

2016

Stage Three Learning



Illawarra Fly Treetop Adventures

1/1/2016

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Program Overview

All of the Stages within the Illawarra Fly Educational Program were designed by a practicing NSW qualified teacher

The Stage 3 program incorporates a broad range of concepts and engages with students' high level thinking and problem solving skills across several subjects whilst getting into the outdoors and being in touch with nature. Students are provided with a small workbook in which they complete activities so teachers can use these as a checklist against the syllabus outcomes that are addressed through the implementation of the activities. Teachers are able to perform the tours themselves with guidance from a map and teacher resource which along with the signs on the walk and information sheets provided by the Illawarra Fly.

English and literacy skills are constantly used by students through the tour with them having to read signs to members of the class and listen to information that is provided from these signs (EN3-1A, EN3-3A). Students complete several short writing tasks which give the opportunity for them to utilise and refine their spelling and grammatical skills (EN3-2A, EN3-4A, EN3-6B). Activities are utilised in which students must use their imagination and creativity to write about the sensations they get from their senses whilst in the rainforest, which is based on own opinion and information that they have learnt throughout their time on the tour (EN3-7C, EN3-8D). From the points above, it can be seen that this outdoor activity has a range of benefits to students' learning within the English subject.

In their time out amongst the rainforest, students will be touching on and building on their knowledge of concepts within the Science subject. Students will be observing and describing structural features and adaptations of plants and animals native to the Illawarra Fly in their efforts to survive in their environment (ST3-10LW). Using the pre-excursion activity as a basis, students learn about the physical conditions within the local rainforest environment and enhancing their application of this knowledge (ST3-11LW). Using the Treetop Walk structure as a foundation, students look at social and environmental factors that influence the design of built environments (ST3-14BE). Students get the chance to develop all of these concepts in real world environment outside of their classroom concept.

Mathematics takes a high involvement with the tour that students undertake. Using powers of multiplication and division, students learn about the Tree Fern growth, age and heights within the rainforest environment (MA3-6NA). At the conclusion of the tour, students must organise this information into an order to help come to a conclusion and this has ties with the scientific element of the tour (MA3-4NA). Students partake in addition and subtraction activities which use measurements and concepts of the Illawarra Fly Zipline to challenge their mathematical abilities

(MA3-5NA). Students use the concepts of mass and length during the tour to solve problems that are posed (MA3-9MG, MA3-12MG). Students will be engaged as 'lead guides' throughout their tour and will be using their mapping and navigational skills to bring the group to points along the tour (MA3-17MG). Students are challenged into describing these problems using mathematical terms and must apply correct problem solving strategies to the problems addressed during their investigations (MA3-1WM, MA3-2WM).

Geography and History for the tour go hand in hand with each other. Students will look at the history of early settlement within the Illawarra region and the Illawarra Fly rainforest (HT3-1). Furthermore, students will observe man made changes in the area and communicate the changes that have occurred over time (GE3-1, GE3-2). Students address the concept of environmental management and how the Illawarra Fly tackles the concept of being environmentally friendly (GE3-3).

As can be seen from above, the Illawarra Fly Stage 3 education program addresses a broad range of concepts across key subject areas. The activities used can be filtered down and either made more complex for the high end thinkers or easier for those students who may have difficulty grasping the concepts. Teachers can choose to prompt as much as possible or if they are confident, can let their class guide for most of the tour and just use guiding questions for discussion and to address key concepts. All of these areas are being addressed while students are getting physically active and working cooperatively which makes this program a great day out for any class.



Syllabus Outcomes and Contents

ENGLISH OUTCOMES AND CONTENT

SPEAKING AND LISTENING

OUTCOME-EN3-1A-communicates effectively for a variety of audiences and purposes using increasingly challenging topics, ideas, issues and language forms and features

CONTENT

Develop and apply contextual knowledge

- compare and justify the ways in which spoken language differs from written language according to purpose, audience and context

Understand and apply knowledge of language forms and features

- use metalanguage to describe the effects of ideas, text structures and language features on particular audiences

Respond to and compose texts

- use interaction skills, for example paraphrasing, questioning and interpreting non-verbal cues and choose vocabulary and vocal effects appropriate for different audiences and purposes
- use interaction skills, varying conventions of spoken interactions such as voice volume, tone, pitch and pace, according to group size, formality of interaction and needs and expertise of the audience
- participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions
- identify and summarise key ideas and information from guest speakers, eg note-taking or using digital technologies

WRITING AND REPRESENTING

OUTCOME- EN3-2A-composes, edits and presents well-structured and coherent texts

CONTENT

Engage personally with texts

- understand and appreciate the way texts are shaped through exploring a range of language forms and features and ideas
- experiment and use aspects of composing that enhance learning and enjoyment

Develop and apply contextual knowledge

- explore and analyse the effectiveness of informative and persuasive devices in texts

Respond to and compose texts

- compose imaginative and informative texts that show evidence of developed ideas
- compose texts that include sustained and effective use of persuasive devices, eg texts dealing with environmental issues
- develop a handwriting style that is legible, fluent and automatic and varies according to audience and purpose

READING AND VIEWING

OUTCOME- EN3-3A- uses an integrated range of skills, strategies and knowledge to read, view and comprehend a wide range of texts in different media and technologies

CONTENT

Develop and apply contextual knowledge

- understand how texts vary in purpose, structure and topic as well as the degree of formality

Understand and apply knowledge of language forms and features

- understand that the starting point of a sentence gives prominence to the message in the text and allows for prediction of how the text will unfold
- recognise how grammatical features help to build meaning in texts, including reference links and adverbial and adjectival phrases
- recognise evaluative language, including emotive language and modality

Respond to, read and view texts

- summarise a text and evaluate the intended message or theme
- navigate and read texts for specific purposes applying appropriate text processing strategies, for example predicting and confirming, monitoring meaning, skimming and scanning
- select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings

SPELLING

OUTCOME- EN3-4A- draws on appropriate strategies to accurately spell familiar and unfamiliar words when composing texts

CONTENT

Develop and apply contextual knowledge

- understand how accurate spelling supports the reader to read fluently and interpret written text with clarity

Understand and apply knowledge of language forms and features

- understand how to use banks of known words, word origins, base words, suffixes and prefixes, morphemes, spelling patterns and generalisations to learn and spell new words, for example technical words and words adopted from other languages

Respond to and compose texts

- integrate a range of spelling strategies and conventions to accurately spell most words, including words of many syllables, when composing imaginative and other texts

GRAMMAR, PUNCTUATION AND VOCABULARY

OUTCOME- EN3-6B- uses knowledge of sentence structure, grammar, punctuation and vocabulary to respond to and compose clear and cohesive texts in different media and technologies

CONTENT

Develop and apply contextual knowledge

- understand that language is structured to create meaning according to audience, purpose and context
- understand that choices in grammar, punctuation and vocabulary contribute to the effectiveness of texts

Respond to and compose texts

- select some more challenging language features, literary devices (eg irony, humour) and grammatical features (eg modality) to engage and influence an audience
- experiment with different types of sentences, eg short sentences to build tension and complex sentences to add detail
- use topic sentences and appropriately organise main (independent) and subordinate (dependent) ideas to enhance coherence in written texts
- select appropriate language for a purpose, eg descriptive, persuasive, technical, evaluative, emotive and colloquial, when composing texts

