

Narrative for Kindergarten Unit on Life Science

Target Students Population:

The school is a K-5 NYC Public School. This year there are 2,085 children in attendance. The school is divided into 5 schools within a school including Communication and Performing Arts School, American Studies School, Math, Science and Technology School, Bookmaking and Publishing School, and Dual Language through Visual Arts School. The school runs at 108% of capacity. There are 13 Kindergarten classrooms: 10 monolingual, one bilingual, and two dual language. This is year one of the Dual Language program started in Kindergarten.

This unit was prepared for the 56 kindergarteners in the two classrooms that are part of the dual language program, half of whom have attended bilingual or monolingual Pre-K.

Socio-economic status:

Using the statistics of free lunch recipients, 90% of the school's students can be categorized as coming from low-income homes. Of the 56 students in the Kindergarten Dual Language classrooms, 100% receive free lunch. All of the parents are immigrants and many are illegal. About three quarters of the students live in two parent homes and about half of those in dual (albeit low) income homes. Many of the mothers who work, work second shift therefore being available to volunteer in school and be home when the children arrive but leave the home in late afternoon.

Cultural Background:

The school's student population is made up of the following ethnicities: 89.3% Hispanic, 9.6% Asian and Other (includes mixed race), .7% White and .4% Black. All of the children in the Dual Language program come from households of Hispanic decent. The students are mainly from Mexico, Ecuador, Dominican Republic, and Colombia.

Language and academic proficiencies:

Fifty percent of the school's students were classified as English Language Learners (ELL's) last year.

All but three of the Dual Language student's families classified themselves as speakers of Spanish in the home. The three children from these families came to the program with little or no oral language in Spanish. Five others spoke Spanish but their speech development is impaired from either a processing or production standpoint.

At the beginning of the year, all Dual Language students were tested using the Language Assessment Battery-Revised test. Eight of the students "tested out" from being considered ELL's based on scores of 30 or above or if their parents indicated English as their home language.

Dual language students are tested in English and Spanish using ECLAS (Early Childhood Literacy Assessment System) and EL SOL (El Sistema de Observación de la Lecto-Escritura). These tests measure their literacy proficiency in both languages.

Affective Considerations:

All of our Dual language students are talkative and active, much more so than students in monolingual or bilingual Kindergarten classrooms. All students regularly complete their daily homework assignments and periodic project work.

Parental involvement in the dual language program is an expectation. Every dual language activity including parent teacher conferences, publishing parties, assemblies, class parties and report card conferences has yielded higher than normal parental participation. Ninety nine percent of parents attended each of the 3 parent teacher/report card conferences this year.

In the dual language classroom, we have 1 child with discipline problems and four children who are being treated for possible psychological issues. Three of these children's issues stem from problems in their home environment mainly due to parent's marital issues.

Unit Planning Guide

Unit Theme

Life Science

Big Idea

All organisms are living things.

Lesson Big Ideas

Living things have different parts that enable them to get what they need to grow and mature

LESSON CYCLE 1

Most living things need water, sunlight, air, nutrients from the soil, and space to grow in order to survive.

(NOT EXPANDED INTO LESSON CYCLE in this assignment)

LESSON CYCLE 2

Living things have life cycles.

LESSON CYCLE 3

Living things can be identified by their characteristics and offspring

(NOT EXPANDED INTO LESSON CYCLE in this assignment)

LESSON CYCLE 4

Standards for Kindergarten Unit on Life Science

New York State Math Science and Technology (MST) STANDARDS.

Science Standard #4: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Lesson Cycle 1:

The Living Environment:

3. Individual organisms and species change over time.
 - Describe how the structures of plants and animals complement the environment of the plant or animal.

Lesson Cycle 2:

The Living Environment:

6. Plants and animals depend on each other and their physical environment.
 - Describe how plants and animals, including humans, depend upon each other and the nonliving environment.
 - Describe the relationship of the sun as an energy source for living and nonliving cycles.

Lesson Cycle 3:

The Living Environment:

4. The continuity of life is sustained through reproduction and development.
 - Describe the major stages in the life cycles of selected plants and animals.

Lesson Cycle 4:

The Living Environment:

3. Individual organisms and species change over time.
 - Describe how the structures of plants and animals complement the environment of the plant or animal.

