

CAT 4 RESOURCE DEVELOPMENT

Project *Naturae* (4-94)

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ABSTRACT

Project Naturae is a group of Secondary Four students collaborating with Sentosa Development Corporation to raise awareness of Singapore's biodiversity through the use of Sentosa Nature Discovery and Imbiah Trail. Biodiversity in Singapore is declining at an alarming rate, which will potentially cause Singapore to lose its unique natural heritage. Therefore, Project Naturae has put together various resources to promote awareness of the under-appreciated natural environment of the country.

1 INTRODUCTION

1.1 Rationale

We realised that biodiversity is decreasing at an alarming rate in Singapore. According to John Pickrell (2003), 73% of the original flora and fauna on Sentosa has gone extinct, and 4,866 plant species have already been lost. Only slightly more than 2 km² of primary forest remains today, covering a mere 0.25% of Singapore's total area. Although humans may not feel any adverse effects yet, the consequences would be severe if it persists.

1.2 Objectives

Project Naturae aimed to raise awareness of and educate the general public on Singapore's unique biodiversity.

1.3 Target Audience

Our target audience was Primary One to Six students. Nevertheless, this resource package can easily be adapted and modified for different age groups.

1.4 Resources

The resources created comprised a website, posters, worksheets, an encyclopedia and a fully-planned event package which consisted of a Guided Tour and an Amazing Race.


Project Naturae Worksheet

Name: _____ School: _____ Date: _____


Multiple Choice Questions

1. Which of the following is the carpenter bee?


A.




B.



C.



D.



2. Which of the below is a characteristic of the tembusu tree?

- It has waterproof bark
- Its wood is used to make chopping blocks
- It grows up to 100m tall
- It does not bear fruits

3. What is an application of the *Melastoma* (blackmouth) tree?

- Its trunk can be used to build boats and bridges
- It is used to treat diarrhea
- Its leaves can be crushed and eaten
- The poison in the fruit is used in hunting

4. Which plant has heart-shaped leaves?

- Sea apple tree
- Fish poison tree
- Nibong Palm
- Tembusu tree

5. What is a mutualism relationship?

- Party A benefits while Party B is harmed.
- Both Party A and Party B benefits.
- Party A benefits while nothing happens to Party B.
- Nothing happens to both parties.

Fig 1.4.1 A page of the worksheet

2 REVIEW

Our package included a Guided Tour and an Amazing Race, allowing students to learn about nature through Imbiah Trail by engaging students in a fun and interesting approach.

Our resources could easily be modified for various audiences. For example, the guiding script could be adapted to cater to different age groups by editing its contents.

Our package was designed to be replicated effortlessly. Anyone with our package could host the event to cater to any target audience as different versions of each resource were included in our package, which were based on the requirements and capabilities of various age groups.

2.1 Literature Review

Jose Hong (2017) examined the nature left in Singapore and whether Singapore lived up to its name as a “Garden City”. He observed that the greater the developments of the city, the greater the land was lost to such developments, resulting in land that once hosted biodiversity to be cleared. He found that Singapore was a country blessed with biodiversity, yet development has come at great costs to the natural habitat of which we are custodians. Furthermore, his friends were unaware of it, demonstrating that Singaporeans were oblivious to the wonderful biodiversity surrounding them.

3 METHODOLOGY

3.1 Needs Analysis

A survey was conducted to establish the respondents’ knowledge on biodiversity in Singapore. The 50+ respondents were not very knowledgeable. However, they supported the idea of creating resources to promote awareness of the said issue. They expressed great enthusiasm and interest in our Guided Tour and Amazing Race event concepts, further underscoring the relevance of our project.