THINKING IMAGINATIVELY, CREATIVELY AND INTERPRETIVELY

OUTCOME- EN3-7C- thinks imaginatively, creatively, interpretively and critically about information and ideas and identifies connections between texts when responding to and composing texts

CONTENT

Engage personally with texts

- recognise and explain creative language features in imaginative, informative and persuasive texts that contribute to engagement and meaning
- interpret events, situations and characters in texts
- explain own preferences for a particular interpretation of a text, referring to text details and own knowledge and experience

Develop and apply contextual knowledge

- explore and discuss simple appropriation of texts

Respond to and compose texts

- create literary texts that adapt or combine aspects of texts students have experienced in innovative ways
- interpret a range of texts, eg through role-play or drama, for pleasure and enjoyment, and express an analytical conclusion about those texts

EXPRESSING THEMSELVES

OUTCOME- EN3-8D- identifies and considers how different viewpoints of their world, including aspects of culture, are represented in texts

CONTENT

Engage personally with texts

- consider how texts about local events and issues in the media are presented to engage the reader or viewer

Develop and apply contextual knowledge

- make connections between students' own experiences and those of characters and events represented in texts drawn from different historical, social and cultural contexts
- identify aspects of literary texts that convey details or information about particular social, cultural and historical contexts

Respond to and compose texts

- clarify understanding of content as it unfolds in formal and informal situations, connecting ideas to students' own experiences and present and justify a point of view
- compose a variety of texts, eg poetry, that reflect their understanding of the world around them

MATHS OUTCOMES AND CONTENT

WHOLE NUMBERS

OUTCOMES- MA3-1WM- describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
MA3-2WM- selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations
MA3-4NA- orders, reads and represents integers of any size and describes properties of whole numbers

CONTENT

Recognise, represent and order numbers to at least tens of millions

- apply an understanding of place value and the role of zero to read and write numbers of any size
- arrange numbers of any size in ascending and descending order
- use numbers of any size in real-life situations, including in money problems
 - ▶ interpret information from the internet, the media, the environment and other sources that use large numbers (Communicating, Reasoning)

ADDITION AND SUBTRACTION

OUTCOMES- MA3-1WM- describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
MA3-2WM- selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations
MA3-5NA- selects and applies appropriate strategies for addition and subtraction with counting numbers of any size

CONTENT

Use efficient mental and written strategies and apply appropriate digital technologies to solve problems

- use the term 'sum' to describe the result of adding two or more numbers, eg 'The sum of 7 and 5 is 12'
- add three or more numbers with different numbers of digits, with and without the use of digital technologies, eg $42\,000 + 5123 + 246$
- select and apply efficient mental, written and calculator strategies to solve addition and subtraction word problems
- record the strategy used to solve addition and subtraction word problems

MULTIPLICATION AND DIVISION

OUTCOMES- MA3-1WM- describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
MA3-2WM- selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations
MA3-6NA- selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation

CONTENT

Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental and written strategies and appropriate digital technologies

- use mental and written strategies to multiply three- and four-digit numbers by one-digit numbers
- use mental and written strategies to multiply two- and three-digit numbers by two-digit numbers
- apply appropriate mental and written strategies, and digital technologies, to solve multiplication word problems
 - ▶ use the appropriate operation when solving problems in real-life situations (Problem Solving)
 - ▶ use inverse operations to justify solutions (Problem Solving, Reasoning)

Solve problems involving division by a one-digit number, including those that result in a remainder

- apply appropriate mental and written strategies, and digital technologies, to solve division word problems
 - ▶ recognise when division is required to solve word problems (Problem Solving)
 - ▶ use inverse operations to justify solutions to problems (Problem Solving, Reasoning)
- use and interpret remainders in solutions to division problems, eg recognise when it is appropriate to round up an answer, such as 'How many 5-seater cars are required to take 47 people to the beach?'

Use estimation and rounding to check the reasonableness of answers to calculations

- round numbers appropriately when obtaining estimates to numerical calculations

PATTERNS AND ALGEBRA

***OUTCOMES-** MA3-1WM- describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions*

MA3-2WM- selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations

MA3-8NA- analyses and creates geometric and number patterns, constructs and completes number sentences

CONTENT

Use equivalent number sentences involving multiplication and division to find unknown quantities

- identify and use inverse operations to assist with the solution of number sentences, eg $125 \div 5 = \square$ becomes $\square \times 5 = 125$
 - ▶ describe how inverse operations can be used to solve a number sentence (Communicating, Reasoning)

LENGTH

***OUTCOMES-** MA3-1WM- describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions*

MA3-9MG- selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length

CONTENT

Choose appropriate units of measurement for length

- record lengths and distances using combinations of millimetres, centimetres, metres and kilometres, eg 1 km 200 m

Convert between common metric units of length

- convert between metres and kilometres
- convert between millimetres, centimetres and metres to compare lengths and distances

MASS

OUTCOMES- *MA3-1WM- describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions*
MA3-2WM- selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations
MA3-12MG-selects and uses the appropriate unit and device to measure the masses of objects, and converts between units of mass

CONTENT

Choose appropriate units of measurement for mass

- use the tonne to record large masses, eg sand, soil, vehicles
- record masses using the abbreviation for tonnes (t)
- find the approximate mass of a small object by establishing the mass of a number of that object

Convert between common metric units of mass

- convert between kilograms and grams and between kilograms and tonnes
 - ▶ explain and use the relationship between the size of a unit and the number of units needed to assist in determining whether multiplication or division is required when converting between units (Communicating, Reasoning)
- solve problems involving different units of mass

POSITION

OUTCOMES- *MA3-1WM- describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions*
MA3-17MG-locates and describes position on maps using a grid-reference system

CONTENT

Use a grid-reference system to describe locations

- find locations on maps, including maps with legends, given their grid references
- describe particular locations on grid-referenced maps, including maps with a legend

Describe routes using landmarks and directional language

- find a location on a map that is in a given direction from a town or landmark
- describe the direction of one location relative to another
- follow a sequence of two or more directions, including compass directions, to find and identify a particular location on a map
- use a given map to plan and show a route from one location to another

- ▶ use a street directory or online map to find the route to a given location (Problem Solving)
- describe a route taken on a map using landmarks and directional language, including compass directions

GEOGRAPHY OUTCOMES AND CONTENT

FACTORS THAT SHAPE PLACES

OUTCOMES- GE3-1- describes the diverse features and characteristics of places and environments
GE3-2- explains interactions and connections between people, places and environments
GE3-3- compares and contrasts influences on the management of places and environments

CONTENT

Factors that change environments

- investigate the ways people change the natural environment in Australia and another country, for example: (ACHGK026, ACHGK027)
 - ▶ examination of how people, including Aboriginal and Torres Strait Islander Peoples, have influenced each country's environmental characteristics eg land clearing

Humans shape places

identification of ways people influence places and contribute to sustainability eg roads and services, building development applications, local sustainability initiatives

HISTORY OUTCOMES AND CONTENT

THE AUSTRALIAN COLONIES

OUTCOME- HT3-1-describes and explains the significance of people, groups, places and events to the development of Australia

CONTENT

The nature of convict or colonial presence, including the factors that influenced patterns of development, aspects of the daily life of inhabitants (including Aboriginal and Torres Strait Islander peoples) and how the environment changed

discuss the impact of settlement on local Aboriginal peoples and the environment

SCIENCE OUTCOMES AND CONTENT

LIVING WORLD

OUTCOMES- ST3-10LW- describes how structural features and other adaptations of living things help them to survive in their environment

ST3-11LW- describes some physical conditions of the environment and how these affect the growth and survival of living things

CONTENT

Living things have structural features and adaptations that help them to survive in their environment.

