

Renaissance Teacher Work Sample Consortium

A Teacher Work Sample Exemplar

Submitted by: Western Washington University

Grade Level: Kindergarten

Subject: Science

Topic: Ladybugs

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Kindergarten

"Ladybugs, Ladybugs Fly Away Home"

Western Washington University

Elementary Education 471: Documenting Teaching

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CONTEXTUAL FACTORS

Community, District and School Factors

Located in the city of Bellingham, Washington, Pleasantview Elementary School is one of thirteen elementary schools within the Bellingham School District. Pleasantview Elementary currently serves 270 students and welcomes students in grades K-5. The larger Bellingham area, an area whose local economy is largely service-oriented, is in contrast to the more rural surrounding communities that depend on manufacturing and agricultural work to sustain their local economies. The city of Bellingham's racial makeup is composed primarily of 87.88% White, 4.63% Hispanic/Latino, and 4.25% Asian populations. The principal races represented within Pleasantview are similar, with a 77.4% White, 13% Hispanic, and 3.3% Asian student population, although Pleasantview serves a significantly higher Hispanic/Latino demographic.

Recent reductions in federal Title 1 funding deemed Pleasantview ineligible to receive further Title 1 funding for the KIDS extended day kindergarten program which currently enrolls nine children in twice-weekly supplemental reading instruction. As of May 2008, 47.1% of the student population at Pleasantview received free or reduced-price meals.

Classroom Factors

My kindergarten internship classroom includes four work tables spaced throughout the room, a large meeting/rug area with ample space to accommodate students, and a well-stocked block area, book corner, and home and community center designed to engage kindergarteners in daily "pretend play." As my TWS mini-unit is based on an integrated science curriculum, it is important to reference the science resources available in the classroom; periodic science instruction within this classroom necessitates few science resources and space allocated to science work. A science table may often yield tangible realia relevant to recent topic studies that students may explore independently.

Classroom teaching most often follows a three-part sequence of instruction: 1. Whole group instruction, 2. Follow-up small group work, and 3. Individual re-teaching (when necessary). Although the majority of student work is completed independently, students travel from table to table during routine center work in heterogeneously-grouped clusters of typically four-five students representing mixed learning abilities and gender. For the majority of students in this class, kindergarten has not been their first experience working in groups; 13 out of 19 students attended preschool prior to enrolling in kindergarten. Two-to-three community and parent volunteers work to support students and the classroom teacher daily. Paraprofessionals work closely within our inclusion-based classroom to offer additional support to students receiving services requiring intervention specialists. Currently, two students in the class receive special education services for developmental delay and language-processing issues and one student receives speech services from a speech and language pathologist.

Instructional Implications for Classroom Factors

Routine center work easily facilitates the movement of students from center to center and allows “helping adults” to freely circulate around the room. Student familiarity with this mode of small group work will prove helpful when reinforcing/teaching concepts (specifically, the ladybug life cycle) learned as a whole group.

Previous experience working in groups prior to kindergarten will greatly affect students’ ability to successfully navigate collaborative work, self-regulating to work effectively in a group setting. I can anticipate providing extra support to those students who have little experience working successfully with others.

Community/parent involvement will no doubt prove very helpful in my implementation of this science unit. Volunteers’ availability for extra help and small group teaching, individualized re-teaching, as well as their assistance in readying and preparing materials will better allow me to attend to teaching and assessing the unit.

Student Characteristics

Of the 19 kindergarteners, nine students are boys and 10 are girls. The races represented in this class are quite different than the racial makeup of Pleasantview School or that of the Bellingham community as detailed above; within my classroom, 15 students are White (78.9%), two are Hispanic (10.5%), one student is Russian (5.3%), and another is described as biracial (5.3%). This class also includes two students who receive in-class special education services as well as one student currently receiving speech services (outside of class). Three students speak languages other than English as their L1.

In my observations of students and their families, this particular group is representative of the lower middle class socio-economic demographic and enjoys typical American life experiences. To reference the Piagetian Stages of Cognitive Development, this class as a whole typifies an early/middle “preoperational thinker.” Previous classroom learning surrounding the study of life cycles, which will be the topic of my TWS science unit, includes: the pumpkin life cycle, apple tree, salmon, and the life cycle of a bean plant.

