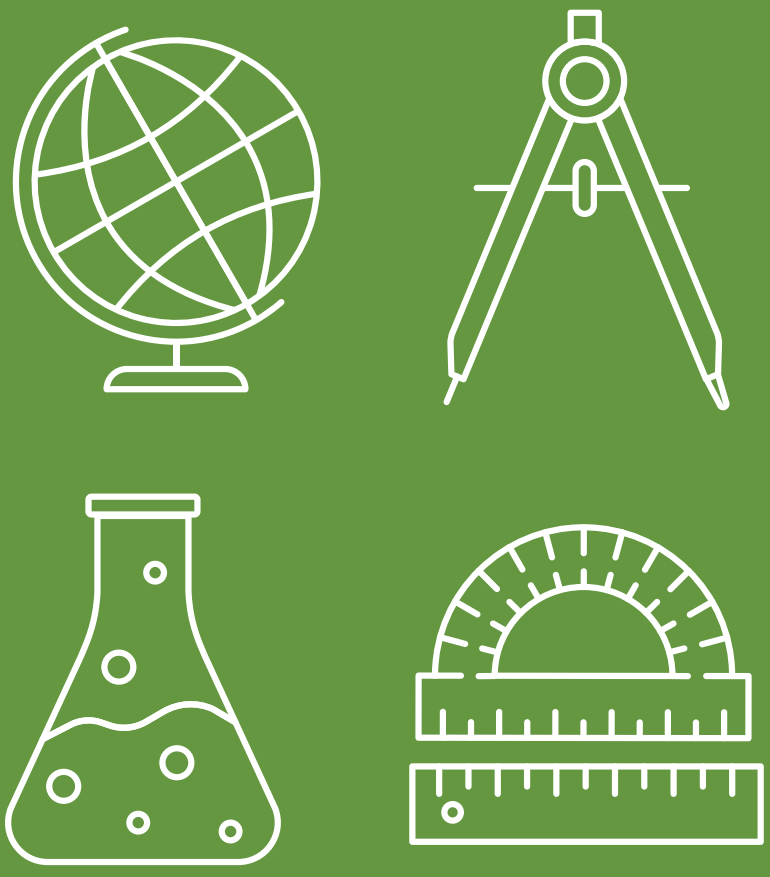
Queen's Platinum Jubilee Tree Planting

Primary Education Linked Resources

2022



Department of Education Services
Cayman Islands Government

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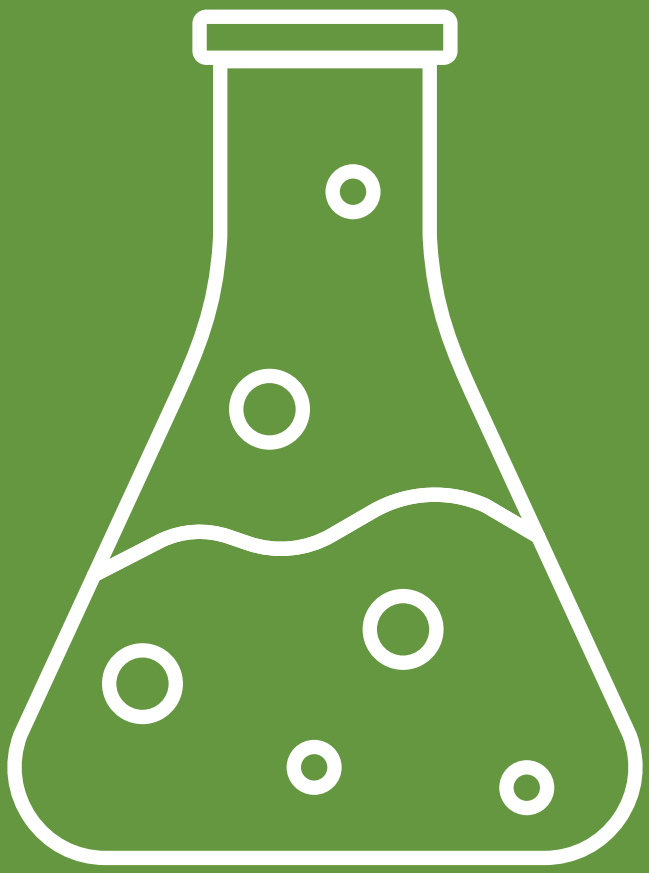

Year 1

The plants topic covered in the 3rd term and can involve the planting and growing of plants, as well as general observations on the structure and parts of common plants and trees.

Plants - Year 1				
NC Objective	**Working Below Level**	**Working Towards**	**Expected Progress**	**Greater Depth**
	NC objective is not yet demonstrated even with guidance	NC objective is demonstrated even with guidance	NC objective is demonstrated independently	NC objective is demonstrated with deeper understanding. E.g. linked to other parts of the curriculum or explored in usual contexts.
	Possible examples of evidence			
Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Not yet able name a variety of local plants even with promoting	Evidence of an activity completed with support naming and identifying some local plants and trees.	Independently create a guide to identify and name a variety of local plants and trees including evergreen (e.g. palms) and deciduous (e.g. sea grape) varieties.	Learn about how some local plants have cultural significance to the Cayman Islands, perhaps linked to a visit to the botanical park. (Social studies)
Identify and describe the basic structure of a variety of common flowering plants, including trees	Not yet able to identify the basic structures of plants and trees even with promoting	Evidence of an activity completed with support identifying the basic structures of a variety of plants and trees.	Independently create a labeled diagram that identifies and describes the basic parts of a variety of flowering plants and trees, including flowers, petals, leaves, stems, roots, fruits and berries	Create and perform a drama with role play representing the basic parts of a tree. (English) Build a labelled model of a flowering plant explaining the choices of materials for each structure. (D+T)

Year 2

The plants topic is also covered in the 3rd term for Year 2. In addition, they have a working scientifically task that looks specifically at investigating seeds.

