All About the Tropical Rainforest

4th Grade Bilingual

By: Yesenia Perez
Introduction
My unit is entitled, All About the Tropical Rainforest. It's composed of three lessons:

- **Lesson 1**: Locating and hypothesizing about the Tropical Rainforest
- **Lesson 2**: Characteristics of the Tropical Rainforest
- **Lesson 3**: Layers of the Tropical Rainforest.

This unit is designed for a bilingual grade 4 classroom, in which sheltered instruction will be implemented in the content area of science. Within this unit, you will view modified texts, graphic organizers, visuals, listening guides, and more. All these materials are effectively utilized within each lesson to make the information more comprehensible & meaningful to English Language Learners.
Yesenia Perez
FLA-518
Unit Selection

Title:

All About the Tropical Rainforest

Grade Level:

This unit is designed for 4th grade

Target Group:

The target group is a bilingual grade 4 class, in which sheltered instruction for science will be implemented in order to continue development of their academic L2 skills.

Source of Written Reading Materials:

Rainforest Unit: Lesson Plans K-12 website
http://www.manatee.k12.fl.us/sites/elementary/palmasola/s2over.htm

Learning Goals:

*I want my students to know* where Tropical Rainforests are located.

*I want my students to know* the characteristics of the Tropical Rainforest.

*I want my students to know* the layers of the Tropical Rainforest.
Lesson 1
# Performance Indicators

**Unit:** All about the Tropical Rainforest  
**Lesson 1:** Locating & Hypothesizing about the Tropical Rainforest

<table>
<thead>
<tr>
<th>Level 1- Pre-production ELL students</th>
<th>Level 2- Beginning ELL students</th>
<th>Level 3- Developing ELL students</th>
<th>Level 4- Expanding ELL students</th>
<th>Level 5- Mainstream students/ Advanced ELL</th>
</tr>
</thead>
</table>
| **Writing:** Map Labeling            | Students will be able to point at graphic representations of and locate and label:  
  Tropical Rainforest  
  Equator  
  Tropic of Cancer  
  Tropic of Capricorn  
  with the help of the teacher’s comprehensible directions and a color-coded map key index.  | Students will be able to locate and label on their individual world maps:  
  Tropical Rainforest  
  Equator  
  Tropic of Cancer  
  Tropic of Capricorn  
  with the help of a color-coded map key index, vocabulary word index, and teacher given labeling prompts.  | Students will be able to clearly define, locate, and label on their individual world maps:  
  Tropical Rainforest  
  Equator  
  Tropic of Cancer  
  Tropic of Capricorn  
  with the help of a map key index and a vocabulary word index.  | Students will be able to clearly define, locate, and label on their individual world maps:  
  Tropical Rainforest  
  Equator  
  Tropic of Cancer  
  Tropic of Capricorn  |

| Speaking & Writing: Reasons for the diminishing Tropical Rainforest | Students will work in small groups to collectively discuss, with teacher prompts and input, a possible reason for the diminishing Tropical Rainforest and create a collage hypothesizing their idea, with key phrases included that describe the outcome, with the assistance of the Tropical Rainforest Vocabulary Sheet. | Students will work in small groups to collectively create and write one hypothesis describing a possible reason for the diminishing Tropical Rainforest, with the help of a hypothesis writing checklist guide, Tropical Rainforest Cause & Effect Chart, and given language prompts. | Students will work in small groups to collectively create and write one hypothesis describing a possible reason for the diminishing Tropical Rainforest, with the help of a hypothesis writing checklist guide and Tropical Rainforest Cause & Effect Chart. | Students will work in small groups to collectively create and write one hypothesis describing a possible reason for the diminishing Tropical Rainforest. |
**Functional/Notional Chart**

**Lesson 1:** Locating & Hypothesizing about the Tropical Rainforest

<table>
<thead>
<tr>
<th>Function</th>
<th>Situation</th>
<th>Expression</th>
<th>Words</th>
<th>Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>Tropical Rainforest</td>
<td>This is where the _____ is located.</td>
<td>Equator</td>
<td>Future tense: Cause and Effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tropic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tropic of Cancer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tropic of Capricorn</td>
<td></td>
</tr>
<tr>
<td>Hypothesizing &amp; Writing</td>
<td>Reasons for the diminishing Rainforest</td>
<td>_____ will cause the _____ to become _____</td>
<td>Deforestation, Cattle grazing, Tourism</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rainforest</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extinct</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Exists</td>
<td></td>
</tr>
</tbody>
</table>
Lesson 1 - Locating and hypothesizing about the Tropical Rainforest

Objectives:
Students will be able to:
- clearly define, locate and label the following: Tropical Rainforest, Equator, Tropics, Tropic of Cancer & Tropic of Capricorn.
- collectively create and write one hypothesis describing a possible reason for the diminishing rainforest functional notional chart.

Materials:
Appendix 1-Graphic Organizer
Appendix 2- Article: “Where are Tropical Rainforests Found”
Appendix 3-Teacher Map overhead
Appendixes 4,5,6,7,8 - Individual student maps
(differentiated in accordance with the English language developmental level)
Appendix 9-Hypothesis checklist writing guide
Appendix 10-Topical Rainforest chart (cause & effect)
Appendix 11-Tropical Rainforest vocabulary
Different color markers

Initiation - (Approximately 15 minutes)
The teacher will introduce the science unit, on the Tropical Rainforest, by stimulating the students interest through the use of a backwards book walk. Once the students become eager to learn more about the Rainforest, the teacher will encourage them to orally share any of their background knowledge about the Rainforest. While the students are sharing, the teacher will be modeling how to write their ideas, in an organized way, using a graphic organizer (Appendix 1).