3.2 Survey Results

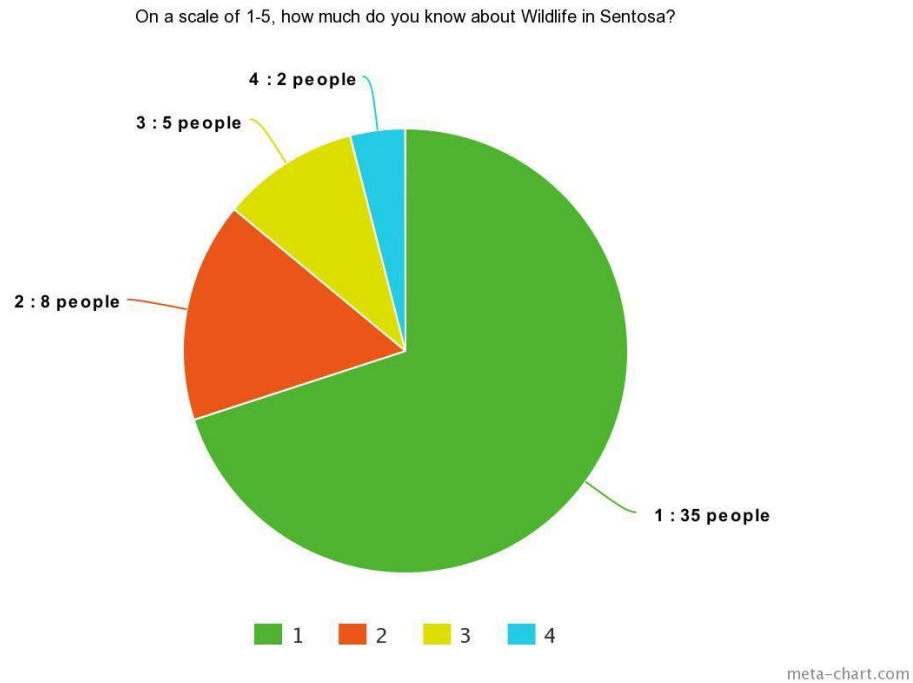


Fig 3.2.1 Pie Chart showing the amount of knowledge our surveyees had on the wildlife in Sentosa

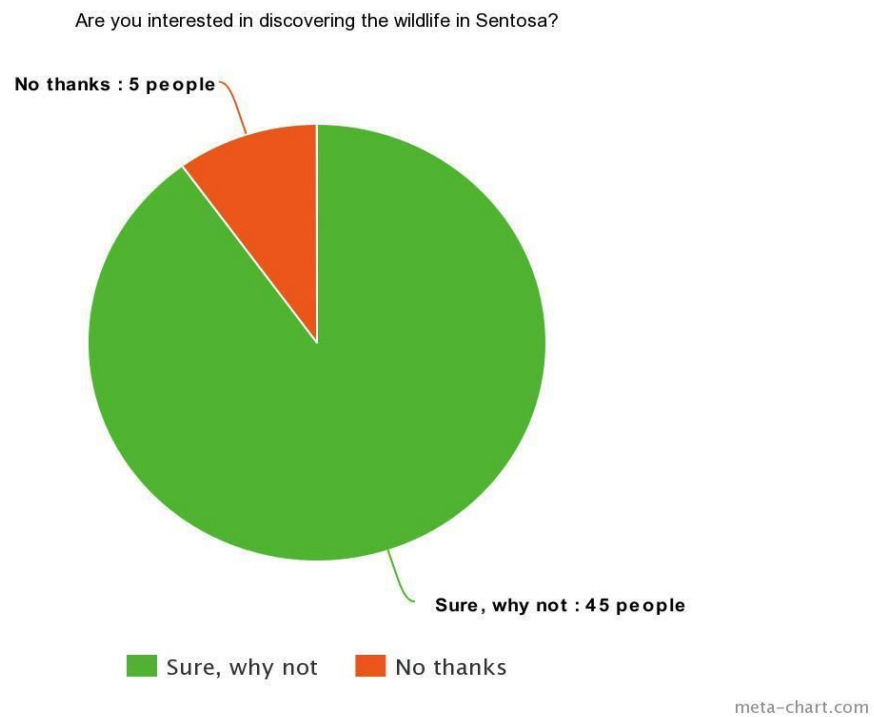


Fig 3.2.2 Pie Chart gauging the level of interest among our target audience

3.3 Development of Resources

Resource 1: Encyclopedia

We conducted extensive research on 30 species of plants and animals at Imbiah Trail and compiled it into a comprehensive encyclopedia as participants' reference tool during the Amazing Race. Our encyclopedia could be understood by students from as young as eight years old, but was also appropriate for adults that would like to learn more.

Resources:

https://docs.google.com/document/d/1T9d9KLTONzEcXMo0wAF56qQ2_jfvc1D8_JIPqV1gkJE/edit?usp=sharing

Resource 2: Website

We consolidated all our resources into a website, which served as a repository to be shared freely, as well as to provide information on Singapore's biodiversity to an even larger target group, leading to increased awareness and expanded outreach.

Link: <http://projectnaturae.wixsite.com/naturae>

Resource 3: Posters

Posters were used to engage our audiences and promote our project. These appealing posters provided interesting facts and diagrams to attract attention of passers-by thereby educating them on the country's biodiversity. They also served to promote awareness of our project and resources.

