Detailed Set Up Instructions:

Each team should have their own lab station with one set of the unknown powders, liquids, metals, fibers, hairs, and polymers. Depending on resources and space available, it may be necessary for teams to share the unknowns and reagents. However, it is inadvisable to have more than 2 teams share these in order to prevent contamination. The unknowns should be placed in small vials or cups that are labeled with the correct number indicated in the answer key. For instance, the cup/vial labeled 1 should contain Vitamin C, and the cup/vial labeled P1 should contain HDPE. It is not necessary to provide more than approximately 1 tsp. of powder or metal, 1 tbsp. of unknown liquids, one or two small pieces of the plastics, several small pieces of the fibers, and several pieces of hair. For samples 3 and 10, the powder mixtures, make sure that there is approximately equal amounts of both powders in the container and that it is mixed well.

Each team should also get one set of reagents, including 1 M HCl, Iodine (KI), and distilled water. For chromatography purposes, each team will need to be provided 1 beaker, 4 strips of blank filter paper, and 1 strip of filter paper with a dot made by pen 1 for the crime scene note.

Students should also be provided tea candles and matches to burn fibers, but it may be advisable to have this as a separate station so that it is easy to supervise the burning of fibers.

There should be a chromatography station with 4 pens, labeled 1-4. It is advisable to test the 4 pens and make sure their ink is water soluble and creates distinct chromatograms. How to do paper chromatography (you only need to use water as the solvent):http://www.kyantec.com/Tips/paperchromatography.htm

Finally, there should be tape available for students to tape their completed chromatograms to the answer sheet, and a stapler in case students take apart the test.