dept. that can fix a PC

## Adafruit

Search for these words

CE  
ODLA  
INJES  
DUNRWPD  
TOCOTVBR  
ROTRGRNEW  
GDSOFIRRX  
DINISNORQ  
SGOZZKCYL  
ELUOJNDMAB  
JRESISTORCNC  
OJBTMTJDAYUNT  
EUWTVFRAUEJY  
MZVATB LP LURJPMREHTAEFLZ  
BVDWZWB TEEU YRETTABIR  
XLADYADA IMDG INFRAREDU  
LIANURHGRAYBLUEFRUIT  
TQLK CEM IMNOZEIPK  
XZG PRLH SPQAV  
DRO ZTIJO UPEG  
TAFKZOCBRL ZLJR  
TETNEOPIXELOTVLFE  
GFSBILOCAPACITORK  
ESTWATTK PNQQOPEJ  
ACCOORVCJ FANOFQB  
ZYMDQO TLULUX  
IDE AUXEL  
MVNQ  
UCH  
YX

Ladyada	Feather	FONA	battery
NeoPixel	unicorn	DotStar	Trinket
Raspberry Pi	CircuitPython	LED	piezo
infrared	Bluefruit	ampere	capacitor
diode	frequency	ground	hertz
joule	mosfet	resistor	transistor
watt			

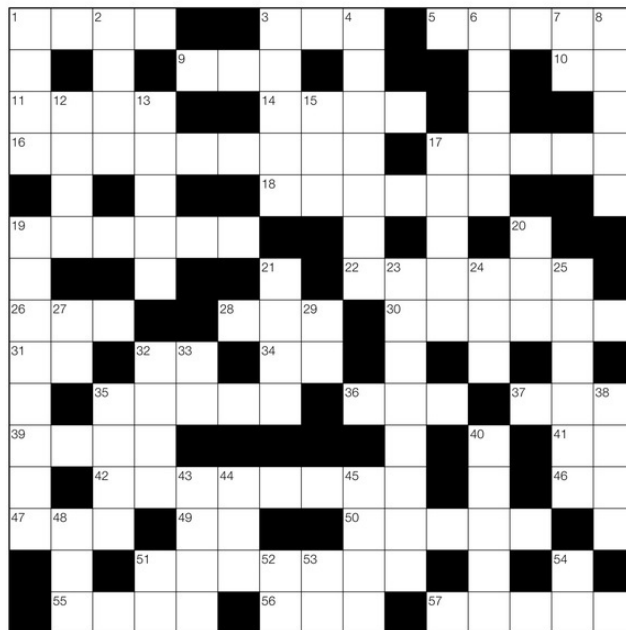
<https://learn.adafruit.com/diy-crosswords-word-searches>

Last updated on 2024-06-03 02:17:48 PM EDT

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# Overview



## Adafruit

### Across

- 1 Bendable resistance sensor, or way to bulge your muscles?
- 3 \_\_\_\_ for attention
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- 9 Arduino board with 328p chip

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- 48 "A" in S.T.E.A.M
- 51 Fourth note in a
- 52 "... be or not
- 53 Extremely rare b
- 54 Dept. that can fi

Working a crossword puzzle or word search can be a lot of fun, and educational, too. You can use word puzzles to help learn vocabulary words, as well as flex logic and visual pattern recognition skills.

If you'd like to make a custom word puzzle to share with students, classmates, friends, and family, there are lots of great tools out there to help you. With a few rules of thumb, you'll be constructing crosswords and word searches in no time.

## Online Tools

These online puzzle builders will help you get started.

[Armored Penguin Crossword Maker \(https://adafru.it/Cjt\)](https://adafru.it/Cjt)

[Instant Online Crossword Puzzle Maker \(https://adafru.it/Cjv\)](https://adafru.it/Cjv)

[Teacher's Corner Word Search Maker \(https://adafru.it/Cjy\)](https://adafru.it/Cjy)

We'll also take a look at some downloadable puzzle applications for different operating systems.