Procedure-
Activity 1 (Approximately 15 minutes)
The teacher will then quickly recap some key ideas about the Rainforest by using the collectively created graphic organizer. Then as a whole class, students will read the modified article, “Where are Tropical Rainforests Found.” (Appendix 2), to enhance their basic knowledge.
Taken directly from the original lesson plan: After reading the article, the teacher will direct the students' attention, using the teacher Map overhead (Appendix 3), to the following places:

- Equator
- Tropics
- Tropic of Cancer
- Tropic of Capricorn

After pointing to each, the teacher will then distribute the individual world maps (Appendixes 4, 5, 6, 7, 8) to the students. Each student will receive the same world map however; each one is modified based on his or her English language developmental level. Once each student has received their map, the teacher will elaborate and model how to locate, label, and clearly define each of the following: Equator, Tropics, Tropic of Cancer, and Tropic of Capricorn. This is being done so that the students can simultaneously be completing the activity, with assistance being provided in the form of redirecting and rephrasing abstract concepts.

Activity 2 (Approximately 30 minutes)

Once the students have completed their maps, the teacher will review what a hypothesis is and how to write one, while purposely making connections to the Rainforest.

For example: Dialogue of possible classroom discussion between Teacher (T) and students (S)

**T:** Now that we know where the rainforest are located and that they only make up 6% of the world’s land. I would like us to work in groups to hypothesize why this is happening. Who remembers what the word hypothesis or to hypothesize means?

**S:** Hypothesis/Hypothesize- It’s like to make a guess or prediction. You have to do research to see if it is right. You have to have some information to make a hypothesis.

**T:** Perfect! Now what do we look for in a good hypothesis? Show the hypothesis checklist-writing guide (Appendix 9), on the overhead projector and go through each step with the class as a whole group

**S:** We have used this before

**T:** Yes, and we are going to use it today to help us write our group hypotheses about why the Tropical Rainforest is diminishing.

After this brief review, the hypothesis checklist-writing guide (Appendix 9) will be distributed and students will work in small groups, assigned in accordance with their English Proficiency Level. The students’ task is to collectively originate and write one group hypothesis describing a possible reason for the diminishing rainforest.
In order to support, expanding level 4 students, a hypothesis writing checklist guide (Appendix 9) will be provided. The checklist provides the students a chance to confirm that they have incorporated all the necessary pieces in their written hypothesis.

In order to support developing level 3 students, a hypothesis writing checklist guide (Appendix 9) will be provided in addition to the Tropical Rainforest Chart: cause and effect (Appendix 10). The cause and effects chart will assist these students in formulating their thoughts in order to produce their written hypothesis, as a group.

In order to support, beginning level 2 students, a hypothesis writing checklist guide (Appendix 9), Tropical Rainforest Chart: cause and effect (Appendix 10) will be provided in addition to given language prompts and sentence starters, which are found in the hypothesis writing checklist guide (Appendix 9). These sentence starters will model how the students may choose to incorporate the ideas from the Tropical Rainforest Chart: cause and effect chart (Appendix 10) to form their group hypothesis. Also, the teacher will guide the discussion with language prompts in order to produce responses from the students in which they can incorporate into their hypothesis.

In order to support, Preproduction level 1 students, teacher prompts and input will be provided during small group work and pictures will be used to form a collage hypothesizing the groups reasoning for the diminishing rainforest. In addition, the students will utilize their Tropical Rainforest vocabulary sheet (Appendix 11) to write relevant words and phrases to make their hypothesis clear to understand.

Closure: (Approximately 15 minutes)

The teacher will circulate monitoring the group activity and providing assistance when needed. The students will then be directed to wrap it up and each group will share their hypothesis and how they arrived at it. Before exiting the class, the hypotheses will be posted around the room because after the unit is completed the students will revisit what they hypothesized and determine through what they learned, whether their initial beliefs were correct or incorrect and why.

Assessment:
Students will be assessed for their group hypothesis using a three-point rubric.

3- Hypothesis is neat, organized, clearly written and includes everything from the hypothesis writing checklist guide (Appendix 9)

2- Hypothesis is neat, organized, and clear but missing one piece of information required from the hypothesis writing checklist guide (Appendix 9)

1- Hypothesis is vague, unclear, slightly organized, and missing 2 or more pieces of information required from the hypothesis writing checklist guide (Appendix 9)
Tropical Rainforest
Where are Tropical Rainforest Found?

Tropical Rainforest are found in the Tropics Belt.

The tropics belt is wide band around the equator.

The top is the Tropic of Cancer.

The bottom is the Tropic of Capricorn.

The Tropical Rainforest now makes up only 6% of the world’s land. It is slowly becoming extinct (hard to find).

The Tropical Rainforest exists (lives) in parts of these countries:

- South America
- Central America
- Africa
- Australia
- Asia
- Islands in the Pacific Ocean
Tropical Rainforest of the World
Vocabulary Words
Locate and Label
Tropical Rainforest

Equator

Tropic of Cancer

Tropic of Capricorn
Tropical Rainforest of the World

Vocabulary Words
Locate and Label
Tropical Rainforest

Equator
Tropic of Cancer
Tropic of Capricorn

Map Key Index

<table>
<thead>
<tr>
<th>Location</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainforest</td>
<td>Shaded gray</td>
</tr>
<tr>
<td>Equator</td>
<td>Red</td>
</tr>
<tr>
<td>Tropic of Cancer</td>
<td>Yellow</td>
</tr>
<tr>
<td>Tropic of Capricorn</td>
<td>Orange</td>
</tr>
<tr>
<td>Continents</td>
<td>Green</td>
</tr>
<tr>
<td>Oceans</td>
<td>Blue</td>
</tr>
</tbody>
</table>
Tropical Rainforest of the World