Lesson Cycle 1

Big Idea/Essential Understanding: I want my students to understand that... living things have parts that help them get what they need to grow and mature.

Language of Instruction - Spanish

Grade level - Kindergarten



Preview
Phase:

Content Objectives – Students will:
Use their knowledge of plant parts (root, stem, leaf, flower) and their function (help plant stand, take in food, become fruit) to follow instructions and play Simon Says about plants.

Language Objectives: - Students will:
use the names of the parts of a plant as they become Simon and give the game orders to other students.

Strategies:

TPR – students will pretend to be a plant while teacher teaches vocabulary related to parts of a plant and their function. Students will play Simon Says, for example...touch your roots, take in food, etc.

Differentiation:

L1 student will be learning the proper pronunciation of the vocabulary and will learn where each part exists on the plant. L2 students will be learning the content obligatory vocabulary, as well as learn its pronunciation and through TPR figure out where each part exists on the plant.

Flexible Grouping

Whole group for TPR

Instructional Assessment:

Teacher will be able to observe student during TPR to determine if student is following along. Teacher will also be able to observe student when they become Simon.

Lesson Cycle 1 continued

Focused Learning Phase

Content Objectives – Students will: Use their knowledge of plant parts (root, stem, leaf, flower) to create a 2-D model of a plant after listening to *Seeds Grow / Las Semillas Crecen*.

Language Objectives: - Students will: use the names of the parts of a plant as they describe their 2-D model of a plant to a partner.

Strategies:
Closed Picture Sort – students will be given color picture cards showing each parts of a plant on individual cards. They will look for pictures of the various parts of the plant and put them in order of how they would appear on the plant. **Match mine** – lower performing students will be given the opportunity to complete a model by working with and copying a partner’s model.

Differentiation:
 L1 students will apply what they learned in the previous phase to their sort and to creating their model.
 L2 students will apply what they learned as well as continue to practice their vocabulary and pronunciation.

Flexible Grouping
 Whole Group for read aloud
 Individual for Closed picture sort
 Heterogeneous partner for sharing

Instructional Assessment:
 Teacher will be able to observe students during the closed picture sort, will be able to review the 2-D model and listen to their interaction with their partner

Application Phase

Content Objectives – Students will: connect parts of the plant with its function and will illustrate and label the parts of a plant after listening to *Seeds Grow/Las Semillas Crecen* once again.

Language Objectives: - Students will: Share their illustration with a partner and will describe each part of the plant using their names or functions root, stem, leaves, flower, help plant stand, take in food, become a fruit).

Strategies:
Connect Two – students will be asked to connect plant part name and part functions using cards containing illustration and words.

Differentiation:
 L1 Readers could read the words on the cards while non-readers and L2 will have the support of the pictures.

Flexible Grouping
 Whole Group for Read Aloud
 Heterogeneous Partners for connect-two and illustrations.

Instructional Assessment:
 Teachers will be able to observe students as they prepare connect two and the illustration, and share and describe their illustration.

Lesson Cycle 3

Big Idea/Essential Understanding: I want my students to understand that... living things have a life cycle

Language of Instruction - Spanish
Grade level - Kindergarten

Content Objectives – Students will:
Use their knowledge of plant parts (root, stem, leaf, flower) and their function (help plant stand, take in food, become fruit) to follow instructions and act out the stages of the life cycle of a plant.

Language Objectives: - Students will:
use the names of the stages of the cycle of a plant as they act out the life cycle for their partner.

Strategies:

TPR – students will pretend to be a plant while teacher teaches vocabulary related to the stages of a plant. Teacher will say name of stage and show students how they should position their bodies at each stage. Students will sit on the floor with their head, arms and legs tucked in when they pretend to be the seed. Students will then extend one leg as they pretend to have their roots grow. Students will lift their torsos as they pretend to have the stem growing. Students will lift their heads to show the sprout. Children will lift their arms to show the leaves growing. Students will begin to stand up as they show the plant growing to full plant.

Differentiation:

L1 student will be learning the proper pronunciation of the vocabulary and will learn where each part exists on the plant.

L2 students will be learning the content obligatory vocabulary, as well as learn its pronunciation and through TPR get a visual understanding of the life cycle of a plant.