Instructional Implications

To assist English language learners as well as students receiving speech services, when presenting information, I will:

- Repeat key ideas often using the same wording, use examples familiar to students.
- Pre-teach and pinpoint essential vocabulary and provide key vocabulary picture clues to support ELL’s need for vocabulary building.
- Stop often to summarize, review, and clarify information, translate teaching points/directions into Spanish for Spanish speakers.

When demonstrating or modeling, I intend to demonstrate to-be-learned skills numerous times, use visual supports to emphasize/highlight important parts or steps, and use consistent terms/phrasing. Catering to learning needs of my developmentally “preoperational” class, I will:

- Make instructions short, using actions and words, and show students what their finished work should look like.
- Use concrete props and visual aids when possible to reinforce my teaching.
- Provide a wide range of experiences in order to build a foundation for concept learning and language.

LEARNING GOALS

This mini-unit is designed for my kindergarten class and is intended for whole-group instruction, though much of students' work will be done independently in a small group setting following initial teaching. The following essential question serves to guide the planning, delivery, and assessment of this unit: *How do organisms in a system change over time and impact one another?*

This mini-unit aligns with Washington State's Science **EALR 1. SYSTEMS: The student knows and applies scientific concepts and principles to understand the properties, structures, and changes in physical, earth/space, and living systems; Component 1.2. Structures: Understand how components, structures, organizations, and interconnections describe systems**, though **Grade Level Expectation 1.2.7 Understand that plants and animals have life cycles** is part of a K-2 span, specifically addressed in first grade (OSPI). However, this mini-unit is in accordance with the Bellingham School District's kindergarten learning targets for science: **Change and Interaction: change occurs in people, plants and animals over time people, plants and animals interact with each other in their environment**. Each learning goal detailed below aligns with grade level learning targets for science in the Bellingham School District and Washington State's Science Standards (K-2 span).

Learning Goal One (LG1)

Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues. Given that the kindergarten experience is underscored by tremendous learning, growth, and development, the overarching theme throughout the kindergarten year is inherently *change*. Not only do students embrace the change associated with their growth physically, the acquisition of more responsibility, and the learning of academic skills and knowledge as the school year progresses, but students'

prerequisite knowledge of life cycles in nature is preceded by their study of the pumpkin life cycle, apple tree life cycle, life cycle of a salmon, and that of a bean plant. As students are familiar with the science concept, *agent of change* (addressed in their previous science lessons), exploring the life cycle of a ladybug and its utility in nature will no doubt reinforce and extend their learning surrounding this concept.

Learning Goal Two (LG2)

Students will be able to explain orally the importance of a ladybug as an asset in an ecological system. The progression of this mini-unit is intended to foster an understanding of the importance of and respect for the ladybug in nature. Students' initial learning surrounding the ladybug life cycle furthers an awareness of the ladybug habitat and eventually fosters an appreciation for their utility as a garden predator. Students will explore the environmental role of ladybugs and their interdependence found in nature. The release of the fully-grown ladybugs into the Pleasantview garden culminates this mini-unit and reinforces the aforementioned learning goal.

Best practice dictates that students' learning experiences progress from three-dimensional learning, to two-dimensional, and finally, one-dimensional learning. At first, students will observe ladybug eggs in a simulated habitat (three-dimensional). Students will then observe and dramatize the life cycle of a ladybug (two-dimensional), and finally, represent their learning symbolically using words to articulate the progression of the ladybug life cycle (one-dimensional). Students will also engage in subject matter content by *explaining* (reciting and describing the life cycle), *justifying* (basing their ideas on their observations of the ladybugs in the classroom), *making connections*, using *visual representations* (creating a life cycle wheel), *telling meaningful stories* (relating everyday life experiences with ladybugs), *creating images and stories* (incorporating learning during writer's workshop and creating bulletin board artwork), *engaging in inquiry* (asking questions based on their observations), and *doing real-life problem-*

solving (finding solutions while monitoring the ladybug habitat and ensuring their safe release into the garden). This body of student-based evidence of learning is consistent with the Wiggins and McTighe Facets of Understanding (2001) and specifically address facets one (explanation), facet two (interpretation), and facet three (application).