Map Key Index

- Rainforest: Shaded gray
- Equator: Red
- Tropic of Cancer: Yellow
- Tropic of Capricorn: Orange
- Continents: Green
- Oceans: Blue

Tropic of Cancer
Equator
Tropic of Capricorn

North America
Atlantic Ocean
Arctic Ocean
Europe
Africa
Asia
Pacific Ocean
Indian Ocean
South America
Australia
Antarctica
Pacific Ocean
Amazon Rainforest
Hypothesis Checklist Guide

Directions:
- Read the checklist
- Review your hypothesis
- Revise or rewrite unclear ideas
- Add missing information
- Check the box when each number is completed

1. Does your hypothesis begin with the phrase or a phrase similar to?
   - All tropical rainforest will soon be extinct because…
   - The tropical rainforest will no longer exist due to …

2. Does your hypothesis deal with a valid issue?

3. Is your hypothesis clearly written and easy to understand?

4. Can your hypothesis be proven True or False with research?
Tropical Rainforest Chart

Cause and Effect

Trees + Cutting down = Deforestation

Cows + Beef Industries = Cattle grazing

People on vacation + Money = Tourism
Tropical Rainforest Vocabulary

Trees + Cutting down = **Deforestation**

Cows + Beef Industries = **Cattle grazing**

People on vacation + Money = **Tourism**

Hard to find + Almost all gone = **Extinct**

Lives + Area = **Exists**
The topic of my unit is the Tropical Rainforest. It’s composed of the following lessons:

- **Lesson 1**: Locating and hypothesizing about the Tropical Rainforest
- **Lesson 2**: Characteristics of the Tropical Rainforest
- **Lesson 3**: Layers of the Tropical Rainforest.

For the first lesson, *Locating and hypothesizing about the Tropical Rainforest*, I decided to implement a variety of modifications in order to make the text comprehensible for every level of language proficiency. Within this lesson, I have incorporated the use of modified text, extensive visuals, a graphic organizer, a cause & effects chart, a hypothesis checklist-writing guide, and an iconic vocabulary list. With the use of visuals & the iconic vocabulary list it helps not only to clarify abstract concepts but also, reaches those students who are visual learners. Another visual utilized throughout this lesson & my unit is the graphic organizer that organizes information in a comprehensible manner. When scaffold effectively, graphic organizers illustrate main ideas and assists students in the writing process. Lastly, the modified text, cause & effects chart, & hypothesis checklist- writing guide, provides the students with the necessary, short term, assistance to complete the objective. Often ELL students are under minded because of their lack of academic language proficiency. However with the appropriate modifications, these students can perform at or above grade level standards. Therefore, it’s necessary that educators attempt to make as many modifications as possible for these ELL students.
Lesson 2
**Performance Indicators**

**Unit:** All about the Tropical Rainforest

**Lesson 2:** Characteristics of the Tropical Rainforest

<table>
<thead>
<tr>
<th>Level 1- Pre-production ELL students</th>
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<th>Level 5- Mainstream students/ Advanced ELL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Writing:</strong> Characteristics of the Tropical Rainforest</td>
<td>The student will be able to match sentences and pictures together that describe the characteristics that make an area considered to be a Tropical Rainforest.</td>
<td>The students will be able to describe the characteristics that make an area considered to be a Tropical Rainforest by inserting the vocabulary words into the paragraph, with the help of an iconic vocabulary word bank.</td>
<td>The students will be able to write a series of sentences describing the characteristics that make an area considered to be a Tropical Rainforest, with the help of a graphic organizer.</td>
<td>The students will be able to create a written response summarizing the characteristics that make an area considered to be a Tropical Rainforest, with the help of a rewrite after a guided first draft.</td>
</tr>
</tbody>
</table>
### Functional/Notional Chart

**Lesson 2: Characteristics of the Tropical Rainforest**

<table>
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<tr>
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<th>Expression</th>
<th>Words</th>
<th>Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write</td>
<td>Characteristics of the Tropical Rainforest</td>
<td>Tropical Rainforests are in the __________. The Tropical Rainforest receives __________ rain and __________.</td>
<td>Located, Tropics Belt, Receives, Rain, Humidity, Receives, Sunlight, Darkness</td>
<td>Present tense: forming plurals</td>
</tr>
</tbody>
</table>

The Tropical Rainforest receives large amounts of __________ and __________.
Lesson 2: Characteristics of the Tropical Rainforest

Objectives:

Students will be able to:
- create a written response identifying and describing the characteristics that make an area considered to be a Tropical Rainforest.

Materials:

Appendix 1: Blank World Map  
Appendix 2: What makes an area a Tropical Rainforest-modified version  
Appendix 3: Blank graphic organizer- Tropical Rainforest Characteristics  
Appendix 4: Graphic organizer-Tropical Rainforest Characteristics  
Appendix 5: Guided Written Response sheet  
Appendix 6: Fill-in-the-blank Paragraph  
Appendix 7: Matching Sentences and Pictures

Initiation: (Approximately 10 minutes)

The teacher begins the lesson with the display of the Blank world map (appendix 1) using the projector. The teacher then asks, “How does this map activate your memory? The students are challenged to recall the information from lesson 1 and volunteer to write in the corresponding information.

* Students will be expected to identify the following key vocabulary and places during this initiation procedure*
- Equator
- Tropics
- Tropic of Cancer
- Tropic of Capricorn
- Tropical Rainforest

Procedure: (Approximately 30 minutes)

Now that we have reviewed where the Tropical Rainforests are located, today we are going to learn some important characteristics about the Rainforest.

\[ Taken \text{ directly from the original lesson plan: } \text{Distribute the article, "What makes an area a Tropical Rainforest (Appendix 2 modified version)," and read it together.} \]

Immediately following the reading, the class will be instructed to work in their groups, (previously assigned mixed ability groups based on English proficiency levels) for 10 minutes to discuss and underline some important Rainforest characteristics found in the article, "What makes an area a Tropical Rainforest (Appendix 2 modified version)."
After 10 minutes has passed, the teacher will instruct the students to focus their attention, in the front of the class at the projector, where they will see a blank graphic organizer labeled, "Tropical Rainforest Characteristics (Appendix 3)." The teacher then asks each group to share one of the important characteristics they have underlined about the Tropical Rainforest from the article and writes it in the graphic organizer.

