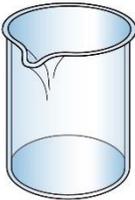
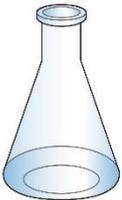


Lab Equipment Guided Notes – Teacher Edition

In the science laboratory there are many pieces of equipment which have a special purpose. Before beginning to work in a lab it is important that you can identify each piece of equipment, can safely use it. Each piece of equipment is described below.

Containers for Chemicals

Equipment	Function (what it does)
 <p data-bbox="305 888 391 915">Beaker</p>	<p data-bbox="594 646 1474 785">Beakers are used to store a measured amount of liquid in it. They are also used to hold solids and to mix or heat materials. They come in different capacities including 50 ml, 250 ml, 500 ml, 1000 ml, etc.</p> <p data-bbox="594 823 1490 909">Beakers have poor accuracy, so should not be used to measure a volume of liquid.</p>
 <p data-bbox="250 1209 440 1236">Erlenmeyer Flask</p>	<p data-bbox="594 1010 1495 1203">These are also known as conical flasks due to their conical shape. Like a beaker, the flask is also used to hold solids or liquids. They can also be used to heat a substance and are useful for stirring or swirling a liquid as their shape prevents spillage.</p>
 <p data-bbox="293 1514 399 1541">Test tube</p>	<p data-bbox="594 1346 1463 1484">The test tube is the most common piece of glassware used in the Science laboratory. It comes in various sizes and is used to mix liquids, mix solids with a liquid, grow cultures, etc.</p>
 <p data-bbox="277 1824 412 1852">Boiling tube</p>	<p data-bbox="594 1673 1495 1759">A boiling tube is a larger, more robust test-tube which can withstand higher amounts of heat. These are used to heat small volumes of substance.</p>

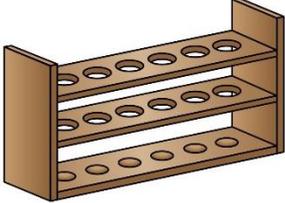
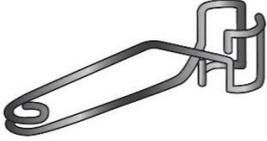
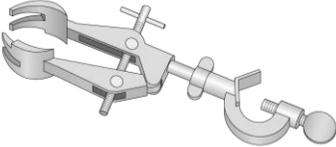
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 <p>Watch glass</p>	<p>These are used to hold a small amount of solid or liquid when heating it. It can also be used as a lid for a beaker.</p>
 <p>Evaporating dish</p>	<p>This ceramic vessel is used to heat substances. The substance may be a solid which needs to melt, or mixture which needs to be evaporated to obtain a crystalline solid.</p>
 <p>Petri dish</p>	<p>A Petri dish is a shallow glass or plastic dish that comes with a cover. It is named after its inventor Julius Richard Petri. It is used to grow microbiological cultures.</p>
 <p>Mortar and Pestle</p>	<p>This is a porcelain bowl and rounded club-like tool which can be used to crush and grind solids into a fine powder or mixture.</p>

Holding Things

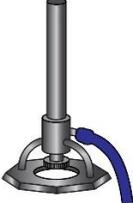
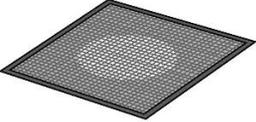
Equipment	Function (what it does)
 <p>Forceps/tweezers</p>	<p>Used for picking up small or sterile objects. They are usually metal or sometimes plastic.</p>
 <p>Spatula</p>	<p>A spatula allows small quantities of a solid or to be picked up and transferred to and from any container. It is generally used as a spoon in a laboratory.</p>

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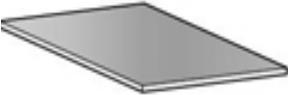
 <p>Test tube rack</p>	<p>This is a stand that is used to hold 5-10 test tubes upright. Some holders have a row of spikes which can be used to invert test tubes for drying them after your experiment.</p>
 <p>Test tube holder</p>	<p>Used to hold a hot test tube during or after it has been heated.</p>
 <p>Beaker tongs</p>	<p>Allows you to safely carry a beaker after it has been heated.</p>
 <p>Ring stand</p>	<p>A ring stand (also known as a retort or clamp stand) is used with a boss head and clamp. It is used to hold other pieces of equipment such as burettes, flasks, or Petri dishes in a fixed position.</p>
 <p>Boss head and clamp</p>	<p>A boss head is a double-ended screw which secures a clamp to a ring stand. The clamp connects to the boss head and holds other lab equipment such as flasks, usually during heating or separation labs.</p>