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# Crossword Construction

## Crossword Construction Rules of Thumb

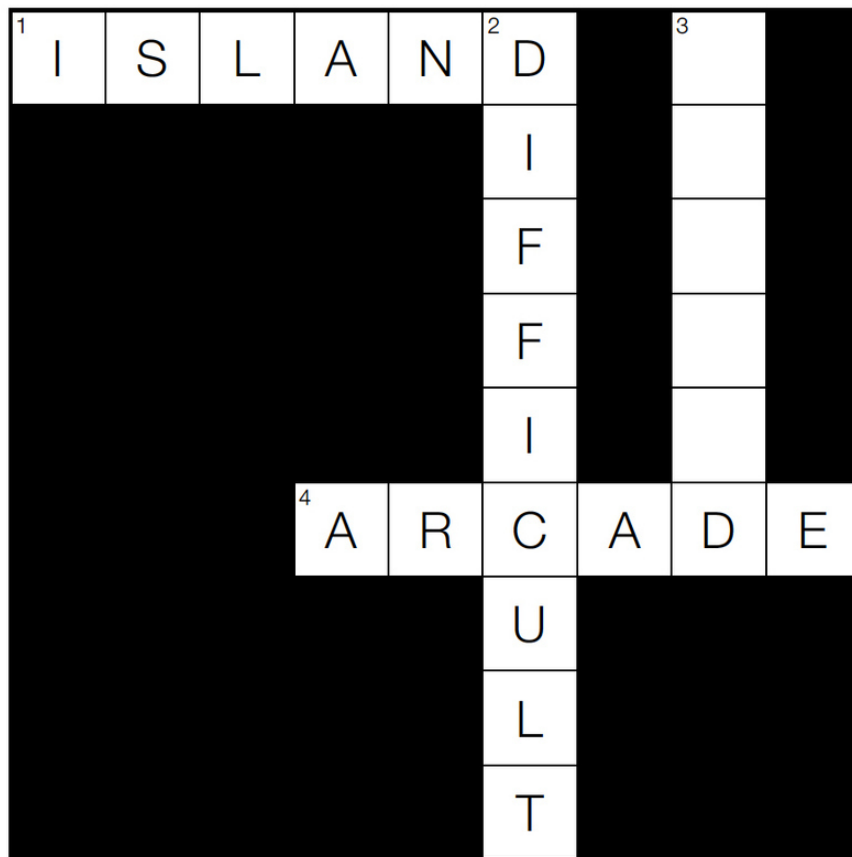
Any arrangement of intersecting words with a set of accompanying clues can be considered a crossword puzzle. However, there are a few rules of thumb that good crosswords typically follow, which make them more satisfying to solve.

### Make Many Intersections

Start by building a grid of connected words. The more intersections the better, as this helps puzzle solvers figure out more difficult clues once they've answered a few easier ones.

### Don't Do This

Consider this example of a poorly constructed puzzle:



#### Across

- 1 Small land mass in the water  
4 Gaming area

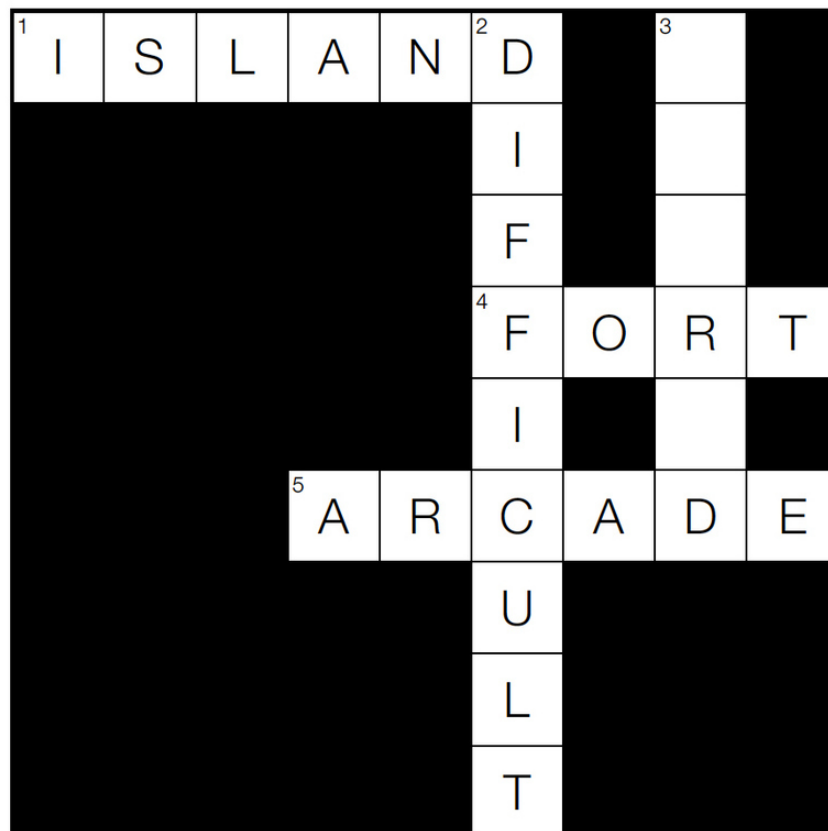
#### Down

- 2 it's not easy  
3 Excessively ornate

Even when you know most of the answers, there isn't enough interconnectivity between words to help you solve the last one.