ASSESSMENT PLAN

Part a: Overview of assessment plan

Table 1

Assessment Formats and Adaptations for LG1

Assessments	Format of Assessment	Adaptations*
Pre-Assessment	<p><i>Interview-</i> Students answer the following questions while the teacher transcribes students' responses:</p> <ul style="list-style-type: none"> • <i>What do you know about ladybugs?</i> • <i>Do ladybugs change during their lifetime? How? (Appendix A).</i> <p><i>Performance Task: Drawing-</i> In two boxes, students will draw what they think a ladybug looks like at the <i>beginning of life</i> and <i>during its life (Appendix B).</i></p> <p><i>Performance Task: Picture Sort-</i> When given a t-chart with the headings <i>ladybug</i> and <i>not a ladybug</i>, students will discern whether four pictures depicting stages of the ladybug life cycle represent <i>ladybugs</i> or <i>not ladybugs (Appendices C and D).</i></p>	<p>For ELL students:</p> <ul style="list-style-type: none"> • Use simplified language, make instructions short, use familiar examples, stop often to clarify information/summarize student ideas • Use concrete visual aids to clarify instructions and questions (Appendix E).
Formative Assessment	<p><i>Performance Task: Life Cycle Wheel-</i>Students will construct a life cycle wheel and be able to name the life cycle stages, pointing to the picture representations as they spin their wheel (Appendix F).</p> <p><i>Observation: Life Cycle Dramatization-</i>Observe students as they act out the ladybug life cycle. See that students are correctly predicting subsequent stages, understanding sequence and vocabulary.</p> <p><i>Observation: Class Journaling-</i> Observe the class as teacher transcribes students' record-keeping, marking the changes witnessed in the ladybug habitat.</p>	<p>For students with special needs:</p> <ul style="list-style-type: none"> • Allow students to complete work with the help of support professional.
Post-Assessment	<p><i>Interview-</i> Students answer the following questions while the teacher transcribes students' responses:</p> <ul style="list-style-type: none"> • <i>What do you know about ladybugs?</i> • <i>Do ladybugs change during their lifetime? How? (Appendix A).</i> <p><i>Performance Task: Drawing-</i> In two boxes, students will draw what they think a ladybug looks like at the <i>beginning of life</i> and <i>during its life (Appendix B).</i></p> <p><i>Performance Task: Recitation-</i> Students will be asked to recite the four stages of the ladybug life cycle in sequential order. (Appendix G).</p> <p><i>Performance Task: Picture Sort/Order-</i> When given a t-chart with the headings <i>ladybug</i> and <i>not a ladybug</i>, students will discern whether four pictures depicting stages of the ladybug life cycle represent <i>ladybugs</i> or <i>not ladybugs (Appendices C and D).</i> Students will order the pictures placed on the <i>ladybug</i> side of the t-chart according to the life cycle sequence of a ladybug.</p> <p><i>Student Self-Assessment-</i> Upon completing each of the post-assessment tasks, students will be asked the following question, while the teacher transcribes students' answers:</p> <ul style="list-style-type: none"> • <i>How did you know?</i> <p>Having finished the post-assessment in its entirety, students will answer the following questions while the teacher transcribes students' answers:</p> <ul style="list-style-type: none"> • <i>What was the hardest task/question? Why?</i> • <i>What was the easiest task/question? Why? (Appendix I).</i> 	<p>For ELL students:</p> <ul style="list-style-type: none"> • Use simplified language, make instructions short, use familiar examples, stop often to clarify information/summarize student ideas • Use concrete visual aids to clarify instructions and questions (Appendix E).

Table 2

Assessment Formats and Adaptations for LG2

Assessments	Format of Assessment	Adaptations*
Pre-Assessment	<p><i>Interview-</i> Students will answer the following questions while the teacher transcribes students' responses:</p> <ul style="list-style-type: none"> • <i>Are ladybugs good for the garden? Why?</i> <p>(See question three of Appendix A).</p>	<p>For ELL students:</p> <ul style="list-style-type: none"> • Use simplified language, make instructions short, use familiar examples, stop often to clarify information/summarize student ideas • Use concrete visual aids to clarify instructions and questions (Appendix H).
Formative Assessment	<p><i>Observation: Shared-Write (Fact Sheet)-</i> Observe the class as teacher transcribes students' additions to the class list: "What We Know about Ladybugs." Reread each time additions are made to the list.</p>	
Post-Assessment	<p><i>Interview-</i> Students will answer the following questions while the teacher transcribes students' responses:</p> <ul style="list-style-type: none"> • <i>Are ladybugs good for the garden? Why?</i> <p><i>Student Self-Assessment-</i> Upon completing the post-assessment task, students will be asked the following question, while the teacher transcribes students' answers:</p> <ul style="list-style-type: none"> • <i>How did you know?</i> <p>Having finished the post-assessment in its entirety, students will answer the following questions while the teacher transcribes students' answers:</p> <ul style="list-style-type: none"> • <i>What was the hardest task/question? Why?</i> • <i>What was the easiest task/question? Why?</i> (Appendix I). 	<p>For ELL students:</p> <ul style="list-style-type: none"> • Use simplified language, make instructions short, use familiar examples, stop often to clarify information/summarize student ideas • Use concrete visual aids to clarify instructions and questions (Appendix H).

