Year Groups: Years 3 and 4 (KS2) **Date:** Monday 15th June 2020

Subject: Science – Plants

LO: I am able to identify and describe the function of the roots

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Key Facts:

How different factors influence plant growth

- **Lack of light** The young plants will elongate and fail to develop ***chlorophyll***, so they will be tall, weak, spindly and pale. They can make no food by ***photosynthesis*** and so have no food available to them. As a result of their uncontrolled length growth and inability to make food they soon fall over and die.
- **Lack of water** Normal growth in plant involves taking in a lot of water. Plants in drought conditions grow more slowly than normal; they are likely to have fewer leaves and smaller leaves which might be abnormally dark green.
- **Lack of nutrients** In the absence of nutrients, the growing plant is unable to make a wide range of chemicals needed for normal growth, in particular proteins. As a result, growth is poor and the plants are stunted, often of abnormal colours and they may survive for just a few weeks.
- **Low temperatures** Many plants can survive in quite low temperatures, but they grow more slowly. This is because all the chemical changes involved in growth proceed more slowly at lower temperatures.

Pre-Learning: What do plants need to grow?

Watch the following 2 videos and discuss what plants need to grow and that plants are living things:

- http://www.bbc.co.uk/learningzone/clips/what-do-plants-need-for-healthy-growth-no-narration/2282.html
- http://www.bbc.co.uk/learningzone/clips/how-do-we-know-plants-are-living-things/4673.html

Complete 'Plants Labelling' (**Pre-learning 1**) and 'Plants Labelling & Growing' (**Pre-learning 2**) on Purple Mash. Children also match the correct description to each part of the plant in **Pre-learning 3** on Purple Mash – see 2Dos.

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Activity 1: Explore - Roots absorbing water

Explain to the children that they are going to use cotton wool pads to represent the roots of a plant. Ask them why they think you have chosen cotton wool. They then use the cotton wool pads to make different root structures; one might just be one large root, another might split into three smaller roots, and a final one might split into lots of smaller roots. Place these on a wet flat surface for a set time and observe. The roots that branch off many times will absorb a greater amount of water due to the increase in surface area. Discuss this in related to plants having lots of root branches.

Activity 2: Investigation over time - Does the length of roots change over time?

Children dig up 'weeds' so that their roots are still surrounded by a ball of soil. They can then clean these roots by placing them in a bowl and shake off any excess soil. These plants can then be placed into small transparent plastic bottles and attached so that the roots are in contact with the water in the bottles. The children can use a pen to mark on the side of the bottle where the lowest roots descend to. Each day the children can place on more lines on their bottles.

Activity 3: Record - My Plant Diary

Children record the length of their roots once a day in **'My Plant Diary'** on Purple Mash - see 2Dos. Take photographs of your plastic bottles containing plants and marked lines for the roots and upload these. Write the length of the roots underneath each photo.

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