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Heating Equipment

Equipment	Function (what it does)
 <p data-bbox="331 625 407 653">Striker</p>	<p data-bbox="618 541 980 569">Used to light a Bunsen burner.</p>
 <p data-bbox="285 947 451 974">Bunsen burner</p>	<p data-bbox="618 772 1414 905">The Bunsen is used for burning or heating substances. It has an adjustable collar which changes the color of the flame from orange (safety) to blue (heating).</p>
 <p data-bbox="282 1188 456 1215">Wire gauze mat</p>	<p data-bbox="618 1031 1474 1213">This is a mesh-like structure made of iron. It is used to support a beaker or a flask on top of a tripod while heating. The wire mesh distributes the heat evenly so that there are no hot spots in the substance being heated.</p>
 <p data-bbox="298 1514 440 1541">Clay Triangle</p>	<p data-bbox="618 1394 1403 1421">Used to hold a crucible or evaporating dish while its being heated.</p>
 <p data-bbox="282 1766 456 1793">Crucible and lid</p>	<p data-bbox="618 1682 1414 1709">Heats small amounts of substance to extremely high temperatures.</p>

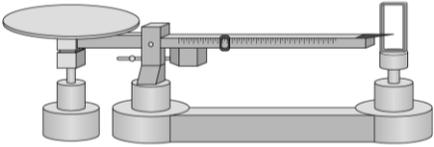
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 <p style="text-align: center;">Tripod</p>	<p>Used to support glassware e.g. beakers and flasks on a wire mat while a substance is being heated with a Bunsen.</p>
 <p style="text-align: center;">Heat proof mat</p>	<p>Is placed underneath any heating equipment and protects the bench, should anything overflow or splash out of your experiment.</p>
 <p style="text-align: center;">Hot plate</p>	<p>Hot plates can be used to heat liquid substances in glass beakers. They are usually used when you don't need extremely high temperatures like those produced by a Bunsen burner.</p>
 <p style="text-align: center;">Spirit Lamp</p>	<p>This lamp can be used instead of a Bunsen burner. It has a container filled with a fuel such as spirits or alcohol and a wick inside.</p>

Measuring

Equipment	Function (what it does)
 <p style="text-align: center;">Measuring Cylinder</p>	<p>Also known as a graduated cylinder, the measuring cylinder is used to accurately measure a volume of a liquid in milliliters (ml). The measuring cylinder has markings on it so that an accurate amount of liquid can be measured.</p>

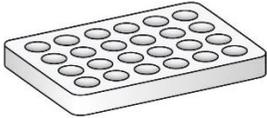
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 <p>Digital Balance</p>	<p>Also known as an analytical balance. This is used to accurately measure the mass of any solid.</p>
 <p>Triple Beam balance</p>	<p>Measures the mass of a solid accurately. These have largely been replaced by electronic balances.</p>
 <p>Ruler</p>	<p>Used to measure the dimensions of an object, draw graphs and scientific diagrams.</p>
 <p>Thermometer</p>	<p>Used to accurately measure the temperature of a substance.</p>
 <p>Stopwatch</p>	<p>Stopwatches and timers are used in the lab setting to accurately measure the timing on a reaction or experiment.</p>

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Other Useful Items

Equipment	Function (what it does)
 Dropper bottle	Dispensing liquids one drop at a time.
 Dropper	Droppers allow one drop of liquid to be transferred at a time and can be made of plastic or glass. Disposable droppers are made of plastic and are useful when sterile technique is needed. Glass droppers usually have a rubber bulb attached to draw the liquid into the dropper.
 Test tube brush	Test tube brushes are used to wash and clean test tubes . Test tubes should always be cleaned after every use.
 Wash bottle	Used to wash specimens, rinsing crystals, and adding a small amount of water to an experiment.
 Spot plate	Used to perform small chemical reactions which only require a few drops of chemical.

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 <p>Glass stirring rod</p>	<p>Used to stir chemicals which are hot or need to be dissolved. Glass does not react with common lab chemicals, does not conduct heat like metals or melt like plastic.</p>
 <p>Funnel</p>	<p>Used for filtering substances or pouring liquids from one container into another without spilling.</p>
 <p>Rubber Stopper/Bung</p>	<p>Used to plug a flask or test tube to ensure the contents is kept inside.</p>