## This is Better

The addition of one more word and intersection pair helps the puzzle solver, as shown here:



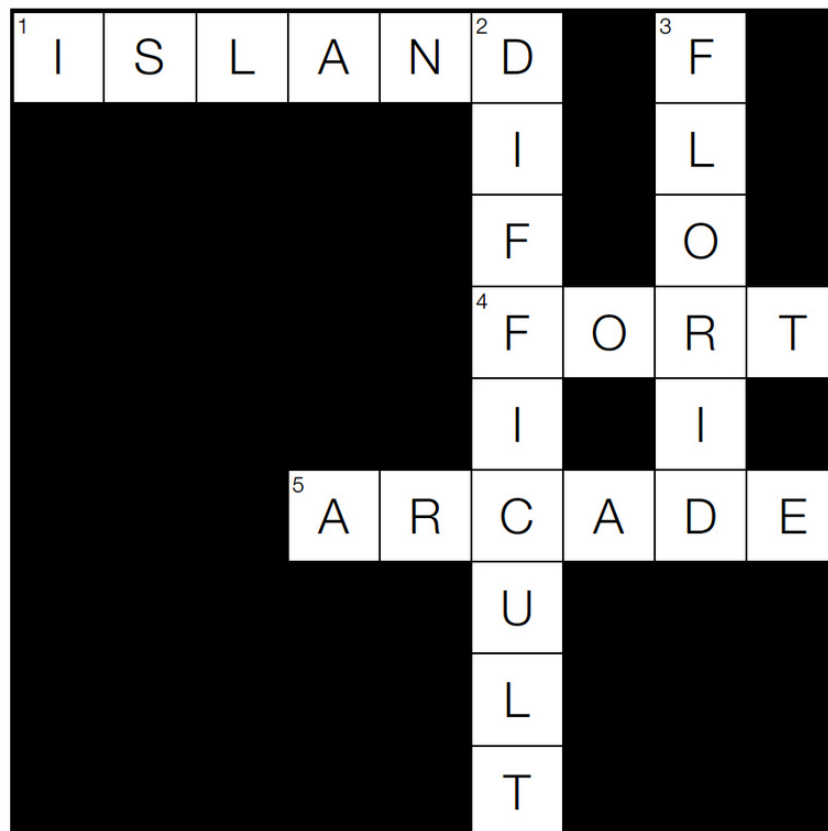
#### Across

- 1 Small land mass in the water
- 4 Defense in a snow fight
- 5 Gaming area

#### Down

- 2 it's not easy
- 3 Excessively ornate

The addition of an easy connecting word with two intersections helps the puzzle solver get a foothold and narrow in on the answer "FLORID".

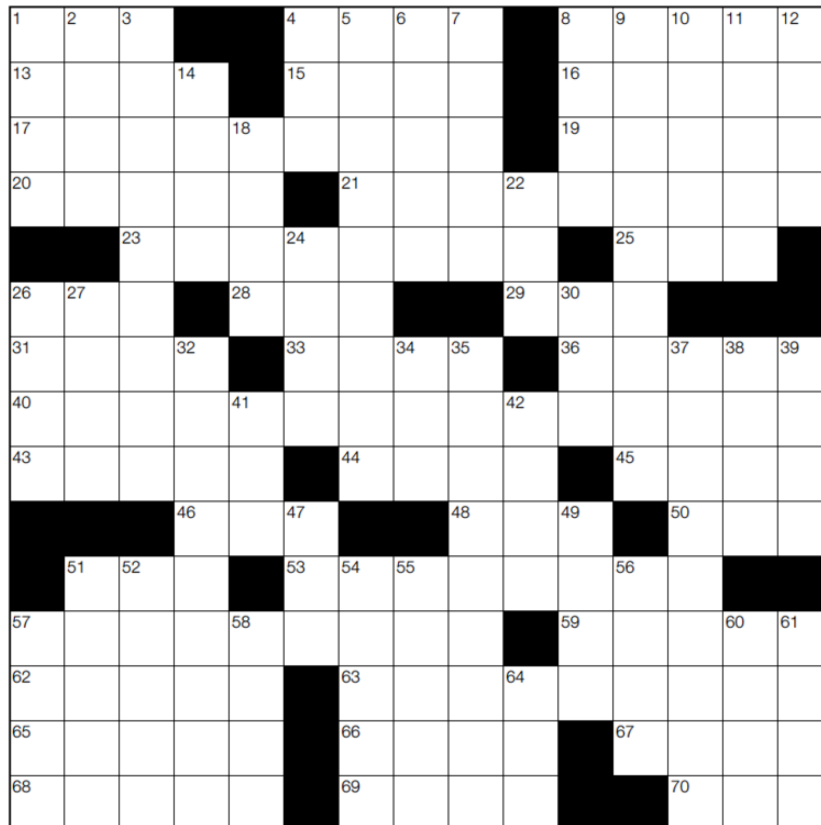


As you can imagine, the more connections you make, the more each word can help the solver with the others.

