Every Child a Seed
Teachers' Resource Kit

Content

I.   Objectives of Every Child a Seed

Every Child a Seed is a programme conceived to enable students nationwide to join in the commemoration of 50 Years of Greening Singapore.

Singapore has embarked on the next phase of its greening journey to create a City in a Garden, where homes are surrounded by nature and biodiversity and where greenery is tightly integrated into our living and working environment. We believe the continued involvement of all Singaporeans is vital in shaping this vision.

Every Child a Seed seeks to convey to our students that every Singaporean plays a part in shaping our City in a Garden. It also provides an opportunity for students to go through and thereby appreciate the challenges of the planting process. We hope teachers can take the opportunity to highlight to students that our City in a Garden is a result of the hard work and careful planning of our predecessors, and that it is the collective responsibility of Singaporeans to take care of our natural environment.

Tailored to complement the Primary 3 Science syllabus on Diversity, students will learn about plant parts, their functions and plant life cycle. The lessons will also reinforce the teaching of values such as care and responsibility.

II.   What Schools Will Receive

1) One Copy of the Every Child a Seed video*
- This 7-minute video can be shown to students during school assembly, in class during Science lessons or during any other suitable platform.

  The video is divided into 3 parts:

  Part 1 is a 3-minute introduction to our City in a Garden.

  Part 2 is a 3-minute demonstration on how to plant seeds. It can be shown to students before the lesson on growing plants using their plant starter kits.

  Part 3 is a 1-minute video on characteristics of plants and information on plant care.

  The video can also be viewed online, at https://www.youtube.com/watch?v=SzbPJI2ApLk.

2) Plant Starter Kits for Primary 3 Students
- Every Primary 3 student will receive a plant starter kit which includes a small pot, a packet of potting mix and a packet of seeds (containing Sunflower, Roselle or Kangkong seeds).

- Students will each receive a My Plant Journal that they can use to record and track the growth of their plants, and reflect on their plant growing process. In the plant journal, there is also information on the plants that the students will be growing.

- Pupils are encouraged to send photographs of their full-grown plants to the National Parks Board at haniza_yusuff@nparks.gov.sg with the subject title "Every Child a Seed". These photographs will be uploaded to the NParks website to encourage other students to grow and care for their plants. Students should also include their name, school and thoughts/feelings about the planting process in their email.

Teachers who decide to carry out the lessons in later months should take note of the following points on seed storage:

1) Seeds should be kept under dark, dry, cool and air-tight conditions. Seal seeds in dark, air-tight bags and place in a cupboard, away from direct sunlight or in a refrigerator at 10°C.

2) For the seeds to have a better chance of successful germination, they should ideally be planted within 1-2 months upon receiving the planting kits.

3) Consider planting the Roselle (*Hibiscus sabdariffa*) seeds within 1 - 2 weeks after receiving them as their rate of germination tends to decline rapidly with prolonged storage.

III.   Summary of Activities

S/N	Lesson	Student Learning Outcomes	Lesson Highlights	MOE Core Values	SEL
1	Introduction to Plants	- Appreciate the importance of plants in providing food and shelter for animals as well as a clean and beautiful environment for people to live in - Be able to explain why plants are classified as living things - Be able to identify the different plant parts and state their functions - Learn about the pollination process of flowering plants	- Students watch Part 1 of the "Every Child a Seed" video - Students discuss the characteristics of plants that make them living things - Students to match the functions to their corresponding plant parts	Responsibility Resilience Care	<u>Social Awareness</u> - Appreciation of diversity (*Plants do not look the same and they need space to grow. Similarly, people grow/progress differently*) - Respect for others (*Listen attentively to peers' views*) <u>Relationship Management</u> - Work cooperatively *(Learn to overcome differences and come to a conclusion)* - Communication and social engagement
2	Growing Plants	- Be able to grow plants from seeds - Know the conditions necessary for germination to take place - Appreciate the challenges of the planting process and understand that the vision of a "City in a Garden" requires much care and nurturing in order to thrive and succeed	- Students watch Parts 2 and 3 of the "Every Child a Seed" video - Students discuss the conditions necessary for plants to grow well - Students to grow plants from seeds using the plant starter kits - Students to monitor the growth of the seedlings and record observations made at various stages of growth		<u>Social Awareness</u> - Appreciation of diversity - Empathy <u>Self-Management</u> - Self-motivation and discipline <u>Relationship Management</u> - Work cooperatively - Seeking and providing help - Negotiation and management of possible disagreements and conflicts <u>Responsible Decision Making</u> - Recognise needs of living things - Personal, moral and ethical responsibility