Plants - Year 2				
NC Objective	**Working Below Level**	**Working Towards**	**Expected Progress**	**Greater Depth**
	NC objective is not yet demonstrated even with guidance	NC objective is demonstrated with guidance	NC objective is demonstrated independently	NC objective is demonstrated with deeper understanding. E.g. linked to other parts of the curriculum or explored in usual contexts.
	Possible examples of evidence			
Observe and describe how seeds and bulbs grow into mater plants	Not yet able to describe how seeds and bulbs grow, even with prompting	Evidence of an activity completed with guidance observing and describing the growth of seeds and bulbs	Independently conduct an investigation to observe and record how a selection of seeds and bulbs grow	Develop an understanding of how local plants at different stages of their life cycles are used as a source of food. (D+T)
Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Not yet able to use an identification key even with prompting	Evidence of an activity completed with guidance using classification keys to identify and name some living things	Independently conduct investigations to find out how plants need lights, water and warmth to grow and stay healthy	Use poetry, drama and role play to create a live presentation showing what conditions plants need to grow and stay healthy. (English)

Working Scientifically Assessment Task 5

Year 2 Plants - Seeds

Assessed Skill

Asking simple questions and recognising that they can be answered in different ways (skill 1)
These are general examples showing evidence of the expected standards for this skill:

- The children develop their ability to ask questions (such as what something is, how things are similar and different). Where appropriate, they answer these questions.
- The children answer questions developed with the teacher often through a scenario.
- The children are involved in planning how to use resources provided to answer the questions, helping them to recognise that there are different ways in which questions can be answered.

Identifying and classifying (skill 4)
These are general examples showing evidence of the expected standards for this skill:

- Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting.
- They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.

*A student **working towards** the expected standard cannot independently demonstrate these skills reliably.*
*A student **working at** the expected standard can independently demonstrate these skills reliably.*
*A student **working at greater depth** shows mastery of each of these skills and can independently demonstrate them in several different ways in unfamiliar or cross-curricular contexts.*

Learning objectives

- **To ask simple questions and suggest how to answer them (assessed)**
- **To identify and classify a selection of seeds (assessed)**
- To observe and describe how seeds and bulbs grow into mature plants (NC)

Activity

- Introduce the students to a variety of different seeds and have them observe them using hand lenses.
- Ask students to find ways to sort the seeds several different ways, explaining what criteria they have used.
- If possible, tape the seeds (or images of the seeds) in their sorted groups into the students' books along with their explanation of why they sorted them that way.
- Switch to an identification and question-asking task. Each student in a group tapes one seed or image of a named seed into their books. Then one in the group is told the name of one seed. Without showing it to peers, the others in the group ask the first student questions about the seed to try to figure out what it is. When it's identified, the name is recorded near the seed in the books. The next student in the group then has to field questions about a different seed. Teachers should note in students' books when they have asked good questions to help figure out the seed's identity.
- Students then make little identification cards based on their observations about the various seeds

Key words

- similar, different, larger than, smaller than, hard, soft, smooth, rough

Resources

- Magnifying Glasses (Life Cycles kit box)
- Selection of seeds Life Cycles kit box has broad beans, sunflower seeds, and cress seeds)

Suggested key questions to prompt learning

- How are the seeds similar? How are they different? How could you find out what kind of seed this is? Are there other ways to find out too?

Year 3

The plants topic is also covered in the 3rd term for Year 3. In addition to this they also do a working scientifically task on growing seedlings. This could be appropriate for growing the given seeds from the seed packs as well as growing mangrove propagules. This could also be linked to the growing sage instructions.

Plants - Year 3				
NC Objective	**Working Below Level**	**Working Towards**	**Expected Progress**	**Greater Depth**
	NC objective is not yet demonstrated even with guidance	NC objective is demonstrated with guidance	NC objective is demonstrated independently	NC objective is demonstrated with deeper understanding. E.g. linked to other parts of the curriculum or explored in unusual contexts
	Possible examples of evidence			
identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	Not yet able to identify and describe the functions of some plant parts, even with prompting	Evidence of an activity completed with guidance identifying and describing the functions of some plant parts.	Independently complete an activity identifying and describing the functions of the roots, stem, leaves and flowers of a plant.	Learn about how the different parts of local plants used for foods which can then used to prepare a Caymanian or Caribbean savoury dish. (D+T)
explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant	Not yet able to investigate the factors affecting plant life or growth even with prompting	Evidence of an activity completed with guidance to investigate a requirement for life and growth such as air, light, water, nutrients from soil or room to grow as well as some research into other named factors.	Independently conduct multiple investigations about different requirements for plant life and growth such as air, light, water, nutrients from soil or room to grow, whilst exploring the other named factors through research.	Write a report using headings and sub-headings that is intended to convince an audience of school leaders to build a garden that would be ideal for growing the plants that were investigated based on your findings. (English)
investigate the way in which water is transported within plants	Not yet able to explain how water moves through a plant even with prompting.	Evidence of an activity completed with guidance investigating how water is transported through a plant.	Independently investigate how water is transported through the stem of a plant by observing and describing how dyed water rises through a flower stem to the petals.	Compare the duration of the events during a flower-dying investigation using appropriate units. E.g. start, when the dye first appeared in the petals, when dye approached the tips of the petals, etc. (maths)
explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Not yet able to explain what role flowers play in a plant's life cycle even with prompting.	Evidence of an activity completed with guidance demonstrating how a flowering plant's life cycle involves pollination, seeds formation and seed dispersal.	Independently demonstrate how flowers are involved in a plant's life cycle, including thorough descriptions of pollination, seed formation and seed dispersal.	Write and perform a play script to an audience of peers demonstrating the life cycle of flowering plants. (English)