*Please note that the *adaptations* column above includes only those particular adaptations not considered to be within the realm of the Principles of Universal Design suitable for this age and developmental level. Best practice in the kindergarten classroom demands that much of the support, resources, and strategies commonly considered to be differentiated instruction are in fact developmentally appropriate at this level.

Part b: Describe the pre-and post-assessments that are aligned with your learning goals

The pre and post-assessments in this unit employ a variety of assessment modes and approaches to assess student learning. Although this unit is intended for whole-group instruction, the pre- and post-assessment format relies entirely on individual student interviews of students within my selected "sample-group." The pre- and post-assessments are largely the same, although the post-assessment includes a recitation and ordering component as well as a student self-

assessment interview that the teacher will transcribe. All interview questions asked to students will be transcribed by the teacher; the writing proficiency of my kindergarteners necessitates that all oral responses by students be transcribed entirely to best capture students' thinking.

As mentioned, the pre-assessment and post-assessments incorporate a variety of assessment modes to assess student learning. Targeting learning goal one, the pre- and post-assessments employ an interview format that asks students two questions: "What do you know about ladybugs?" and "Do ladybugs change during their lifetime?" (See **Appendix A**). These questions aim to glean a basic understanding of students' familiarity, experiences, and misconceptions surrounding ladybugs and their life cycle. The pre- and post-assessments that follow ask students to perform a couple of tasks, the first being to draw what students think a ladybug looks like at the beginning of its life and at the end of its life (See **Appendix B**). The next performance task asks students to sort pictorial representations of the ladybug life cycle within a t-chart beneath the headings "ladybug" and "not a ladybug" (See **Appendices C and D**). Like the interview questions, the performance tasks are intended to gauge students' familiarity with the concepts surrounding learning goal one. In the post-assessment, preceding students' sorting of the pictures beneath the t-chart, students are asked to recite (from memory) the four stages of the life cycle sequentially while the teacher records this information. Following the picture sort, students are asked to order the pictures according to their stage in the life cycle sequence while the teacher records this information as well (See **Appendix G** life cycle recitation/order checklist). As a means of procuring student self-assessment, I will ask students the question, "How did you know that?" after each question/task performance in the post-assessment. Additionally, I will ask the questions "What was the hardest task/question? Why?" and "What was the easiest task/question? Why?" at the conclusion of all the post-assessment tasks (See **Appendix I** for self-assessment notes). Much of the assessment for learning goal two is completed formatively, as such, the identical pre- and post-assessments are condensed to

include only one question transcribed by the teacher, “Are ladybugs good for the garden? Why?” (See **Appendix A** question three).

Part c: Discuss your plan for formative assessment that will help you determine student progress

To formatively assess students’ progress toward the learning goals, I will rely heavily on my observation of students during whole-class work to determine if students are making adequate progress. In my formative assessment of learning goal one, I will see that students are actively participating in our class journaling of the ladybugs as they change within their habitat.

Additionally, as students dramatize the ladybug life cycle, I will be observing students to see they are actively engaged and aware of the particular stages they are acting out. Finally, as another means of formatively assessing students throughout the unit, I will engage students in a performance task that involves them in the construction of a life cycle wheel. Upon their completion of the wheel, I will be checking to see that students are able to name the life cycle stages as they point to the respective picture representations on their wheel (**Appendix F**). These formative assessments will be completed within the first two days of teaching my unit.

