This document is designed to inform you of the learning planned for your child's next unit of inquiry. In addition we offer you some optional ideas for supporting your child at home.

Y4 Unit Overview

How the World Works

In their fifth unit, the year 4 students are inquiring into the Science Strand "*Forces and Energy*." The students will investigate the concept of work through the central idea, "Simple machines help people do work." During this inquiry students will explore what simple machines are, and investigate their observable features. Through science investigations students will discover how work can be measured. Throughout the entire unit we will be making connections to the real world and finding out how machines help us do work. Along with the development of these concepts students will become more knowledgeable as they gain understanding about simple machines, how they work, and how we can measure that work. Students will be given opportunities to further develop their ability to show curiosity through the experiments they are involved in and the ones they design. Thinking and research skills will be our focus for this unit. Students will be asked to apply their learning when making real world connections and designing their own experiments. Students will be asked and taught how to plan and design experiments that can measure the work being done by the machines.

You may wish to support your child at home in the following ways:

Developing vocabulary:

Key vocabulary used in this unit will be:
machines, lever, pulley, wheel, axle, screw, wedge, fulcrum, inclined plane, work, mechanical advantage, newtons, design, engineering, hypothesis, test, predict, measure, force, friction, load, pull, push, torque, tool, spring, curiosity, experiment, distance, knowledgeable, variables
Please consider using your Mother Tongue to develop your child's understanding of these words.

Conceptual questions:

This unit will be addressed through the lens of **form**, **function** and **connection**. To develop the concept of form, talk with your child about the simple machines that can be found around your house. How can those machines be described? What are they like? To develop the concept of function, talk with your child about how those simple machines make it easier for people to do work. Can you think of a way to record how much work is being done with and without the machine? Finally, to develop the concept of connection talk about how these machines are used in our everyday lives and what it would be like if we didn't have them.

Fun things to do together:

Do a simple machines hunt around your home and around your neighbourhood. Can you identify simple machines? How are these machines making it easier for people to do work? Challenge your child to use their lego pieces to construct the simple machines. Can he/she make all 6? Take a look at some Rube Goldberg challenges on youtube. Pick one of the challenges and try and incorporate simple machines into your design. Here is one that might inspire your young engineers: https://youtu.be/0uDDEEHDf1Y

ACTION is a key element of the Primary Years Programme. We are always looking to see how children take their learning and apply it independently. This can take many forms - from a discussion about the Unit of Inquiry at home initiated by your child, role-play or even a request to bring a book or artifact in to school because it relates to the work we have been doing in school. Now that you know what the unit is all about please keep your eyes open for evidence of action and let us know! **Any action that you tell us about will be kept as part of your child's records.**

"Success for Every Child"

Alongside the key concepts, attitudes, learner profile attributes and action elements of the Primary Years Programme there is a body of knowledge that will be taught during the course of each unit. The main learning outcomes are outlined below for your reference. The children's understanding of each objective is assessed before each planned learning experience in order for us to pitch the work according to your child's ability and needs:

ENGLISH:

To support students ability to write science experiments we will focus, in viewing and presenting, on the skills of creating diagrams to show the details of the experiment. We will spend time recording an experiment from a bird's eye view as well as a side view. Students will continue to develop their speaking and listening skills as they gain information needed from watching scientific videos and also share their new knowledge in both small and large groups. We will continue to practice the reading strategies we have developed, and for this unit we will have a particular focus on the comprehension strategies, synthesising, asking questions and summarising. We want students to be able to read a variety of texts and be able to pick out the key words in order to identify the main idea. Explanation and procedures will frame the writing we do during this unit. As students complete their scientific investigations we want them to be able to explain how or why something is happening. We will focus on certain parts of scientific experiments and how to record them but we want all students to understand how a scientific experiment is organised.

MATHS

The maths strands of *measurement* and *data handling* will be used to support student's understanding in this unit of inquiry.
The outcomes we will be learning are:

- Estimate, compare and measure objects using standard units. Length, mass, capacity, volume and temperature
- Describe and order likelihood of events using appropriate vocabulary eg likely, unlikely, certain, impossible

We will continue our number work focusing on multiplication and division strategies as well as continuing the work we've started on fractions; finding the fractions of shapes, numbers and quantities. Supporting your child with remembering their multiplication tables up to 10x10 would be a big support!

SCIENCE and SOCIAL STUDIES

This unit will be addressed through the science strand: forces and energy
The outcomes we hope to address are:

- Understands that forces can be exerted by one object on another through direct contact. (function)
- Knows that forces cause change in speed or direction of motion. (function) Y2
- Knows that forces cause changes in position and shape of an object. (function) Y2
- Understands that there is a relationship between the strength of a force and its effect on an object (e.g. the greater the force, the greater the change in motion; the more massive the object, the smaller the effect on a given force). (connection)
- Friction causes changes in the speed or direction of an object's motion. (function)

Your child will learn best of all when school and home work as a team. If you have any questions at all please do not hesitate to contact us.