**intro: Gunpowder**

This is an instructable for how to make gunpowder from its basic chemicals. The cost is initially expensive for the scale and ballmill (a little over $100) but once you have those parts all you need is the chemicals which are relatively cheap.

**step 1: Parts list**

There are three basic chemicals in gunpowder: Potassium Nitrate, Charcoal powder, and Sulfur powder. Gunpowder would be a lot simpler to make if you could just mix the three chemicals together in the right ratio and have the final product, however chemistry doesn't always work that way. If you look at a piece of charcoal under a microscope you can see very tiny holes called pores. Even when the charcoal is ground up into a fine powder each particle of it still contains microscopic pores. To properly make gunpowder the particles of charcoal must be ground together with the potassium nitrate and sulfur, the process of grinding them smashes the potassium nitrate and sulfur into the pores of the charcoal creating a substance that will readily burn when ignited.

Parts list:

1. Ball mill (Can be bought at unitednuclear.com for $70, if you buy it someplace else or decide to make it, make sure you also buy lead grinding media (ceramic media can also be used) as it is the only metal that won't give off sparks when ground together)
2. Scale (I prefer the electronic ones which can be bought on e-bay fairly cheap, less then $20, make sure it has a capacity of at least 200 grams, otherwise you will be making gunpowder in very small batches)
3. Potassium nitrate, Sulfur powder, and Charcoal powder (All obtainable on e-bay) When buying try to buy as close to 5x as much potassium nitrate as charcoal powder, and 2/3 as much sulfur as charcoal (I will explain the ratios later)
4. Wire spaghetti strainer
5. Old newspapers
6. Tupperware container
7. Calculator (To measure the amount of chemical to use)
step 2: Mixing the chemicals
As long as you always follow the 75:15:10 ratio of potassium nitrate:charcoal powder:sulfur powder you can make any amount of gunpowder necessary. First either determine the necessary amount and mix the chemicals accordingly, or you can make a large batch and save it for future use (I do it this way). A decent sized batch would be 300 grams potassium nitrate, 60 grams charcoal powder, and 40 grams sulfur powder.

Steps:
1. If you are using an electric scale, place a container (I use dixie plastic cups) on it to measure the chemicals into. Then press and hold the "tare" button and it will take the added weight into account and set itself to zero (meaning the weight of the cup won't be taken into effect when you measure out the weight of the chemicals)
2. Measure the proper amount of each chemical, one chemical at a time, into the cups and then empty each cup into the ball mill.
3. When all 3 chemicals are in the ball mill grinding chamber seal it and turn it on.

step 3: Turn it on and wait
The title of this step says it all. Two hours is the standard amount of time to let it grind for, however you can leave it on for longer to get a slightly higher quality powder (I suppose you can also grind it for a shorter amount of time with diminished results if you need it fast, examples of this would be if you were in some sort of gunpowder making contest or if your hometown was invaded by aliens and you needed fast gunpowder)

step 4: Sift out the powder
After 2 hours you will turn off and remove the gunpowder from the ball mill, and store it in a container.

Steps:
1. Lay out a couple of sheets of old newspaper.
2. Hold the spaghetti strainer over the newspaper and pour the contents of the ball mill into it.
3. Gently shake the strainer until all the gunpowder has fallen through the holes to the newspaper and all the lead balls remain.
4. Put the lead balls back in the ball mill, close it up, and store it for another day.
**step 5: Store for future use**

Pour the gunpowder from the newspaper into a tupperware container. Seal the container tightly and store for future use. Make sure the container is airtight so the gunpowder will not absorb moisture from the air.