My formative assessment of learning goal two is based solely on my observations of the class as students compile the list entitled, “What We Know about Ladybugs.” This list will be comprised of roughly six salient facts about ladybugs, to include “Ladybugs are good for the garden” and “Ladybugs eat aphids.” The making of this list will begin the first day of this unit and will conclude upon the completion of lesson three. The importance of collecting this formative data cannot be overstated- it is imperative that students make continued progress toward the learning goals throughout the unit. If students are not actively involved in class record-keeping of ladybug facts and life stages, perform insufficiently in their dramatization of the life cycle stages, or are unable to identify the life cycle stages on their wheel, it may well precede their inability to achieve a greater level of achievement on the post-assessment tasks. I intend to

closely observe my students in my formative observations to see they are making continued progress toward the learning goals.

DESIGN FOR INSTRUCTION

Part a: Results of Pre-Assessment

To pre-assess students’ understanding relative to learning goals one and two, I interviewed a sample-group of five students within my kindergarten class who represent a range of developmental levels, previous experiences, and abilities. My pre-assessment employed a variety of assessment modes and approaches in an attempt to capture students’ breadth of knowledge and misconceptions surrounding ladybug change and interdependence in nature. Below is a table that reflects the findings of the pre-assessment performance tasks and interview questions relative to learning goal one **LG1: Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.**

Table 3

Pre-Assessment Results for LG1 (compilation of performance task data and interview responses)

	1	2	3	4				
Student	Identifies 3 or more facts about a ladybug.	States that ladybugs change over time and explains why.	Draws only an adult ladybug to represent a ladybug at the <i>beginning of its life and during its life.</i> 	Considers only the “adult” ladybug stage to be a “ladybug.” <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center; font-size: small;">Ladybug</td> <td style="text-align: center; font-size: small;">Not a Ladybug</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </table>	Ladybug	Not a Ladybug		
Ladybug	Not a Ladybug							
								
Andrew	x		x	x				
John			x	x				
Natasha			x	x				
Paul			x	x				
Gretchen				x				
Total	1	0	4	5				

As evidenced in the table above, students' knowledge of the life cycle of a ladybug is very limited. Notice in column three above, that four out of five students drew a picture representation of a ladybug in its adult form in boxes one and two of the drawing task. Despite the headings *Beginning of its life* and *During its life*, suggesting a possible difference among the boxes, no students drew a pictorial representation of an egg, larva, or pupa. Furthermore, when given a picture representation of the four stages: egg, larva, pupa, and adult ladybug and asked to sort them beneath the headings *Ladybug* and *Not a Ladybug*, every student placed the picture representing the adult life cycle stage beneath the *Ladybug* heading and conversely, the remaining three stages of the life cycle beneath the *Not a Ladybug* heading.

Although I anticipated the idea of a ladybug life cycle to be unfamiliar to most students, I was surprised when not one student made mention of the possibility that ladybugs may change in *form* over time. I should mention, however, that Natasha did allude to a change in the shell markings of a ladybug with time- this is significant in that she is aware that organisms look differently from the "beginning of its life" to "during its life." The expectation that students might have some inkling that ladybugs change over time is not unfounded, as students are very well-versed in the life cycles of the pumpkin, apple tree, salmon, and bean plant; nevertheless, what has become apparent from administering the pre-assessments is that students are fully unaware of the stages of the ladybug life cycle, but are primed and ready to assimilate this new information in the coming weeks.

To assess **LG2: Students will be able to explain orally the importance of a ladybug as an asset in an ecological system**, I interviewed students individually and asked the question: *Are ladybugs good for the garden? Why/Why not?* The table below summarizes students' responses relative to learning goal two.

Table 4

Pre-Assessment Results for LG2 (interview responses)

Student	States that ladybugs are good for the garden and explains why.
Andrew	x
John	
Natasha	x
Paul	
Gretchen	
Total	2

As shown, two of the five students confirmed that ladybugs are indeed good for the garden and could justify their response sufficiently. Not surprisingly, a few students are more familiar with the idea that ladybugs serve a purpose in their environment and are in fact, an asset ecologically. Although only Natasha used the term “aphid” to describe the ladybug’s usefulness as a garden predator, Andrew recognized that ladybugs prey on “other bugs that eat plants.” For Natasha, who is somewhat familiar with the relationship among ladybugs and aphids, it will be important to extend her learning to include what animals may prey on ladybugs and the interdependence of other animals in a system, among other important facts. For the remaining three students who evidenced little or no understanding or were unable to justify their reasoning if they stated that indeed, ladybugs are good for the garden, it will be important to address the specifics of ladybugs and their role within an ecosystem (ladybugs eat aphids, aphids are “bad” bugs that eat plants etc.). Although not explicitly taught, much of this information will be addressed in class read-alouds.