Once all the groups are finished sharing, the students will be instructed to utilize the information from the article “What makes an area a Tropical Rainforest (Appendix 2 modified version) and the Graphic organizer-Tropical Rainforest Characteristics (Appendix 4) to create a detailed written response describing the characteristics that make an area considered to be a Tropical Rainforest.

In order to support expanding level 4 students, the teacher will provide these students with a guided first draft and an opportunity for a rewrite. The teacher will use the Guided Written Response sheet (Appendix 5), which describes the characteristics of the Tropical Rainforest, to review the following:
- Every paragraph begins with a topic sentence
- Supporting facts follow the topic sentence
- Every paragraph ends with a conclusion sentence

In order to support developing level 3 students, the teacher will provide these students with a Graphic organizer-Tropical Rainforest Characteristics (Appendix 4). The graphic organizer will help these students recall the important characteristics that make an area considered to be a Tropical Rainforest. From that point on, the students will then be expected to incorporate these key ideas into a series of logical sentences.

In order to support beginning level 2 students, the teacher will provide these students with a “fill-in-the-blanks” paragraph (Appendix 6) about the Rainforest. It will be the students’ task to read the paragraph and insert the correct vocabulary word, utilizing the iconic word bank when needed.

In order to support Pre-production level 1 students’, the teacher will provide them with a matching sentences and pictures (Appendix 7) activity, about the characteristics of the Tropical Rainforest. The students will practice reading the modified sentences and match them with the corresponding picture.

Closure: (Approximately 5 minutes)
The teacher will circulate monitoring the written activity and provide assistance when needed by either re-phrasing or repeating important information. The students will then be directed to wrap it up and asked to share what they have written.
* The teacher should make an effort to select at least 1 student from each level of English proficiency to orally participate *
Assessment:
Students will be assessed for their written response using a three-point rubric.

3- Written response is neat, organized, clearly written and includes all important information from the article, “What makes an area a Tropical Rainforest” (Appendix 2 modified version).”

2- Written response is neat, organized, and clear but missing 2 pieces of information from the article, “What makes an area a Tropical Rainforest” (Appendix 2 modified version).”

1- Written response is vague, unclear, slightly organized, and missing 4 or more pieces of information required from the article, “What makes an area a Tropical Rainforest” (Appendix 2 modified version).”
What makes an area a Tropical Rainforest?

Tropical Rainforests are located (found) in the area of the Tropics Belt.

The Rainforest receives (gets) more than 60 inches of rain a year.

The temperature does not change. It ranges from 70-80 degrees daily.

The Rainforest receives (gets) large amounts of humidity (water vapor).

In the rainforest there is the same amount of sunlight and darkness.

There is 12 hours of sunlight.

There is 12 hours of darkness.
Tropical Rainforest Characteristics

- More than 60 inches of rain
- Temperature: 70°-80° degrees
- Humidity
- Water vapor
- Darkness
- Sunlight
- Tropics Belt receives 12 hours
There are several characteristics that classify an area as a Tropical Rainforest. It must be located in the areas of the Tropics Belt, between the Tropic of Cancer and Tropic of Capricorn. It must receive more than 60 inches of rain yearly and have a stable temperature. The usual temperature in the Rainforest ranges between 70-80 degrees and it is always very humid. Lastly, there is an equal amount of sunlight and darkness in the rainforest. It is divide into 12 hours of sunlight and 12 hours of darkness.

In conclusion, these are the characteristics that classify an area as a Tropical Rainforest.
Tropical Rainforests are (found) in the area of the __________. The Rainforest _________ (gets) more than 60 inches of ____________.

The __________________ change. It ranges from _____ degrees daily. The Rainforest _________ (gets) large amounts of ____________ (water vapor).

In the rainforest there is the _________ amount of _________ and ___________. There is ________ hours of __________.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Seventy to Eighty</th>
<th>70-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humidity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same</td>
<td>=</td>
<td></td>
</tr>
<tr>
<td>Sunlight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darkness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Twelve       | 12                 |       |
| Located      |                     | ?     |
| Tropics Belt |                     |       |
| Receives     | To get              |       |
| Rain         |                     |       |
There is 12 hours of sunlight.

Tropical Rainforests are located (found) in the area of the Tropics Belt.

The temperature ranges from 70-80 degrees daily.

The Rainforest receives (gets) more than 60 inches of rain a year

There is 12 hours of darkness.

The Rainforest receives (gets) large amounts of humidity (water vapor).
The topic of my unit is the Tropical Rainforest. It's composed of the following lessons:

- **Lesson 1**: Locating and hypothesizing about the Tropical Rainforest
- **Lesson 2**: Characteristics of the Tropical Rainforest
- **Lesson 3**: Layers of the Tropical Rainforest.

For the second lesson, *Characteristics of the Tropical Rainforest*, I decided to implement a variety of modifications in order to make the text comprehensible for every level of language proficiency. Within this lesson, I have incorporated the use of modified text, visuals, a graphic organizer, a guided written response sheet, fill-in-the-blank paragraph, matching sentences with pictures, and cooperative learning groups. Once again, as seen in narrative 1, effective use of modified text, graphic organizers, and visuals provide ELL students with opportunities to showcase their academic proficiency, even though their language proficiency is limited. For expanding level 4 students, who will soon be bridging over into mainstream classrooms, it's important to continue to challenge & build their academic language. Therefore, in this lesson I decided to create and scaffold a listening guide, of the expectations of the written response, on the characteristics of the Tropical Rainforest. As a result, these students can refer to the listening guide for editing and revisions of their written response without direct teacher input.