Flexible Grouping

Whole group for TPR
Heterogeneous partners for sharing

Instructional Assessment:

Teacher will be able to observe student during TPR to determine if student is following along as the name of each stage is mentioned. Teacher will observe student to determine if student is connecting the new vocabulary with the stage of the cycle as they act out for partner.



Preview
Phase:

Lesson Cycle 3 continued

Focused Learning Phase

Content Objectives – Students will:
Be able to put the stages of the plant life cycle in order after listening to the poem *Sin Fin* and watching the teacher’s demo.

Language Objectives: - Students will: use the names of the stages of the plant life cycle as well as sequencing words as they describe the stages in sequence to their group.

Strategies:
Match mine – Teacher will demonstrate the stages of the plant life cycle using large picture cards and repeating the vocabulary that was taught in the preview stage. Teacher will use the terms first, then, next, after, last, finally as she demos the stages. Teacher will ask students to do the same. Teacher will provide students with picture cards showing the stage of the plant life cycle and a worksheet showing boxes containing outline drawing and name of each stage. Students will be asked to stick their picture cards underneath the outline that matches the stage of the cycle. Students will later share their worksheet with their group.

Differentiation:
L1 students will apply what they learned in the previous phase to the match mine activity.

L2 students will apply what they learned as well as continue to practice their vocabulary and pronunciation.

Flexible Grouping
Whole Group for read aloud
Individual for match mine activity
Heterogeneous groups of 4-6 for sharing.

Instructional Assessment:
Teacher will be able to observe students during the match mine to determine if student is correctly matching the stages. Teacher will observe students as they present the stages in sequence to their group and listen for use of sequence words.

Application Phase

Content Objectives – Students will: sort live plants into their life stages and create a chart, will draw pictures of the stages and will make group presentations after listening to *How a Seed Grows* (non-fiction book).

Language Objectives: - Students will: Share their charts and illustrations with the class using the sequencing words and names of plant life cycle stages.

Strategies:
Item Sort – Teacher will provide students with live seeds, plants in radicle(root) stage, plants in seedling stage, plants with a few leaves, and grown plants. Students as a group will be asked to sort the items into sequence, attach to a chart and label with the names of the stages. Teacher will then request that students as a group, draw the plant life cycle and label the stages by name.

Flexible Grouping
Whole Group for Read Aloud
Heterogeneous Groups of 3-4 students for item sort drawings and presentation.

Instructional Assessment:
Teachers will be able to observe students as they sort, prepare chart and draw the illustration. Teacher will be able to assess the final group charts and illustrations for accuracy and will listen for use of vocabulary and sequencing words during the share.

Application phase continued...

Differentiation:

Both L1 and L2 will be able to go back to the match mine activity output to review the stages of the plant life cycle.

L1 readers could possibly read the words on the match mine activity output, while non-readers and L2 will have the support of the pictures.

For presentation students will be told to choose the person whom they would prefer to be their spokesperson in the group presentation but will be told that all members must stand for the presentation and point to the stages on the chart and/or drawing as their spokesperson speaks.

Annotated Bibliography

Resources for Kindergarten Life Science cycle about Plants:

There is an abundance of material on the topic of plants and the plant life cycle. This list is only a very small portion of what is available. As usual, there are many more texts available in English versus Spanish; nonetheless, the Spanish varieties I discovered are quite good and appropriate for the Kindergarten level.

Books in English:

Non-Fiction:

Gibbons, Gail. From Seed to Plant. Holiday House, 1993.

This book explores the relationship between seeds and the plants which they produce. This book is appropriate for K -2 grades. As typical for Gail Gibbons books, there are some plant drawings that are hard to figure out, especially for a Kindergartener and the text is a little too advanced for the average Kindergartener but as a Read Aloud in the Focused Learning phase, this book would work.

Heller, Ruth. The Reason For a Flower. Putnam Juvenile, 1999.

The reason for a flower is to manufacture seeds, but in this book children also learn about the parts of plants and their functions. The rhythmic style and brief text make this book enjoyable to listen to and fun to read by a young reader. The beautiful colors and drawings will engage and educate the youngest of minds. It can be used in a Read Aloud and as an independent reading book.

Lauber, Patricia. Be a Friend to Trees. HarperTrophy, 1994.