Note: The following lesson plans are optional. While we encourage teachers to carry out both lessons, they are merely guides for teachers to adapt however they see fit.

IV.   Lesson Plan 1: Introduction to Plants

LEVEL:	Primary 3
THEME/TOPIC:	Diversity: Diversity of living things (General characteristics)
	Systems: Plant system (Plant parts and functions)
TITLE OF ACTIVITY:	Introduction to Plants
DURATION:	50 minutes
STRATEGY:	Direct Instruction/Cooperative Learning
VENUE:	Classroom

BACKGROUND KNOWLEDGE
Students should have knowledge of the characteristics of living things.

LEARNING OUTCOMES
At the end of the lesson, students should be able to
1)   appreciate the importance of plants in providing food and shelter for animals as well as contributing to a clean and beautiful environment for people to live in, and
2)   identify the different plant parts and state their functions.

TEACHING RESOURCES
1)   Every Child a Seed video
2)   Lesson 1 PowerPoint slides
3)   Activity Worksheet 1
4)   Activity Worksheet 2
5)   My Plant Journal

MATERIALS
Teacher can prepare or ask students to bring the following items:
- Drawing paper
- Glue
- Scissors
- Pencil
- Coloured pencils/markers
- Recycled materials like dried leaves, dried flowers, newspaper, magazine paper, drinking straws, raffia string, etc.

*Note: Teachers can make use of **Activity Worksheet 2 for Lesson 1** instead of getting students to bring recycled materials.*

S/N	Activities	Duration	Resources
	Trigger Activity		
1	• Play Part 1 of the Every Child a Seed video • Teacher to facilitate class discussion on what makes a City in a Garden and why plants are important for animals and people by asking questions based on the video: *- What will happen to Bobby the Hornbill and his friends if there are no plants?* *- Why is it important to have plants in a city?* *- Do you have a favourite neighbourhood park or garden that you like to visit? What do you like about this park/garden?* *[Suggested answers:* *- Plants provide food and shelter for animals* *- Plants make our environment pleasant* *- Plants keep the air fresh]*	5 min	Every Child a Seed video
	Introduction		
2	<u>Plant Parts and Characteristics</u> • Teacher to show examples of common plants using PowerPoint slides and discuss the observable characteristics (slides 3 – 4) • Guide pupils to list some common characteristics of plants (slides 5 – 11) *[Some common characteristics may include:* *- They are green (discussion point: Are all plants green?)* *- They have leaves* *- They grow flowers (discussion point: Do all plants bear flowers?)* *- They grow on land or in water* *- They come in different shapes and sizes]* • Teacher to end off this section by relating the diversity of plants to how	5 min	PowerPoint slides

S/N	Activities	Duration	Resources
	students should also learn to accept and appreciate each other's unique qualities (slide 12)		

<table>
<tr><td colspan="4" align="center">Main Activity</td></tr>
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S/N	Activities	Duration	Resources
3	**(Part 1) Class Activity: Plants are Living Things** • Teacher to distribute My Plant Journal to students • Teacher to help students recall and list down common characteristics of living things (slides 13 – 18): *- Living things need food, air and water to survive* *- Living things grow and die* *- Living things reproduce* *- Living things respond to changes in their surroundings* • Teacher to help students come to the conclusion that plants are living things • Using the characteristics of living things listed, teacher to ask students the following questions: *- Which part of the plant takes in food and water?* *- Which part of the plant helps it to "breathe"?* *- Which part of the plant helps it to reproduce?* *- How do plants respond to changes in their surroundings?* • Teacher to call on various students to match functions to the corresponding parts of the plant (slides 20 – 24) • Teacher can ask students to complete the activity on plant parts and their functions in Activity Worksheet 1 • Teacher to briefly elaborate on the pollination and fertilisation processes of flowering plants (slides 25 – 28)	15 min	PowerPoint slides My Plant Journal