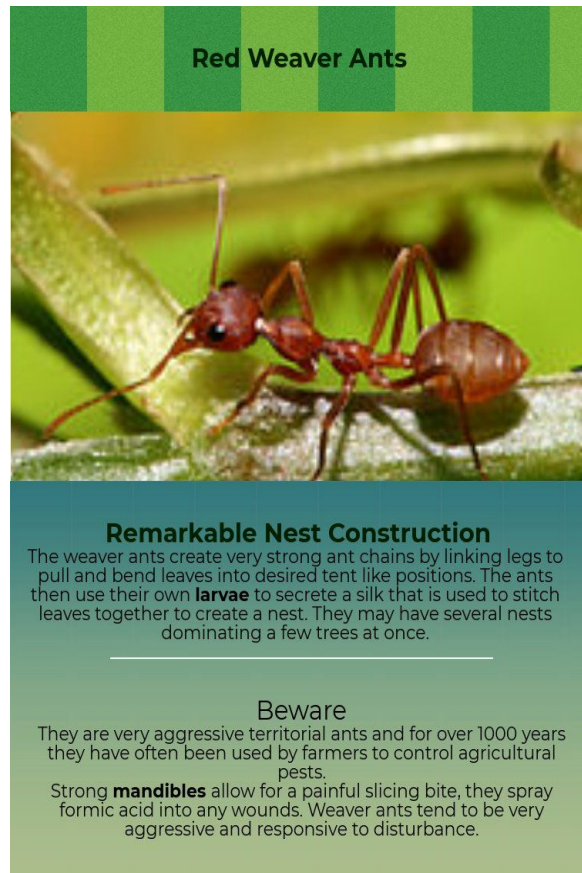


Fig. 3.3.1 Posters displaying interesting information about Red Weaver Ants and promoting our Amazing Race