Children see and learn the many ways that trees are integral to the foods we eat, the products we make, and the animals that live in and around them. This book is good for an extension activity or simply to have as an independent reading book when discussing the Plants Lesson Cycles.

Himmelman, John. Nature Up close: A Dandelion's Life. CT, Children's Press, 1999.

The illustrations in this book are lovely. They are very simple and accessible for young children, and manage to catch each of the changes through which the dandelion goes as it progresses through its life cycle. A good independent reading book.

Godwin, Sam. Seed in Need: First Look at the Life Cycle of a Flower. Picture Window Books, 2004.

Follow a tiny sunflower seed on its amazing life cycle, germinating from a seed, becoming a sunflower and shedding its own seeds. This book contains wonderful illustrations that will capture the imagination of a young reader. Can be used for independent reading.

Brown, Ruth. Ten Seeds. Knopf Books for Young Readers, 2001.

In this picture book, young readers can join in a gardening countdown from the planting of ten seeds and watching their progress. As the countdown begins, children watch the seeds (then seedlings, shoots and plants) disappear from various encounters. The last seed survives and turns into a sunflower and then dropping 10 seeds so the cycle will begin again. This is a great book to use in Kindergarten when integrating the Plant Unit into mathematics as children practice subtraction.

Hickman, Pamela. A Seed Grows : My First Look at a Plant's Life Cycle (My First Look at Nature). Kids Can Press, 1997.

In A Seed Grows, follow the growth of a plant, from a peek inside a sprouting seed to the harvest of the fruit. The book suggests ways parents and children can explore nature -- without disturbing it. This would be a good 'Lending Library' book especially because of it's flaps and fun surprises. Neither parents nor students need to know how to read English to follow this book which is only available in English.

Fiction:

Hall, Zoe. The Apple Pie Tree. Scholastic, Inc, 1996.

A little girl, her baby sister, and a nest of robins watch through the seasons for apples to grow on their apple pie tree. This book describes an apple tree as it grows leaves and flowers and then produces its fruit. Includes a recipe for apple pie and is appropriate for PreK-1 grades. Is a great Read Aloud book during a "Hot To" unit of study and as extension to plants unit.

Cave, Kathryn. One Child, One Seed: A South African Counting Book.

Count from 1 to 10 with young, South African Nothando as she plants a pumpkin seed that grows to bear fruit for a delicious stew. Can be used when extending this theme into mathematics.

Cole, Joanna, Degan, Bruce, and Relf, Patricia, creators. The Magic School Bus Plants Seeds: A Book About How Living Things Grow. Scholastic, 1995.

An amazing adventure in the Magic School Bus tradition. This books takes Ms Fizzle's class back to a new classmate's old school where she planted a flower and actually into the girls flower. Students learn about how living things grow while traveling. This book is more appropriate for late Kindergarten to 2nd grade. In lower grades, might only read certain parts Aloud.

Carle, Eric. [The Tiny Seed](#). Alladin, 2001

The Tiny Seed introduces us to many of the hazards faced by seeds and seedlings as they attempt to grow (from falling in water and drowning, being eaten by birds or mice, being overshadowed by large weeds, being stepped on by children, and more) and shows how the ideal environment is a necessity. It covers the role of sunshine and rain, how the seed swells and bursts open, how the plant develops as it grows, and how it produces and disperses its seeds to carry on the next generation.

Books in Spanish or Bilingual(English/Spanish):

Non-Fiction:

Huggins-Cooper, Lynn. [Plantas y Flores](#). *Editorial Everest, 2005.*

Al parecer, este libro solo fue publicado en español. A partir de una historia sencilla, este libro estimula a los niños a descubrir la ciencia en su entorno familiar, en el jardín o en el parque. Las plantas con flores, sus diferentes partes y cómo se forman y crecen las semillas es el tema de este libro, donde se formulan preguntas para provocar la curiosidad de los niños.

Walker, Colin. [Las Semillas Crecen/Seeds Grow](#). Bothell, MA, The Wright Group Publishing, Inc, 1995.

This book is available in Big Book and sets of 6 small books and in English and Spanish. It takes students through parts of the plant and their function as well as the life cycle of the plant. The pictures are very vibrant and close up which gives students the details they need to understand even if they cannot read the words. This book can be used for guided reading during the plant unit or as a Read Aloud during a Focused Learning or Application phase.

