A bit of an explanation about color temperature (from Wikipedia):

Theory:

Color temperature is a characteristic of visible light that has important applications in photography, videography, publishing and other fields. The color temperature of a light source is determined by comparing its chromaticity (the quality of its color) with a theoretical, heated black-body radiator. The Kelvin temperature at which the heated black-body radiator matches the color of the light source is that source's color temperature.

In practice, the lower temperatures of Kelvin appear **RED** and the higher temperatures appear **BLUE**.

Film is made for specific light sources (daylight film and tungsten film), and used properly will create a neutral color print. Matching the color sensitivity of the film to the color temperature of the light source is one way to balance color.

If tungsten film is used indoors with incandescent lamps, the yellowish-orange light of the tungsten [incandescent] bulbs will appear as white (3200 K) in the photograph.

Some common examples of the Kelvin scale applied to light sources:

* 1700 K: Match flame
* 1850 K: Candle
* 2800 K: Household lightbulb
* **3200 K: Studio Tungsten lamp**
  * 3400 K: Studio lamps, photofloods, etc...
* 4100 K: Moonlight
* 5000 K: Daylight
* **5500 K: Average daylight, average electronic flash**
  * 5770 K: Effective sun temperature
  * 6500 K: Daylight (actual range is between roughly 4500 and 10,000!!)
* 9300 K: TV screen (analog)

The two points in the range we worry most about are the tungsten and daylight points. These are what film stocks are rated to and what we base everything on.

Video is different: The video sensor is balanced to recognize a certain limited range of color as **WHITE**. All other colors will then shift in comparison. We call it **WHITE BALANCING**.

You might turn your camera on outdoors, look at the viewfinder and see that everything has a blue cast to it. If you point the camera at a white object and white balance the camera to that color, then the image will be adjusted accordingly. We sometimes call it “dialing out the blue”. It’s like you’ve just drained all the blue out of the image.
Lights commonly used

Tungsten Sources:

We use an Arri Kit in these classes, which come in varying strengths: 300W, 650W, 1K, 2K and upwards

**Fresnel lenses** have concentric lenses that focus the beams of light and create a concentrated, very direct-able pool of light.

- There are also **open face** lights like the **open face 2K** – this is a 2K lamp in a housing that has no lens in front of it – the bulb is exposed. The lamp comes out with very little direction. So, it’s not great for a directed source that should have a specific aim. It tends to be used with a **bounce board**. The bounce board will then essentially be the new source of light.

China balls are very widely used in location lighting, which are household bulbs hooked into a socket with a long extension cord. The bulb is hung inside a china ball, a paper globe on a wire frame. China balls provide soft light that is directionless. Skirts made out of duvetyne can be used to block some of the light. These are popular because the parts are cheap, they don’t take much room and they are very easy to use.

Daylight sources:

**HMI’s** (1200 and 575) are rated to appear like average daylight. These get used a lot even in daytime interiors to create a steady sun source instead of relying on the sun, which moves and goes behind clouds and is generally unreliable. Of course, for daytime exteriors there’s no substitute for the sun.

HMI’s tend to be placed in carefully decided positions (high for mid-day, low for late day; and also considering the horizontal angle as far as determining how the sun will enter the room) outside the windows of a room. They are powerful and very energy-efficient. They also burn a little cooler than tungsten lights.
Mixed Sources:

**Kino flo lights**, which use fluorescent tubes, can be either tungsten balanced or daylight balanced. They are softer and less directional than tungsten fresnel sources. They produce less heat, so they’re very comfortable to have on set. As you’ll see in the picture, there is a **ballast** which is tethered to the light. Fluorescent light flickers on film, because of the way the light is produced. Ballasts make the light flicker-free.

**DivaLites** have a built in ballast and are a little more compact. They are great things to have on set, they’re also great to have on documentary shoots. They’re fairly controllable and come with a very easily mountable egg crate (plastic grid that covers the light and focuses it) and a silk that easily wraps around it and diffuses the light.

Support:

Lights go on light stands. Depending on how many knobs they have for elevation, they are called 2-stage, 3-stage, etc. It’s really important to use a stand that adequately supports the weight of the light you are using.

Grip equipment (such as **flags**, **nets** and **silk**s) go on **C-Stands**. Most C-stands have three stages and are topped with a **gobo head**. The gobo head holds a grip arm, at the end of which is a **gobo** with holes of varying sizes. Lights, grip equipment, and many other things can be held in these gobos.

Some C-Stands have a Rocky Mountain leg, which means the height can be adjusted for a slope or a stairway. Some have a turtle base, which can be removed and used on its own to hold lights down low.

**Miscellaneous G&E (Grip & Electric) pieces:**

- C-47s/clothespins
- Flexfill
- Apple boxes
- Solid flag
- Sandbag