- observe and describe the structural features of some native Australian animals and plants
- present ideas and explanations about how the structural features and behaviour of some plants and animals help them to survive in their environment, eg shiny surfaces of leaves on sand dune plants and nocturnal behaviour in some animals
- research the conditions needed for a particular plant to grow and survive in its environment, eg an indoor plant, plants in deserts, drought-resistant wheat or salt-tolerant plants

The growth and survival of living things are affected by the physical conditions of their environment.

- identify some physical conditions of a local environment, eg temperature, slope, wind speed, amount of light and water
- make predictions about how changing the physical conditions of the environment impacts on the growth and survival of living things, eg different amounts of light or water on plant growth or the effect of different temperatures
- use gathered data to develop explanations about how changing the physical conditions of the environment affects the growth and survival of living things

BUILT ENVIRONMENTS

OUTCOME- ST3-14BE- describes systems in built environments and how social and environmental factors influence their design

CONTENT

Social and environmental factors influence the design of built environments.

- generate and develop ideas about how built environments might be designed and constructed in the future to incorporate sustainable environmental practices, eg the use of recycled materials, natural lighting and solar energy
- develop designs and solutions to meet specific social or environmental needs of users



PRE EXCURSION ACTIVITY: IT'S ALIVE Subject: Science

Students Will Learn About (Content):

Students question and predict by:

- with guidance, posing questions to clarify practical problems or inform a scientific investigation
- predicting what the findings of an investigation might be

Students plan investigations by:

- with guidance, planning appropriate investigation methods to test predictions, answer questions or solve problems including surveys, fieldwork, research and fair tests
- deciding which variable should be changed and measured in fair tests while keeping everything else the same

Students conduct investigations by:

- working individually and collaboratively in conducting a range of appropriate investigation methods, including fair tests, to answer questions or solve problems
- using suitable equipment and materials, checking observations and measurements by repeating them where appropriate
- using equipment and materials safely, identifying potential risks
- using formal units and abbreviations for measuring and recording data

Students process and analyse data and information by:

- constructing and using a range of representations, including tables, graphs (column, picture, line and divided bar graphs) and labelled diagrams
- drawing conclusions and providing explanations based on data and information gathered first-hand or from secondary sources
- comparing gathered data with predictions, and using as evidence in developing explanations of events and phenomena
- reflecting on their gathered evidence in relation to:
 - ▶ the process used to gather, process and analyse their data and information
 - ▶ their own prior knowledge as well as accepted scientific explanations
 - ▶ their own and others' conclusions

Students communicate by:

Students Will Learn to (Outcomes):

ST3-4WS- investigates by posing questions, including testable questions, making predictions and gathering data to draw evidence-based conclusions and develop explanations

ST3-11LW- describes some physical conditions of the environment and how these affect the growth and survival of living things

| <ul style="list-style-type: none"> constructing and using a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data including using digital technologies as appropriate using a variety of ways to honestly and accurately communicate ideas, explanations and processes, including multi-modal texts, labelled diagrams, as well as written and oral factual texts as appropriate <p>Living things have structural features and adaptations that help them to survive in their environment.</p> <ul style="list-style-type: none"> research the conditions needed for a particular plant to grow and survive in its environment, eg an indoor plant, plants in deserts, drought-resistant wheat or salt-tolerant plants <p>The growth and survival of living things are affected by the physical conditions of their environment.</p> <ul style="list-style-type: none"> identify some physical conditions of a local environment, eg temperature, slope, wind speed, amount of light and water use gathered data to develop explanations about how changing the physical conditions of the environment affects the growth and survival of living things make predictions about how changing the physical conditions of the environment impacts on the growth and survival of living things, eg different amounts of light or water on plant growth or the effect of different temperatures on the growth of yeast or bread mould | | |
|---|---|--|
| Teaching and Learning Strategies/Structure | Key Teaching Points | Equipment/ Resources |
| <p><u>LESSON TWO- IT'S ALIVE PART 1</u></p> <p><u>Introduction</u></p> <p>Introduce lesson to students by informing them they will be participating in a class experiment. Advise them that they will have four of their very own test subjects being involved in the experiment (teacher brings out pot plants/plants to be used). Ask students to give a name to these pot plants that will be use as the subjects for the experiments. Explain to students that they will be comparing the amount of water a plant gets affecting water growth, and also amount of sunlight a plant gets affecting its growth. Teacher explains that the four plants being used will be the same as if different types of plants are used, the experiment will not be reliable. Teacher explains that the two variables will be two different experiments in themselves.</p> | <p>Students are aware that they will be partaking in a classroom experiment to measure plant growth being affected by amount of light and water. Students understand that all the plants being used will be the same or there will be different results produced.</p> <p>Students understand that using light and water as variables in the experiments mean that they are two different experiments.</p> | <p>4 pot plants/seeds to be used for experiment with class, labels for names of pot plants</p> |

| | | |
|---|--|---|
| <p><u>Setting up the experiment</u></p> <p>Teacher divides class into two groups. Teacher explains that for the water experiment, students will need to find two spots that get the same amount of sunlight as the water amount received will be the thing that is changed. For the light group, teacher explains that they must find one spot within the classroom that gets a lot of light and one spot that gets little to no light. Teacher tells students to make sure they write down the names of the plants that are at their locations and which plant is doing what (for example, Barry the plant gets no water and Jessica the plant gets water). Once plants have been set up, ask students to write a prediction on their worksheet about what they think will happen (ie which plant will grow more). Each group will have a slightly different sheet as they will come together and present their findings at the end of the following lesson.</p> <p><u>Recording the Data</u></p> <p>Group students as a class back on the floor/at their desks. Teacher puts up recording charts in a certain spot in the room. Teacher asks students which measurement will they use for recording the growth (if needed, prompt to using millimetres). Inform students that they will be measuring the growth across a two week school day period. Teacher asks students which plant (name) they put in which spot and writes it up onto poster. Teacher informs students that in their groups they must make sure they have someone measuring the plant in the morning before the start of school and to record the data. If groups need to, they can create a roster for a member of the group to perform a particular tasks (eg half of group measures water and half group measures no water variables).</p> <p><u>Conclusion</u></p> <p>Conclude the lesson by reminding students that they will be looking at their findings in two weeks and comparing their initial predictions against the results that they find.</p> | <p>Students understand that there are two different experiments being performed. Water and light are the things that are being changed by the students to measure growth. Students are selecting suitable locations for the plants to meet the requirements of their variable (light vs no light, same light no water vs same light with water).</p> <p>Students are aware that they will be recording the growth of their plants across two weeks (10 school days). Students understand that they need to have someone recording the growth of their plants everyday so that the data is consistent. Students use rostering and delegation of tasks where needed to help assist in ease and flow of the experiment.</p> <p>Students are aware that the experiment will occur over a two week period. Students understand that they will be looking at the results that have been found and will be comparing them against predictions that were made initially.</p> | <p>'It's Alive' worksheets, 4 pot plants, labels for names of pot plants</p> <p>'It's Alive' worksheets, 4 pot plants, 'It's Alive' team recording sheets (water and light)</p> |
|---|--|---|