## Grid

Start with a moderate size grid which will allow you to use enough words to give the player a chance! A 15 x 15 grid is fairly standard, and is used for the daily New York Times puzzle (the Sunday puzzle is 21 x 21).

Professional crossword constructors will make their grids with very few black squares (roughly 15% black), comprised of around 70-80 words, and with a rotationally symmetrical mirror pattern, as shown here.



This is a great goal, but very difficult to create, so we'll loosen up the rules a bit when we're first starting!

## Word List

While there's nothing better than an expertly crafted word grid, we'll use technology to assist our efforts. There are many software crossword generators available as apps or in-browser that can take a list of words as an input, and then create an interlocking grid of those words within a set of specified constraints.

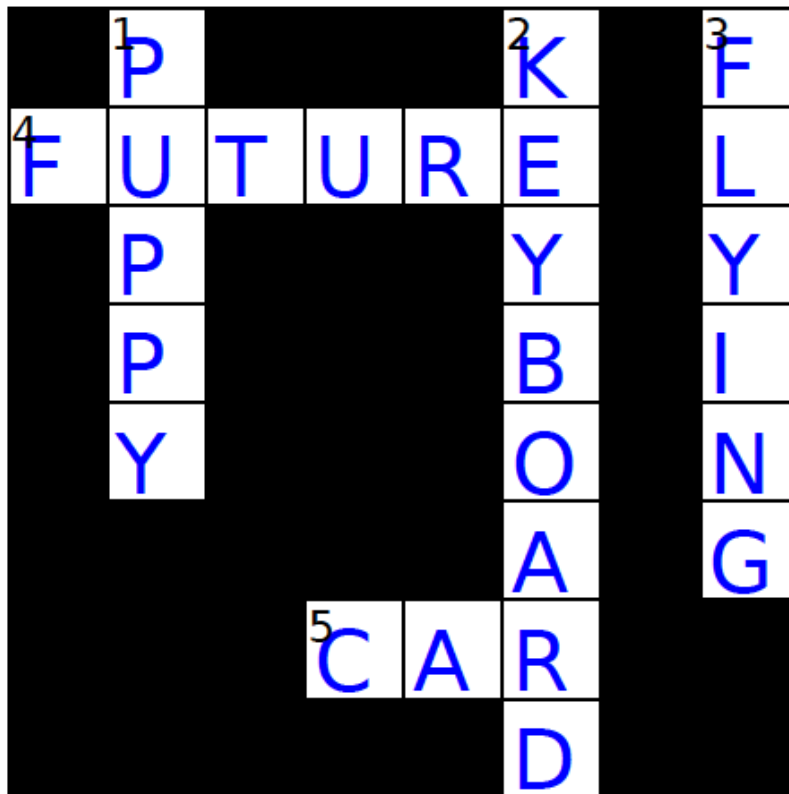
A great way to increase the odds of making a high quality grid is to begin with a very long list of words and then allow the software to generate the grid. Remove any words that have a hard time fitting or get stranded off to the sides on their own islands.

Here are some miniature grid examples, using the online generator [Armored Penguin Crossword maker \(https://adafru.it/Cjt\)](https://adafru.it/Cjt).

