# 7. Focus on vocabulary

N/A

Intended for use throughout Activities 1-6; suggestions are made for motivating the children to develop their use of relevant scientific vocabulary.

## OBJECTIVES

- Pupils should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas

## INTRODUCTION

The following activities can be used as stand alone activities, as lesson starters or be used as part of any of the activities in this resource. It is important to identify vocabulary to be used during the activities and to make sure that children are familiar with the words and can use them in the correct context.

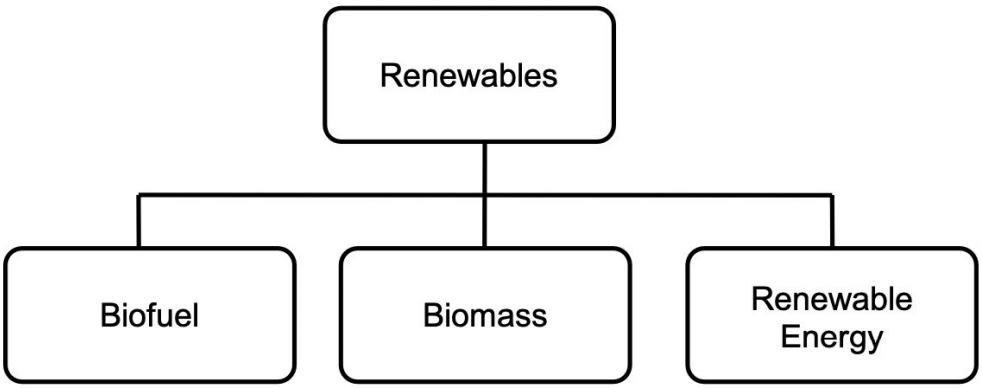
The children need to be aware that some scientific words have everyday meanings as well as scientific meanings. Reinforcement of these terms is important to ensure correct usage.

There are many different ways to develop literacy in science: the ideas below are suggestions and are not the only strategies that can be used. You may be able to think of many more providing the children with a varied and stimulating experience.

## WORD BANKS DISPLAYS, AND MOBILES

Creating word banks and displays around the classroom will increase the correct use of vocabulary. By reminding the children to use the targeted words during investigations, the vocabulary will be reinforced.

Word mobiles can be produced in ways which will create links with their meanings and associated words. The words cascade from the topic down through related areas to possible vocabulary.



## ILLUSTRATED WORDS

Ask the children to find ways of illustrating words that demonstrates their meaning, e.g.


## WORD SHIRTS

The children bring a plain white shirt to school at the start of the year. They choose an area of the shirt, e.g. right front or a sleeve, to group words relating to a specific topic and they are written on the shirt in permanent ink. The shirts are worn for science practical work. The children are allowed to add a word to their shirts when they can demonstrate to the teacher that they understand what the word means. By the end of the year, each shirt should be a colourful array of scientific vocabulary!

## SPLAT

This is a game to identify word meanings. Each group has a number of words each written on post-it notes. Around the classroom are posters containing the definitions. At a signal one member of each group takes a word and 'splats' it on the definition poster. The group can agree on the definition before the group member leaves. Each child takes it in turn to 'splat' the word. The winning team will have posted all their words the quickest.

## 'TABOO'

A group of children are given a set of cards which are placed face down in the middle of the group. Each child takes it in turn to take the top card. On each card there is a word which the child has to describe to the rest of the group. There are also 'taboo' words indicated on the card which cannot be used in the description. The rest of the group have to guess the word from the description.

## DEFINITION DOMINOES

A set of cards, which are similar to a set of dominoes, are used in this game. On one end of the card there is a description of a word whilst on the other end is a word. The children have to match up the words and meanings by placing them down on the table, matching the cards until all the cards have been put down.

## LOOP CARD GAME

This is a similar idea to definition dominoes. In this game, all the descriptions and words follow on from each other so they form a loop. Although the cards follow a specific order, the loop can be started anywhere. The first child reads out the definition, the child who has the word described on their card calls it out and then reads out the definition for the next word. When the game is first introduced the children can link the words to their meanings at their own pace. Once the group is accustomed to playing the game, it could be timed. The group could be given a specific time to complete or could try to beat their previous time. See Appendix 4 for a set of cards to be used for this game.

## SPINNER GAME

A spinner is used to choose a strategy to describe a word chosen from the word bank. This strategy is then used by one child while the other children try to identify the word. See Appendix 5 for an example of a spinner. Alternatively a die can be made using the different strategies on the different faces.