Working Scientifically Assessment Task 5

Year 3 Plants - Seedlings

Assessed Skill

Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions (Skill 4)
These are general examples showing evidence of the expected standards for this skill:

- Children record and present evidence, however it is not required that they decide how to do this.
- Children answer questions with the help of the same data presented in different ways, however it is not required that they identify how to represent the data in different ways

Recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables (Skill 5)
These are general examples showing evidence of the expected standards for this skill:

- They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing.
- They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings)

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*A student **working at greater depth** shows mastery of each of these skills and can independently demonstrate them in several different ways in unfamiliar or cross-curricular contexts.*

Learning objectives

- To gather, record, classify and present data in a variety of ways to help in answering questions
- To record findings using simple scientific language, drawings, tables and bar charts.
- Explore the requirements of plants for life and growth (NC)

Activity

- Students investigate how changing one factor affects the growth of seedlings using the provided guidance worksheet. This activity is part of the Hamilton Trust scheme of work for this unit. A recommended method to germinate seeds is described overleaf.
- Students choose one factor to regulate to three "None, Some, Plenty". Ideas might include light or water.
- Over time, students record data about the growth of the seedling and record it on the worksheet with measurements as well as simple annotated drawings.
- Once complete, students revisit the data and present it in a bar chart.
- Students use their data to answer questions posed to them.

Key words	Resources
• Seed, moisture, measurement, millimetre	• Plastic zip-loc sandwich bags • Paper towels • Tape to hang the bags on a window • Seeds

Suggested key questions to prompt learning

- What is the only thing we are changing between the three bags? How can we change what we've chosen to change without affecting anything else? How can we make this even more fair? What can we see from our bar charts? How do you know that the bar chart show that?

How to grow a bean in a bag

Method

1. Label bag with your name, date and seed name
2. Fold a paper towel so that it just fits inside the bag
3. Take a ruler and measure 7 cm from the top of the bag and staple a row of staples from one edge to the other through the plastic bag and paper towel. If you are using very small seeds then make the staples closer together. You will have a mini-shelf- 7 cm deep. This is where the seeds are going to sit.
4. Pour enough water into the bag so that it will soak up through the paper towel but leave a small reservoir of water at the bottom of the plastic bag (about 2-3 cm).
5. Sit the seeds on top of the staples. Seal up the bag so no air can escape or get in. Tape it to the window or peg to a washing line in the classroom.
6. Within a few days, depending on the time of the year, the seeds will begin to germinate. Children can clearly see the growth of roots and then the shoot. As soon as the young plants reach the top of the sealed bag they can be carefully removed and potted up.

You will need:

- A few seeds
- Paper towel (school ones are ideal)
- Stapler
- Plastic sandwich bag (the kind which seal at the top works best)
- Ruler

Cayman Sage (Salvia caymanensis) Schools Growing Guide

Method

1 Mix your special native plant potting compost. Use maths to work out how much you will need of each ingredient for the amount of pots you intend to grow.

Here are the ingredients for 155 litres of compost:

- 100 litres of Pro-Mix BX, 20 litres garden soil or loam
- 35 litres perlite
- 500 ml Osmacote Perlite (can be dusty so wear a dust mask until you have wetted it thoroughly)
- Wearing gloves
- Mix your ingredients thoroughly
- Make sure there are no pockets of just one ingredient
- Break up any big bits of soil or pro-mix

2 Fill your pots with potting mix to the top. Do not firm the soil down, just tap the pot until the compost has settled into the pot.

3 Cayman Sage seeds are so small, it can be difficult to sow them evenly in your pots, here's a pro-tip for sowing tiny seeds.

Let's say you want to grow approximately ten pots of Sage - Measure the weight of the seeds you have. Multiply the weight of the seeds by 10. This is the weight of the washed sand you will need (Ratio 10:1). Mix the seeds and the weighed sand together thoroughly. Split the resulting mix into ten portions. Sprinkle the sand/seed mixture on the surface of your pots. With the sand in the mix, you can see where you have sown your seeds.

You will need:

- Dust mask
- Gardening gloves
- Accurate weighing scales
- 4 inch wide pots
- Pro-Mix or similar potting compost
- Osmacote or similar 6 month slow release fertiliser
- Garden soil or loam with all rocks or large pebbles removed
- Perlite
- Washed fine sand
- Cling-film or 1gal ziplock bags
- Water

4 Sit your sown pots in a shallow tray of water for an hour or two. The pots will soak up the water by capillary action. *How can you work out how much water each pot can hold?*

5 Place the pot inside a zip-lock bag or cover the top with cling-film. Leave on a sunny window ledge. The seeds need moisture and light to trigger germination

6 Check your pots every day, open the bag or take the cling film off for 5 minutes a day, this allows for the air to change and prevents fungal growth.

7 Once you see lots of tiny green seedlings, remove the bag or cling-film. Keep the surface of the compost moist until the seedlings have grown from their cotyledon stage to their first true leaves.

