White Balance

Are your digital photos orange? Does the skin of some of your subjects look the wrong colour?
This project will teach you how to get accurate colour when you are shooting with a digital SLR.

First, let's understand that light is measured in *kelvins* (the Scottish scientist who developed the measurement was named William Thomas, or Lord Kelvin)

What you need to know is that the scale goes from roughly 0 degrees to 10,000 degrees.
The higher the temperature, the cooler, or bluer, the light appears.
This might seem opposite of what it should be, but think of a piece of steel being heated up; it turns red first, and when it gets really hot, it turns blue, and then finally, white hot! Look at the chart below:

Colour Temperatures in the Kelvin Scale

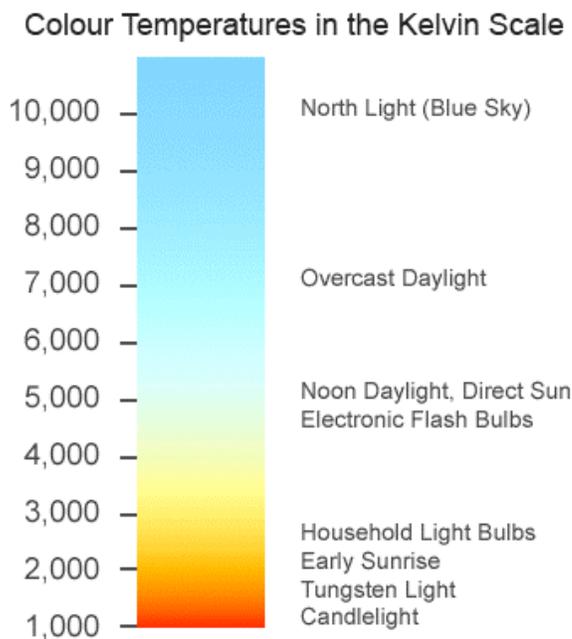| Temperature	Light Source
10,000	North Light (Blue Sky)
9,000	
8,000	
7,000	Overcast Daylight
6,000	
5,000	Noon Daylight, Direct Sun Electronic Flash Bulbs
4,000	
3,000	Household Light Bulbs
2,000	Early Sunrise Tungsten Light
1,000	Candlelight

Image courtesy of www.mediacollege.com

This is why when you shoot in a room lit by candles, the light appears very orange.

As a photographer, you need to understand that you can either set the correct white balance in your camera, or correct it later in Photoshop.
If you are only shooting jpeg's, especially with unchanging lighting conditions, it is better to set the white balance in the camera.

Even cheap cameras have the ability to change their white balance.
Effectively, if you set your camera white balance to the tungsten bulb setting, you are telling the camera to add blue to each pixel to counteract the overabundance of orange.

Probably the best thing to do is use the custom white balance feature. This requires that you have the camera take a picture of a known neutral grey or white object.
The camera then balances subsequent images to correct for the Kelvin imbalance.
For this project you will be taking three photos of the same subject/ background.

For the first photo, set your white-balance to a very "hot" temperature. I suggest the "Shade" setting.

Next, take a photo using the "Tungsten bulb" setting.

Finally, set the white balance to "Preset" (Nikon Cameras), and hold down the "WB" button. When it begins to flash "pre", take a photo of a white sheet of paper until the display flashes "good". Now take a properly metered and exposed photo. Note that this feature is different on the lower end Nikon cameras; you will need to research how to set it. I suggest referencing the users manuals on my website.

Upload these photos to your computer, import them into a NeoOffice or Word doc. Below each photo show the .exif data, and answer the following <u>after</u> the 3 photos are displayed:

1. What colour, or hue, is the first photo?
2. Why is it this colour?
3. What is the predominant colour, or hue, of the photo with the white balance set to "Tungsten"?
4. Why?
5. For the preset photo, how close to the actual white balance of the situation did the photo turn out to be?
6. What are some advantages to using the custom white balance feature on the camera vs. correction in Photoshop?
7. Are there times when you would purposely use the incorrect white balance?

