

Pre-Assessment

Part A: Standards (GLCE's)

L.O.L.E.1 Life Requirements- Organisms have basic needs. Animals and plants need air, water, and food. Plants also require light. Plants and animals use food as a source of energy and as a source of building material for growth and repair.

L.O.L.E.2 Life Cycles- Plants and animals have life cycles. Both plants and animals begin life and develop into adults, reproduce, and eventually die. The details of this life cycle are different for different organisms.

L.O.L.01.21 Describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult.

Part B: Common Misconceptions

One common misconception about life cycles is that only some organisms, such as insects with a complete metamorphosis have a life cycle. Another misconception about life cycles is that plants that are stationary objects are non-living and therefore don't have life cycles. Also, another misconception is that plants that shed their leaves are dead but suddenly come to life again in the spring. All of these misconceptions were found at this website: <http://public.doe.k12.ga.us.DMGetdocument.aspx/GPS2ndFrameworkLife%20Cycles.pdf>

Part B: Assessment Tasks

Most of the assessments during the life cycles unit will be administered to the whole-class. Since we will have caterpillars in our class and watching them go through their life cycle, one assessment task will be for the students to create a butterfly life cycle book. The book will be assessed based on the fact that they included all stages and drew accurate pictures of their observations of the stages they saw our caterpillars go through. Another assessment will be that the students will be given pictures of different animals' life cycles and they will have to sort the pictures and sequence them in the order that they belong. For example, they will be given pictures of each stage of the frog life cycle and they have to put them in order. Each day we will observe our caterpillars in our room and talk about what they notice or if they see anything has changed. Throughout the weeks when the caterpillar gets bigger and changes into a chrysalis, I will be sure to ask the students what they noticed has changed and what they know about it, or if they can expand on what they are describing.

ASSESSMENT/ANALYZING STUDENT LEARNING

Assessment Tasks and Response Features

The first assessment task for part of the life cycle's unit is to have the students arrange the butterfly's life cycle using four different types of noodles. The students were given a small shell noodle, rotini (spiral) noodle, medium shell noodle, and a bow tie noodle, and were told to arrange them into a cycle diagram. After the students glued the noodles to the page they were to label each stage/noodle using the terms we covered during the lesson: egg, caterpillar, chrysalis, and butterfly. This serves as a rich task, because the students had to manipulate the materials and relate them to the butterfly life cycle. From the placement of noodles one could note the several important features of the butterfly's life cycle:

- Is the smallest noodle (small shell noodle) used for the egg stage?
- Is the spiral noodle used for the caterpillar stage?
- Is the medium shell noodle used for the chrysalis stage?
- Is the bow tie used for the butterfly stage?
- Is each stage of the life cycle labeled correctly?

All of these features provide evidence that the students thoroughly understand the butterfly life cycle.

The second assessment task for the students was to have them add detail to their butterfly life cycle noodle creation. When the students were done gluing and labeling, they were to decorate and add detail of each stage. Their detail would show me that they knew what was happening during each stage and the changes of the life cycle. For example, they would draw a leaf around the eggs, because the eggs are usually laid on leaves of plants; the caterpillar would be eating its egg shell or a leaf which helps it grow; and the chrysalis would be hanging from a branch, which is when they begin to change from caterpillar to butterfly; and then the butterfly would be flying or getting food from a flower. If the students had some of these details that really proved to me that they understood the life cycle. From the drawings I would note important features of the life cycle:

- Are the eggs on a leaf?
- Is the caterpillar shown near a leaf or food source?
- Is the chrysalis suspended by a branch or stem of some sort?
- Is the butterfly flying or near a food source (flower)?

All of these features provide evidence that the students understand what is happening during each stage of the life cycle of a butterfly. This allows the students to apply the main idea of ordering the life cycle and understanding it.

Documentation: (features of each task is listed above in bullets)

For Task 1 students had the possibility to earn five points: one points for each correct placement of the noodle (4 points) and one points for writing the label in the correct stage. This relates to the learning goals in that students know what the stages of the life cycle look like and that they know the order of the cycle using the scientific terms.

For Task 2 students had the possibility to earn four points, one point for adding detail to each of the four stages of the life cycle. This relates to the learning goals in that the students understand what happens during each state of the life cycle.