## CONNECT 4

This is a game for two players or two groups. The children start by drawing a grid on a white board; this can be either a 4x4 or a 5x5 grid. The children suggest a word from the scientific vocabulary they have been using in their work and if they can correctly explain the meaning they can write it into one of the grid squares. Two colours are used so the two sides can identify their own words. The aim of the game is to connect 4 words together in a row, column or diagonal. Grids and word cards could be made up ready for the children to use if there is certain vocabulary the teacher wants to cover. The words and meanings contained in Appendix 4 could be used for this activity.

## WORD COMPLETION EXERCISES

This includes activities such as crosswords and word searches. There are many software packages available to produce these.

## SCIENCE DICTIONARY

Once the children can confidently use a set of vocabulary, they can include it in their own science dictionary. A blank exercise book is divided into letters of the alphabet, e.g. 2-3 pages for 'A' and 1 page for 'XYZ'. When a child is confident of a word's meaning, he/she adds the word along with its definition, examples of use, and illustrations. This dictionary can then be used to identify areas which have been learned and understood.

# **Appendix 1:** Sourcing dried sunflowers

Dried sunflower head bird feeders can be purchased from some garden centres or via the internet from sites such as www.franceshilary.com

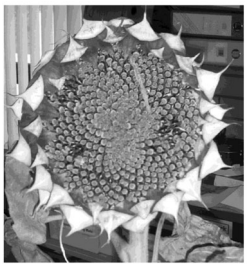
Drying Sunflowers

Outlined below are two different ways to dry sunflowers. Harvest the sunflowers when their heads become brown and dry and most of the leaves have fallen off the stem (the plant will look wilted).

## Method 1 – In the garden

The first method is to dry the head and the stem naturally. When the back of the flower's head turns yellow and the petals have fallen off, cover it with a brown paper bag. This prevents the seeds falling to the ground and it will also protect it from birds, squirrels and other animals. The bag allows the plant to 'breathe' and prevents moisture from building up which could cause the seeds to becoming mouldy. If it rains and the bag becomes soggy, it may need replacing. If just the flower head is needed it can be removed from the plant once the head has turned brown about 30cm down the stem, making sure the bag does not fall off in the process. If the whole plant is required, the plant can be removed from the garden at this stage and stored somewhere dry.

## Method 2 – Drying indoors



The sunflower head can be dried away from the plant if there is a strong risk of losing the seeds to wildlife. When the flower head starts to yellow and the petals have died away, harvest the head approximately 30cm down the stem. The head can be dried in any location which is warm, dry and has good ventilation to prevent the seed head becoming mouldy. As with the natural method, a brown bag can be placed over the seed head to prevent losing any seeds, and will protect against wildlife attack.

Further information regarding sunflowers can be obtained from www.sunflowerguide.com

