

1. What is our purpose?

To inquire into the following:

Transdisciplinary Theme

How the world works: *An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principals; the impact of scientific and technological advances on society and the environment.*

central idea:

Life cycles must have nurturing environments to continue.

Class/grade: PreK

Age group: 4 &5 yrs.

School: Poe Elementary

School code: 49497

Title: Life Cycles

Teacher(s): Maricela Rojas Medina

Date: April-June 2020

Proposed duration: 10 weeks



PYP planner

Summative assessment task(s):

What are the possible ways of assessing students' understanding of the central idea?

The students will grow and nurture a plant.

What evidence, including student-initiated actions, will we look for?

The students will demonstrate their understanding that plants and animals have life cycles, by describing the different stages of the life cycles and the type of environment it needs to live.

Students will have the opportunity to be responsible caretakers of the butterfly garden and monitor that its environment is not disturbed or endangered by curious little hands.

2. What do we want to learn?

What are the key concepts (form, function, causation, change, connection, perspective, responsibility, reflection) to be emphasized within this inquiry?

Key Concepts:

Connection

Causation

Change

Related Concepts:

Patterns

Environment

What lines of inquiry will define the scope of the inquiry into the central idea?

- Relationships of life cycles to the environment (Connection)
- How needs and wants of living things shape their life cycles (Causation)
- Changes of living things over their life cycle (Change)

What teacher questions/provocations will drive these inquiries?

- What is a life cycle?
- Can you find a pattern within a life cycle?
- Are life cycles only for people?
- What happens to life cycles if the environment changes?
- How do our individual choices impact our environment?

Provocation:

Teacher will begin to read *The Hungry Caterpillar* by Eric Carle. (The teacher will also have an unannounced visitor (larvae/chrysalis in a butterfly garden) on display in the classroom to provoke curiosity.)

3. How might we know what we have learned?

This column should be used in conjunction with “How best might we learn?”

What are the possible ways of assessing students' prior knowledge and skills?
What evidence will we look for?

Pre-assessment: The students will answer the following questions on Post-Its which will be added to our KWL chart for life cycle in whole group and further the discussion in small groups:

- What do you think is a life cycle?
- What do you want to learn about living things?
- How has our thinking changed?
- What can we do with what we have learned?

What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?

- Data collection: journals/observations two times/week and verify changes
- Students will pick a plant and animal (butterfly or frog) to draw/label its life cycle
- Students will be provided photos, chenille sticks, paste and glue to label the life cycle chosen
- Students will sequence life cycles using photos
- Students will be asked “What if every day was a sunny day?”

4. How best might we learn?

What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the driving questions?

The class will read fiction & non-fiction books on life cycles, environments.

- Dramatize life cycles (demonstrate patterns in life cycles)
- Finger-plays, rhymes, songs (show how music and movements can have patterns just like life cycles):
- Students will plant pinto beans (seeds) to investigate/observe/record plant life cycles
- Students will produce their favorite life cycle
- Sequence life cycles with photos/cards
- Investigate life cycles of bugs on Discovery Education (UnitedStreaming)
- Create living vs non-living collage
- Students will investigate what would happen to the environment if one of the life cycles was bothered
- Students will investigate living things in their environment and make their own conclusions

Culminating Learning Experience: students will take a field-trip to the Cockrell Butterfly Exhibit (replica of a rainforest) to experience the environmental factors impacting the life cycle of a butterfly. Post fieldtrip the students will record their observations by creating: a book, collage, illustration or dramatization to explain what was learned from the fieldtrip.

What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?

Transdisciplinary Skills:

Thinking Skills – Use science tools, books and their senses to responsibly and respectfully make investigations, observations and conclusions.

Communication Skills – Class discussions, think-pair and share the importance of how living things require a safe home (environment: food, water, shelter) to have a complete life cycle

Social Skills – Cooperatively discuss, inquire, investigate in groups, taking turns and sharing tools

Research Skills – Use butterfly garden kit and hand lens/journals to observe and record larvae grow in a controlled environment, collect bugs, read fiction/non-fiction books

Learner Profile:

Reflective – think about ways to help a living thing survive and & continue the life cycle

Inquirer – wonder what would happen to living things/life cycles if water (need) disappeared

Communicator – tell or show another person how do you know that the butterfly was safe (nurtured) when it was growing up

5. What resources need to be gathered?

What people, places, audio-visual materials, related literature, music, art, computer software, etc., will be available?

Books: [The Very Hungry Caterpillar](#), [The Grouchy Ladybug](#), [The Surprise Garden](#), [The Carrot Seed](#), [Mariposa](#)

Chants/songs/fingerplays: “Soy una mariposa”, students dramatize the life cycle of the butterfly by curling up on the floor to represent an egg, wiggle their body to represent a larvae, wrap their arms around their seated body to represent the chrysalis and while standing up extend their arms and gently flap them to represent the butterfly (all while stating each respective stage of the butterfly), song and fingerplay “Mi mariposa”: Using their hand in a closed fist begin to raise a finger at a time stating the four stages of the life cycle while singing; using different art supplies for creating the life cycle.

Fieldtrip to the Cockrell Butterfly Center at the Houston Museum of Natural Science.

