

Paul Revere Village

Millbury, Massachusetts

Fireworks!

The color is in the chemistry...

As the Fourth of July draws close many people start anticipating the arrival of vibrant and noisy firework displays. Almost everyone can appreciate a grand firework display, but how many of you ever considered how they produce the various colors from the firework shells?

There are two ways to obtain color that our eye can perceive. The first is through incandescence and the other is through luminescence.

Incandescent light is given off when something is heated to the point where it glows. Think of an incandescent light bulb. Here a tungsten filament glows white hot giving off a white or yellow white light when it is heated by passing electric current through the filament. It gets so hot it glows and gives off light. Embers in a campfire also give off incandescent light.

In a firework shell the temperature of the shell at detonation can be controlled with the use of metals, such as magnesium, tungsten or aluminum which burn hot and bright. The hotter the burn the

more white the color. For a dull red glow charcoal is used which burns at a lower temperature.

Luminescence is light that is not caused by the heating of an element. Instead luminescence starts when an electron of an atom absorbs enough energy to rise to a higher energy state. Often this new energy level is an unstable state and the electron quickly returns to its former energy level giving off a photon of light as it does so. The wavelength of this emitted photon determines the color of the visible light and the wavelength of the light is determined by the difference in the energy levels between the ground state of the electron and the excited state of the electron. Atoms have various levels or orbits that their electrons can occupy so they will emit different wavelengths or colors of light.

For example, sodium atoms will emit a yellow light as their excited electrons return to their ground state. Copper atoms will emit a blue light.

Creating the different colors in a fireworks display is a matter

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Independence Day - July 4

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Recycling for July:

Paper - July 8, 22

Recyclables - July 1, 15, 29



FIREWORKS! (FROM PAGE 1)

of combining compounds containing atoms that emit light in the color you want. Elements can be combine to get colors like purple which is a mixture of blue and red light.

Below is a table of firework colors and the elements responsible for them.

Firework Color	Element Used
Red	Strontium
Orange	Calcium
Gold	Iron, Carbon (incandescent light)
Yellow	Sodium
Green	Barium
Blue	Copper
Purple	mixture of Copper and Strontium.
Silver	Magnesium, Tungsten, Lithium, Aluminum (incandescent light)
White	Magnesium, Tungsten, Lithium, Aluminum burning hot - usually through the addition of oxidizers (incandescent light)

MILLBURY INDEPENDENCE DAY CELEBRATIONS

Carnival: July 1 to July 4, Windle Field

Fireworks: July 3 and 4, Windle Field at dusk (about 9:30 pm)

http://www1.whdh.com/news/articles/special_edition/MI2414/
for firework schedules for other areas of Massachusetts

2009 is Fireplace Inspection Year!

**ALL fireplaces must be inspected and cleaned
(if necessary)
between April 1 and October 1**

A certificate of inspection from a licensed chimney sweep must be submitted to the Board no later than October 1, 2009. Most of our unit owners use Top Hat in Grafton. For details on a discount Top Hat is offering PRVA, call (508) 839-9997 . Fireplace cleaning and inspection is a safety issue that concerns ALL of us at PRVA.

Homeowners and tenants are reminded that our fireplaces are NOT made to withstand continual, hot, wood fires and are NOT to be used as a primary source of heat for your unit.

PRVA Parking Regulations to be ENFORCED

The board has elected to start fining residents of PRVA who violate the association's parking policies.

1. Commercial vehicles are not allowed at any time unless it is a vendor doing work. If you have a work vehicle do not even bring it home for lunch.
2. No parking on any sidewalks or on any streets (except along Bunker Hill Road). Alert your guests!

Violation will result in a daily fine of \$25

FRUIT SQUARES

I used to make this recipe often when I was a young girl and living with my Mother. It brings back memories.

Ingredients:

- 2 sticks butter
- 2 cups granulated sugar
- 3 cups flour
- 4 eggs
- 1 tsp. vanilla extract
- 1 can pie filling (I use cherry, but you choose.)

Cream butter & sugar. Add eggs & vanilla. Mix well until light and fluffy. Add flour and mix. Batter will be stiff. Spread 2/3 of the batter into a 13x9 cookie sheet. Cover with pie filling. Dab with the rest of the batter and spread the best you can. Sprinkle with a bit of granulated sugar. Bake 350° for 45-50 minutes. Cool completely before cutting into squares.

MONTHLY MINUTE WITH MAUREEN

In a few days it will be the 4th of July. What a nice time of the year. There are so many different things to do over the next 2 months. Many of these can be done on a budget. Jeff and I are going to Old Sturbridge Village on the 4th. Tickets can be purchased online. For a small price, it is a good night out with a big fireworks display to end the evening. We went last year, brought our own chairs, and even sat on the tailgate listening to music while most of the cars left the parking lot. I always remind myself to make the most of what we do. There are always things to do and ways to have special moments all summer long. Remember to get out this summer and see New England. There are so many beautiful places right here and it only takes a tank of gas. Have fun this summer!

~ Maureen



July 4, 2008 at Old Sturbridge Village...