| Student # | Task 1: Noodles/label (5 points) | Task 2: Drawings (4 points) |
|------------------|---|------------------------------------|
| 1 | 5 | 4 |
| 2 | 5 | 4 |
| 3 | 5 | 4 |
| 4 | 5 | 4 |
| 5 | 5 | 4 |
| 6 | 5 | 4 |
| 7 | 5 | 4 |
| 8 | 5 | 4 |
| 9 | 5 | 4 |
| 10 | 5 | 4 |
| 11 | 5 | 4 |
| 12 | 5 | 4 |
| 13 | 5 | 4 |
| 14 | 5 | 4 |
| 15 | 5 | 4 |
| 16 | 5 | 4 |
| 17 | 5 | 4 |
| 18 | 5 | 4 |
| 19 | 5 | 4 |
| 20 | 5 | 4 |
| 21 | 5 | 4 |
| 22 | 5 | 4 |
| 23 | 5 | 4 |
| 24 | 5 | 4 |
| 25 | 5 | 4 |
| 26 | 5 | 4 |
| 27 | 5 | 4 |
| 28 | 5 | 4 |

All of the students who participated in the activity received 100% on each task. The students were able to sort and organize their noodles very quickly. My most intensive students needed some guidance and once I asked them some more detailed questions they were able to organize their noodles. When I had the students perform the second task I realized that my directions were not as clear, especially when students were asking me the same question of “do I just decorate the noodle?” Many of them did not understand that I wanted them to decorate around the noodle to show me the environment of what was happening. Once I gave clearer directions the students did a great job and I was very impressed with their drawings. Many of them asked me if they could look through the big book as to what color the eggs were and the type of flowers that the butterflies liked. Some of the students had questions when it came to the caterpillar stage, because the live culture in our room the caterpillars were eating some brown looking food, and the students wanted to know what it was and why they weren’t eating leaves like we had read about. Also, another area where many of them had the same questions during the activity was that they didn’t know what to draw around the eggs. At this point I retrieved the big book and read the first few pages to them again, because it made me realize that maybe I did not draw their attention to it when we were reading it aloud as a class. Since I had teachable moments during the activity, I was able to help redirect my students during the activity, which is why they were able to rethink their drawings and change them if they needed to.

Implications, Evaluating, and Teaching

The patterns that I noticed when teaching the butterfly life cycle was that the students kept calling the chrysalis stage a “cocoon”, which is what I always used to call it as well. I would correct the students and tell them that it was called a “chrysalis” and I would have them repeat it with me as a group. I think overall the lessons that I taught on the butterfly life cycle went well and students understood what was happening. One of the major effective tools that I used was having the live caterpillar culture in the room for them to see the changes that occurred with the caterpillars. When the caterpillars changed to a chrysalis it was a big deal the whole day. The students would randomly leave their seats just so they could go observe the change. It was great to see their enthusiasm to science, especially since it was their first exposure to it in school. Also, during the lessons using a big book that was about the butterfly life cycle was effective. The book had wonderful photographs of each stage and served as a great source for them when it came to drawing and adding details to their noodle creation. The students truly were able to see the butterfly life cycle through the big book, watching it happen live in our room, and through other activities in which they had to help me label and draw the life cycle. The majority of my students were able to participate in the activities and my students who don’t usually participate or willing to participate were actively engaged in the lessons and providing answers. It was nice to see that all of the students were really excited to learn about science and about the life cycle. They would ask me when it was time for science and when they could go observe the caterpillars.

Another thing I would change in my lesson would be to not be so stringent in when the students could go and observe the caterpillars. I found myself disciplining them for getting out of their seats to see the caterpillars, because they wouldn’t finish the work that we were doing at the time. I think something I would change would be to have a group go and observe the caterpillars at a designated time of day and that they could observe when they finished their work. I found it hard to fit in a time to have all 31 students go and observe the caterpillars, because it took so much time.

When it came to the activity of using the noodles the students were very excited to use noodles and surprisingly ordered their noodles and sorted them quickly. There were a couple of students who needed some assistance and guidance, but overall the majority of my students were able to sort and organize their noodles correctly. My intensive students who needed assistance only needed me to talk through the process with them and ask them more in-depth questions and then they were able to organize them into the cycle. When it came to labeling the cycle, I had the students try to sound out the terms. This would be a point of change on my part. Many of them became very frustrated with the writing of the stages, in which case I wrote the terms on the board in a different order so that they could place them in the right stage without having to worry about spelling. The assessment was about where the labels were placed and not if they were spelled correctly. Next time I think I would provide a word bank on the page for them so that they didn’t get hung up on the spelling of the labels. Also, with the activity when it came to drawing and adding detail I think I would be more specific in my directions. After I gave the directions, many of the students were asking me a lot of questions and were very confused in what to do. They didn’t realize that I wanted them to draw around the noodles and not just decorate the noodle. Next time, I would be sure to emphasize this and also draw their attention to the details when we read the big book.

The assessment provided me insights into what the students really understood of the life cycle and what some questions that they still had with it. When I saw them all organize the noodles so quickly that proved to me that they knew what the stages looked like and could apply it using a different form. Overall the activity went pretty smooth and the students truly enjoyed it, I even had some students who were absent willingly stay in during recess because they wanted to do the activity. The students really did get a lot out of the activity and really proved their understanding of the life cycle.