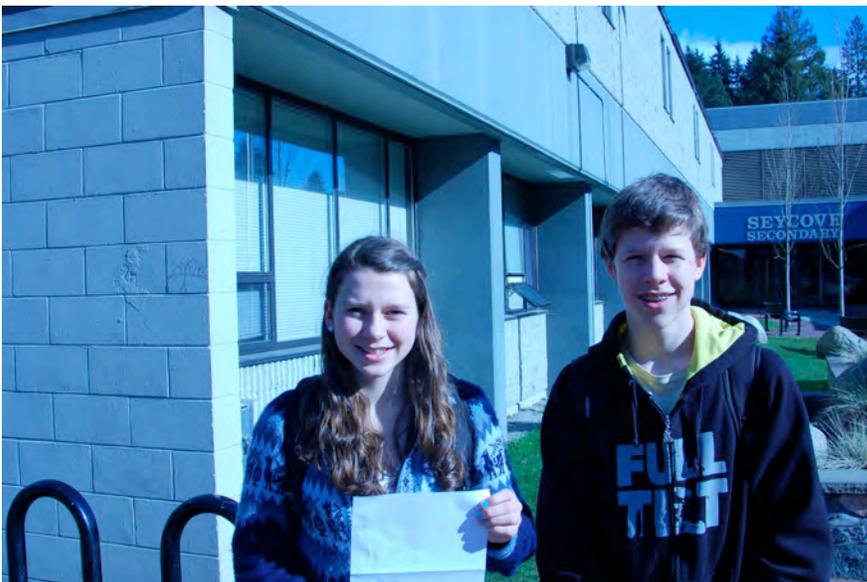Please hand in this project sheet to the correct drop-box.

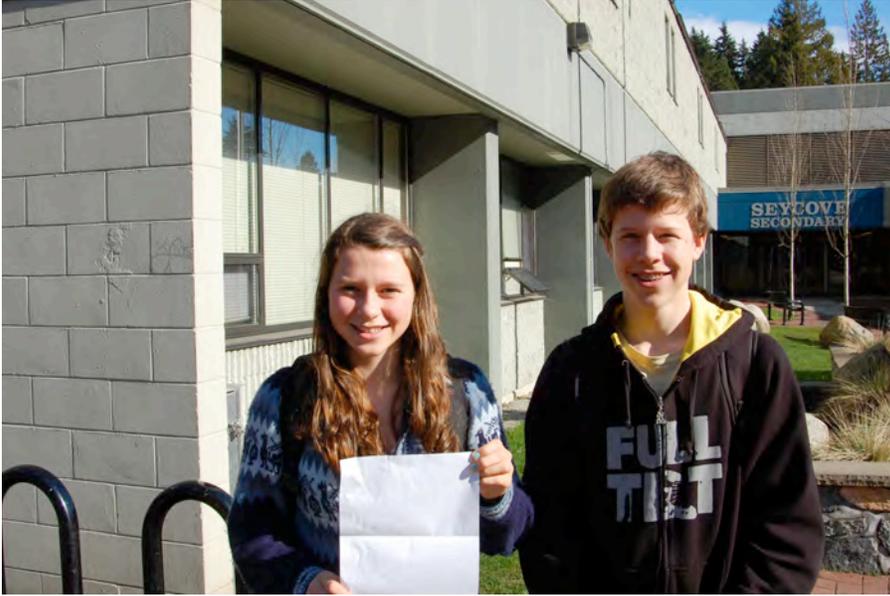Below is an example of a well done project:

Name: Biff McBiffburger
Block: 9
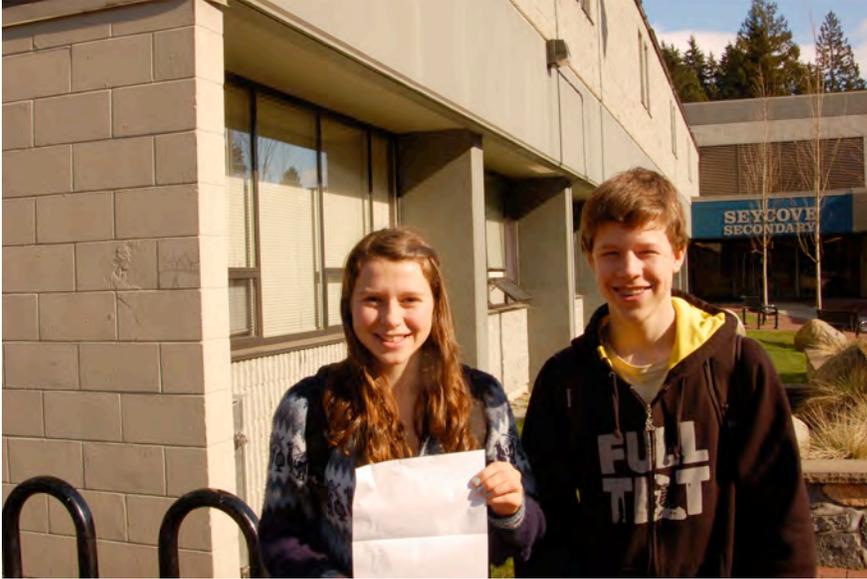
This is my first photo taken at 1/40th second @ f22, ISO 200, WB set to "Shade" setting.

Taken at 1/160th @ f13, ISO 200, WB "Tungsten"

This photo taken at 1/100th second f13, Custom white balance set.

Answers:
1. The first photo is really…etc.
2.This is because…
And so on!