| Teaching and Learning Strategies/Structure | Key Teaching Points | Equipment/ Resources |
|--|---|---|
| <p><u>LESSON TWO- IT'S ALIVE PART 1</u></p> <p><u>Introduction</u></p> <p>Introduce lesson to students by informing them they will be participating in a class experiment. Advise them that they will have four of their very own test subjects being involved in the experiment (teacher brings out pot plants/plants to be used). Ask students to give a name to these pot plants that will be use as the subjects for the experiments. Explain to students that they will be comparing the amount of water a plant gets affecting water growth, and also amount of sunlight a plant gets affecting its growth. Teacher explains that the four plants being used will be the same as if different types of plants are used, the experiment will not be reliable. Teacher explains that the two variables will be two different experiments in themselves.</p> <p><u>Setting up the experiment</u></p> <p>Teacher divides class into two groups. Teacher explains that for the water experiment, students will need to find two spots that get the same amount of sunlight as the water amount received will be the thing that is changed. For the light group, teacher explains that they must find one spot within the classroom that gets a lot of light and one spot that gets little to no light. Teacher tells students to make sure they write down the names of the plants that are at their locations and which plant is doing what (for example, Barry the plant gets no water and Jessica the plant gets water). Once plants have been set up, ask students to write a prediction on their worksheet about what they think will happen (ie which plant will grow more). Each group will have a slightly different sheet as they will come together and present their findings at the end of the following lesson.</p> | <p>Students are aware that they will be partaking in a classroom experiment to measure plant growth being affected by amount of light and water. Students understand that all the plants being used will be the same or there will be different results produced. Students understand that using light and water as variables in the experiments mean that they are two different experiment</p> <p>Students understand that there are two different experiments being performed. Water and light are the things that are being changed by the students to measure growth. Students are selecting suitable locations for the plants to meet the requirements of their variable (light vs no light, same light no water vs same light with water).</p> | <p>4 pot plants/seeds to be used for experiment with class, labels for names of pot plants</p> <p>'It's Alive' worksheets, 4 pot plants, labels for names of pot plants</p> |

| | | |
|---|---|--|
| <p><u>Recording the Data</u></p> <p>Group students as a class back on the floor/at their desks. Teacher puts up recording charts in a certain spot in the room. Teacher asks students which measurement will they use for recording the growth (if needed, prompt to using millimetres). Inform students that they will be measuring the growth across a two week school day period. Teacher asks students which plant (name) they put in which spot and writes it up onto poster. Teacher informs students that in their groups they must make sure they have someone measuring the plant in the morning before the start of school and to record the data. If groups need to, they can create a roster for a member of the group to perform a particular tasks (eg half of group measures water and half group measures no water variables).</p> <p><u>Conclusion</u></p> <p>Conclude the lesson by reminding students that they will be looking at their findings in two weeks and comparing their initial predictions against the results that they find.</p> | <p>Students are aware that they will be recording the growth of their plants across two weeks (10 school days). Students understand that they need to have someone recording the growth of their plants everyday so that the data is consistent. Students use rostering and delegation of tasks where needed to help assist in ease and flow of the experiment.</p> <p>Students are aware that the experiment will occur over a two week period. Students understand that they will be looking at the results that have been found and will be comparing them against predictions that were made initially.</p> | <p>‘It’s Alive’ worksheets, 4 pot plants, ‘It’s Alive’ team recording sheets (water and light)</p> |
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Observational Focus: *(What am I observing to indicate students have achieved the outcomes, make a judgment on learning and understanding?)*

- students selected suitable locations for their plants to achieve goals within the experiment
- students have successfully recorded measurements each day to help experiment success
- students have compared results against their original prediction and identified their statement to be incorrect or correct
- students graph the growth results of their plants of a line graph using suitable size and correct labelling

IT'S ALIVE! STAGE 3 EXPERIMENT

STUDENT NAME-

TEAM (CIRCLE ONE) - **WATER** **LIGHT**

WHAT IS YOUR PREDICTION FOR THE EXPERIMENT?

METHOD

*

*

*

*

RESULTS

PLANT NAME-
CONDITIONS-

PLANT NAME-
CONDITIONS-

| DAY | HEIGHT(MM) |
|------------|-------------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

| DAY | HEIGHT(MM) |
|------------|-------------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

WHAT DID THE RESULTS SHOW? HOW MUCH DID EACH PLANT GROW?

DID THIS MATCH WHAT YOU PREDICTED? YES /NO

GRAPH YOUR RESULTS ON THE GRAPH PAPER PROVIDED



ILLAWARRA FLY PROGRAM STRUCTURE

| <u>Teaching and Learning Strategies/Structure</u> | <u>Key Teaching Points/Content Being Addressed</u> |
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| <p>POINT A- RAINFOREST GIANTS Teacher gathers group at point A ‘Rainforest Giants’. Teacher selects a student to read ‘Rainforest Giants’ sign. Teacher explains to students that the rainforest at the Illawarra Fly is a warm temperate rainforest and explains some components of these types of rainforests. Students complete activity on page 3 of workbooks ‘What is it like Where I am?’</p> | <p>Students are welcomed to the Illawarra Fly and have begun their tour. Students learn about the Brown Barrel Eucalyptus tree. Students are introduced to the type of rainforest at the Illawarra Fly. Students understand that a warm temperate rainforest grows at higher altitudes, has less tree species than other types of rainforests and has a lot more tree species growing on the forest floor than other types of rainforests.</p> <p><i>English</i>-speaking and listening, reading and viewing, expressing themselves, writing and representing <i>Science</i>- physical conditions that exist within an environment</p> |
| <p>POINT B- SOFT TREE FERN GROWTH QUESTION Teacher selects student to come forward and read ‘how fast does a soft tree fern grow?’. Allow students to have a couple guesses how much they think it grows. Student reveals and reads answer to the rest of the class. Teacher explains to students that they can grow from 3cm up to 10cm and growth may be affected by physical conditions within the environment. Teacher asks students ‘what physical conditions would help tree ferns grow higher and quicker?’ Once students have given a couple answers, teacher selects student to guide the group to point C on the map.</p> | <p>Students introduced to the amount in which soft tree ferns can grow each year. Teacher explicitly explains to students that it can be up to 10 cm. From this information, students should infer that all tree ferns will not grow 10 cm per year and this may be affected by physical conditions in an environment. Students begin to guide group which has links to positioning on a map within the mathematics subject.</p> <p><i>English</i>-speaking and listening, reading and viewing, expressing themselves <i>Science</i>- physical conditions that exist within an environment <i>Mathematics</i>- use grid references to find location</p> |
| <p>POINT C- TREE OR FERN? Teacher gathers group around the ‘Tree or Fern ‘ sign and asks different student to leader to read the sign. Teacher asks students ‘what structural feature of a tree fern helps it to survive in its environment?’. Teacher prompts students towards the answer if students are having difficulties. Teacher then asks ‘how would this feature help a tree fern to survive?’ (teacher prompts again if needed). Teacher explains to students that they will be using their maths skills to determine the ages, height and growth rate of several tree ferns in the rainforest. Teacher explains to students that the first two tree ferns they will be looking at are Rough Tree Ferns. Teacher goes through question 1 on page 4 of workbook with students as a class. Students to attempt question 2 on page 4 on their own or in small</p> | <p>Students learn about the two different types of tree ferns that are native to the Illawarra Fly rainforest (rough and soft tree ferns). Students are aware that they will be performing maths equations to work out age, height and growth rate of several tree ferns within the rainforest. Through guiding with teacher, students start to understand the concept of using equations to work out the information needed (tree fern ages, tree fern height and growth rate). Students attempt to answer second question to best of ability.</p> <p><i>English</i>-speaking and listening, reading and viewing, expressing themselves, writing and representing <i>Mathematics</i>- use grid references to find location, multiplication and division, patterns and algebra, length(converting between lengths) <i>Science</i>- how do structural features help plants to survive, observe and describe structural features of</p> |