On the other hand, for those beginning ELL students it's important not to change the objectives but rather, to select appropriately main ideas to focus on and effective
activities for them to engage, in at their level. For modifications for this group, in the second lesson I provided them with sentence and picture matching & fill-in-the-blank sheet, with the corresponding vocabulary word bank.
Lesson 3
**Performance Indicators**

**Unit:** All about the Tropical Rainforest

**Lesson 3:** Layers of the Tropical Rainforest

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<th>Level 4- Expanding ELL students</th>
<th>Level 5- Mainstream students/ Advanced ELL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Writing:</strong> Label &amp; describe the layers of the Tropical Rainforest</td>
<td>The students will be able to point to the layers of the Rainforest, in response to the teacher prompts, and label them appropriately by utilizing the vocabulary list.</td>
<td>The students will be able to label and write detailed characteristics pertaining to the 4 layers of the Rainforest, with the use of a &quot;fill-in-the-blank&quot; sheet and vocabulary list.</td>
<td>The students will be able to label and write detailed characteristics pertaining to the 4 layers of the Rainforest, with the assistance of a vocabulary list and sentence starters.</td>
<td>The students will be able to label and write detailed characteristics pertaining to the 4 layers of the Rainforest.</td>
</tr>
</tbody>
</table>
**Functional/Notional Chart**

**Lesson 3:** Layers of the Tropical Rainforest

<table>
<thead>
<tr>
<th>Function</th>
<th>Situation</th>
<th>Expression</th>
<th>Words</th>
<th>Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>The 4 Layers of the Tropical Rainforest</td>
<td>This is the ________ layer.</td>
<td>Emergent, Canopy, Understory, Forest Floor.</td>
<td>Present tense: Adjectives &amp; Plurals</td>
</tr>
<tr>
<td>Describe: In complete sentences</td>
<td></td>
<td>It receives _______ _______ _______.</td>
<td>Sunlight, humidity, rain, hot temperatures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>_______ range</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>from _______ _______ feet tall.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>It has _______ _______ _______.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Small leaves &amp; bushes, slender trunks, umbrella canopy, woody vines, hot temperatures, high humidity, little sunlight</td>
<td></td>
</tr>
</tbody>
</table>
Lesson 3: Layers of the Tropical Rainforest

Objective:
Students will be able to:

- label and write detailed characteristics pertaining to the 4 layers of the Rainforest.

Materials:
Appendix 1: The Rainforest Environment
Appendix 2: Tropical Rainforest graphic organizer
Appendix 3: Layers of the Tropical Rainforest (modified version),
Appendix 4: Descriptions of the 4 Layers
Appendix 5: Vocabulary list
Appendix 6: Vocabulary list and Sentence starters
Appendix 7: "Fill-in-the-blank" sheet and Vocabulary list
Appendix 8: Pre-production level 1 students’
Appendix 9: Mainstream students and Advanced ELL’s

Initiation- (Approximately 10 minutes)
The teacher will begin the class by projecting a picture of The Rainforest Environment (Appendix 1) and allow the students, through the use of this visual, to recall the information presented in this unit. As the students are beginning to share their background knowledge, the teacher is writing their responses in the Tropical Rainforest graphic organizer (Appendix 2).

Procedure- (Approximately 35Minutes)
Now that we have reviewed where the Tropical Rainforests are located and some characteristics, today we are going to learn the 4 layers that create the Tropical Rainforest and their unique role.

Taken directly from the original lesson plan: Distribute the article, “Layers of the Tropical Rainforest (Appendix 3 modified version),” and read it together.

Immediately following the reading, the class will be instructed to work in their groups, (previously assigned mixed ability groups based on English proficiency levels) for 10 minutes to discuss and underline the importance of each layer in the Rainforest from the article, “Layers of the Tropical Rainforest (Appendix 3 modified version).”

After the allotted 10 minutes, the teacher will instruct the students to focus their attention, in the front of the class at the projector, where they will see a blank graphic organizer labeled, “Descriptions of the 4 Layers (Appendix 4).” The teacher then asks each group to state the layer and share one of the important characteristics they have underlined from the article “Layers of the Tropical Rainforest (Appendix 3 modified version).”
• The 1st layer the **Emergent**
• The 2nd layer the **Canopy**
• The 3rd layer the **Understory**
• The 4th layer the **Forest Floor**

As the groups share their information with the class, they will also be writing it in the correct portion of the teacher’s projected blank graphic organizer Descriptions of the 4 Layers *(Appendix 4)*.

*Note* *The teacher should not discuss the next layer until all the important information about the layer is discussed and processed by the students.*

**Closure:** *(Approximately 15 minutes)*

Once all the groups are finished sharing, the students will be instructed to utilize the information from the article “Layers of the Tropical Rainforest *(Appendix 3-modified version)*” and create a detailed written response labeling & describing the 4 layers of the Tropical Rainforest. The teacher will circulate monitoring the written activity and provide assistance when needed by either re-phrasing or repeating important information.

*Note* *Based on the students English proficiency level the written responses will differ and therefore a different worksheet for each level will be provided.*

In order to support expanding level 4 students, the teacher will provide these students with a **Vocabulary list** *(Appendix 5)*.

In order to support developing level 3 students, the teacher will provide these students with **Vocabulary list and Sentence starters** *(Appendix 6)*.

In order to support beginning level 2 students, the teacher will provide these students with a “Fill-in-the-blank” sheet and **Vocabulary list** *(Appendix 7)*.

