

Tech for
Everyone
Logo

MODERN COMPUTING
SERIES

MICROCHIP
EDITION

Name:

Lynn Conway

PRESENTED BY TECHSHEETS.DEV

Date:

The Blueprint for the Modern World

Inside every smartphone, video game console, and laptop is a tiny, flat piece of silicon called a **microchip**. These chips are the "brains" of our devices, packed with millions of microscopic electrical switches. But how do you fit millions of parts onto something the size of a fingernail? We have a brilliant computer scientist named **Lynn Conway** to thank for that!

In the 1970s, making microchips was incredibly difficult. Engineers had to design them by drawing a giant, complicated maze of wires by hand using paper and pencils. It took too long, and humans made too many mistakes. Lynn Conway and her partner Carver Mead realized that to make better computers, they needed to use *computers* to help design them!

Together, they invented a revolutionary new system called **VLSI** (Very Large Scale Integration). VLSI was a set of rules and software that allowed engineers to design chips with thousands—and later millions—of parts quickly and easily. It was like giving builders a magical blueprint machine instead of making them draw every single brick by hand!

Lynn wanted to share this secret with everyone, so she co-wrote a famous textbook and started teaching classes. Soon, students all over the world were using her methods to design super-fast microchips. Lynn is also a transgender woman who faced unfair treatment early in her career, but she never let it stop her. She became a famous inventor, a beloved professor, and a brave hero for equality in technology!

Reading Check

1. What is the "brain" of a smartphone or laptop called?

2. Before Lynn Conway's invention, how did engineers design the maze of wires for computers?

- ☐ They printed them on 3D printers.
- ☐ They drew them by hand with paper and pencil.
- ☐ They took photographs of real brains.

3. What does the acronym VLSI stand for?

4. How did Lynn Conway share her secret new invention with students all over the world?

Microchip Math Challenge

Because of Lynn's VLSI rules, engineers could suddenly fit thousands of times more switches (called **transistors**) onto a single chip. Let's do the math to see how fast technology grew!

Before VLSI, an old computer chip could only hold exactly **2,000 transistors**.

1. Thanks to Lynn's new rules, a new chip could hold 1,000 times as many transistors as the old chip. How many transistors are on the new chip?

Show your math here:

Answer: _____ **transistors!**

Design a Micro-City!

Lynn Conway said that designing a microchip is like designing a microscopic city. There are highways for electricity, storage buildings for memory, and processing centers for doing math. Draw your own layout for a microchip "city" below!

Draw your microchip city (with wires, blocks, and memory centers) here!

⚡ VLSI CIRCUIT BOARD ⚡

Name of your Microchip: _____

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