

GROUP 8
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PS141 For Kids: How to Teach A Kid Electronics

It should be no biggie, if we just take time to understand some of the juicy bits, and most of all enjoy!

Circuit assembly is similar to a Lego puzzle, even more like K-nex. And if you're used to putting Gundam robots and RC cars together, this would be a breeze. By the way, there are also rules we have to follow regarding the tools and materials we use to prevent burning things and eventually hurting ourselves. (We don't like toasting our ICs, and getting blisters from overly heated-up transistors.)

So first, let's see how a circuit works.

Story time?

Once upon a time, in a land far, far away, there was a kingdom called EK. Not Enchanted Kingdom, but Electronics Kingdom. Its vast lands were very fertile, and so they nicknamed their kingdom as “**The Breadboard**”.

Across their soils, there are many parallel rivers, called breadboard rows, running through the land. The people of the empire can only send messages to each other through these rivers. They communicate using only two words, *yes* and *no*. Yes is represented by “**1**” and no is represented by “**0**”. Life in EK is quite simple: With only these two signals, the people easily understand each other and work together to build their growing community.

This grand empire is ruled by His Majesty, **King Power Supply**. Everyone in EK depended on him; he is their inspiration and energy. Without him, there will be no EK.

The king has a very fascinating jester named **Voltes 555**. He does nothing all day and all night but to bob up and down, and say “*yes, no, yes, no, yes...*” And because he is very talented, the accurate timing of his “*yes, no, yes, no, yes...*” was used by the entire kingdom as their own clock.

Aside from Voltes 555, the king also has a special council of wizards called the **Magic Logic Gates**. Among the famous ones are **NAND wizard** and **NOR wizard**. These wizards are full of wisdom, and are always helping the people of the kingdom make decisions.

The kingdom also has a man of mystery—a math genius, **The Count of 74LS93**. In a community simplified by 1's and 0's, he has secretly discovered a way to count from 0-15. Though some people speculate that he is a spy and uses this this unique way of

counting to transmit secret messages, he actually just wants to impress **The Lady of LEDs**, who owns four lovely LED lamps. The Lady of LEDs was amazed on how The Count of 74LS93 used only these four lamps to count from 0-15. Thus, they married and had seven beautiful children.

Their talented children then became famous as the **Seven-Segment Dancers**. Even if they have fixed positions, they can perform a lot of “numbers” with the guidance of their director and choreographer, **Direk Decoder**. For each of their choreographed “numbers”, only those instructed by the director with a “yes” can perform. Those given a “no” do not perform for that “number”.

The fame of the Seven-Segment Dancers spread throughout the kingdom that their sister named **Rhapsody Alarm** became envious of her sisters. She was particularly irritated with one of her sisters’ “numbers” and every time she saw them doing it, she broke out into an ear-shattering requiem.

But always preventing these sisters from fighting each other is their peace-loving brother, **Prudencio Potentiometer**. Depending on the mood of his sisters, he regulates the resistance among them.

There also lived in the Electronics Kingdom two happy neighboring peasant communities. They are the **Typical Transistors** and the **Ordinary Op-Amps**. Together, they increase the efficiency of the kingdom’s livelihood of producing electricity.

The vast lands of The Breadboard are laden with **Ravishing Resistors**, which are flowers native to the land of EK. The people of the kingdom believe in a legend about the origin of these flowers. It is said that a long, long time ago, there were **Bad Boys Raping Our Young Girls, But Violeta Gave Willingly**. The flowers serve as a reminder to the consumed beauty of Violeta.

The Electronics Kingdom continues to prosper because of the great reign of the King Power Supply. All the people in the land respected him, and they lived happily ever after.

THE END