As a means of assigning a level of achievement relative to the learning goals for each student within my sample-group, I have developed a rubric to measure students’ level of achievement according to criteria based on certain dimensions of performance (see table below).

Table 5

Level of Achievement Rubric

Name	Dimension of Performance	Level of Achievement			Total
		3	2	1	
	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	
	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	

Students' pre-assessment data based on their level of achievement concerning learning goals one and two is reflected in the figure below. At the completion of this mini-unit, levels of achievement will be totaled after both the pre- and post-assessments and graphed to record student growth over time.

Level of Achievement Graph: Pre-Assessment

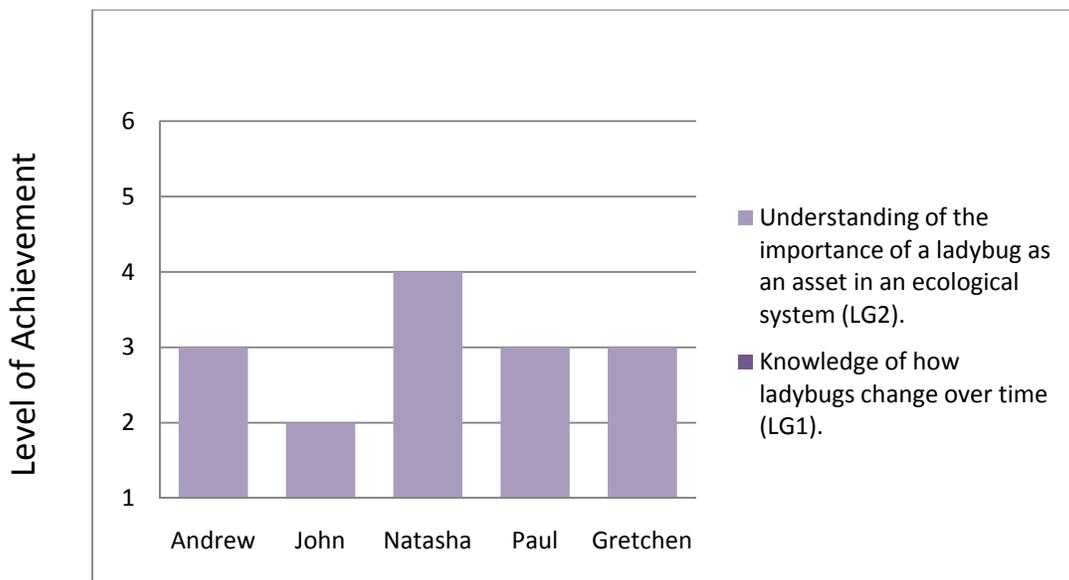


Figure 1

Level of Achievement Graph: Pre-Assessment

Part b: Unit Overview

The table entitled “Unit Overview” provides an overview of my TWS mini-unit. Learning activities are described in relation to the learning goals targeted in each lesson along with the adaptations and assessment measures I intend to employ.

Lesson	Learning Activities	Connection to Learning Goals	Adaptations	Assessments
One	<p>Introduction to ladybug life cycle</p> <ul style="list-style-type: none"> • “Notice” new STAR group ladybug life cycle card/predict what it could signify. • Introduce ideas of spring, change, and ladybugs as common springtime insects. • Group share: <i>What do you know about ladybugs?</i> <i>When have you seen a ladybug?</i> 	<p>LG1: <i>Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.</i></p> <p>LG2: <i>Students will be able to explain orally the importance of a ladybug as an asset in an ecological system.</i></p>		<p><u>Pre-Assessment</u> Interview/Performance Tasks Interview sample group prior to lesson one. Compiled data in Tables 3 and 4.</p>
Two	<p>Procedural Write: Ladybug Life Cycle Wheel</p> <ul style="list-style-type: none"> • Show students completed ladybug life cycle wheel. Introduce each stage briefly, unveiling respective picture clues with each spin. • Procedural write detailing how to construct a ladybug life cycle wheel. • Demonstrate particularly difficult steps. 	<p>LG1: <i>Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.</i></p>	<p>For students with special needs:</p> <ul style="list-style-type: none"> • Allow students to complete work with the help of support professional. 	<p><u>Formative Assessment</u> Performance Task: Life Cycle Wheel Students will construct a life cycle wheel and be able to name the life cycle stages, pointing to the picture representations as they spin their wheel (Appendix F).</p>



Colored learning activities indicate lessons to be discussed in detail in Part c of Design for Instruction.