8 Thin out your pot of seedlings to 4 plants, try to select the strongest, biggest specimens. If you are careful, you can pot up the seedlings you have removed into other pots. Once your main plants are established, they will need to be watered when the pot is almost dry. *Can you devise a way of telling when the pot is dry by using a weighing scale?*

9 When your plants have grown to 4 internodes, carefully pinch the growing tip off. This will encourage the plant to produce multiple side shoots. This process is called removing apical dominance. Each shoot will produce a collection of flowers on its tip within a few months. *If you have a few pots, you could try different pruning experiments and see which plants give you the most seeds.*

10 Sage needs to be pollinated! Put your plants out in a partially sunny spot (they love morning sun) and let the insects pollinate it. *Observe the process, what insects visit the flowers? What is the most frequent pollinator?*

11 The seeds are ready to collect when the husks have turned a brown colour. They will be sticky. This is a strategy the plant uses to spread its seeds. *Can you think of any other plants that stick to you when you are walking outside?* Cut the whole stalk off and place the stalks into a clean paper bag.

12 Dry the seeds for a week in a cool dry area. The husks will loose their stickiness in this time. Now use sieves to carefully rub off the husks and collect the seeds.

13 Your plants will probably flower again if you cut them back to healthy buds at the base of the plant. *How many times can you get your plant to repeat flower? How much seed can you get one plant to produce?* One way is to pot up your plants into larger containers or plant them.

Well Done! You have grown a rare endemic plant through its whole life cycle! Now that you know how to grow it, how would you ensure we don't lose it from the island again?

Investigation Planning Sheet **Name:** _____

I can set up an investigation to help answer question

How important is _____ in the health and growth of seedlings?

To answer this question we will plant 3 seedlings and control the amount of _____ that each one has.

In the boxes below, describe how you will control the amount.

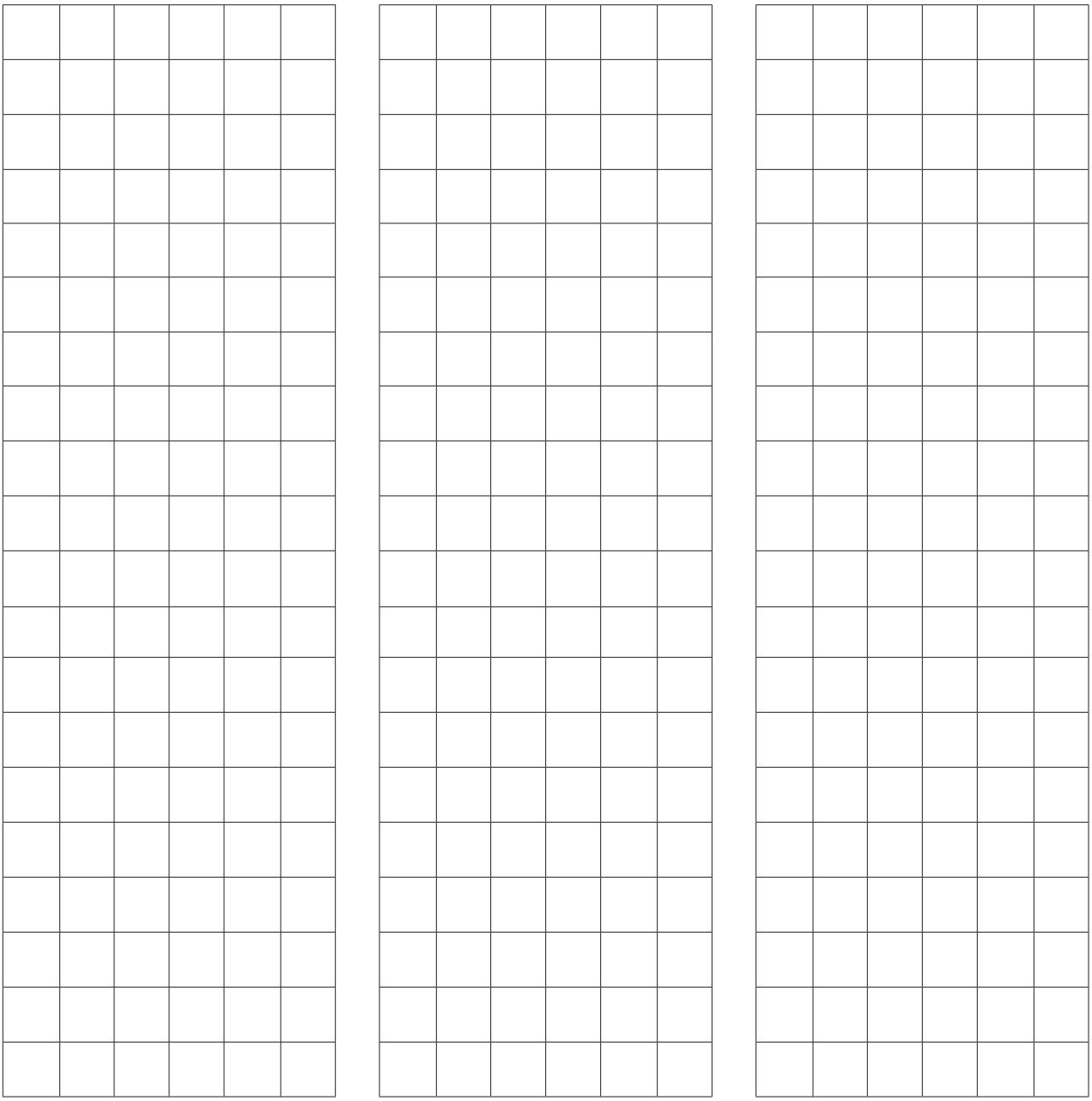
Seedlings 1	Seedlings 2	Seedlings 3
None	None	None

We will check on our 3 seedlings regularly over the coming days and weeks and take measurements and notes of their growth and health.

