Introduction

Managing Cover Lessons – Science contains worksheets to cover lessons when the teacher is absent. The pack is aimed at Years 7, 8 and 9 and is based around the requirements of the National Curriculum. It is divided into three sections: Life processes and living things (Sc2), Materials and their properties (Sc3) and Physical processes (Sc4). Answers are provided on pages 62 to 67.

How to use this pack

These worksheets can be used in many ways. However, a tried and tested method is suggested below:

- Photocopy a large number (eg 300) of every worksheet in this pack. This should be done at the start of the school year, so that you can use the material at short notice during term time without preparation. Note that some worksheets extend to two pages and are designed to be photocopied back to back.
- You will need 40 boxes which fit A4 paper in them. Put the copies of each worksheet in separate boxes.
- Label the outside of each box with the worksheet title and National Curriculum strand (eg Sc2).
- Store the boxes in an accessible place in the science department.
- Photocopy 40 copies of the **worksheet record** (page 3).
- Label the worksheet records so that there is one for every worksheet, and then attach it to the front of the appropriate worksheet box.
- Every time a worksheet is used with a class, record it on the worksheet record on the front of the relevant box. This is to ensure that the worksheet is never used twice with the same group of students.
- At the start of the day, record on the **cover sheet** (page 4) the details of the lessons requiring a cover teacher. Place the form on the absent teacher's desk.
- Collect all the relevant worksheet boxes for the day and place them on the absent teacher's desk.
- When a teacher is covering a lesson for a colleague, they should select the relevant box from the desk, take it into the classroom and hand out as many worksheets as are required. The boxes should then be returned to the storeroom at the end of the day, for future use.

This method is particularly useful if teachers are absent due to illness, staff INSET or unforeseen circumstances. It is designed to ensure that time is not wasted preparing for cover lessons, and there is a bank of activities to draw on. The activities are designed to be stand-alone, and so the lessons should not require supervision by a specialist teacher. If there is not enough space in the department to store the boxes, the relevant worksheet can be photocopied on demand.

Extra materials

It is expected that students have a science exercise book to use with these worksheets. Students should copy out the first section of each worksheet in their exercise books, and then work through the rest of the sheet. They should write their answers in their books where indicated. Note that for **Variation** (pages 19 and 20) and **Metals** (page 36), students need graph paper. For **Metals** and **The periodic table** (pages 27 and 28), a copy of the periodic table is needed for each student and one is provided on page 44. It is best to prepare copies of this at the beginning of the year and store them in the appropriate worksheet box. A textbook should be available to students for **Properties of metals** (page 37).

Teacher preparation

If a class teacher knows that they are going to be absent from some of their lessons, it may be more appropriate for them to follow the instructions below:

- Notify your head of department and colleagues of the date(s) on which you will be away in good time. A cover teacher (or teachers) can then be allocated to your classes. They may be recorded on the **cover sheet** (page 4).
- Collect and fill in the following for the cover teacher:
  - **A cover sheet** – This gives the time of each lesson, the name of the cover teacher, the year group, the name of the class, the number of students, the classroom and the worksheet to be used.
  - **A worksheet** – Choose a worksheet from the selection on pages 6 to 61. Ensure you make enough photocopies for the number of students in the class.
  - **An instruction sheet** – Using the form on page 5, give clear instructions on how the chosen worksheet should be used. You may also wish to provide extension material and homework.
  - **Extra materials** – Ensure that the cover teacher is provided with, or has access to, the required materials (eg graph paper).
- Ensure that these forms and the required number of worksheets are left in a convenient place for the cover teacher to collect before the lesson. Check that the cover teacher knows where they should be left after the lesson. Remember that if the cover teacher is new to the school, they should also be informed about break and lunchtimes, discipline policies, registers, etc.

Linda Elliott
November 2002

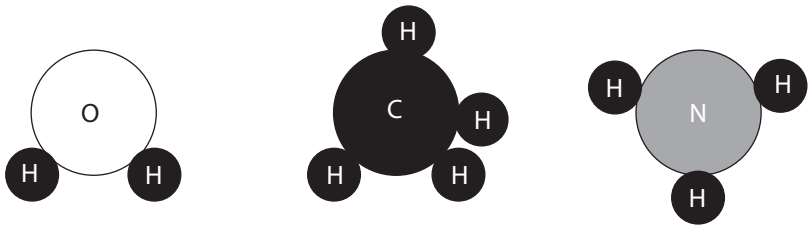
Copy the text below into your book.

- Mixtures are two or more substances which are not chemically joined.
- Mixtures can be separated again.
- The methods of separating mixtures are **filtering**, **evaporation**, **distillation** and **chromatography**.
- A compound is formed when two or more elements are joined chemically in a reaction.
- Compounds are difficult to separate.
- When elements combine in a compound, their names change.
- Two elements combine to form an **-ide** ending.
- Three or more elements combine to form an **-ate** ending.

Questions

Answer the following questions in your book.

1 Write down the elements that make up each of the following compounds.



Water *Methane* *Ammonia*

Key: H = Hydrogen, O = Oxygen, N = Nitrogen, C = Carbon

a What is the same about each of these compounds?

b What is different about each of these compounds?