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| <p>groups. Teacher prompts students to make sure they read the question as it is slightly different to the first question. Teacher goes through the answer and working out to second question with students. Teacher selects student to guide group to point D.</p> <p>POINT D- CREATURES EVERYWHERE Teacher selects new student to read ‘creatures everywhere’ sign. Teacher explains to students that just like plants, animals have structural features that help them to survive. Students complete activity on page 5 of their workbook ‘how do they survive?’. After a couple minutes, teacher selects student to guide group to point E on map.</p> <p>POINT E- RICH IN LIFE Teacher chooses student to read ‘rich in life’. Teacher asks students ‘in the text it mentioned a physical condition which helps moss grow, what was it? Teacher prompts students by mentioning it has to do with light. Teacher picks up handful of Sassafras leaves (or has container full of these), crushes them up and passes them around to students to smell. Students complete first part of activity on page 6 ‘what does the rainforest... smell like-’. To move to next point, teacher gets students to turn around and gather around the mailbox ‘Chez Dozer’.</p> <p>POINT F- DOZER’S BURROW Teacher gathers students around the mailbox ‘Chez Dozer’. Teacher asks students ‘is a burrow an example of a structural or behavioural mechanism for survival for a Wombat?’ Remind students that when referring to structural, it is only to do with the animal itself and not it’s environment. Teacher brings student attention to the tree fern to the right of the burrow. Teacher asks students ‘how is this fern different to the first two that you saw?’. Teacher explains that this is a soft tree fern and explains that it differs in the amount of rough ‘spikes’ that run up the trunk. Students complete activity on page 7 of their workbook. Class will go through answer and the working out process. Teacher selects students to guide to point G.</p> | <p>living things</p> <p>Students are introduced to a number of animals that call the Illawarra Fly rainforest home. Students identify that just like plants, animals have structural features that help them to survive. Students are asked to communicate their understanding of the structural survival features of 3 of the animals that are local to the Illawarra Fly rainforest.</p> <p><i>English-speaking</i> and listening, reading and viewing, expressing themselves, writing and representing, spelling <i>Mathematics-</i> use grid references to find location <i>Science-</i> how do structural features help animals to survive, observe and describe structural features of living things</p> <p>Students begin to investigate the concept of physical conditions in an environment being helpful for things when not helpful for others (ie moss needing shade and trees needing sunlight). Students are introduced to one of the local plants at the Illawarra Fly, the Sassafras. Students engage with their senses and express themselves creatively when attempting to describe the smell of the Sassafras and the rainforest.</p> <p><i>English-speaking</i> and listening, reading and viewing, expressing themselves, writing and representing and, thinking imaginatively, creatively, interpretively and critically, <i>Science-</i> physical conditions within an environment and their effect on living things</p> <p>Students are shown a natural habitat of one of the local animals at the Illawarra Fly (Dozer). Using the wombat burrow as a reference, students are introduced to behavioural things that animals will do to help them survive in their environment. Students comprehend that a structural adaptation of an animal refers to the animal itself and not the structural environment in which it lives. Students observe and describe the features of a soft tree fern and recognise how this differs from that of a rough tree fern. Students apply their mathematical knowledge of division and multiplication to calculate information regarding one of the tree ferns in the rainforest.</p> <p><i>English-speaking</i> and listening, reading and viewing, expressing themselves, writing and representing, <i>Mathematics-</i> use grid references to find location, length(converting between lengths) <i>Science-</i> how do behavioural adaptations help animals to survive, observe and describe structural features of living things</p> <p>Students learn about the components of a rainforest and understand that a rainforest has many different</p> |
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POINT G- LAYER UPON LAYER

Teacher selects student to read 'layer upon layer'. Teacher links back to physical conditions students performed at the start of the tour. Students are asked to imagine they are something that lives on the forest floor and also to imagine something that lives in the canopy. Students complete the activity on page 8 of workbooks 'canopy vs floor conditions'. Teacher summarises by explaining even within an environment (the rainforest), the physical conditions may be different in certain parts of it (different layers of a rainforest). Teacher selects student to guide group to point H.

POINT H- COPPERHEAD QUESTION

Gather students around sign and ask student to read question 'is a copperhead snake dangerous?' Explain the heads vs hips activity whereby students put their hands on their head for one answer and hand on hips for the other answer (hands on head-yes snake is dangerous, hands on hips- no snake is not dangerous). Allow students 10 seconds to choose their answer. Student reveals and reads aloud the answer to the question. Teacher leads next question by asking students if they think snake venom is a structural or behavioural adaptation to survive (heads-structural, hips-behavioural). Students complete second activity on page 7 of their workbooks. Teacher goes through answers and working out with students. Student is selected to lead group to point I of map.

POINT I- START OF TREETOP WALK

Teacher selects a student to read 'welcome to the treetop walk' sign. Rules and expectations are outlined to students (teachers can implement own rules or use sign to the left of walk). Students are to complete the tree fern activity on page 9 of workbook. Teacher goes through working out and the answers with students. Teacher selects student to guide group out to point J.

POINT J- ZIPLINE STATION 4

Teacher brings student attention to the Zipline station up to the left in tree. Teacher quizzes students to work out the height of the station by asking 'if we are

layers. Through the activity that is given, students use their pre-existing knowledge and imagination to picture how the physical conditions in the rainforest environment would differ in the canopy and forest floor. Students recognise the concept that within an environment, there may be different physical conditions that exist within them.

English-speaking and listening, reading and viewing, expressing themselves, writing and representing and, thinking imaginatively, creatively, interpretively and critically

Mathematics- use grid references to find location

Science- identify physical conditions of a local environment, application of knowledge to trying to identify physical conditions within the local environment,

Students find out about one of the local reptiles at the Illawarra Fly. Students apply their prior knowledge of structural and behavioural adaptations in an attempt to answer the follow up question in the second heads vs hips activity. Students apply their mathematical knowledge of division and multiplication to calculate information regarding one of the tree ferns in the rainforest.

English-speaking and listening, reading and viewing, expressing themselves, writing and representing
Mathematics- use grid references to find location, multiplication and division, length(converting between lengths)

Science- identification of structural or behavioural adaptations in animals and how this helps them survive, observe and describe the structure of living things

Students observe the treetop walk structure that they will be walking along for the next part of the tour. Teacher has communicated the rules and expectations for students to follow while on the treetop walk. Students recognise the rules and expectations to follow while on the walk for enjoyment and safety. Students apply their mathematical knowledge of division and multiplication to calculate information regarding one of the tree ferns in the rainforest.