Our Results

Days		Seedlings 1 (None)	Seedlings 2 (None)	Seedlings 3 (None)
	Height			
	Notes			
	Height			
	Notes			

Days		**Seedlings 1** (None)	**Seedlings 2** (Some)	**Seedlings 3** (Plenty)
	Height			
	Notes			
	Height			
	Notes			
	Height			
	Notes			
	Height			
	Notes			



1. What were the best conditions to grow the highest sprout?

2. Did the sprouts grow the same amount each day?

3. On which day did the sprout start to grow?

Year 5

Living things and their habitats is covered in the 3rd term. It specifically looks at asexual reproduction in plants. There iws a working scientifically task that looks specifically at this, which could be linked to growing from cuttings of native plants or trees.

Working Scientifically Assessment Task 5

Year 5 Living things and their habitats - Growing celery

Assessed Skills

Reporting and presenting findings from enquiries, including conclusions, causal relationships, and explanations of and degree of trust in results, in oral and written forms such as displays and other presentaitons (Skill 5)

These are general examples showing evidence of the expected standards for this skill:

- Children can make conclusions. Examples might include identifying causal relationships and patterns in the natural world form their evidence; identifying results that do not fit the overall pattern; and explaining their findings using their subject knowledge.
- Children can make evaluations. Examples might include, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.
- Children can identify any limitations that reduce the trust they have in their data.
- Children can communicate their findings to an audience using relevant scientific language and illustrations

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*A student **working at** the expected standard can independently demonstrate these skills reliably.*
*A student **working at greater depth** shows mastery of each of these skills and can independently demonstrate them in several different ways in unfamiliar or cross-curricular contexts.*

Learning objectives

- **To report and present findings from and enquiry in oral and written form, including conclusions, causal relationship and explanations of and degree of trust in results. (assessed)**
- describe the life process of reproduction in some plants and animals (NC)

Activity

- Have students attempt to prove that some plants can reproduce asexually by growing celery from the discarded base of a celery plant. General instructions to do this are printed on the following page from https://www.allrecipes.com/article/regrow-celery-from-scraps/
- This could be a good project to do at home. The skill being assessed relates to the reporting of the results, rather than the carrying out of the activity.
- Students **write a conclusion** of their findings in a presentation. This should include a discussion of how what they found supports or rejects the idea that plants can be reproduced asexually. They should explain based on their knowledge how the roots and shoots that appear from the celery support or refute the idea that plants can reproduce asexually. If they had plants that did not reproduce successfully, they should be able to identify how they know they did not successfully reproduce (e.g. they rotted).
- Students **write an evaluation** of their investigation in a presentation. This should include a discussion of any shortcomings of the method or apparatus used. (For example, did the celery rest on the bottom? Was the water level inconsistent? Was the position of the plant close to enough light?) They should also discuss what was done to control any

other variables that might have affected the results. (For example, did the celery get accidentally knocked over at some point? Did the water go dry at some point?) They should discuss how limitations to the experiment might affect how much they trust their findings. (For example, is it fair to assume that other plants can be reproduced this way by just testing celery?)
- As well as the written component, the presentation should be shared orally, either in a video or in front of classmates. The teacher should make a note in the student's book confirming the student's oral presentation.

Key words	Resources
• Asexual, reproduction, vegetative propagation, shoots, roots	• Celery stumps • Small plastic containers (e.g. margarine tubs) • toothpicks

Suggested key questions to prompt learning

- How can you know that the celery is starting to grow or not? How is celery growing from a stump the different to growing it from seeds? If this works for one kind of plant, is it fair to say that it works for all plants? How could you expand the investigation to find out?

How to grow Celery at home

Method

1 Cut off the end
Slice about 2 inches off the root end of a bunch of celery. Optional: Insert 4 toothpicks equally spaced around the celery, about 1 12 inches from the bottom.

2 Place in water
Set the celery in a shallow glass bowl or jar. Fill with enough water to submerge an inch of the root end. Place the bowl or jar where it can get good natural light for several hours a day. Change the water every couple of days, making sure the celery root end is always submerged. (The optional toothpicks around the sides keep the celery from touching the bottom of the bowl. I've tried regrowing celery in water without suspending the root end off the bottom, but found that the outer stalks rot more quickly.

3 Watch it grow
After a few days, you should start seeing small leaves emerging from the very centre of the top. In about a week, you may see small stalks and leaves, and tiny roots emerging around the base. The cut stalks around the outer base may start deteriorating and turning brown. Don't panic — this is normal. But if you leave the celery in water for too long, the outer stalks will get serious rot, so it's best to plant the celery in a pot before that happens.

4 Replant in soil
When the new roots are about an inch long, you can plant the celery in potting soil or directly into your garden. If you use potting soil, choose a mix without pesticides, and suitable for vegetables and herbs. Make a hole deep and wide enough to hold the plant from the root end up to the cut end. Set the celery into the soil, making sure there's no air pocket below the root end. Gently fill in and tamp the surrounding soil so a bit of the cut end and all of the emerging leaves and stalks are above the soil. Keep the soil moist but not wet.

From https://www.allrecipes.com/article/regrow-celery-from-scraps/

Year 6

Living things and their habitats, including classification of plants is covered in the 2nd term. They also do a specific working scientifically assessed tasks looking at the classification of some plants endemic to the Cayman Islands.