# Appendix 2: Planning

**We are investigating.....**

**We could change**

**We could measure/observe**

**We will change**

**We will measure/observe**

**Our investigation question is.....**

**We will keep these the same...**

**When we change**

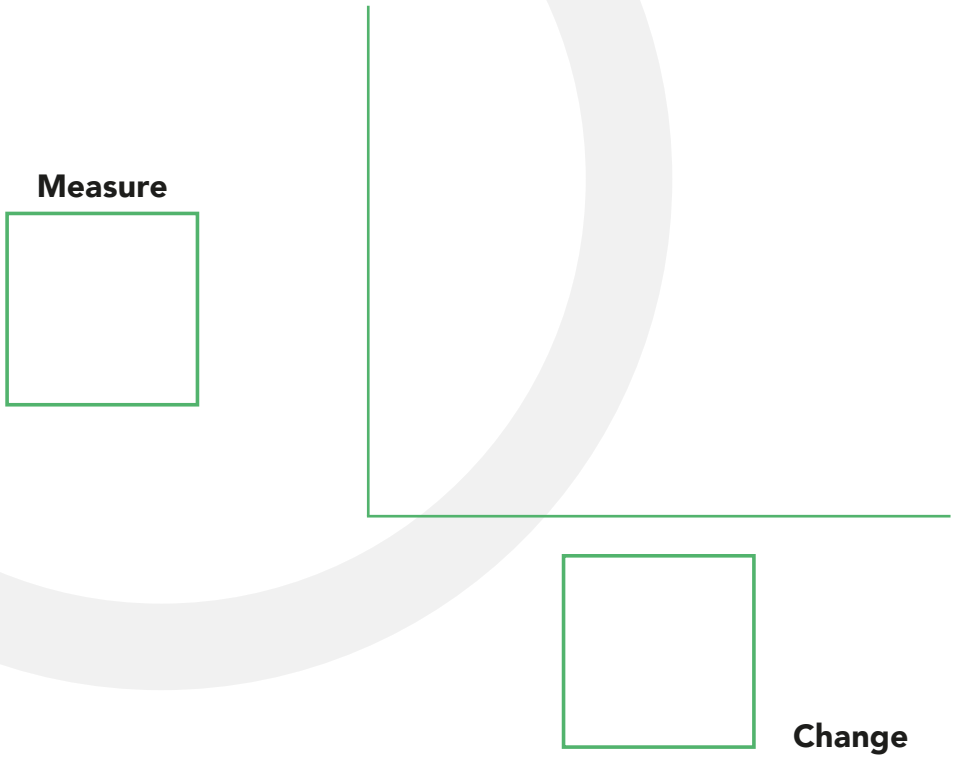
**What will happen to...?**

**Why?**

## **APPENDIX 2:** OBTAINING EVIDENCE

| **Change** | Measure/observe |
| --- | --- |
| | |
| | |

## **APPENDIX 2:** CONSIDERING EVIDENCE AND EVALUATING




| When we changed . . . | What happened to . . . |
|---|---|
| | |

**Was our prediction correct?**

**How could we improve what we did?**

# **Appendix 3:** The effect of temperature change on oils and fats

The following table lists the softening (melting) and boiling points for commonly used oils and fats. It is not a definitive list and there may be slight variances depending on the purity of the oil. Because of the impurities, the change to a liquid takes place over a temperature range when the solid will soften.

| Oil | Softening (melting) point ˚C | Boiling point ˚C |
|---|---|---|
| Linseed (Flax seed) | -24 | 316 |
| Olive | -6 | 191 |
| Peanut | 3 | 227 |
| Rapeseed | -10 | 200 |
| Sunflower | -17 | 230 |
| Palm Kernel | 24 | 350 |
| Palm | 35 | n/a |
| Grapeseed | 10 | 230 |
| Coconut | 25 | 177 |
| Hempseed | -8 | 166 |
| Corn | -20 | 246 |
| Sesame | -6 | 216 |
| Lard | 33 | n/a |
| Butter | 35 | n/a |

Palm oil, lard and butter do not have a specific boiling point. These fats are likely to break down before they change to a gas state. Oils and fats are the same chemical composition but they are described as fats when solid at room temperature.

## **Appendix 4:** Game cards for dominoes and loop game

| | |
|---|---|
| Organic material which can be used to produce energy. | **Liquid** |
| A state of matter. It can be poured and take on the shape of the container. | **Evaporation** |
| The process of change from a liquid into a gas. | **Melting** |

| | |
|---|---|
| The process of changing a solid to a liquid. | **Biofuels** |
| A source of fuels which comes from plants or animals. | **Fuel** |
| A source of energy, e.g. wood, gas, coal. | **Volume** |

| | |
|---|---|
| The space taken up by a substance. | **Burning** |
| To be in flames, a change that is irreversible which involves fuel, oxygen and a flame. | **Heating** |
| The process of increasing the temperature of an object. | **Reversible change** |

| | |
|---|---|
| A change that can be easily reversed e.g. freezing water to make ice. | **Irreversible change** |
| A change that cannot easily be reversed e.g. burning. | **Renewable energy** |
| A source of energy that does not involve the burning of fossil fuels and won't run out. | **Weight** |

| | |
|---|---|
| The downward force on an object caused by gravity. | **Friction** |
| A force affecting movement between two materials. | **Lubrication** |
| The method to reduce the friction between two surfaces. | **Filtration** |

| | |
|---|---|
| The process of separating a solid from a liquid. | **Biomass** |

## Game card solutions and glossary

| | |
|---|---|
| Organic material which can be used to produce energy. | Biomass |
| A state of matter. It can be poured and take on the shape of the container. | Liquid |
| The process of change from a liquid into a gas. | Evaporation |
| The process of changing a solid to a liquid. | Melting |
| A source of fuels which comes from plants or animals. | Biofuels |
| A source of energy, e.g. wood, gas, coal. | Fuel |
| The space taken up by a substance. | Volume |
| To be in flames, a change that is irreversible which involves fuel, oxygen and a flame. | Burning |
| The process of increasing the temperature of an object. | Heating |
| A change that can be easily reversed e.g. freezing water to make ice. | Reversible change |
| A change that cannot easily be reversed e.g. burning. | Irreversible changes |
| A source of energy that does not involve the burning of fossil fuels and won't run out. | Renewable energy |
| The downward force on an object caused by gravity. | Weight |
| A force affecting movement between two materials. | Friction |
| The method to reduce the friction between two surfaces. | Lubrication |
| The process of separating a solid from a liquid. | Filtration |

# Appendix 5: Spinner

- Cut out the spinner and paste on to a piece of card. Place a paper clip to the centre of spinner.
- Put the point of a pencil in the middle of the spinner through the paper clip.
- Spin the paper clip round.
- Where the paper clip stops indicates how the word should be represented.