Lesson	Learning Activities	Connection to Learning Goals	Adaptations	Assessments
Three	<p>Read Aloud: <u>Ladybugs</u> by Posada</p> <ul style="list-style-type: none"> • Read book aloud to class. • Address new vocabulary. • “Look back” to identify stages of life cycle in text (egg, larva, pupa, adult) and important facts. <p>Shared Write: “What We Know about Ladybugs” (Fact Sheet)</p> <ul style="list-style-type: none"> • Identify purpose of keeping a “fact sheet.” • Elicit fact(s) from students to include on fact sheet (additions to list to be made throughout unit). 	<p>LG1: <i>Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.</i></p> <p>LG2: <i>Students will be able to explain orally the importance of a ladybug as an asset in an ecological system.</i></p>		<p><u>Formative Assessment</u> Observation: Shared Write Observe the class as teacher transcribes students’ additions to the class list: “What We Know About Ladybugs.” Reread each time additions are made to the list.</p>
Four	<p>Read Aloud: <u>Ladybug’s Life</u> by Himmelman</p> <ul style="list-style-type: none"> • Read book aloud to class • Discuss life cycle stages and ladybug predators/prey. <p>Dramatization: Ladybug Life Cycle</p> <ul style="list-style-type: none"> • Read aloud <u>Ladybug’s Life</u> while students act out events in text (adlib at teacher’s discretion). 	<p>LG1: <i>Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.</i></p> <p>LG2: <i>Students will be able to explain orally the importance of a ladybug as an asset in an ecological system.</i></p>	<p>For students with special needs:</p> <ul style="list-style-type: none"> • Allow students to complete task with the help of support professional. 	<p><u>Formative Assessment</u> Observation: Life Cycle Dramatization Observe students as they act out the ladybug life cycle. See that students are correctly predicting subsequent stages, understanding sequence and vocabulary.</p>

Lesson	Learning Activities	Connection to Learning Goals	Adaptations	Assessments
Five	<p>Ladybug Habitat Unveiling</p> <ul style="list-style-type: none"> • Elicit student ideas regarding contents of terrarium. • Unveil ladybug habitat. • Address utility and parameters of use. 	<p>LG1: <i>Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.</i></p>		
Six	<p>Class Journaling</p> <ul style="list-style-type: none"> • Identify purpose of scientific journaling. • Teacher transcribes students' observations of changes witnessed in ladybug terrarium (additions to list to be made throughout unit). 	<p>LG1: <i>Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.</i></p>		<p><u>Formative Assessment</u> Observation: Class Journaling Observe the class as teacher transcribes students' record-keeping, marking the changes witnessed in the ladybug habitat.</p>

Lesson	Learning Activities	Connection to Learning Goals	Adaptations	Assessments
Seven	<p>Ladybug Garden Release</p> <ul style="list-style-type: none"> • Release of the fully-grown ladybugs into the Parkview garden culminates mini-unit. 	<p>LG2: <i>Students will be able to explain orally the importance of a ladybug as an asset in an ecological system.</i></p>		<p><u>Post-Assessment:</u> Interview/Performance Tasks (See Appendices A, B, C, D, E, G and I). Data to be compiled in Levels of Achievement Graph (Appendix K).</p>

Part c: Learning Activities

The following narrative describes three lessons included in my mini-unit that reflect a variety of instructional strategies and techniques. I will explicitly state how the content of these lessons and their subsequent learning activities relate to the instructional goals, stem from the pre-assessment data and contextual factors, what materials /technology will be necessary to the implementation of these lessons, and finally, how I intend to assess student learning before, during, and after the unit.

