

Subject: Chemistry

Topic: Detergents

Level: S.5

Background information:

A definition of detergents, the historical development of detergents, the classification of detergents, the wetting ability and emulsifying action of detergents, an explanation of emulsifying action in terms of structures, laboratory preparation of soaps.

Learning objectives:

To design and carry out experiments to compare the cleaning abilities of soaps and soapless detergents in hard water

1. Content

- i. Task 1 Activating prior knowledge by filling the KWL grid
- ii. Task 2 Making hypothesis and planning the experiment
- iii. Task 3 Doing the experiment
- iv. Task 4 Comparing and drawing results
- v. Task 5 What have you learnt?
- vi. Task 6 Writing a report to the Inter-School Science Magazine (2003-2004)

S5 Chemistry
Detergents
Worksheet 1

NAME : _____ Class: _____ No: _____ Date: _____

Activity 1

To design and carry out experiments to compare the cleaning abilities of soaps and soapless detergents in hard water.

Task 1

Filling in the KWL grid

Comparison of the cleaning abilities of soaps and soapless detergents in hard water. Fill in the *first two* columns below:

What do I know about this topic?	What do I want to know about the topic?	What have I learnt about the topic?

Task 2

Making a hypothesis and planning the experiment

1. Work in groups of four.
2. Discuss the following questions with your group members:

What is the title of investigation?	
What are you going to find out?	
What do you think will happen?	
Why do you think this will happen?	
What is/are the variable(s)?	
What will you measure/observe?	
What will you keep constant?	
How many measurements will you take?	
What apparatus will you use to make your measurements?	
How will you make sure that you carry out the investigation safely?	
Others	

Write down the steps you will follow in your experiment in this flow chart.

1.
↓
2.
↓
3.
↓
4.
↓
5.

Write down the responsibilities of each group member in this experiment

	Name (class number)	Responsibility
Student A		
Student B		
Student C		
Student D		

Task 3

Doing the experiment

Get the approval of the teacher for your experiment and then carry it out.

Task 4

Comparing and results and drawing conclusions

Put down your results below:

	Cleaning ability of soaps	Cleaning ability of soapless detergents
Hard water		

Task 5

What have you learnt?

Now complete the KWL grid in **Task 1** by completing the last column with a summary of what you have learnt.

Task 6

Writing an experimental report for the Inter-School Science Magazine

After the experiment, write a report of your experiment for the Inter-School Science Magazine. This magazine has reached 1500 subscriptions this year. Other school students may read this magazine, so take care over your organization, grammar and spelling.

The report should have the following elements:

Title, Date, Hypothesis, Apparatus, Procedure, Results, Comments on your setup

You can find the format of an experimental report on the Internet:

Laboratory report <http://fbox.vt.edu/eng/mech/writing/workbooks/laboratory.html>

Preparing your laboratory report <http://www.psywww.com/tipshett/labrep.htm>

Scientific report writing <http://geog.arizona.edu/~comrie/geog230/report.htm>