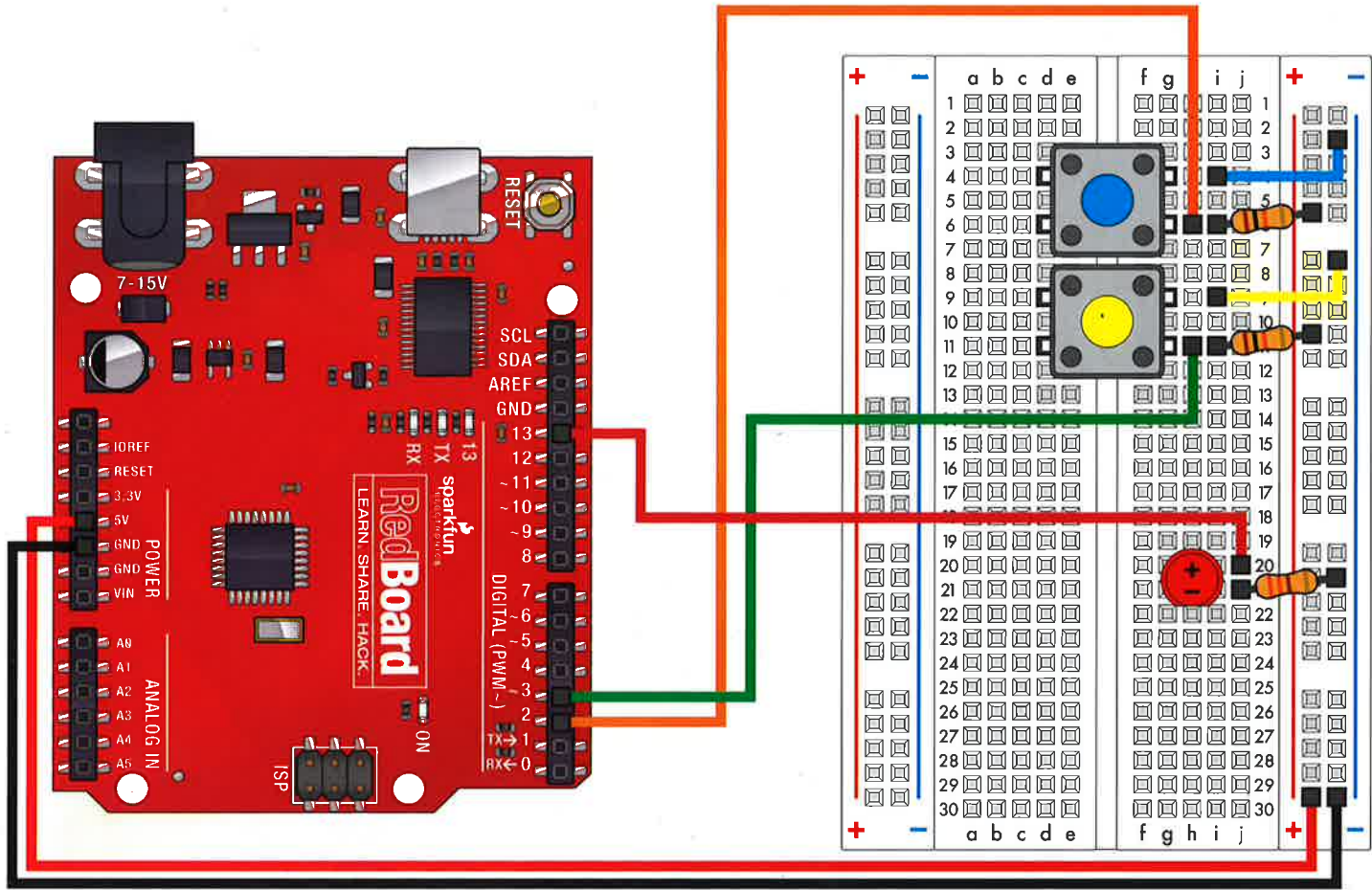


Circuit 5: Push Buttons



Component	Image Reference:		
Push Button		d4	g4
Push Button		d6	g6
Push Button		d9	g9
Push Button		d11	g11
LED (5mm)		h20	h21
10KΩ Resistor		i6	+
10KΩ Resistor		i11	+
330Ω Resistor		j21	-
Jumper Wire		i4	-
Jumper Wire		i9	-
Jumper Wire		Pin 2	h6
Jumper Wire		Pin 3	h11
Jumper Wire		Pin 13	j20
Jumper Wire		5V	+
Jumper Wire		GND	-

How to use logic like a Vulcan:

One of the things that makes the RedBoard so useful is that it can make complex decisions based on the input it's getting. For example, you could make a thermostat that turns on a heater if it gets too cold, a fan if it gets too hot, waters your plants if they get too dry, etc.

In order to make such decisions, the Arduino environment provides a set of logic operations that let you build complex "if" statements. They include:

Symbol	Operation	Description
==	EQUIVALENCE	A == B is true if A and B are the SAME.
!=	DIFFERENCE	A != B is true if A and B are NOT THE SAME.
&&	AND	A && B is true if BOTH A and B are TRUE.
	OR	A B is true if A or B or BOTH are TRUE.
!	NOT	!A is TRUE if A is FALSE. !A is FALSE if A is TRUE.

You can combine these functions to build complex if() statements.

For example:

```
if ((mode == heat) && ((temperature < threshold) || (override == true)))
{
digitalWrite(HEATER, HIGH);
}
```

...will turn on a heater if you're in heating mode AND the temperature is low, OR if you turn on a manual override. Using these logic operators, you can program your RedBoard to make intelligent decisions and take control of the world around it!