



**Year: 7**

**Subject: Science**

**Topic: Separating Mixtures**

Knowledge and Understanding to be developed:

the physical and chemical properties of some elements, compounds and mixtures and how mixtures can be separated by simple techniques  
the differences between physical and chemical changes using some common examples

**Homework:**

Create a safety poster for the lab.  
Work through solutions booklet.

**lessons**

**Skills/practicals**

**Lesson 1: Safety in the laboratory and equipment.**

State how to behave safely in the laboratory.  
Name some scientific apparatus  
Describe how to draw scientific apparatus  
Explain how to set up apparatus for an experiment using labelled diagrams.

**Lesson 2 mixtures and separating Sand Salt and Water**

State the meaning of **mixture**.  
Suggest ways to separate mixtures and explain the choices to separate mixtures in certain ways  
Carry out a separation technique and evaluate its effectiveness (**filtration**)

**Class practical:**  
Filtration of sand and salty water.

**Lesson 3 Solutions**

Know what we see when a substance **dissolves**  
Describe substances as **soluble, insoluble, saturated, solute, solvent**  
Explain what a saturated solution is, describe the **solubility** of a solute using the correct units g/100g water.

**Class practical:**  
Does it dissolve?

**Lesson 4 comparing solubilities**

Use the name of chemicals  
Carry out a scientific investigation  
Evaluate difficulties a scientific method.

**Levelled task**  
**Specified practical**  
**Solubility of different salts**  
**Skills (numeracy)**

**Numeracy:**

Present answers to a given number of decimal places 7N15a  
Estimate and visualise size when measuring and use the correct units ks3.7  
Draw conclusion from data and recognise that some may be misleading KS3.19  
Construct a wide range of graphs and diagrams to represent data and reflect the importance of scale 7D4a  
Record temperatures in appropriate scales 7.M8  
Interpret mathematical information, draw inferences from graphs, diagrams and data, including discussions and limitations of data KSS.21  
Interpret diagrams and graphs 7D3  
Measure to complete a task ks3.5  
Read and interpret scales 7M1

**Literacy:**

Collate summarise relevant information  
response and analysis 7RA3  
  
distinguish between facts, opinions, theories and evidence  
response and analysis 7RA4  
  
Plan writing making choices about the best way to present content.  
meaning purposes readers 7WM3  
  
adapt structures in writing for different contexts  
Structure and organisation 7WS1  
  
Select and organise ideas and information to give a clear and full account  
Structure and organisation 7WS2  
  
Use varied and appropriate vocabulary accurately including subject specific words and phrases  
Language 7WL2

<b>Lessons 5: Bunsen burner safety and evaporation</b>	
<p>Name the parts of the Bunsen burner</p> <p>Describe how to light the Bunsen burner safely</p> <p>Explain how to use the Bunsen burner to heat safely and at different temperatures</p> <p>Know that we can obtain a dissolved substance using <b>evaporation</b>.</p>	<p><b>Class practical:</b> Evaporate salty water (evaporate ready-made samples of salty water)</p>
<b>Lesson 6: factors affecting evaporation</b>	
<p>Describe how a solid can be obtained from a solution</p> <p>Describe what factors can speed up evaporation</p> <p>Explain how factors speed up evaporation</p>	<p><b>Class practical:</b> Salt from rock salt</p>
<b>Lesson 7 Chromatography</b>	
<p>Carry out an experiment using chromatography</p> <p>Describe the process of chromatography</p> <p>To identify the components of a mixture from a chromatogram</p> <p>Explain why <b>chromatography</b> happens using the idea of particles</p>	<p><b>Class practical:</b> Chromatography</p>
<b>Lesson 8/9 Distillation</b>	
<p>Label a diagram of the <b>distillation</b> apparatus.</p> <p>Describe the process of distillation using the words <b>evaporating and condensing</b>.</p> <p>Explain how distillation works using the idea of boiling temperatures.</p> <p>Further work:</p> <p>Use simple separation techniques produce a perfume.</p> <p>Carry out a practical to make perfume using filtering technique</p> <p>describe what happens to the particles of the solute and solvent during evaporation and condensing</p>	<p><b>Class demo:</b> Distillation of wine</p> <p><b>Class practical:</b> Extracting scents from plant materials</p>
<b>Lesson 10 – end of topic test</b>	
End of topic assessment	

**Further key words:**

Beaker, conical flask, funnel, spatula, test tube, boiling tube, pipette, condenser, round bottom flask.