## Short List Troubles

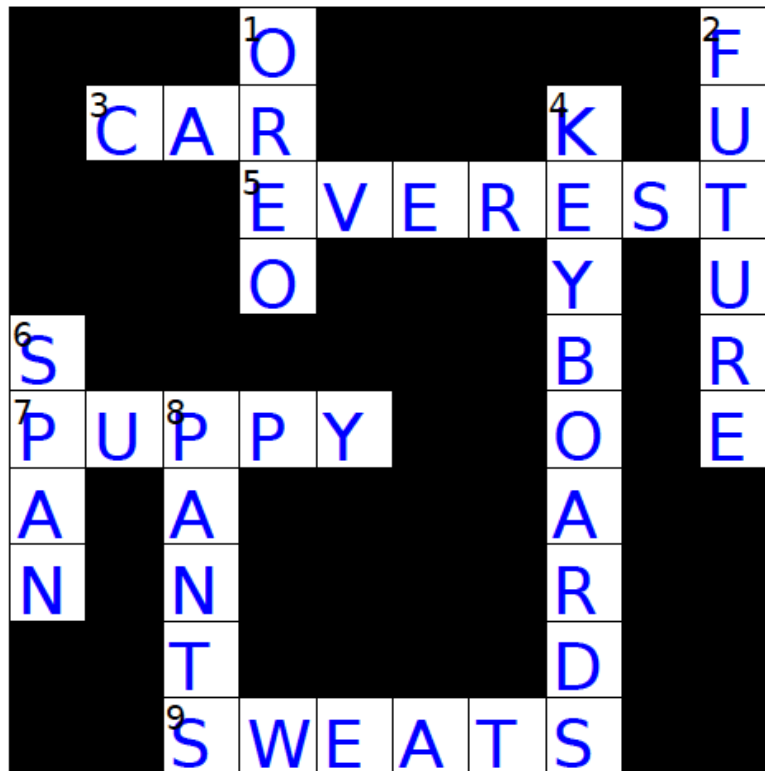
This grid was made with an 8x8 grid and a very small word list. It wasn't able to make a successful puzzle, so we'll try again with a larger grid and longer word list.



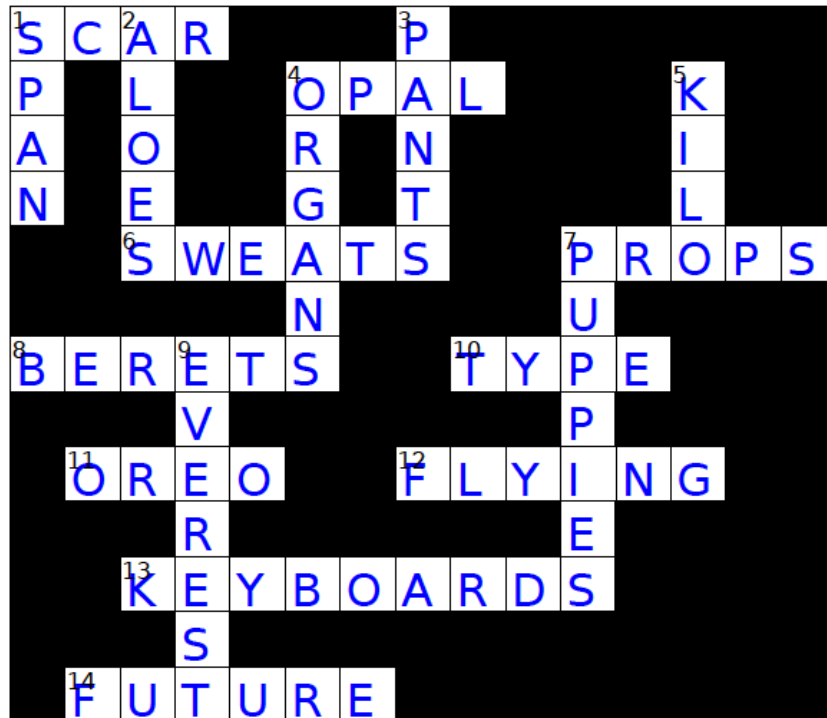


## Longer List

Here, we've increased the number of words in the list, and the grid has improved somewhat. There are a lot of black squares and the grid is larger, but at least there are no islands.



You can see that the grid has expanded again (to an awkward 14x15), but the density seems a bit better. This iterative process of adding to and changing your word list and then allowing the software to try new grid solutions can take some time, but lead to pretty good results.



