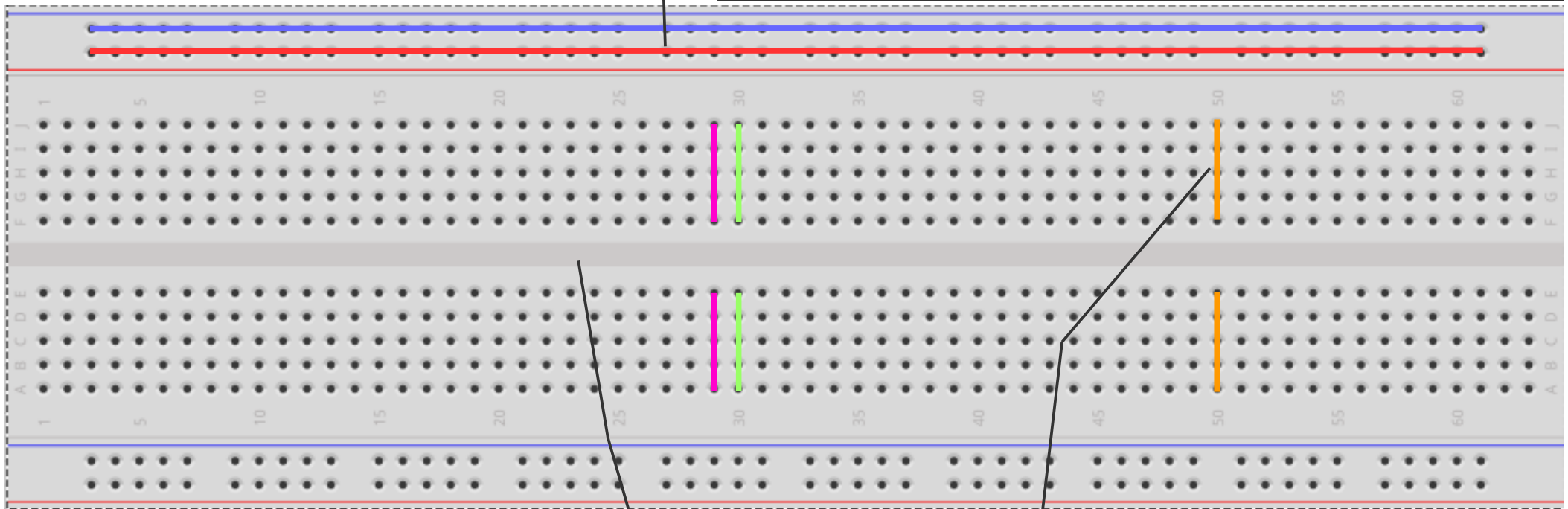


How to Use Breadboards

Breadboards are like **reusable circuit boards**. They allow you to plug and unplug components into each dot **without any solder** and can be used for as many different projects as you like. However, **there are some rules to follow** when using them, so read carefully! Otherwise you will end up in a cloud of smoke!

This is the **basic layout for all breadboards**. They have lots of 5 dot lines, separated by a little channel in the middle. They also have two long 5 dot lines at the top and bottom. The long lines at the top and bottom are connected. See in the diagram, **every dot** under the **red line** is connected, and every one under the **blue line** is. But the **blue** and **red** lines **are not connected**. These are useful to connect your power and ground wires too!



Remember! Many breadboards look a little different, but the way they are connected is pretty much the same.



This is the middle channel. The **lines above it are not connected to the lines below it!**

All the dots under the orange lines are connected. But the top orange line is not connected to the bottom one!