In order to support Pre-production level 1 students’ *(Appendix 8)*, the students will point to the layers of the Rainforest, in response to the teacher prompts, and label them appropriately by utilizing the vocabulary list.

**Assessment:**

Students will be assessed for their written response using a three-point rubric.

3 - The 4 layers are labeled neatly and corresponding information is written in a comprehensible, organized format.

2 - The 4 layers are labeled and corresponding information is written in a comprehensible, organized format with 2-3 errors.

1 - The 4 layers are labeled and corresponding information is written in a comprehensible, organized format with 4-6 errors.
The Rainforest Environment
Layers of a Tropical Rainforest

The rainforest is composed (made up of) 4 layers.

The names of these layers are:
- Emergent
- Canopy
- Understory
- Forest Floor

Emergent Layer
- The tallest trees are located in this layer.
- The trees range from 120-200 feet tall.
- The trees receive full sunlight.
- The trees have small leaves and slender (thin) trunks.

Canopy
- The trees range from 60-110 feet tall.
- The trees create an "umbrella" and cover the sun from the other layers.
- This is where most of the plant and animal life live in the Rainforest.

Understory
- The trees only grow up to 15 feet.
- It receives some sunlight from the canopy.
- It is often (almost always) hot and humid in the Understory.
- There are lots of smaller bushes and woody vines.

Forest Floor
- It receives very little sunlight.
- It is very dim (dark) here.
- No trees grow in this layer.
- Plants grow here but only a few inches.
- Hot temperatures and high humidity happens daily.
Descriptions of the 4 Layers
Layers of a Tropical Rainforest

- Emergent
- Canopy
- Understory
- Forest Floor
- Receives
- Ranges
- Umbrella
- Often
- Humid
- Temperature
Layers of a Tropical Rainforest

The Tallest trees are

The trees range

The trees receive

The trees have

The trees range

The trees create

This is where

The trees only

It receives

It is often

No

and

happens daily.

It receives

It is often

There are lots of
Layers of a Tropical Rainforest

The rainforest is composed (made up of) 4 layers.

The names of these layers are:
- __________________________
- __________________________
- __________________________
- __________________________

Layer

- The tallest __________ are located in this layer.
- The trees range from __________
- The trees receive __________
- The trees have __________ and __________ trunks.

Layer

- The trees range from __________
- The trees create an "__________" and cover the __________ from the other layers.
- This is where most of the __________ and __________ live in the Rainforest.

Layer

- The __________ only grow up to 15 feet.
- It receives some __________ from the __________
- It is __________ hot and humid in the __________
- There are lots of smaller __________ and __________

Layer

- It receives very little __________
- It is very __________ here.
- No __________ grow in this layer.
- __________ grow here but only a few __________.
- __________ and high __________ happens daily.

Layers of the Rainforest Vocabulary

<table>
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<tr>
<th>Emergent</th>
<th>Canopy</th>
<th>Understory</th>
<th>Forest Floor</th>
</tr>
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<tr>
<td>Trees</td>
<td>Sunlight</td>
<td>Small leaves</td>
<td>Slender</td>
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<td>Humid</td>
<td>Umbrella</td>
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<td>Animals</td>
</tr>
<tr>
<td>Plants</td>
<td>Often</td>
<td>Bushes</td>
<td>Woody vines</td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Layers of a Tropical Rainforest

The rainforest is composed (made up of) 4 layers.

The names of these layers are:
- ______________________
- ______________________
- ______________________
- ______________________

- The tallest trees are located in this layer.
- The trees range from 120-200 feet tall.
- The trees receive full sunlight.
- The trees have small leaves and slender (thin) trunks.

- The trees range from 60-110 feet tall.
- The trees create an "umbrella" and cover the sun from the other layers.
- This is where most of the plant and animal life live in the Rainforest.

- The trees only grow up to 15 feet.
- It receives some sunlight from the canopy.
- It is often (almost always) hot and humid in the Understory.
- There are lots of smaller bushes and woody vines.

- It receives very little sunlight.
- It is very dim (dark) here.
- No trees grow in this layer.
- Plants grow here but only a few inches.
- Hot temperatures and high humidity happens daily.

Layers of the Rainforest Vocabulary

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</tr>
<tr>
<td>Understory</td>
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<tr>
<td>Forest Floor</td>
</tr>
</tbody>
</table>
Layers of a Tropical Rainforest

Appendix 9
The topic of my unit is the Tropical Rainforest. It’s composed of the following lessons:

- **Lesson 1:** Locating and hypothesizing about the Tropical Rainforest
- **Lesson 2:** Characteristics of the Tropical Rainforest
- **Lesson 3:** Layers of the Tropical Rainforest

For the **third** lesson, *Layers of the Tropical Rainforest*, I decided to implement a variety of modifications in order to make the text comprehensible for every level of language proficiency. Within this lesson, I have incorporated the use of modified text, visuals, a graphic organizer, vocabulary list, fill-in-the-blanks, sentence starters, and mixed ability grouping. All these modifications have been used consistently throughout the unit and explained in narratives 1 & 2. I believe by utilizing similar modifications for this entire unit on the Tropical Rainforest, it enables the students to be academically successful at all tasks. With this consistency, ELL students will be more prepared to comprehend abstract academic concepts.
Checklists
FLA 518: Sheltered ELL Strategies Checklist

Write the page numbers and any other identifying features to identify those parts of your lessons that employ the following strategies.

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<tr>
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V. Grammar and Functions & Sheltered ELL Strategies Checklists

VI. Final Reflective Narrative
Lesson Plan #1: Where are Rainforests Located?

Lesson 1 Objectives:

1. Students will use any resource to find where world rainforests are located and color these in green on a world map provided by their teacher.