## Auto Fill and Manual Entry

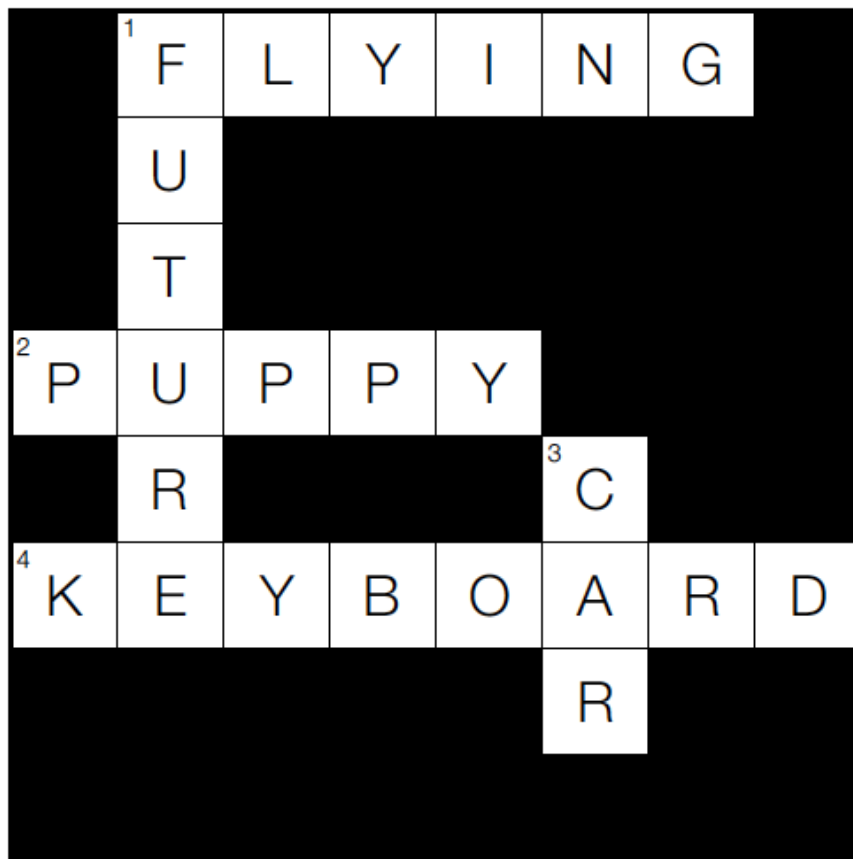
At some point, you may decide to abdicate some control over your word list to the software. You can use your word list as the foundation, and then allow the software to pick words from a dictionary that can help it fit an optimal grid.

Unfortunately, most online puzzle constructors don't offer dictionary grid fills, but there are some excellent downloadable options for all platforms. Additionally, dedicated crossword creation software offers options to manually design the grid, and fill in grid letters individually for total control.

[Crossfire \(https://adafru.it/Cjz\)](https://adafru.it/Cjz) is very popular on mac os, and [Crossword Compiler \(https://adafru.it/CjA\)](https://adafru.it/CjA) is a great choice on Windows. Both of those are \$50 for a license, and offer a huge array of options. They are often used by professional crossword constructors.

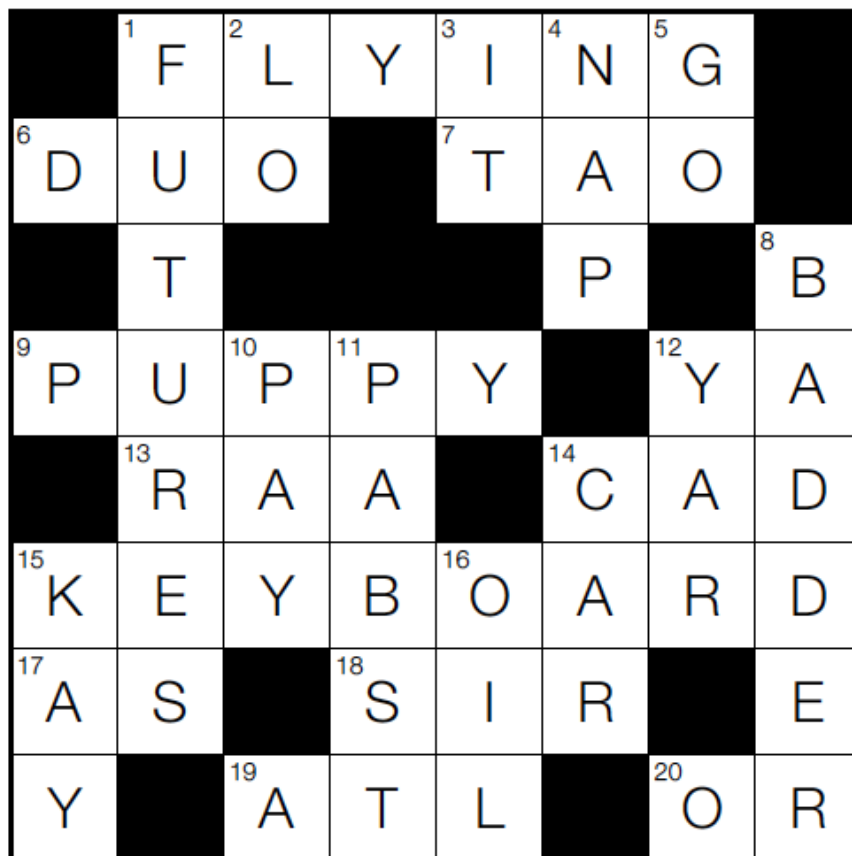
If you're on an iPhone or iPad, check out the excellent, and free [Crossword Maker for Cruciverbalists \(https://adafru.it/CjD\)](https://adafru.it/CjD)(CMFC).

