Outline of a basic DNA Extraction

1.Break open (lyse) the cells or virus containing the DNA of interest - This is often done by sonicating or bead beating the sample. Vortexing with phenol (sometimes heated) is often effective for breaking down protienacious cellular walls or viral capsids. The addition of a detergent such as SDS is often necessary to remove lipid membranes.

2.DNA associated proteins, as well as other cellular proteins, may be degraded with the addition of a protease. Precipitation of the protein is aided by the addition of a salt such as ammonium or sodium acetate. When the sample is vortexed with phenol-chloroform and centrifuged the proteins will remain in the organic phase and can be drawn off carefully. The DNA will be found at the interface between the two phases.

3.DNA is the precipitated by mixing with cold ethanol or isopropanol and then centrifuging. The DNA is insoluble in the alcohol and will come out of solution, and the alcohol serves as a wash to remove the salt previously added.

4.Wash the resultant DNA pellet with cold alcohol again and centrifuge for retrieval of the pellet.

5.After pouring the alcohol off the pellet and drying, the DNA can be re-suspended in a buffer such as Tris or TE.

6.Presence of DNA can be confirmed by electrophoresing on an agarose gel containing ethidium bromide, or another fluorescent dye that reacts with the DNA, and checking under UV light.