English-speaking and listening, reading and viewing, expressing themselves, writing and representing
Mathematics- use grid references to find location, multiplication and division, length(converting between lengths)

Students are shown components of the Zipline that operates at the Illawarra Fly. Using the Zipline specifications as a framework, students apply their mathematical problems to both verbal questioning and written questions in their workbooks.

English-speaking and listening, reading and viewing, expressing themselves, writing and representing

10m up and station is 5m above us, how high is the Zipline Station?'. Students are told to look at the long Zipline cable that runs from station 4 back over the walk to station 3. Teacher explains to students that this is 106 metres long. Students complete activities on page 10 of workbook 'how long is the zipline?'. Teacher goes through working out and answers with students. Select student to guide group to point K on the map.

POINT K- FIRST CANTILEVER

Students are all gathered on the end of the first cantilever. Students are given a couple minutes to take in the view from the cantilever. While looking at the view, teacher selects one student to come forward and read 'how many wombats can this cantilevered walkway hold?' Let students have a couple guesses and then student reveals and reads aloud the answer to the class. Teacher prompts students and asks 'if these were average wombats, does anyone know how we would work out the average weight in kilograms?'. Students are given a minute to think about how to work it out. Teacher goes through how to work out the average weight with students. Teacher asks students to look out at the view of the Illawarra region and explains to students that until early settlement, the rainforest used to stretch all the way out to the sea from where they are standing. Select student to guide group to point L.

POINT L- BIRDS LOUD AND SHY

Student is selected to read 'birds loud and shy'. Once student has completed reading, teacher instructs students to close their eyes for 30 seconds. Prompt students to be quiet and listen to the calls of the rainforest. Students complete activity on page 6 of workbook 'what does a rainforest sound like'. Teacher leads group to bottom of Knights Tower.

POINT M- KNIGHT'S TOWER

Gather class at the bottom of Knights Tower. Ask students to attempt to count the number of steps they walk up to get to the top of the tower. Students are told not to read the answer on the sign as they will be having guesses as to how many steps they walked up. Once class is at the top of the tower, have students give a couple guesses of how many steps they walked up to get to the top. Ask student to reveal and read aloud the answer from the sign. Teacher prompts student to look

Mathematics- use grid references to find location, addition and subtraction, multiplication and division

Students walk out to one of the key vantage points of the Treetop walk and take in the view of the Illawarra region. Students learn about the structural foundations and the safe working load of the cantilever. Students draw on mathematic concepts to attempt to work out the equation that is needed for what the teacher asks (teacher prompts students if needed). Students learn that the area was originally rainforest and this touches on the historical and geographical content within the program.

English-speaking and listening, reading and viewing, expressing themselves

Mathematics- use grid references to find location, multiplication and division, mass

Geography-ways that humans change the natural environment

History-impact of settlement on the environment

Students learn and identify a few of the bird species that are native to the rainforest at the Illawarra Fly. Students use their sense of hearing to describe in their own words what they believe the rainforest sounds like.

English-speaking and listening, reading and viewing, expressing themselves, writing and representing, spelling and, thinking imaginatively, creatively, interpretively and critically

Students are engaged with the main component of the Illawarra Fly Treetop Walk. Students find out further information about the height of the tower, the amount of steps on the tower and which layer of the rainforest the tower is in. Students use their sense of sight to describe the rainforest from up in the canopy. This component is utilised in this part of the tour because students will be able to see a larger portion of the rainforest from the tower. Students identify and communicate in writing the human changes that have occurred in the Illawarra region and recognise that these are human changes that have been made since early settlement.

at the rainforest and complete 'what does a rainforest look like' activity on page 6 of their workbook. After completed, students are told to walk around and take in the view and enjoy the scenery. Teacher brings student attention back in and asks student to read 'up in the canopy'. Students are then asked to look back out at the view and are reminded that this used to be all rainforest before early settlement. Students to complete activity on page 11 of the workbook 'human changes in the environment'. Once completed, teacher gathers group at the bottom of Knights Tower and selects student to guide group to point N.

POINT N- HIGH RISE HOUSING IN THE TREES/ZIPLINE STATION 1

At this point before reading sign, prompt students to look back at the Zipline station in the tree. Teacher identifies this as Zipline station 1 to students and informs them they will be doing the activities on page 12 'how high is the zipline?'. Teacher assists students with questions if needed. Teacher goes through working out and answers with students to the questions. Teacher then selects student to read 'high rise housing in the forest'. Teacher brings student attention to the concept of nocturnal and explains this means to be active at night. Teacher asks students 'where do nocturnal animals who live in the canopy sleep when it is day time?'. Teacher links to previous information and reminds students that there are many layers of a rainforest. Teacher asks students 'where would a nocturnal animal who lives on the forest floor sleep during the day?'. This is explained to students as animal behaviour that helps them to survive in their environment. Teacher selects student to guide group to point O.

POINT O- SECOND CANTILEVER

Gather students at the end of the second cantilever. Teacher tells students to take in the view and if they are comfortable, have a sway and a jump on the cantilever. Student is selected to read 'how high can a Brown Barrel grow?'. Student reveals and reads answer to rest of the class. Teacher explains to students that "Brown Barrels stretch up to the top of the rainforest to get as much sunlight as possible then once they are tall enough, get thicker in the trunk." Teacher selects student to guide group to point P.

POINT P- END OF TREETOP WALK

Teacher allows students a couple minutes to sit in the shade and relax. While students are sitting down, teacher explains to students about the environmental

English-speaking and listening, reading and viewing, expressing themselves, writing and representing, thinking imaginatively, creatively, interpretively and critically
Mathematics- use grid references to find location, whole numbers (counting),
*Geography-*ways that humans change the natural environment
*History-*impact of settlement on the environment

Students learn about more specifications of the Illawarra Fly Zipline. Using addition and subtraction problems, students are given information as to how high the Zipline is and this helps to give insight into the shape of the landscape. Students learn about what is used as habitat by animals that live in the rainforest canopy. Students identify the concept of nocturnal and this is explained to the group. Students are able to identify where animals on both the forest floor and those that live in the canopy live. Students recognise that nocturnal behaviour is a survival mechanism employed by animals in an environment.

English-speaking and listening, reading and viewing, expressing themselves, writing and representing, Mathematics- use grid references to find location, addition and subtraction, length,
Science- behaviours that help animals to survive in their environment

Students take in the view from the third vantage point of the Treetop Walk. Students are given a chance to have a little play by bouncing and swaying side to side on the cantilever. Students redraw on the knowledge addressed at the start of the tour and recognise that brown barrels will grow 40m high or 12 storeys up. Students take in the knowledge that Brown Barrels stretch up to the sky to get as much sunlight as possible as this helps them to grow best.