2. Students will locate and label the Equator, Tropic of Cancer, and Tropic of Capricorn on their world maps.

3. Students will use the strategies of locating specific information and visualization to complete a reading comprehension sheet with at least 80% accuracy after reading the article, "Where are Tropical Rainforests Found?"

4. Students will complete a problem-solving worksheet involving area of selected rainforests in selected world countries with at least 80% accuracy.

Time required: One class period for instruction.

Materials:

"Where Are Tropical Rainforests Found?" article
Dr. Howard Ufigure's Basic Training Tasks
Reading Comprehension Sheet #1: "Where Are World Rainforests Found?"
Howard Ufigure Data Exercise #1: "Area of Rainforest in Selected World Countries"
paper/pencils/crayons, or markers
social studies textbooks, dictionaries with maps, encyclopedias

Teacher Preparation:

1. Printout: Reading Comprehension Sheet #1: "Where Are World Rainforests Found?"
   and Howard Ufigure Data Exercise #1: "Area of Rainforest in Selected World Countries."

2. Photocopy the four sheets for each of your students.

3. Click here to get and print a world rainforest map from EnchantedLearning.com
   Photocopy a world map for each of your students.

Procedure:

1. Review the chart titled, "What We Know About Rainforests."

2. Distribute the article, "Dr. Howard Ufigure's Basic Training Tasks." Read the sheet together orally. Ask the students what things they think are necessary for Field Research Assistants to be able to do. (analyze data from scientists' experiments, write reports for scientists, research topics for scientists etc.) Tell students that the Rainforest Basics section of the unit is like their "basic training" for the information and skills they will need to use later in the unit. New skills will of course be introduced as the unit progresses, but these will be based on the skills that they will practice in Rainforest Basics.

3. Distribute the article, "Where Are Tropical Rainforests Found?" Read the article orally together. Direct students' attention to the Equator, Tropic of Cancer, and Tropic of Capricorn shown on the map. Discuss that rainforest areas are found in patches between the tropics. Tell students that there are other rainforests called Temperate rainforests which are located in areas outside of the tropics.


5. Write these directions on the board as you say them orally: You will work in groups of four to locate the areas of the world which have tropical rainforests. When you have found this information, color these areas green on the world map. Label the continents, oceans, equator, Tropic of Capricorn and Tropic of Cancer, also. You will have 20 minutes to do this activity.

6. After 20 minutes, or earlier if students have all finished, reconvene as a whole class.

7. Review the reading strategies of locating specific information in text and the process of visualization. Visualization is picturing information in your mind that is contained in text and then drawing and labeling a picture of the information.

8. Distribute Reading Comprehension Sheet #1 to students. Read directions orally and assign.

9. Later in the day, during math class, go over and assign Howard Ufigure Data Exercise #1: Area of Rainforests in Selected World Countries.

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Where are Tropical Rainforests Found?

Tropical rainforests are found in the tropics belt. The tropics belt is an area around the equator which is located between the Tropic of Cancer and the Tropic of Capricorn. 200 years ago, rainforests covered about 20% of the earth's land masses. They formed a continuous, or unbroken, "green belt" around the equator. Today, rainforests cover only about 6% of the earth's land masses and are found only in patches around the equator. Parts of South America, Central America, Africa, Australia, Asia, and islands in the Pacific Ocean have rainforests.

Directions: Write the answer to each question in a complete sentence.

1. What is the tropics belt?

2. Where were rainforests located 200 years ago?

http://www.manatee.k12.fl.us/sites/elementary/palmasola/rcdc1.htm

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3. Where are rainforests located today?

4. The reading sheet states that rainforests made up 20% of the world's land mass 200 years ago and that today they only make up 6% of the world's land mass. What do you think might have happened to the 14% of rainforest that disappeared in the last 200 years? Explain why you think this has happened:
Lesson Plan #2: What is a Tropical Rainforest?

Lesson 2: Objectives:

1. Students will learn the characteristics of a tropical rainforest and display their understanding of these by completing a reading comprehension sheet with at least 80% accuracy.

2. Students will investigate the amounts of rainfall in selected world rainforests by creating a bar graph showing the rainfall in inches for each.

3. Students will convert inches to millimeters, and solve word problems having to do with rainfall in selected world rainforests with at least 80% accuracy.

Time required: One- two class periods for instruction

Materials:

"What Makes an Area a Tropical Rainforest?" article
Reading Comprehension Sheet #2: "What Makes an Area a Tropical Rainforest?"
Howard Ufigure Data Exercise #2: "Average Rainfall in Selected World Countries."
Graph paper, pencils, crayons, markers, drawing paper

Teacher Preparation:

1. Print out Reading Comprehension Sheet #2: "What Makes an Area a Tropical Rainforest?" and comprehension practice sheet, and Howard Ufigure Data Exercise #2: "Average Rainfall in Selected World Countries."

3. Photocopy the three sheets for each of your students.

Procedure:

1. Review where rainforests are located.

2. Distribute the article, "What Makes an Area a Tropical Rainforest?"

3. Read the article together orally as a whole group.

4. Ask students, "What are the characteristics of a tropical rainforest?" Discuss their answers.
   · Rainforests receive between 80 - 400 inches of rainfall a year.
   · Temperatures stay between 70 - 80 degrees Fahrenheit year round.
   · Tropical rainforests have high levels of humidity.
   · Tropical rainforests receive the direct rays of the sun. Their days are fairly evenly divided between light and darkness.

5. Use the strategy of visualization: Ask students: How could we show this information in picture form? Allow students to work in pairs to illustrate and label the four characteristics of a rainforest.