S/N	Activities	Duration	Resources
	• Teacher to end off with short pop quiz with true/false questions to assess students' understanding of section (slides 29 – 33)		
4	**(Part 2) Group Activity: Plant Parts and System** • Teacher to inform students that they will be doing a group activity where they will create their own plant collage using recycled materials (slides 34 – 35) • Teacher to organise students into groups of 4 and distribute drawing paper and recycled materials to them • Teacher to have groups prepare materials of glue, scissors, pencil and coloured pencils/markers • Teacher to ask students, in their groups, to come up with a collage of a plant with its plant parts using the materials that they have • Students should have the main plant parts of roots, stem, leaf and flower with their respective functions clearly labelled in their collage *Note:* *- Activity Worksheet 2 may be used instead of using the different materials.* *- Students can be given the option to cut out the different plant parts and stick them on the drawing paper. After doing so, students should label the plant parts so they are more likely to remember their names.* • Teacher to set the ground rules and give reminders such as: *- Communicate with group members in a respectful manner* *- Keep volume of discussion at an acceptable level*	20 min	PowerPoint slides Recycled materials *(dried leaves, dried flowers, newspaper, magazine paper, drinking straws, raffia string, etc.)* for activity Activity Worksheet 2 for Lesson 1 (optional)

S/N	Activities	Duration	Resources
	- No running in the classroom *- Keep work area clean* *- Work will be assessed based on quality, not speed* • Teacher to encourage students to be creative in designing their plant collage • Teacher to walk around to facilitate group activity • At the end of activity, teacher can choose to call on a few groups to present their collage • Teacher can choose to award prizes to deserving group(s) with the best collages • All collages can be displayed on the class notice board Alternative Activity/Lesson Extension • Teacher to bring students around the school compound like the school garden, etc. to look at the plants and point out the various plant parts • Teacher can allow students to use mobile devices to take photos of the plants that they see in the garden and extend their learning by finding out the names of these plants and learning more about their uses and characteristics • Teacher can get students to share what they have learnt with their classmates • Teacher to remind students to treat the flora and fauna that they see with care, and not to pluck any leaves or flowers from the plants/trees		

S/N	Activities	Duration	Resources
	Conclusion		
5	• Teacher to conclude by explaining that every part of the plant is important as they are all part of a whole system (Slide 36) • Making reference to the Every Child a Seed video, teacher to remind students that everyone is an important part of the system that keeps our City in a Garden thriving	5 min	PowerPoint slides

V.   Lesson Plan 2: Growing Plants

LEVEL: Primary 3

THEME/TOPIC: Diversity: Diversity of living things (General characteristics)
                        Cycles: Cycles in Plants (Life Cycles)
                        Systems: Plant system (Plant parts and functions)

TITLE OF ACTIVITY: Growing Plants

DURATION: 50 minutes

STRATEGY: Direct Instruction/Cooperative Learning/Hands-on Learning

VENUE: Classroom

BACKGROUND KNOWLEDGE
Students should have basic knowledge of life cycles and plant systems.

LEARNING OUTCOMES
At the end of the lesson, students should be able to
1)   understand the conditions necessary for germination to take place,
2)   grow plants from seeds, and
3)   appreciate the challenges of the planting process and understand that a City in a
      Garden requires much care and nurturing in order to thrive.