English-speaking and listening, reading and viewing
Mathematics- use grid references to find location
Science- physical conditions needed for plant to survive in its environment (Brown Barrel Eucalypt)

Students have completed the Treetop Walk structure. Information is given to students about the environmental considerations that occurred when the Treetop Walk and Zipline were built. Students recognise that no trees or native vegetation was knocked down in the construction of both of these structures. Students are given a chance to communicate ways that they believe the structures can be more environmentally friendly and communicate why their suggestion would be more environmentally

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| <p>considerations and planning that occurred with the Treetop Walk and Zipline at the Illawarra Fly. Students are asked to complete activity on page 13 of workbook ‘if I could change one thing...’. Teacher asks some students to share their answers with the rest of the class. Student is selected to guide group to point Q.</p> <p>POINT Q- CRIMSON ROSELLA QUESTION Teacher selects student to read sign ‘where does a crimson rosella live?’. Class has a couple of guesses where. Student then reveals and reads aloud the answer. Students to complete activity on page 14 of workbook ‘crimson rosella profile’ in pairs. After a couple minutes, teacher brings class together and goes through the answers that students came up with for the activity. Student is selected to guide group to point R.</p> <p>POINT R- ULTIMATE COMPOST HEAP Student is selected to read ‘ultimate compost heap’. Students are prompted to pick up a small pile of leaves of the ground and move and crush them in their hand. Students then complete the activity ‘what does a rainforest feel like’ on page 6 of their workbook. Student is selected to guide group to point S.</p> <p>POINT S- VINES, CREEPERS AND CLIMBERS Student is selected to read ‘vines, creepers and climbers’. Students in pairs complete the ‘vine profile’ activity on page 15 of their workbook. Teacher goes through answers as a class after students have had a couple of minutes to complete. Bring student attention to the tree ferns to the right of the sign. Students complete activity on page 15 of their workbook. Teacher goes through working out and answers with students. Student is selected to guide group to point T.</p> | <p>friendly. <i>English</i>-speaking and listening, reading and viewing, writing and representing, expressing themselves, spelling, grammar, thinking imaginatively, creatively, interpretively and creatively, <i>Mathematics</i>- use grid references to find location <i>Science</i>- environmental practices/ considerations of built environments, developing designs to meet environmental needs of users</p> <p>Students knowledge of birds living in tree hollows is reinforced in this component of the tour. Through the profiling activity, students address the concepts of observing and describing features of living things, the structural features and behaviours that help this animal to survive and based on personal opinion and knowledge, rate how well the animal is suited to surviving in its environment.</p> <p><i>English</i>-speaking and listening, reading and viewing, writing and representing, expressing themselves, spelling, grammar, thinking imaginatively, creatively, interpretively and creatively, <i>Mathematics</i>- use grid references to find location <i>Science</i>- observe and describe structural features of living things, how do structural and behavioural features help animals to survive in their environment,</p> <p>Students learn about the concept of recycling in the rainforest through consumption and recycling of leaf litter by trees and animals. Students use their senses of touch to describe what they believe a rainforest feels like. <i>English</i>-speaking and listening, reading and viewing, writing and representing, expressing themselves, spelling, grammar, thinking imaginatively, creatively, interpretively and creatively,</p> <p>Through the profiling activity, students address the concepts of observing and describing features of living things, the structural mechanisms that this plant has to survive and based on personal opinion and knowledge, rate how well the plant is suited to surviving in its environment. Students apply their mathematical knowledge of division and multiplication to calculate information regarding one of the tree ferns in the rainforest. <i>English</i>-speaking and listening, reading and viewing, writing and representing, expressing themselves, spelling, grammar <i>Science</i>- observe and describe structural features of living things, how do structural features of plants help them to survive in their environment <i>Maths</i>- length (converting between measurements), multiplication and division</p> |
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POINT T- CARE FOR THE ENVIRONMENT/CONCLUSION OF TOUR

Teacher gathers group outside of visitor's centre on the grass (or inside depending on the weather). Teacher links back to environmental considerations that were employed when the walk was built and reads 'Illawarra Fly Environmental Strategies' to students. Students are prompted to complete the activities on page 17 'what does it all mean?'. Teacher will facilitate and assist where possible. Once students have been given sufficient time, go through answers as a class. Teacher links this activity back to the experiment they performed in the pre-excursion lessons and explains that just as in the classroom, it can be seen that physical conditions in the environment can affect the growth and survival of living things.

Students are given a list of site specific strategies that are implemented by the Illawarra Fly to be environmentally friendly and help to conserve the environment as much as possible. Through the last activity, students are engaged in a cross curricular activity which blends English, Science and Maths together. Through first activity, they are having to map objects, use grid references to describe the objects and order them in ascending order. English is embedded as students must communicate using correct spelling, grammar and legible handwriting whilst reading the question correctly. Science concepts are addressed as students are drawing on prior knowledge to explain how the physical conditions will affect living things within an environment.

English-speaking and listening, reading and viewing, writing and representing, expressing themselves, spelling, grammar

Maths-using grid references to map objects and give location, putting things onto a grid map, arranging things into ascending order

Science- physical conditions affecting growth and survival of living things, research physical conditions that may affect the growth of a plant within it's environment



TEACHERS INSTRUCTIONS

FOR TOUR, STUDENTS WILL ALTERNATE BETWEEN GUIDING AND READING. STUDENT WILL GUIDE TO NEW POINT THEN NEW STUDENT WILL READ SIGN THEN NEW STUDENT WILL GUIDE

POINT A- RAINFOREST GIANTS

- student reads 'rainforest giant sign'
- Teacher informs student that this is a warm temperate rainforest. It grows at higher altitudes, has less plant species than other rainforests but has a lot more amount of things that grow on the forest floor.
- Teacher prompts students to think about where they are now. Complete activity on page 3 of their workbooks "What is it Like Where I am?"

POINT B- SOFT TREE FERN GROWTH

- student reads question "how fast does a soft tree fern grow?"
- allow students to have a couple guesses
- ask student to reveal and read answer aloud to class
- Explain to students that the sign says "up to 10 cm". The growth can range from 3-10 cm.
- What physical conditions would help the ferns to grow quicker and higher?
- Select student to guide the group to map point C

POINT C- TREE OR FERN?

- once group is at sign, ask new student to read sign "tree or fern?"
- verbal questioning "in the text, it mentioned something of the fern's structure that helps it to survive. What was it?" (prompts → ferns need water, last paragraph, fronds). How would this help the fern to survive?"
- advise students they will be using maths to research tree fern age, height and annual growth on time in the rainforest.
- Explain to students that the two tree ferns that they will be looking at for the first activity are Rough Tree Ferns.
- go through tree fern equation 1 with students on page 4 of workbook.
(Steps- convert 2.1 m → 210 cm divided by 7cm (growth per year) → **30 years of age**)
- go through answer with students.

- let students attempt second question on page 4 of workbook. Tell students to make sure they READ the question as it is different to first question. Ask what will they do to get the answer?
(Steps- 6cm (growth) x 35 (years of age)= 210 cm(height in cm) → convert to metres **2.1m**)
- select student to guide to point D

POINT D- CREATURES EVERYWHERE

- elect student to read 'creatures everywhere' sign
- explain to students that just like plants, animals have structural things that help them to survive in their environment
- students complete activity on page 5 of their workbooks "how do they survive?"
- select student to guide to point E

POINT E- RICH IN LIFE

- select student to read 'rich in life'
- the sign mentioned a physical condition that helps moss grow at its best. What is the condition? (prompt students that it has to do with light)
- Teacher picks up (or already has) handful of sassafras leaves. Crush up in hand and pass around to students.
- Ask students to complete the first part of the activity on page 6 of workbook 'what does the rainforest...'