6. Reconvene as a whole class and ask volunteers to share their drawings and ideas.

7. Distribute Reading Comprehension Sheet #2.

8. Later in the day, during math class, distribute Howard Ufigure Data Exercise #2: Average Rainfall in Selected World Rainforests. You may wish to review how to make a bar graph, as well as doing several example problems to show students how to convert inches to millimeters using a calculator. Encourage students to make their bar graphs both colorful and neat. This activity will take an entire math period to complete.

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What Makes an Area a Tropical Rainforest?

Tropical rainforests are forests that receive more than 80 inches of rain a year. Some rainforests receive as much as 200-400 inches of rain a year! Rainforests also have large amounts of humidity, or water vapor in the air.

What is the Temperature Like in a Tropical Rainforest?

The temperature in a tropical rainforest does not vary, or change, much during the year. It ranges between 70 and 80 degrees Fahrenheit at all times. Tropical rainforests never get really hot because they receive almost daily rainfall. Other areas near the equator which do not receive a great deal of rainfall have much higher average temperatures than tropical rainforests. The temperature is much the same at night as it is during the day, unlike other places where the temperature at night is much cooler than the temperature during the day. The reason that the temperature stays the same year round is that the lands near the equator receive the direct rays of the sun.

A Rainforest Day

Tropical rainforests have days which are evenly divided between light and darkness. This is because the tropics belt receives direct rays from the sun. Therefore, a rainforest day has 12 hours of sunlight and 12 hours of darkness. There are several characteristics that make an area considered to be a rainforest. They are found in the tropics belt and receive more than 60 inches of rain a year. Rainforests have temperatures that remain between 70-80 degrees year around. They have days that are evenly divided between sunlight and darkness.

Click here for Comprehension Sheet:

http://www.manatee.k12.fl.us/sites/elementary/palmasola/rcdc2.htm

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Lesson Plan #3: Layers of a Tropical Rainforest

Lesson 3: Objectives:

1. Students will learn the layers of a tropical rainforest and use this knowledge to successfully complete a reading comprehension sheet.

2. Students will create a cartoon illustrating canopy shyness or the absorption of light by the canopy layers, and how the other layers "feel" about that!

Time Required: One Class Period

Materials:

Article: "Layers of a Tropical Rainforest" (two pages)
Reading Comprehension Sheet #3: Layers of a Tropical Rainforest
pencils, paper, crayons, markers
sponge, bowl of water

Teacher Preparation:

1. Print the article, "Layers of a Tropical Rainforest" and Reading Comprehension Sheet #3: Print the Howard Ufigure Data Exercise #3 "Lengthy Lianas".

2. Read the material to familiarize yourself with the contents.

3. Photocopy the material for each of your students.

4. Practice the demonstration you will do in step 3 of the procedure.

Procedure:

1. Distribute the article, "Layers of a Tropical Rainforest."

2. Read the article orally as a whole group.

3. Direct students' attention to the diagram of Rainforest Layers. Discuss what is meant by

http://www.manatee.k12.fl.us/sites/elementary/palmasola/s2lp3.htm

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absorbing light. Demonstrate absorption by using a sponge and a bowl of water. Pour just enough water in the bowl for the sponge to absorb. Explain that the sponge "holds in" the water. This is the same thing that canopy trees do with light. Squeeze the sponge and release the water into the bowl. Explain that this does not happen in the rainforest, 98% of the light remains in the canopy layer.

4. Direct Student's attention to the concept of canopy shyness. Reread that section of the article. Ask students to work as teams of four and create a skit showing canopy shyness in the rainforest. Allow about 5-10 minutes for this activity.

5. Reconvene as a whole group and ask volunteer groups to present their skits.

6. Assign: Tell students that they will be creating a cartoon which illustrates either the concept of canopy shyness, or the concept of light absorption by the canopy. Have a brainstorming session in which you encourage students to be creative and think of ways they could portray these concept using canopy trees and rainforest animals as characters in their cartoons.

7. Allow students to create their cartoon individually, or working in pairs as desired.


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Layers of a Tropical Rainforest

A tropical rainforest is composed, or made up of several different layers. The names of these layers are the emergent layer, the canopy, the understory, and the forest floor. Each layer plays an important part in the rainforest system. Find the canopy layer. Does it surprise you that this is the layer in which most of the plant and animal life of the rainforest lives?

Emergent Layer: The trees in this layer receive full sunlight.

Canopy: The trees in this layer block the sun from the lower layers.

Understory: This layer receives only the sunlight which filters through the canopy.

Forest Floor: This layer receives very little sunlight. It is very dim.

The Rainforest Canopy

This is perhaps, the most important layer of the rainforest. It is the layer which is the most filled with plant and animal life! Rainforest trees are the most important part of the canopy. These trees grow to be 100 feet tall! They have tall, straight trunks. At the tops of the trunks, the trees are covered with an "umbrella" of branches and leaves. The canopy of the rainforest, if viewed from an airplane, looks like an unbroken blanket of green tree tops!

Layers of a Tropical Rainforest

Actually, the canopy trees do not often directly touch each other. They leave small gaps between themselves and the trees around them. This is known as canopy shyness. No one knows exactly why this happens. Some scientists think that it may be a tree's way of protecting itself against insects and other living things that could harm it. If the branches do not touch, insects that harm the trees cannot travel from one tree to another, unless they have wings.

The job of the umbrella of leaves on each canopy tree is to grab as much sunlight as they possibly can. The canopy of a rainforest grabs so much sunlight that it absorbs 98% of the sunlight that shines on the forest. This means that only 2% of the sunlight is left to light the understory and the forest floor! For this reason, the floor of the rainforest is very dim, or poorly lit. It looks like twilight during the day on the forest floor!

Click here for Comprehension Sheet:

http://www.manatee.k12.fl.us/sites/elementary/palmasola/rcdc3a1.htm

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Unit: All About the Tropical Rainforest

Grammar & Functions Checklist

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