Living Things and Their Habits - Year 6				
NC Objective	**Working Below Level**	**Working Towards**	**Expected Progress**	**Greater Depth**
	NC objective is not yet demonstrated even with guidance	NC objective is demonstrated with guidance	NC objective is demonstrated independently	NC objective is demonstrated with deeper understanding. E.g. linked to other parts of the curriculum or explored in unusual contexts
	Possible examples of evidence			
describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals	Not yet able to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals even with prompting	Evidence of an activity describing how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. completed with guidance	Independently describe in a short piece of writing how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.	Through a presentation or performance of a composition using formal language, explain the importance to the protection of the health of the community of being able to classify and identify microorganisms that cause human disease. (English, Life Skills) Compare and contrast the classification of living things with the classification of geometric shapes. (maths)
give reasons for classifying plants and animals based on specific characteristics	Not yet able to classify and name some plants and animals based on their observed characteristics even with prompting	Evidence of an activity using and making classification keys to identify and name some plants and animals based on their observed characteristics completed with guidance	Independently use and make classification keys to identify and name a variety of plants and animals giving clear justifications for the choices in terms of observed characteristics.	Make a set of classification keys to identify tools, instruments and art materials. (DT, Music, Art)

Working Scientifically Assessment Task 3

Year 6 Living things and their habitats - Plants of Cayman

Assessed Skill

Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs (Skill 3)

- *These are general examples showing evidence of the expected standards for this skill:*
- The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.
- They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs.
- They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.
- Children present the same data in different ways in order to help with answering the question.

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*A student **working at** the expected standard can independently demonstrate these skills reliably.*
*A student **working at greater depth** shows mastery of each of these skills and can independently demonstrate them in several different ways reliably.*

Learning objectives

- To identify plants endemic to the Cayman Islands
- **To present data in Carroll diagrams, Venn diagram, tables and classification keys (assessed)**

Activity

This activity should take place after the students have completed some work with identification keys from the scheme of work.

- Discuss the special nature of the plant life in the Cayman islands and how there are so many plants that only grow here. Explore why it's important to be able to tell which plant is which.
- Introduce the local plants and dangerous plants described by the Cayman Islands Department of Environment on their website. A printout of the pages is also attached, which can be presented as appropriate. If possible, bring in examples of some of the plants which can be examined with magnifying glasses.
- Challenge students to find a way to sort the plants into "dangerous and not dangerous" using a Carroll diagram. Can they think of other ways to sort the plants using a Carroll diagram?
- Challenge students to represent the locations where the various plants can be found using a Venn diagram showing all three of the Cayman Islands. Are there other ways this same data can be represented, perhaps a table?
- Finally, students should develop an identification key to help people identify any dangerous plants they may encounter in Cayman.

Key words	Resources
• Endemic, classification, Carroll diagram, Venn diagram, key	• http://doe.ky/terrestrial/flora-plants/ (pdf attached) • http://doe.ky/terrestrial/dangerous-plants/ (pdf attached • Magnifying glasses (Life Cycles kit box)

Suggested key questions to prompt learning

- Why do you think some plants are only found in the Cayman Islands, and indeed only in certain places on certain islands?
- Why is it important to be able to tell plants apart?
- Would it be a good idea to go walking on the mastic trail if you didn't know how to identify dangerous plants?
- A Carroll diagram just groups items into ones that have a property, and ones that don't have it. What kind of data is this most useful for representing?
- What kind of data is best represented with a Venn diagram? What does overlap mean?
- When is classification key most useful? Can you think of features we can use to separate these different plants to help make a key?

Plants

Trees

The strictly native flora of the Cayman Islands consists of 415 species / varieties of vascular plants. Of these, 21 species are unique to the Cayman Islands, and a further eight species occur as varieties unique to the Cayman Islands. Ten of these species and varieties have only been discovered over the last 15 years, so ongoing research may well turn up more.

Also only found on the Cayman Islands are the Silver Thatch Palm Coccothrinax proctorii, and the Black Mastic tree, Terminalia eriostachya var. margaretae.

The Cayman Islands' dry forest trees include the Cayman Ironwood tree, Chionanthus caymanensis, whose wood is so heavy and hard that it sinks in water. This tree is unique to the Cayman Islands.

Above: Silver Thatch Palm Coccothrinax proctorii

Above: Cayman Ironwood Tree (Chionanthus caymanensis)

Above: Black Mastic tree, Terminalia eriostachya

Shrubs

Probably our most conspicuous endemic shrub is the Corato, Agave caymanensis, which grows in shrulands on all three of the Cayman Islands, and nowhere else in the world. Other uniquely Caymanian shrubs include two endangered cacti that are unique to Cayman Brac and Little Cayman - Harrisia caymanensis, and Consolea millspaughii var. caymanansis.

Above: Consolea millspaughii

Photo: Queen Elizabeth II Park in the world

Above: Agave Caymanensis

Photo: P.A.van B. Stafford

Above: Agave Caymanensis

Photo: P.A.van B. Stafford

Herbs

The critically endangered Grand Cayman Sage, Salvia caymanensis, was rediscovered recently after long being thought to have gone extinct. Also only on Grand Cayman, a pink-flowered wetland herb, Agalinis kingsii, thrives in the National Trust's Salina Reserve. The north cliffs on Cayman Brac are the world's only home for the attractive white-flowered Verbesina caymanensis, while on Little Cayman the sandy roadsides favour the yellow-flowered Turnera triglandulosa, unique to Little Cayman and Cayman Brac. Many of our unique Caymanian plants are so rare they have never been given colloquial names.