POINT F- DOZER'S BURROW

- turn around and gather at mailbox
- is the burrow of a wombat an example of a structural or behavioural mechanism for survival? (prompt students by reminding that structure is to do with the animal itself, not it's environment)
- bring students attention to tree fern to the right of the burrow.
- verbal questioning 'How is this different to the one we looked at before?'
- explain this is soft tree fern as it has a smoother structure and less spikes
- students complete activity on page 7 of workbook. Go through answer with students (steps- 1.5m → convert to 150 cm → 150 divided by 30 = 5cm per year)
- select student to guide to point G

POINT G- LAYER UPON LAYER

- student reads 'layer upon layer'
- Teacher prompts students to think about the physical conditions they used in the activity before. Imagine how it would be different on the forest floor and canopy.
- students complete activity on page 8 of workbooks
- Teacher summarises by explaining that within particular environments/ecosystems, there can be different physical conditions within certain areas
- select student to guide to point H

POINT H- COPPERHEAD QUESTION

- student reads 'is a copperhead snake dangerous?'
- heads or hips activity. If students think this is correct, hands on head. If students think this is false, hands on hips.
- student reveals and reads answer aloud to class
- heads or hips activity → is a snake's venom structural or behavioural? (heads for structural, hips for behavioural)
- students complete second tree fern activity on page 7. Go through answer with students (steps- 3.2 → convert to 320 cm → 320 divided by 40 → 8cm per year)
- select student to guide to point I

POINT I- START OF WALK

- student reads 'welcome to treetop walk' sign
- teacher outlines rules and expectations of students while on walk (can use sign to left as a guide)
- students complete tree fern activity on page 9 of workbooks. Go through answer with students (steps 3.6m → convert to 360 cm → 360 divided by 60 → 9 cm per year)
- select student to guide to point J

POINT J-ZIPLINE STATION 4

- teacher prompts students to look up at Zipline station 4.
- Verbal questioning – how high is this station if it is 5m above us and we are 10m from the floor? (answer is 15m up)
- prompt students to look at the long Zipline cable that runs from Zipline station 4 to Zipline station 3.
- Students complete activities on page 10 of workbook 'how long is the zipline?'
- (answers- 196m ziplining, 55 m bridgewalking, 251 total cable, 125.5m halfway point)

-select student to guide to point K

POINT K- FIRST CANTILEVER

- let students have a couple minutes to look at the view
- student reads 'how much wombats can this cantilevered walkway hold?'
- let students have a couple guesses
- student reveals and reads answer aloud to students
- teacher prompts students by asking 'how would we find out how much an average wombat weighs from this information?'
- (steps- convert 28 t to kg → 28000 divide this number by 800 → 35 kg for an average wombat)
- look back at the view of the Illawarra. Explain to students that until early settlement, the rainforest used to stretch all the way out to the sea from where they are standing.
- select student to guide to point L

POINT L- BIRDS LOUD AND SHY

- student reads 'birds loud and shy'
- tell students to close their eyes for 30 seconds, be silent and listen to the calls of the rainforest
- answer on page 6 'what does a rainforest sound like'
- teacher leads group to bottom of Knights tower

POINT M- KNIGHTS TOWER

- gather students at the bottom of the knights tower
- tell students to try to count how many steps there are going up the tower. Tell students not to read the sign at the top as they will be having a guessing game to see who got closest.
- once all students have walked up the steps, select student to come to sign 'how many steps up the knights tower' and read aloud to students
- prompt students to look at the rainforest and complete 'what does a rainforest look like' on page 6 of workbook
- let students look at the view for a couple minutes
- student reads 'up in the canopy'
- Recall to students that this whole area used to be rainforest before the early settlers came to Australia.
- students complete activity on page 11 of workbooks 'human changes in the environment'
- gather all students at bottom of knights tower.
- select student to guide to point N.

POINT N- HIGH RISE HOUSING IN THE FOREST

- at point N, prompt students to look back at the Zipline station. Allow students to attempt to complete the questions on page 12 'how high is the zipline'. Assist where needed
- (q1 steps- 25m +10m = **zip station is 35m from the ground below**)
- (q2 steps- 35m (ground below)- 16m (height from ground below station to platform)= **19m drop off as you go down the hill**)
- using the 19m drop off, explain to students that this small snapshot helps describe the shape of the escarpment. Prompt students to look down through the valley.
- walk to 'high rise housing in the forest' and get student to read sign
- prompt student by mentioning the concept of nocturnal.
- where do the animals sleep during the day? (in a tree hollow)
- Where would a nocturnal animal that lives on the forest floor sleep? (burrow, nest)
- explain to students that these are behaviours that help these animals survive in their environment.
- select student to guide to point O

POINT O- SECOND CANTILEVER

- let students walk out and look at view. Have a jump up and down on the cantilever

- student reads 'how high does a Brown Barrel grow?'. Reveal and read answer aloud to class
- explain to students that these brown barrels will grow as high as they can to get as much sunlights as possible. Once they are at a good height, they will start to get fatter in the trunk.
- select student to guide to point P

POINT P- END OF TREETOP WALK

- let students have a rest
- explains to students that "when the Illawarra Fly Treetop Walk and Zipline were built, no native vegetation (trees) were knocked down to build either of these structures. Very environmentally friendly and sustainable."
- students to complete activity on page 13 of their workbook 'if I could change one thing...'
- allow for some students to share the answers that they have come up with
- select student to guide to point Q

POINT Q- CRIMSON ROSELLA QUESTION

- select student to read 'where does a crimson rosella live?'. Student reveals and reads answer aloud to the class.
- students to complete activity on page 14 'crimson rosella profile' in pairs.
- after a few minutes, go through answers as class
- select student to guide to point R

POINT R- ULTIMATE COMPOST HEAP

- student reads 'ultimate compost heap'
- teacher prompts students to pick up a small pile of leaves off the forest floor
- 'scrunch and crush them up in your hands'
- students complete activity on page 6 of workbook 'what does the rainforest feel like'
- select student to guide to point S

POINT S- VINES, CREEPERS AND CLIMBERS

- select student to read 'vines, creepers and climbers'
- students complete activity on page 15 of workbooks 'vine profile'
- give a couple minutes to complete and then go through answers as a class
- students complete tree fern activities on page 16 of workbook
- (q1- $1.5\text{m} \rightarrow 150\text{ cm} \rightarrow 150\text{ divided by } 50\text{ (age)} \rightarrow \underline{\text{grows 3cm a year}}$)
- (q2- $60\text{ cm divided by } 20\text{ (age)} = \underline{\text{grows 3cm a year}}$)
- go through answers with students
- select student to guide to point T

POINT T- ENVIRONMENTAL CONSIDERATIONS/CONCLUSION OF TOUR

- gather outside on grass outside of visitor centre or inside (depending on weather)
- mention "all different businesses will have different ways they are using environmentally sustainable practices."
- read through 'Illawarra Fly Environmental Practices' sheet
- ask students to go to page 17 'what does it all mean?' and attempt to complete questions.
- give students sufficient time to complete these and help where needed.
- go through answers as a class
- link this back to the experiment they did in pre-excursion lessons in relation to physical conditions within the environment affecting growth of living things.