2 Write down the elements in each of the following two-element compounds:

a Magnesium oxide

b Sodium chloride

c Iron sulphide

d Hydrogen chloride

e Copper oxide

f Carbon dioxide

g Aluminium chloride

h Calcium oxide

i Copper sulphide

j Hydrogen sulphide

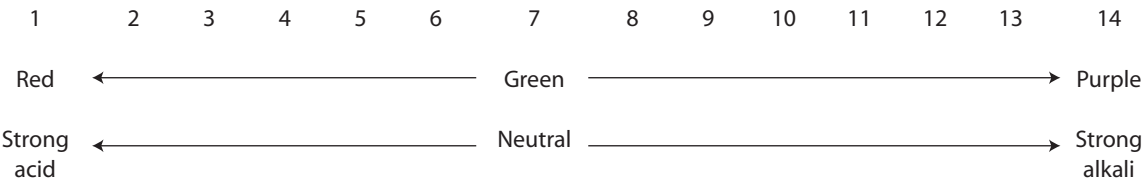
Name:	Form:

Sc3: Acids and alkalis

Managing Cover Lessons – Science

Copy this text into your book.

- Acids and alkalis are made when a substance dissolves in water to form a solution.
- Common acids are nitric acid, hydrochloric acid and sulphuric acid.
- Common alkalis are sodium hydroxide, potassium hydroxide and ammonium hydroxide.
- **Acids** have a **low** pH, ie below 7, and **alkalis** have a **high** pH, ie above 7.
- Acids taste sour and alkalis feel soapy.
- Both acids and alkalis are **corrosive**.
- Acids and alkalis can neutralise each other. The reaction is: **acid + alkali = salt + water**.
- Acids make **hydrogen** when they react with metals and **carbon dioxide** when they react with metal carbonates.
- When soluble **bases** are dissolved in water, an **alkaline** solution is made.
- This is the pH scale:



Questions

Answer questions 1 and 2 in your book.

1 Copy and complete the table below. Choose the correct pH for each substance. Decide whether the substance is acidic, alkaline or neutral and tick the appropriate box.

	Substance	Colour of indicator	pH	Acidic	Neutral	Alkaline
a	Sour milk	Yellow	6	☐	☐	☐
b	Egg white	Blue	8-10	☐	☐	☐
c	Soap	Green	.....	☐	☐	☐
d	Oven cleaner	Purple	.....	☐	☐	☐
e	Lemon juice	Orange	.....	☐	☐	☐
f	Vinegar	Red	.....	☐	☐	☐

2 Copy and complete the following, using the words in the box.

acid	alkali	14	neutralise	8
6	1	lower	red	

Acid solutions turn blue litmus paper _____ . They always have a pH _____ than 7. When an acid and alkali react, they _____ each other. A strong acid has a pH of about ___ . A weak acid has a pH of about ___ . A strong alkali has a pH of about ___ . A weak alkali acid has a pH of about ___ . Bee stings are acidic. You can ease the pain by putting an _____ on a sting. Wasp stings are alkaline. They can be neutralised by an _____ .

Copy this text into your book.

- The **speed** of an object is how far it moves in a certain time.
- Speed can be measured in metres per second (m/s). This means how many metres you have covered in one second. Other common units are kilometres per hour (km/h) or miles per hour (m/h).
- To work out speed, you need to know the **distance** travelled and the **time** taken for the journey. These could be measured with a tape measure and a stopwatch. These values are then put into a formula:

$$\textbf{Speed} = \frac{\textbf{Distance}}{\textbf{Time}} \quad \text{or} \quad \textbf{S} = \frac{\textbf{D}}{\textbf{T}}$$

Example: An Olympic sprinter covers 100 m in 9.7 seconds. How fast is he running?

$$\textbf{Speed} = \frac{\textbf{Distance} \text{ in metres}}{\textbf{Time} \text{ in seconds}}$$

$$= \frac{100}{9.7}$$

$$= 10.3 \text{ m/s}$$

For the same moving objects travelling at this speed, it is possible to calculate how far it will have travelled in 100 seconds.

Example: The Olympic sprinter travels at 10.3 m/s for 100 seconds. How far has he travelled?

This time, we need to rearrange the formula because he travels 10.3 metres every second for 100 seconds.

Distance = **Speed x Time**
= 10.3 x 100
= 1030 m

Questions

Answer these questions in your book.

1 Copy the table below. In each case in the table, calculate the speed of the object. Show all your working out. Then put the moving objects into order with the fastest first.

	Distance (metres)	Time (seconds)	Speed (m/s)
a **Car**	1200	40	
b **Bicycle**	64	8	
c **Girl walking**	340	200	
d **Concorde**	38 880	60	
e **High-speed train**	216 000	3600	
f **Cheetah**	1125	45	
g **Sound in air**	165	0.5	
h **Bus**	4800	2400	
i **Racing car**	3000	60	
j **Rollerblader**	1000	160	

2 Draw a bar chart to show the different distances travelled by the moving objects in the same time. It will give you a good idea of how fast some of them are travelling compared with the others.