## More than On and Off

On the first worksheet, it was already indicated, that you can create all visible colors with the three primary colors. However, it is not enough to simply switch the LEDs on and off. Fortunately, the Arduino can do more! You may have noticed, that there are little snakes (~) on some pins of the Arduino. These pins are also called PWM pins. Also, the pins 9 to 11, which you already connected to your LED, are marked with ~. These pins can have 256 different values. This is the appropriate command:

```
analogWrite(pin-name, value);
```

As in the introduction, the `pin-name` is the name of the variable, which contains the number of your corresponding pin. `value` is a number from 0 to 255, or the name of a variable, which contains such a number. What is the instruction to turn on the blue LED completely?

```
analogWrite(_____, _____);
```
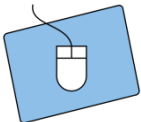
1. Now, take your previous sketch, and save it again under a new name.
2. Replace the **digitalWrite()** command by **analogWrite()**, and mix more colors! Use the following table to note the values, for which the LED comes closest to the displayed colors!

	Red	Green	Blue
	255		0
	146		80
		50	160
	255	255	

Now, you know, how color mixing works with an RGB LED, and you can really create all colors. You can customize your color thermometer as you like. Have fun with it!

Temperature	Color	R(ed)	G(reen)	B(lue)

Hint: Here, it is no longer sufficient just to note whether the LED is on or off, but you have to note the corresponding values.

List of references:
⚑ _– Source: InfoSphere_