TEACHING RESOURCES
1)   Every Child a Seed video
2)   Lesson 2 PowerPoint slides
3)   My Plant Journal
4)   Every Child a Seed Plant Starter Kits

S/N	Activities	Duration	Resources
	Trigger Activity		
1	• Teacher to ask students if they have planted seeds before and get them to share what they have grown with their classmates (slides 2 – 3)	5 min	PowerPoint slides
	Introduction		
2	• Teacher to share with students the different parts of a seed and its functions (slide 4) • Using the pictures on slides 5 and 6, teacher to get students to discuss in pairs what the correct stages of growth should be • Teacher can call on some students to arrange the pictures in the correct order	10 min	PowerPoint slides
	Main Activity		
3	**(Part 1) Germination** • Teacher to share more about the germination process with students (slides 7 – 10) • Teacher to elaborate on the conditions that need to be present for seeds to germinate (slides 11 – 14) • Teacher to end off with short pop quiz with true/false questions to assess students' understanding of section (slides 15 - 19)	10 min	PowerPoint slides
4	**(Part 2) Growing My Plant** • Teacher to share the objectives of the Every Child a Seed planting activity (slide 21): *- To understand that everyone plays an important role in creating our City in a Garden* *- To appreciate the challenges of the planting process (Our City in a Garden is a result of hard work and commitment)*	20 min	PowerPoint slides Plant Starter Kits Every Child a Seed video My Plant Journal

S/N	Activities	Duration	Resources
	- To learn to be caring and responsible individuals through taking good care of the plants • Teacher to inform students that they now have the opportunity to contribute to the greening of Singapore by learning how to grow their very own plants • Teacher to distribute Plant Starter Kits to the students • Play Part 2 of the Every Child a Seed video for a demonstration on how to grow plants • Teacher to inform students that they can also watch the video by searching *"Every Child a Seed Part 2"* on YouTube • Teacher to highlight to students that once the seeds have germinated and shoots have started to appear, the young plant will need sunlight in order to continue growing • Play Part 3 of the Every Child a Seed video for additional pointers on how to grow the plants • Teacher to inform students that they can also watch the video by searching *"Every Child a Seed Part 3"* on YouTube		
Conclusion			
5	(Slide 24) • Teacher to remind students to monitor and track the growth of their seeds in their Plant Journals • Teacher to inform students that they can send in photographs of their full-grown plants to the National Parks Board to inspire their peers to grow and care for their plants	5 min	PowerPoint slides

S/N	Activities	Duration	Resources
	• Teacher to allow students to open up their Plant Starter Kits to see what seeds they will be growing and to ask them to read the page in their Plant Journals on the plant they have been allocated • If time permits, students can start planting the seeds in class or they can bring the Plant Starter Kit home to do the planting <u>Lesson Extension</u> • Teacher can have short weekly or fortnightly sessions where students can share the progress of their plant growth with their classmates using their Plant Journals • During these sessions, students can also highlight any issues they are facing in the growing process, and the teacher or their classmates can share possible suggestions, growing tips and solutions • Teacher can get the students to share their thoughts and reflections on the growing process, and focus on the values learnt *(eg. Responsibility, Resilience, Care, Patience, etc.)* • Teacher can introduce the definition of a terrarium (container garden) to the students and discuss the benefits of having a terrarium vs a more traditional plant		

VI.   Useful Links

1. NParks website and Education page (*https://www.nparks.gov.sg/* and *https://www.nparks.gov.sg/learning*)

2. Every Child a Seed web page (*https://www.nparks.gov.sg/learning/programmes-for-schools/every-child-a-seed*)

   a.   Every Child a Seed video
        - Part 1 (*https://www.youtube.com/watch?v=SzbPJI2ApLk*)
        - Part 2 (*https://www.youtube.com/watch?v=wP-mnfnQZ2Q*)
        - Part 3 (*https://www.youtube.com/watch?v=3s2kEsZFqRs*)
   b.   Lesson 1 PowerPoint slides
   c.   Lesson 2 PowerPoint slides
   d.   Activity Worksheet 1
   e.   Activity Worksheet 2

3. Flora & Fauna Web (*https://florafaunaweb.nparks.gov.sg/*)

4. NParks YouTube channel (*https://www.youtube.com/user/nationalparksboard/videos*)