Epiphytes (plants that grow on other plants)

The Banana orchid Myrmecophila thompsoniae is the national flower of the Cayman Islands and is found only in Grand Cayman.

Above: Banana Orchid (Myrmecophila thompsoniae)
Photo: 123Countries.com

Maiden Plum

Maiden Plum (Comocladia dentata) is common in the Cayman Islands. It is highly opportunistic, and often the first plant to colonize newly cleared ground. It is commonly found as a small shrub around ankle height; also as a thin, rangy bush of 2 meters in height. It will occasionally grow into a full-sized tree. Maiden Plum is easily identified by its distinctive waxy leaves, with serrated edges. The leaves are generally olive green in colour, occasionally speckled.

Maiden Plum is a fragile plant and can be damaged by even slight contact (such as brushing past the leaves). This encourages the plant to release a odorous and highly caustic sap, which has the potential to permanently stain clothing black, and can penetrate human skin. Though not immediately irritant on skin, the contact site will develop into a red welt after 24 hours, becoming increasingly inflamed and sore over the following weeks, developing into a wet, raw, open sore. Sap can be transferred unknowingly from the hands to the face and eyes, by wiping sweat from the face. Sap cannot easily be removed from the skin by washing. Some neutralizing effect has been observed by applying acidic fruit juice (lemon and lime) directly to the skin, as soon as possible after contact.

Dangerous plants and trees can appear in your garden by natural means - so being able to identify them is a useful skill.

Above: Maiden Plum (Comocladia dentata). Caustic sap.

Lady Hair

Lady Hair (Malpighia cubensis) is a common shrub, usually found as a compact, attractive bush up to 2 meters in height. The underside of the small, elongate leaves are lined with fine hairs which detach from the plant at the slightest touch. These hairs are highly irritant, attaching to and working their way through clothing, prickling into the skin.

On contact, clothing covered with hairs should be removed immediately. Hairs can be removed from clothes and skin using duct tape and tweezers. Once the hairs are physically removed, the associated irritation quickly abates.

Above: Lady Hair (Malpighia cubensis). Irritant hairs.

Cow itch

Cow itch (Mucuna pruriens) is a climbing shrub with long vines. When the plant is young, it is almost completely covered with fuzzy hairs, but when older, it is almost free of hairs. The sides of the leaves are often heavily grooved and the tips are pointy. Cow itch bears hanging purple flowers, and pods (5-10cm long) which are also covered in loose orange hairs, somewhat resembling furry caterpillars.

Cow itch hairs are fragile and can be removed by the slightest touch. They can even be detached in the wind and blown for some distance, attaching to clothes, washing, Cow itch (Mucuna pruriens). Highly irritant hairs. furnishing covers etc. The hairs cause a severe, almost unbearable itch if they come in contact with the skin. (Cow Itch hairs are the active ingredient in Itching Powder.)

One should avoid scratching the exposed area since this causes the hands to transfer the chemical to all other areas touched. Once this happens, one tends to scratch vigorously and uncontrollably. All contact with the face and eyes should be avoided. Affected clothes should be removed and medical assistance sought. In the absence of medical assistance, hairs can be physically removed with tweezers. Submersion of the affected area in hot (as bearable) water, and the topical application of Benadryl cream (or similar) may provide some relief.

Above: Cow itch (Mucuna pruriens). Highly irritant hairs.

Manchineel

Manchineel (Hippomane mancinella) is common in the Cayman Islands. It is most often encountered as a compact bush of 1-2 meters in height, or as a fully grown tree. Manchineel is easily identified by its distinctive leaves: round, finely edged, with long thin stems - they resemble miniature tennis rackets. Their fruit resemble miniature apples - green when young, turning yellower as they ripen, with a pleasant sweet smelling fragrance.

The leaves, bark, sap and apple like fruit of the Manchineel are all very dangerous. Contact with any of these will cause severe blistering or burning of the skin. Eating the fruit of the Manchineel can cause death - just tasting it will cause blistering and swelling of the throat. Burning the leaves and wood is dangerous. Inhaling the smoke causes blistering of the skin. Getting the smoke in the eyes can cause blindness. If it rains never take shelter under a Manchineel trees. Water

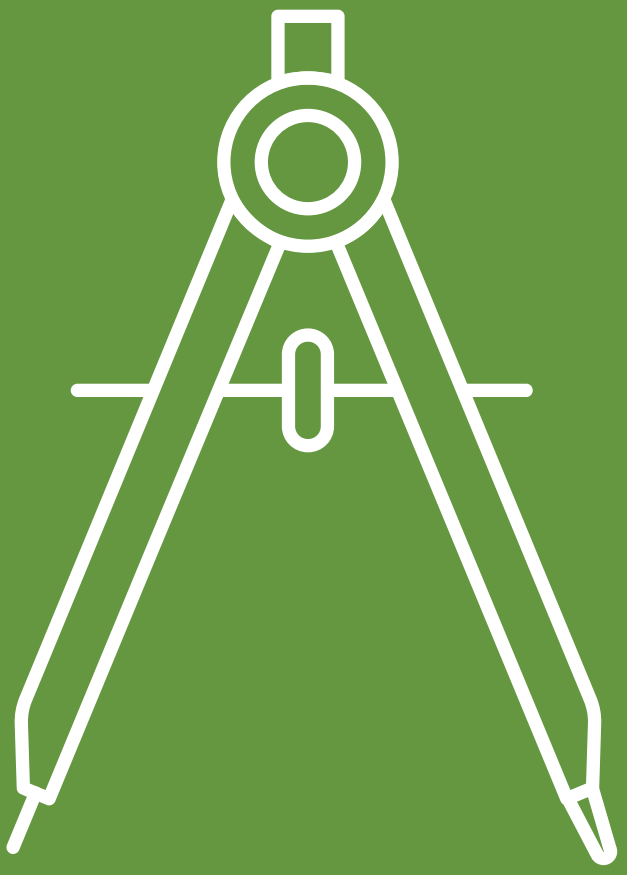
dripping from the leaves will carry the sap with it, causing blistering of the skin.