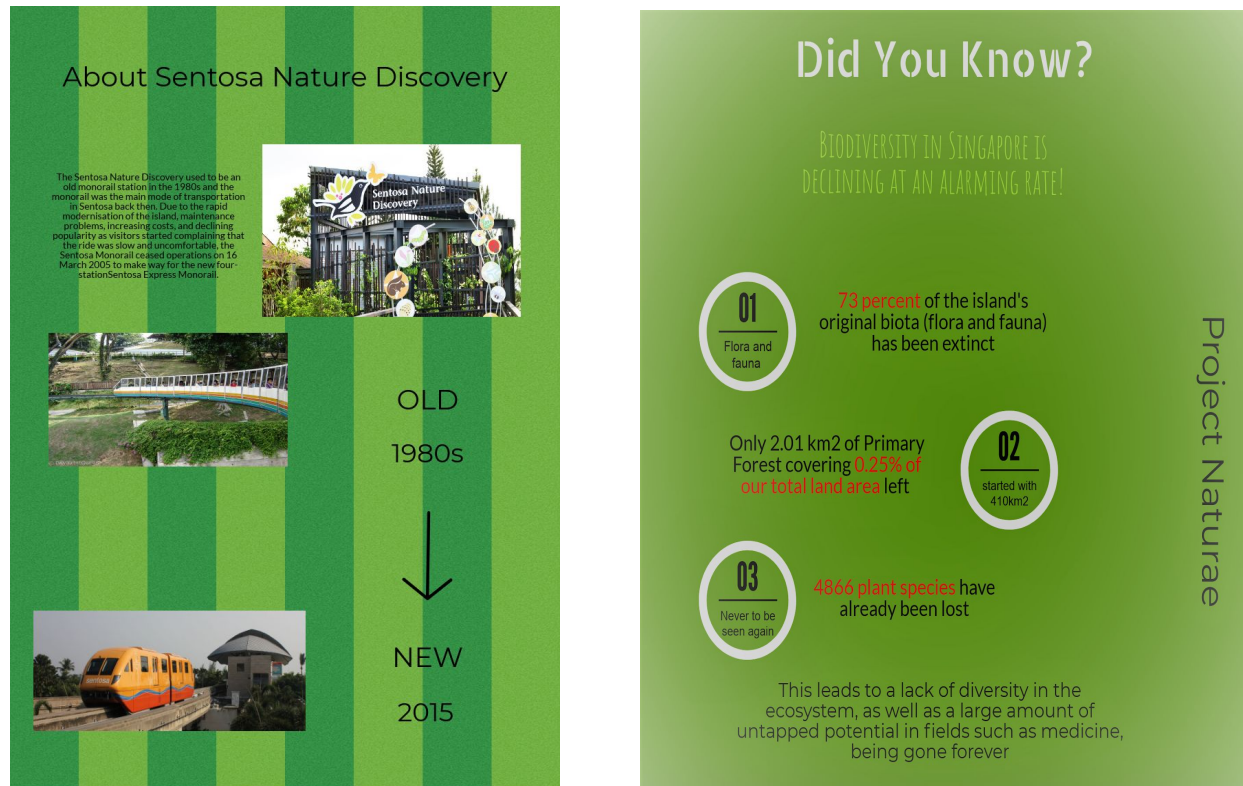


Fig. 3.3.2 Posters about Sentosa Nature Discovery and biodiversity in Singapore

Resource 4: *Naturade: The Event*

We underwent an intensive two-month tour guide training programme at Sentosa Nature Discovery from January to March 2018. It enabled us to be conversant with the area and provided us first-hand learning from experts about the biodiversity in Singapore.

The encyclopedia was included to serve as a quick-and-easy reference material for the readers, allowing them to look up more information about a particular species at any time.

Worksheets were created to complement the Guided Tour by providing participants with a fun challenge to test their new-found knowledge post-tour.

The Amazing Race was organised by Project Naturae, in conjunction with Project Educar. Additionally, student volunteers were enlisted to facilitate smooth execution of

the event. Participants were tested on their knowledge from the tour and they participated in various games to earn points in a fun yet educational fashion.

A wet weather plan was also prepared in which the amazing race would be converted into an indoor carnival with game booths.

Resources:

<https://docs.google.com/document/d/1eMus1r0S3m5cthQ5E6bT97794JW-e2TLCfeES9RSAsc/edit?usp=sharing>

3.4 Pilot Test

Our resources were tested on two separate audiences: a group of young adults, and a group of children from Chinese Development Assistance Council (CDAC) ranging from seven to twelve years old.

From this, we realised that some of the game objectives were too challenging. Thus, amendments were made to suit our target audience. Furthermore, the attention span of primary school students were found to be shorter so we reduced the length of our Guided Tour. Our original encyclopedia was too in-depth, causing confusion amongst our pilot testers, hence, we simplified it.



Fig 3.4.1 Pilot test with children from CDAC

3.4.1 Naturade: The Event

“Naturade” was held on 10 August 2018 at Sentosa Nature Discovery with 30 Primary One to Six students from our partner organisation, Care Corner SG. Encyclopedias and worksheets were distributed. These students participated in a series of activities, including the Guided Tour and the Amazing Race, along with other smaller activities planned for them.

Feedback gathered was positive. Participants enjoyed the event as their experience learning through an amazing race format was enriching. The teachers-in-charge approved of the event because it enabled the students to have fun in an educational manner. Despite minor challenges involving discipline of the overzealous volunteers, the event was still a success in meeting our objectives.



Fig 3.4.1.1 The event

4 OUTCOME & DISCUSSION

Our project fully accomplished our objectives to raise awareness and educate our target audience about the biodiversity in Singapore. With the aid of all our resources, our outreach increased many-fold. *Naturade: The Event*, allowed us to educate our target audience in a fun, engaging and hands-on manner. 96.6% of participants indicated that they had “benefited a lot” from the event. Wee Kiat, a participant, said that the event “was fun while allowing us [the participants] to learn a lot at the same time”.

Our participants’ responses ascertained the feasibility and usefulness of our project. After a dialogue with Dr. Charles Low, considerations are underway to include our

resources into a sabbatical or a FOSHA activity. There are also plans to expand the scope and scale of the project by including other natural environments on Sentosa and mainland Singapore. Engaging more partner organisations is also in the works for hosting more educational events similar to ours.

5 CONCLUSION

Project Naturae had been a challenging project to undertake at the onset as it required hours of rigorous effort to prepare numerous resources and many dry runs to ensure that the final event would run as smoothly as possible. The entire journey had enabled the group to develop various skills. Creativity and a keen sense of observation were crucial during the event as we had to learn to adapt to the needs of the participants on-the-spot. Forward-thinking and foresight were essential when creating the resources to ensure suitability for diverse age groups. Perseverance and patience were the final elements to achieve project completion. These characteristics motivated the project group to continue striving for success.

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