

**KELMSCOTT HOMESCHOOL GROUP TERM 1 2021**

**Dates: Mondays only 15 Feb, 22 Feb,  
(none 1 Mar) 8 Mar, 15 Mar, 22 Mar, 29 Mar**

**Location: PIARA WATERS PAVILION**

## **BEGINNER & JUNIOR SCIENCE CLASSES**

**930AM-1015AM Main Hall:**

**Science (Kindy-Year 2) Chemistry**

**1030AM-1115AM Main Hall:**

**Science (Yr 3-6) Chemistry**

**Instructor: Sarah Curran Ragan (Little Genius Science)**

**COST:**

Hall hire contribution payable by all families enrolling.  
HBLN: \$40/family/term Non-HBLN: \$48/family/term

**Cost of these class**

HBLN: \$76/student enrolling

**You'll need to bring a plain white or cream t-shirt in your child's size for lesson 3  
(8 March)**

Non-HBLN \$91.20/student enrolling

**REFUNDS - Please note if classes are cancelled due to COVID-19 safety concerns then only 50% of the fee for the cancelled classes will be refunded to families. The remaining 50% will be used to cover the cost of the venue, instructors and consumables.**

## SCIENCE (Kindy-Year 2) and (Yr 3-6)

General overview. Content and experiments will be adapted to suit the different age groups

Theme : Chemistry

Duration : 6 weeks

Presenter : Sarah Curran-Ragan

### Biography

Sarah Curran Ragan is a marine biologist of 25 years and has worked around the world in the UK, Tanzania, Indonesia, The Philippines and Australia, conducting research and teaching. She moved to Australia from the UK, in 2005, to lead the State's Oil Spill Response Department before becoming Chief Marine Scientist with a global environmental consultancy in Perth. She is also an award-winning science journalist and photographer and has published environmental articles in magazines and books in 20 countries. In 2019 she coordinated the State government science hub for the Peel region, managing community STEM outreach and engagement across the region. Sarah started Little Genius Science in 2016 to provide hands on, inspiring science workshops for primary aged children.

### Lesson plans

Lessons take a similar format. I will provide a short background and explanation of the lesson and its focus and our intended learning outcome. Children are encouraged to contribute by answering questions, offering their ideas, suggestions.

I then run through experiments and equipment explaining steps required. Students set up their own experiments (either in groups or individually) and will write/discuss predictions for results where appropriate using a variety of methods.

After each experiment, children will be asked to talk about their results and how this relates to the focus of the lesson. In some sessions short videos may be shown to provide greater clarity.

At the end of the lesson, there is a round up of what we have learned. This may take the form of a quick fun quiz by table/group or asking groups to present their findings.

Where possible I like to include some artistic creativity in our science. I have included a session on chromatography where the children can design their own T shirts using chromatographic techniques to understand the separation of liquids.

Lessons are relatively flexible. For example, if there is an activity children would like to spend more time on, lessons can be adjusted to allow for this.

I've provided an outline below of lessons by week with topic ideas for experiments for the children.

## Lesson 1 So what is chemistry?

Chemistry studies the properties of matter and how matter interacts with energy. Considered a physical science its closely related to physics and is also called the "central science". It is an important part of other major sciences such as biology, Earth science, and physics. Children will be encouraged to think about how chemistry is important to us in our day to day lives.

In lesson 1 we will investigate the differences between materials and the concept of chemical reactions. Children will look at the differences between every day materials and solids, liquids and gases, (states of matter) and their unique properties. Older students are introduced to the concept of atoms and molecules and their behaviour.

Experiments will concentrate on the movements of molecules in matter and the effects of heat.

1. Molecules and how they behave as solids, liquids and gases
2. Behaviour of water
3. Effects of heating and cooling

## Lesson 2 Changing States

In this session students look in more detail at the water molecule to help explain the state changes of water. We will test whether the temperature of water affects the rate of evaporation and further whether the temperature of water vapour affects the rate of condensation.

Experiments will test

- 1 Evaporation
- 2 Condensation
- 3 Freezing
- 4 Melting

## Lesson 3 Methods in chemistry (children will need a white/cream plain T shirt they can create a design on)

There are a wide range of methods used in Chemistry. Chromatography is an analytical method for separating substances. In this session students will gain an overview of some methods used in chemistry concentrating on Chromatography. Children will be encouraged

to discuss how the method could be useful in science/everyday life and the type of answers it can give us.

Experiments will investigate

1. How chromatography works
2. Separating substances
3. Creating Chromatographic T shirts using methods we have learned.

#### Lesson 4. Looking at density

Density describes how much space an object or substance takes up (its volume) in relation to the amount of matter in that object or substance (its mass). In this lesson students experiment with objects that have the same volume but different mass and other objects that have the same mass but different volume to develop a simple understanding of density. We will further experiment with density in the context of sinking and floating, and investigate substances to discover why density varies. Demonstrations include creating a density tower.

Experiments will concentrate on demonstrating

1. What density is
2. The density of water and displacement
3. Sinking/floating -solids
4. Sinking/floating-liquids

#### Lesson 5. Polymers 1

Natural polymers are all around us. In this session children investigate the structure of these essential components of life. Year 2-4 will investigate what DNA is.

Experiments will concentrate on

1. Structure and properties of polymers (what are they?)
2. What is DNA (the stuff of life)
3. Can we isolate and actually see DNA

#### Lesson 6 Polymers 2

Polymer chemistry is a particular branch of chemistry dealing with the production of synthetic polymers. In this lesson students learn about the differences between natural and synthetic polymers. We will look at their unique properties and students will be encouraged to think about how they are used in every day life.

Experiments will concentrate on the structure of polymers and their properties

1. Types of polymers in everyday life
2. Making and having fun with polymers (types of “slime”)
3. Describing the properties of polymers (materials)