In case of contact, immediate cleansing of the skin with soap and water should be undertaken to remove any plant latex, being careful not to further spread the exposure. Immediate medical attention should be sought.

Above: Manchineel (Hippomane mancinella). Toxic sap. Poisionous fruit.

Math

Cayman Sage Math Challenge



Mixing Special Native Plant Potting Compost

Information Sheet

Name: _____

Pro-Mix BX
100 litres

Pro-Mix BX
100 litres

Perlite
35 litres

Osmacote
½ litres

Mixing Special Native Plant Potting Compost

_____ **litres**

Special Compost Bar Modelling

Fill in the gaps to complete a bar model using the information sheet.

<table>
<tr><td colspan="4">Special Native Plant Potting Compost

_____ litres</td></tr>
<tr><td>_____

100 litres</td><td>Garden Soil

_____ litres</td><td>_____

_____
litres</td><td>Osmacote

½ litres</td></tr>
</table>

In the space below, write at least three number sentences using this bar model.

Example: 155.5 – 100 = 20 + 35 + 5.5

Making different amounts of Special Compost

For each question, **draw a bar model** to show your understanding

1. If you **doubled** each ingredient, how much special compost would you have?

2. If you **multiplied** each ingredient **by 4**, how much special compost would you have?

3. If you **multiplied** each ingredient **by 10**, how much special compost would you have?

4. If you **halved** each ingredient, how much special compost would you have?

5. If you **halved** each ingredient twice, how much special compost would you have?

Quantity Problems

For each question, **draw a bar model** to show your understanding

1. If you had **300 litres of Pro Mix BX** and plenty of everything else, how much special compost could you make?

2. If you had **100 litres of garden soil** and plenty of everything else, how much special compost could you make?

3. If you had **150 litres of Pro Mix BX** and plenty of everything else, how much special compost could you make?

4. If you had **2.5 litres of Osmacote** and plenty of everything else, how much special compost could you make?

5. If you had **25 litres of garden soil** and plenty of everything else, how much special compost could you make?

Special Compost Bar Modelling - Fractions

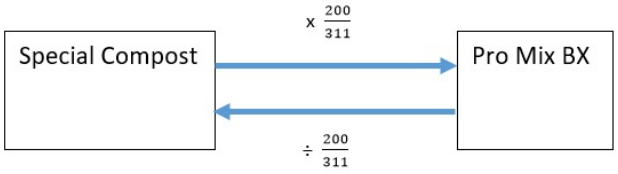
Complete the bar model using fractions instead of litres.

Example: The fraction of compost which is Pro Mix BX is $^{100}/_{155.5}$. Why is this the fraction? However, we don't mix decimals and fractions. To fix this, double the numerator and denominator: $^{200}/_{311}$.

Special Native Plant Potting Compost **1 litres**			
_____ $^{200}/_{311}$	**Garden Soil** _____	_____ _____	**Osmacote** _____

Calculating ingredients needed for the Special Compost

If you needed 200 litres of special compost, how much Pro Mix BX do you need?



For **1 litre** of special compost, you need $^{200}/_{311}$ litres of Pro Mix BX.

For **200 litres** of special compost, you need $^{200}/_{311}$ x **200 litres** of Pro Mix BX which is **129 litres**.

1. If you needed 300 litres of special compost, how much garden soil would you need?

2. If you needed 100 litres of special compost, how much would you need of each ingredient?

3. Would 80 litres of perlite be enough if you wanted to make 400 litres of special compost?

Filling pots using the Special Compost

1. How much soil do you think you could fit in the plant pot?

2. What shape does the plant pot look like?

3. How can you calculate the volume of the pot?

4. How can you convert the unit of measure into litres (you may need to use a measure converter on the internet)?

5. If you have 155.5 litres of Special Compost, how many pots can you fill? Is this exact? Why / Why not?

Sowing Cayman Seeds

Here are the instructions for sowing Cayman seeds

a. Weigh the seeds

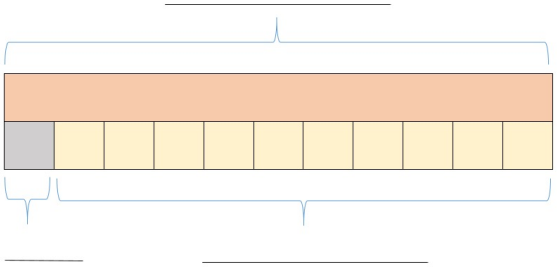
b. Multiply the result by 10 – this is the weight of washed sand you will need

c. Pour the correct amount of washed sand

d. Mix the seeds and washed sand together

e. Spread the amount equally by the number of pots you need

f. Sprinkle the seed/sand mixture on the surface of each pot



Questions

1. Complete the bar model above by filling in the labels: What does each section represent?

2. If you had 25g of seeds, how much washed sand would you need? What would be the total weight? Draw a bar model to show your understanding.

3. If the total of the seeds and sand mixture was 121g, how much sand was used?