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Playing with Fire Lesson Plan

So we're going to do some fire experiments and explain how it works. We'll also do some simple balancing equations and things of that sort.

1. Orbitals and element properties as well as periodic trends may also come into play. This video is really fun and explains a lot as an introduction to the lesson.
http://vimeo.com/40271657

These are the chemicals we'll need for some of the color demos:
http://chemistry.about.com/cs/howtos/a/aa052703a.htm
- Lithium Chloride
- Strontium Chloride or Strontium Nitrate
- Calcium Chloride (a bleaching powder)
- Sodium Chloride (table salt)
- Borax
- Copper Sulfate or Boric Acid
- Copper Chloride
- 3 parts Potassium Sulfate
- 1 part Potassium Nitrate (saltpeter)
- Potassium Chloride
- Magnesium Sulfate (Epsom salts)

We'll also need a significant amount of methanol and matches/a lighter.
Link to the kit

Lesson Plan
1. Introduce periodic table of elements, quick review on this, use poster as reference. If they don't know basics (proton, electron, neutron) go over that. Transition into video about fire and what fire really is.
2. Show video and elaborate that different color flames are also possible. (video says yellow color comes from burning of carbon, but that's not how it works with our chemicals, so we need to explain this)
3. Do demonstration. Get the students involved throughout the demonstration by asking them to describe and note down any observations. Talk about set up, concepts in the experiment, how to predict results.
4. Get students to make the conclusion that transition metals will create colored flames when burned. Have them speculate as to why this is true? (what do transition metals all have in common)

http://thewolfstone.com/Pyro/pprclf_ColoredFlames.html
http://thewolfstone.com/Pyro/pmamat_PyroMaterials.html#BoricAcid