Here's an example of the previous puzzle moved into CMFC.



Note how it already has done a nicer job of solving the grid in an 8x8 square with no islands.

Next, we'll start to manually add words to improve the grid. The software will even make suggestions of words from its dictionary as you start to type.



## Clues

Now that we have a word grid we like, we get to start writing clues! This is where you can really get creative and tune the difficulty level of the puzzle.

For example, look at the word 'ATL'. You could make it very easy:

**19. "Airport code for Atlanta"**

Moderately difficult:

**19. "Braves on MLB scoreboard"**

Or fairly hard:

**19. "Hub for 777 in GA"**

Here's our finished puzzle with the clues added.

	<sup>1</sup> F	<sup>2</sup> L	Y	<sup>3</sup> I	<sup>4</sup> N	<sup>5</sup> G	
<sup>6</sup> D	U	O		<sup>7</sup> T	A	O	
	T				P		<sup>8</sup> B
<sup>9</sup> P	U	<sup>10</sup> P	<sup>11</sup> P	Y		<sup>12</sup> Y	A
	<sup>13</sup> R	A	A		<sup>14</sup> C	A	D
<sup>15</sup> K	E	Y	B	<sup>16</sup> O	A	R	D
<sup>17</sup> A	S		<sup>18</sup> S	I	R		E
Y		<sup>19</sup> A	T	L		<sup>20</sup> O	R

#### Across

- 1 Some Dutchmen
- 6 Twosome
- 7 Lao Tzu's "\_\_\_ Te Ching"
- 9 Lab baby?
- 12 Fiction category for teens
- 13 'Awesome!'
- 14 Software used for 3D
- 15 Black and white instrument input
- 17 "Let's leave it \_\_\_ is."
- 18 Title for Arthur Conan Doyle
- 19 Hub for 777 in GA
- 20 "Either \_\_\_!"

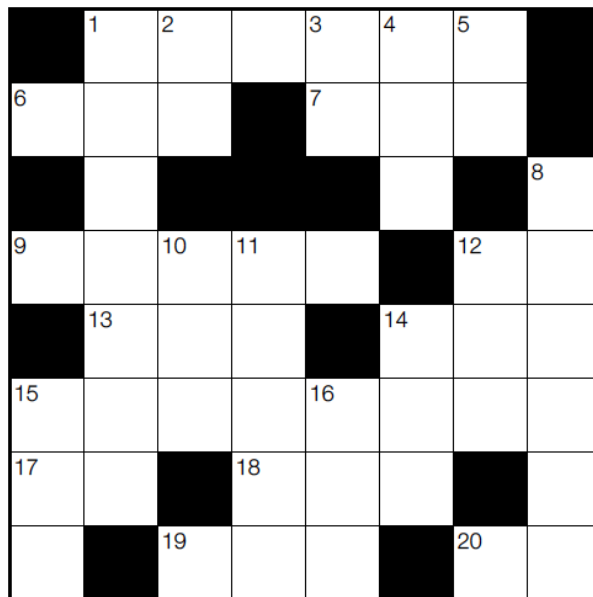
#### Down

- 1 Times to come
- 2 Behold

#### 3 Pronoun

- 4 Break for a toddler and parent
- 5 Ancient strategy game
- 8 Not as good, so to speak
- 10 Fork over
- 11 Blue Ribbon maker
- 12 Atari 2600 game, "\_\_\_'s Revenge"
- 14 Karl Benz creation
- 15 Big name in jewelry
- 16 Squeak squelcher

And, here's the blank version, ready for solving.



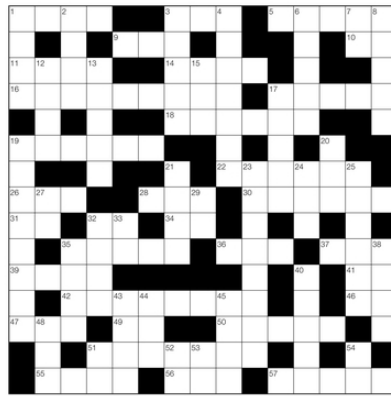
#### Across

- 1 Some Dutchmen
- 6 Twosome
- 7 Lao Tzu's "\_\_\_ Te Ching"
- 9 Lab baby?
- 12 Fiction category for teens
- 13 'Awesome!'
- 14 Software used for 3D
- 15 Black and white instrument input
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- 18 Title for Arthur Conan Doyle
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- 11 Blue Ribbon maker
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- 14 Karl Benz creation
- 15 Big name in jewelry
- 16 Squeak squelcher

#### Down

- 1 Times to come
- 2 Behold

Finally, here's a special Adafruit themed crossword for you to print out and try.