Walker, Colin. [Plantas y Semillas / Seeds and Plants](#). Bothell, MA, The Wright Group Publishing, Inc, 1995.

This book is available in Big Book and sets of 6 small books and in English and Spanish. It focuses on the relationship between seeds and the flowers they produce. The pictures are very vibrant and close up which gives students the details they need to understand even if they cannot read the words. This book can be used for guided reading during the plant unit or as a Read Aloud during a Focused Learning or Application phase.

Fowler, Allan. [Rookie Read-About Science, It Could Still Be a Tree/ Podria Ser un Arbol](#). Children's Press, 1999.

In simple text, this book identifies the characteristics of trees and provides specific examples, including the maple, evergreen, magnolia, and redwood.

Jordan, Helene J. [How a Seed Grows \(Spanish edition\) : Como crece una semilla \(Let's-Read-and-Find-Out Science 1\)](#). Harper Collins/Rayo, 2006 (Spanish edition)

This simple introduction leads young readers through a series of steps that result in bean plants as well as a basic

understanding of how seeds work. Children are encouraged to follow each aspect of the botanical process, from sowing bean seeds, to the growth of tiny root hairs, to transplanting the plant in the garden. Realistic and inviting full-color watercolors show only procedures that are possible for youngsters to follow with minimal involvement from adults. A good independent reading non-fiction book.

Fiction:

Ada, Alma Flor. Una Semillas Nada Más. Carmel, CA, Hampton-Brown, 1990.

This book is a story of hope and patience as a young boy plants a seeds and waits and waits to see the flower grow. He finally is rewarded with a glorious Sunflower. Available in big book and small book format, this is a good Read Aloud or independent reading book with lots of repetitive words that Kindergarteners will enjoy.

Ehlert, Lois and Ada, Alma Flor. A Sembrar Sopa de Verduras/Growing Vegetable Soup. Libros Viajeros, 1996 (Spanish Edition)

This book is available in both English and Spanish. This book illustrates the steps for growing a vegetable garden in preparation for vegetable soup. This book can be used as a Read Aloud and as an independent reading book. Perhaps also during a “How to” unit of study because it shows the ingredients that would go into vegetable soup.

Poetry:

Aguirre, Mirta. Sinfin. From the anthology by Ada, Alma Flor, Caballito Blanco y Otras poesías favoritas. Hampton-Brown Books, 1992.

A poem about the life cycle of an Orange tree. This poem’s page in the small book and the Big Flip book contains very colorful depictions of the orange seed, tree and flower. The colorful artwork of the page help to illustrate the life cycle and make it easy to show children what the author is referring to in the poem. This poem would be used during the Focused Learning and even the Preview phase as vocabulary is introduced.

Websites:

<http://www.fastplants.org/>

This website, in English, is all about a plant known as the Wisconsin Fast Plant. It’s name is appropriate because it goes through its entire life cycle in 40 days. The sites shows still pictures of the plant in various stages. Although too advanced for Kindergarteners to navigate alone, would be great to present during the Preview and Focused Learning stages.

<http://www.mbgnet.net/bioplants/parts.html>

This website, in English, shows Plant Parts and tells students what different parts do. Contains video clips and animation of plants as they grow. Could be used during Preview and Focused Learning phases to show how the plant grows and how they should move in a TPR activity. Text is too advanced for Kindergartners to read but they will enjoy the pictures and clips.

http://www.urbanext.uiuc.edu/gpe_sp/case1/c1facts2a.html

Website available in English and Spanish is geared towards 4th and 5th graders but has great pictures of parts of a plant that can be followed by Kindergartners. Could be used during Preview or Focused Learning phase.

<http://www.rena.edu.ve/primeraetapa/ciencias/partesplan.html>

Website from Venezuela, completely in Spanish, with cartoonish pictures that students can follow easily showing parts of a plant. Could be used during Focused Learning phase.

http://endrino.cnice.mecd.es/~hotp0061/r_aller/partesplantas.htm

Website from Spain, completely in Spanish, contains activity that allows students to move word boxes, containing names of part of plant, to their respective parts. This activity can be used during the Application phase.

<http://www.unex.es/polen/LHB/masfacil/masfac12.htm>

Website in Spanish that shows full color pictures of different parts of the plant.