

ADA LOVELACE



CRACKS THE CODE

REBEL GIRLS®



ACTIVITIES



PUNCH CARD PUNCHLINE

Ada discovered that punch cards can use a series of punched-out symbols to give machines specific directions to complete tasks like weaving cloth or counting numbers. The symbols on the cards can be thought of as coding directions to the machine. Each letter below has been assigned a symbol. Use the card to decipher the code and discover the answer to the jokes below!

1. What do you get when you cross a cat with a parrot?



2. Where did Miss Stamp go to buy Ada's new chess set?



Turn to page 126 for the solutions!

PUNCH CARD ALPHABET

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

ADA SAYS!

A computer program is a set of instructions for a computer. A programming language is a set of symbols and rules for using those symbols that a computer can understand. Computers don't have to be electrical! A computer can be mechanical, like a loom, or even biological, like a person.

Let's say Ada came up with a programming language to give instructions to her cat, Mistress Puff. Grab a friend, and one of you will be the programmer (Ada) and the other will be the computer (Mistress Puff).

Here's the language:



Go forward one step



Turn to the right



Turn to the left



If there is anything in front of you, pick it up

RULES

You can place a number in front of a symbol to tell Mistress Puff to repeat the symbol that many times. (Use a comma in between symbols!)

If you wrote your programming language down, it would look like this:

4↑, →, 6↑, ○

(This means take 4 steps forward, turn to the right, take 6 steps forward, if there's anything in front of you pick it up.)

Now you try! Take turns being the programmer and computer, and even make up a few symbols of your own.

TALK LIKE A COMPUTER!

Modern computers don't use punch cards, letters, or symbols to communicate. (They use the numbers 1 and 0 instead.) Humans created a special language out of these numbers called "binary code," a language that only computers and programmers understand. See if you can decipher the message using 1s and 0s and become an ace programmer like Ada.

1. What was the name of the book Ada wrote about flying?

1000110 / 1001100 / 1011001 / 1001111 / 1001100 / 1001111 / 1000111 / 1011001

2. What were Ada's favorite childhood books about?

1000110 / 1000001 / 1001001 / 1010010 / 1001001 / 1000101 / 1010011

Turn to page 126 for the solutions!

BINARY ALPHABET

A	1000001	N	1001110
B	1000010	O	1001111
C	1000011	P	1010000
D	1000100	Q	1010001
E	1000101	R	1010010
F	1000110	S	1010011
G	1000111	T	1010100
H	1001000	U	1010101
I	1001001	V	1010110
J	1001010	W	1010111
K	1001011	X	1011000
L	1001100	Y	1011001
M	1001101	Z	1011010

W♀GRAMMER

We are proud to announce a collaboration with the organization Wogrammer. One of their journalism fellows wrote these activities for use in this volume.

As of January 2020, Wogrammer has become part of the team at AnitaB.org, fueling our shared mission to increase representation and equity in the tech industry.

Like Rebel Girls, the organization leads the charge in profiling diverse women, offering an authentic perspective while celebrating and showcasing their accomplishments.

Visit them at www.AnitaB.org
or [@AnitaB.org](https://twitter.com/AnitaB.org)

Solutions to "Punch Card Punchline"

1. What do you get when you cross a cat with a parrot? *A carrot!*
2. Where did Miss Stamp go to buy Ada's new chess set?
The pawn shop!

Solutions to "Talk Like a Computer!"

3. What was the name of the book Ada wrote about flying? *Flyology*
4. What were Ada's favorite childhood books about? *Fairies*