## Adafruit

### Across

- 1 Bendable resistance sensor, or way to bulge your muscles?
- 3 \_\_\_\_ for attention
- 5 Very focused dot or beam
- 9 Arduino board with 328p chip
- 10 "\_\_\_\_. Or \_\_\_\_ not. There is not try." -Master Yoda
- 11 Bothersome pizza mascot from the 80s and 90s
- 14 Type of rechargeable power source
- 16 Test lead clip, or dangerous reptile
- 17 Macro's opposite
- 18 Music to both ears
- 19 It makes a hot connection
- 22 These can turn on command
- 26 Accelerometer & gyroscope combined, for short
- 28 Bright electronic component
- 30 Sources of bad signals
- 31 One of Ladyada's majors at MIT
- 32 Short unit for short
- 34 Superglue's proper name, as initials
- 35 Capacitive \_\_\_\_ sensor
- 36 It listens to you, and you can drop it to make a point
- 37 Common computer port
- 39 Flat, round battery type

- 41 Disjunction logic gate
- 42 Mathematician and Adafruit namesake
- 46 Tiny state, initials.
- 47 Test, or orbiting object for short
- 49 Computer's net address
- 50 Frequency measurement unit
- 51 Lightweight microcontroller ecosystem
- 55 Unfreeze
- 56 Measure of resistance
- 57 Prefix with "type"

### Down

- 1 GSM breakout
- 2 \_\_\_\_ Mad Scientist
- 3 Differences in electrical potential
- 4 CircuitPython-ready boards, or a direct train
- 6 The "A" in AV
- 7 Suffix with "phys"
- 8 Electromechanical friend
- 12 Butter substitute
- 13 Component that mostly conducts current one way, blocks the other
- 15 Global system of connected devices, for short
- 17 Line of microcontrollers, or a public transportation system
- 19 Biology, physics, and others, collectively

- 20 It may run your mobile phone or tablet
- 21 Giant 'bot
- 23 One with a technical degree
- 24 PCB routing path
- 25 Component used to detect its environment
- 27 "Moi", aux Etats-Unis
- 29 "Yes," Ivan!
- 32 Music for just one ear
- 33 CircuitPython editor of choice
- 35 Simple switch to measure orientation
- 38 One from the land of the Raspberry Pi, for short
- 40 Small engine
- 43 All you can see
- 44 Gov. grp. created to protect land
- 45 Short name for class about compounds
- 48 "A" in S.T.E.A.M.
- 51 Fourth note in a scale
- 52 "...\_\_\_\_ be or not \_\_\_\_ be?"
- 53 Extremely rare blood group
- 54 Dept. that can fix a PC

**adafruitCrossword.pdf**

<https://adafru.it/ABG>

Here's the solution sheet if you want to check your answers later!

**crossword\_filled.pdf**

<https://adafru.it/ABH>

Next, we'll look at making word search puzzles.

## Word Search Building

Word searches are even better suited to software generation than are crossword puzzles. You can simply feed in the full list of words, and off it goes! There are just a



few options to choose, and if you want to get fancy, you can specify a custom shape for the puzzle as seen here!

```

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

```

This puzzle was made with the [Teacher's Corner Word Search Maker](https://adafruit.it/Cjy) (<https://adafruit.it/Cjy>).

The instructions are self explanatory, simply fill in your word list, and choose the dimensions and word placement rules.

If you want to build a custom shape, click the "Custom Word Search Grid" button. Then, set the number of squares for columns and rows, click 'Resize grid' and start clicking squares to define your shape!

Left-click on a square above to mark it, left-click again to unmark it. Red squares mark where letters will appear in your grid.

Press I, J, K, L to move the marker.

Shift grid:

You will not lose your design if you resize, unless the grid is smaller than your design.

Save the code below if you wish to save your design, to send it to people, or to reload it later:

00000000000000001100000000000000

Now, when you go back to the main page and click 'Generate Word Search', your puzzle will be build inside the custom shaped grid!

## Adafruit

Search for these words!

```

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

```

Ladyada	Feather	FONA	battery
NeoPixel	unicorn	DotStar	Trinket
Raspberry Pi	CircuitPython	LED	piezo
infrared	Bluefruit	ampere	capacitor
diode	frequency	ground	hertz
joule	mosfet	resistor	transistor
watt			

That's all there is to it! Enjoy making your own custom word puzzles.