



## Royal Society of Chemistry resources for A level Chemistry practicals

### New Specification A-level: Practical Apparatus and Techniques

<b>Apparatus and Techniques</b>	
<b>1</b>	use appropriate apparatus to record a range of measurements (to include mass, time, volume of liquids and gases, temperature)
<b>2</b>	use water bath or electric heater or sand bath for heating
<b>3</b>	measure pH using pH charts, or pH meter, or pH probe on a data logger
<b>4</b>	use laboratory apparatus for a variety of experimental techniques including: <ul style="list-style-type: none"> <li>• titration, using burette and pipette</li> <li>• distillation and heating under reflux, including setting up glassware using retort stand and clamps</li> <li>• qualitative tests for ions and organic functional groups</li> <li>• filtration, including use of fluted filter paper, or filtration under reduced pressure</li> </ul>
<b>5</b>	use volumetric flask, including accurate technique for making up a standard solution
<b>6</b>	use acid-base indicators in titrations of weak/strong acids with weak/strong alkalis
<b>7</b>	purify: <ul style="list-style-type: none"> <li>• a solid product by recrystallization</li> <li>• a liquid product, including use of separating funnel</li> </ul>
<b>8</b>	use melting point apparatus
<b>9</b>	use thin-layer or paper chromatography
<b>10</b>	set up electrochemical cells and measuring voltages
<b>11</b>	safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances
<b>12</b>	measure rates of reaction by at least two different methods, for example: <ul style="list-style-type: none"> <li>• an initial rate method such as a clock reaction</li> <li>• a continuous monitoring method</li> </ul>

### Comparison Table – Practical Technique vs Exam board experiments

<b>Practical Technique</b>	<b>Edexcel Experiment Numbers</b>
<b>1</b>	1,2,4,6,8,11,12,13,14,16
<b>2</b>	4,5,7,15,16
<b>3</b>	9
<b>4</b>	1-16
<b>5</b>	2,3,11
<b>6</b>	2,3,13
<b>7</b>	5,6,12,16
<b>8</b>	15,16
<b>9</b>	5,6,16
<b>10</b>	10
<b>11</b>	1-16
<b>12</b>	13

**Practical techniques and suitable practicals from Learn Chemistry  
(where possible these have been matched them to specification core practicals).**

<b>Practical Technique</b>	<b>Experiments from Learn Chemistry</b>	<b>Exam Board Experiment</b>
<b>1</b>	<a href="#">Interactive Lab Primer – Lab Apparatus</a> <a href="#">The Volume of Hydrogen Gas</a> <a href="#">The Formula of Hydrated CuSO<sub>4</sub></a> <a href="#">Finding the Formula of an Oxide of Copper</a> <a href="#">Weighing Gases</a> <a href="#">Heats of Reaction</a> <a href="#">Exothermic and Endothermic</a> <a href="#">A Reversible Reaction</a> <a href="#">Measuring Enthalpy Changes</a> <a href="#">Neutralisation – ‘Curing Acidity’</a> <a href="#">Thermometric Titration</a>	Edexcel 1  Edexcel 8 Edexcel 8 Edexcel 8 Edexcel 8
<b>2</b>	<a href="#">Fractional Distillation of Crude Oil</a> <a href="#">Limonene from Oranges and Lemons</a> <a href="#">Aspirin (or Aspirin)</a> <a href="#">Paracetamol</a>	Edexcel 16
<b>3</b>	<a href="#">Neutralisation of Indigestion Tablets</a> <a href="#">On the Acid Trail</a> <a href="#">Universal Indicators</a> <a href="#">pH of Oxides</a> <a href="#">Neutralisation – ‘Curing Acidity’</a> <a href="#">Gifted and Talented Chemistry – ‘Acids and Alkalis’</a>	Edexcel 2, 3 Edexcel 9; Edexcel 9 Edexcel 9
<b>4</b>	<a href="#">Interactive Lab Primer – Titration</a> <a href="#">Interactive Lab Primer – Distillation</a> <a href="#">Interactive Lab Primer – Reflux</a> <a href="#">Interactive Lab Primer – Filtration</a> <a href="#">Limonene from Oranges and Lemons</a> <a href="#">Neutralisation of Indigestion Tablets</a> <a href="#">Titration of NaOH with HCl</a> <a href="#">Fermentation</a> <a href="#">Testing Salt for Anions and Cations</a> <a href="#">Flame Tests</a> <a href="#">Testing for Negative Ions</a> <a href="#">Reactions of Positive Ions</a> <a href="#">Reactions of the Halogens</a> <a href="#">Fractional Distillation of Crude Oil</a> <a href="#">The Oxidation of Alcohols</a> <a href="#">Analysis of Aspirin Tablets</a> <a href="#">Chromium, Molybdenum and Tungsten</a> <a href="#">Aspirin (or Aspirin)</a> <a href="#">Tannin in Wine</a> <a href="#">Copper in Brass</a> <a href="#">Testing for Aldehydes and Ketones</a> <a href="#">Properties of Ethanoic Acid</a> <a href="#">Testing for Unsaturation</a> <a href="#">Properties of Transitions Metals</a> <a href="#">Halogen Compounds</a> <a href="#">Gifted and Talented Chemistry – ‘Acids and Alkalis’</a> <a href="#">Creative Problem Solving - ;Five White Solids’</a> <a href="#">Detecting Aspartame</a> <a href="#">Paracetamol</a> <a href="#">Hydration of Alkenes</a> <a href="#">Thermometric Titration</a>	Edexcel 2, 3  Edexcel 7, 15 Edexcel 7, 15 Edexcel 7, 15  Edexcel 5  Edexcel 15 Edexcel 16 Edexcel 11 Edexcel 11 Edexcel 7, 15 Edexcel 7, 15  Edexcel 7, 15  Edexcel 16

	<a href="#">Silver and Lead Halides</a>	Edexcel 7, 15
5	<a href="#">Interactive Lab Primer – Standard Solution</a>	
6	<a href="#">On the Acid Trail</a>	Edexcel 9
7	<a href="#">Interactive Lab Primer – Recrystallisation</a> <a href="#">Interactive Lab Primer – Separating Funnel</a> <a href="#">Paracetamol</a> <a href="#">Hydration of Alkenes</a> <a href="#">Purifying an Impure Solid</a>	Edexcel 6
8	<a href="#">Interactive Lab Primer – Melting Point</a> <a href="#">Observing the lowering of Melting Point</a> <a href="#">Paracetamol</a>	
9	<a href="#">Interactive Lab Primer - TLC</a> <a href="#">Chromatography of Leaves</a> <a href="#">Aspirin (or Aspirin)</a> <a href="#">Chemistry Masterclass</a> <a href="#">Detecting Aspartame</a> <a href="#">Paracetamol</a>	Edexcel 16
10	<a href="#">Electricity from Chemicals</a> <a href="#">Accumulator</a> <a href="#">Gratzel Cell</a> <a href="#">Kitchen Currents</a>	Edexcel 10 Edexcel 10 Edexcel 10
11	<b>All Experiments</b> <a href="#">Interactive Lab Primer – Working Safely</a>	<b>All Experiments</b>
12	<a href="#">Rate of Reaction – Concentration and Temperature</a> <a href="#">Rate of reaction - Temperature</a> <a href="#">Rate of Reaction - Concentration</a> <a href="#">Iodine Clock</a> <a href="#">Finding the rate expression</a> <a href="#">Rate of Reaction – Magnesium and Hydrochloric acid</a> <a href="#">Rates and Rhubarb</a> <a href="#">Old Nassau</a>	Edexcel 13 Edexcel 13