Due to COVID-19 there are no field trips this year and we do not have workstations. Instead students are invited to find living creatures (bugs, frogs, etc) in or near their back yards to observe and nurture, if possible, in their own habitat.

www.unitedstreaming.com videos “Insect Life Cycles: Metamorphosis”, “A Monarch’s Life Cycle”, “The Lives of Butterflies”

How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?

- Fiction/non-fiction books about living things in class library
- Sequencing cards: butterfly, frog, ladybug
- Create compare & contrast charts
- Nature walks on school grounds

6. To what extent did we achieve our purpose?

Assess the outcome of the inquiry by providing evidence of students' understanding of the central idea. The reflections of all teachers involved in the planning and teaching of the inquiry should be included.

Each student planted pinto beans (seeds). Each seed didn't produce a plant(s). Everyone was responsible for their own seeds. We discussed & agreed upon the amount of water the seeds would need and how often. Most seeds produced plants but various heights. The class then reflected why the results were different for the same seeds.

How you could improve on the assessment task(s) so that you would have a more accurate picture of each student's understanding of the central idea.

The students could record observations daily. This would allow the students to discuss any changes that occurred during the day or overnight.

Next year, the students will be invited to share their feelings (verbally or drawn) about they feel about nurturing living things that not people.

What was the evidence that connections were made between the central idea and the transdisciplinary theme?

One student was upset that a larva didn't emerge from its pupa because another student had poked it with a pencil because he wanted to know if there was a really a living bug inside. She said that because he wasn't Caring the larvae wouldn't have a chance to become a mom or have her babies become moms too. That's why not all the larvae we had could fly away. He bothered its life cycle.

A student discovered a chrysalis had fallen onto its side, she asked me to use glue to re-attach it to its home so that it could grow up and be a butterfly with kids someday. The student thought and realized tape would be better. It worked.

7. To what extent did we include the elements of the PYP?

What were the learning experiences that enabled students to:

- develop an understanding of the concepts identified in "What do we want to learn?"
 - Form--Define an insect, investigate insects; compare & contrast different insects' life cycle
 - Change—Discuss Metamorphosis: how over the lifetime of an insect it changes; their appearance changes from beginning to end.
 - Causation—Discuss what would happen if any of the life cycles were bothered?
 - Reflection—T-charts, Venn Diagrams, Comparison & Contrast charts; conversations over the necessity of bugs in the environment
- demonstrate the learning and application of particular transdisciplinary skills?
 - Research Skills—The students used hand lenses to observe & draw insect body parts.
 - Thinking Skills—Students used thinking skills to better understand the life cycles insects and their environment.
- develop particular attributes of the learner profile and/or attitudes?
 - Inquirer—students scrutinized the habitat, and which led them to other questions that they followed up on.
 - Thinker—students became very knowledgeable on insects: they could explain the life cycle & how they knew which was to classify them.
 - Risk-Taker—Students were able to collect insects from school grounds to observe in the classroom.
 - Empathy—Students put themselves in the place of the bugs and wanted them to live and to be safe with their bug families.
 - Curiosity—Students were eager to observe any living creature at recess to verify if changed in any way on a daily basis.

Most students have had some kind of prior knowledge on insects from home. They are either handle a bug or run screaming from it.

8. What student-initiated inquiries arose from the learning?

Record a range of student-initiated inquiries and student questions and highlight any that were incorporated into the teaching and learning.

Can bugs eat Chick-Fil-A?

People eat pigs and chickens. Roaches eat whatever they find. Can people eat roaches and caterpillars and still live?

If I don't have flowers growing in my home, does that mean there will be no more new butterflies in the world?

Do bugs live as long as my grandpa?

Why do some bugs stink like my baby brother's diaper?

Do spiders and roaches both have lots of eyes?

Why is the ladybug in the school playground orange and not red?

Why isn't the mom of the larvae staying with them? Why are they left alone?

Is the butterfly going to die since the boy poked it and it fell down?

One chrysalis had to be taped to the lid of the butterfly garden because a student had accidentally knocked it on its side causing a pupa to disconnect from the place it had attached. We then voted on whether it would survive after being re-attached (bothered). All but one student thought it wouldn't make it. Eventually, the bothered pupa transformed into a hanging butterfly.

At this point teachers should go back to box 2 "What do we want to learn?" and highlight the teacher questions/provocations that were most effective in driving the inquiries.

What student-initiated actions arose from the learning?

Record student-initiated actions taken by individuals or groups showing their ability to reflect, to choose and to act.

Many students made the connection that the life cycle of a butterfly is a pattern that repeats over and over. They labeled the stages ABCD.

One child explained to the class that plants, animals and people have life cycles and they are patterns that repeat so that life can go on.

Students became mindful and nurturing of not only their family or pet's environments but also of the insects and the plants so as not to negatively affect their life cycles.

Students made sure everyone knew not to cut flowers so that butterflies could have a place to lay their eggs.

9. Teacher notes

As a whole the class was eager to investigate bugs while we used books. Once it came to actual living bugs (larvae), they were apprehensive. But after the initial shock, all were at ease and happy to investigate.