Procedural Write: Ladybug Life Cycle Wheel (Lesson Two)

The learning activities explored in lesson two relate directly to the expectations outlined in learning goal one (*LG1*): ***Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.*** In this lesson, students will be partaking in a class procedural write outlining the steps involved in the construction of a ladybug life cycle wheel. To preface the procedural write, the teacher will show students a completed life cycle wheel, using it to introduce each stage briefly, unveiling the respective picture clues with each spin of the life cycle wheel. Upon completing the procedural write, students will be invited to join their STAR learning groups and work independently to complete their life cycle wheels. As a means of formative assessment, the teacher will interview the sample-group of students to see that they are able to name the stages of the ladybug life cycle as they point to the correct pictures on the wheel (See **Appendix F**). The above-mentioned learning activities stem from the pre-assessment data reflected in **Table 3** and the noticeable absence of student achievement levels reflected on the Level of Achievement Graph: Pre-Assessment. Clearly, students are unfamiliar if not entirely unaware of the life cycle of a ladybug and its respective stages. Students will no doubt benefit from a focused lesson targeting learning goal one. Technology implemented in this lesson is limited to the use of chart paper for the procedural write and the materials used to construct the life cycle wheel.

Read Aloud: Ladybugs by Posada/ Shared-Write: “What We Know about Ladybugs” (Lesson Three)

Lesson three of the ladybug mini-unit consists of two learning activities: a read-aloud featuring the book Ladybugs by Mia Posada and a shared-write listing significant facts about ladybugs entitled “What We Know about Ladybugs.” These learning activities target both learning goals one and two: ***(LG1): Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues*** and ***LG2: Students will be able to explain orally the importance of a ladybug as an asset in an ecological system.*** In the read-aloud of Ladybugs, students will be introduced to the life cycle of a ladybug as well as other significant facts relating to their interdependence within an ecological system. To reinforce their learning in the read-aloud, students will partake in a class shared-writing activity listing the significant facts they learned about ladybugs. This list will be continued throughout the unit following each read-aloud activity and will include specifically the facts: “Ladybugs are good for the garden” and “Ladybugs eat aphids.” Teacher observation of students as they undertake these learning activities will serve as a means of formative assessment. Regarding students’ pre-assessment data, lesson three of the ladybug life cycle unit not only addresses students’ inability to describe the life cycle of a ladybug (in a reading of the book Ladybugs), but also the fundamental understanding that ladybugs are an asset in an ecological system (read-aloud/fact-listing as part of the shared-writing activity). The extent of technology used in these learning activities consists of the book Ladybugs and the poster paper and materials needed in the shared-write.

Read Aloud: Ladybug’s Life by Himmelman/ Dramatization: Ladybug Life Cycle (Lesson Four)

Not unlike lesson three, lesson four of the mini-unit begins with a class read-aloud. Students will engage in a reading of the book Ladybug’s Life by John Himmelman, a story that follows a newborn ladybug through the stages of its life cycle and its encounters with ladybug

predators and prey. In the next learning activity, students will “act out” the events of the story while the teacher reads aloud from the same text. Engaging students in this active dramatization of the ladybug life cycle attends to students’ diverse learning needs by encouraging multi-modal instruction. No doubt, this learning activity will prove to be very meaningful and engaging for kindergarteners as students at this developmental level enjoy active, experiential learning. This lesson specifically targets learning goal one in the reading of the book Ladybug’s Life in combination with the “acting out” of the ladybug life cycle. Inherently, the read-aloud will also address learning goal two as it reinforces the necessity of ladybugs as garden predators in the text. Taking into consideration the pre-assessment data, this lesson is designed to address, once again, students’ inability to recite the stages of the ladybug life cycle and aims to familiarize students with their utility within an ecological system. Technology implemented in this lesson is limited to use of the book Ladybug’s Life.

Part d: Technology

Technology utilized in the planning and instruction of this unit includes a digital tape recorder to record students’ responses during the pre- and post-assessment tasks as well as the video recording feature on a digital camera to record my lessons for further review and reflection and more detailed anecdotal note-taking.

INSTRUCTIONAL DECISION-MAKING

In the narrative below, I describe two situations that I encountered while implementing my TWS that reflect how I used on-going assessment of student learning to make instructional decisions and modify my initial plans.

Situation 1

Lesson two of my TWS began with a brief introduction to the four stages of the ladybug life cycle followed by a group “How To” procedural write detailing the steps involved in making a ladybug life cycle wheel, and finally, the construction of the life cycle wheel. As a means of formatively assessing student learning, I created **Appendix F**, the “Life Cycle Wheel Checklist” to monitor students’ ability to satisfactorily construct a life cycle wheel and name the stages of the ladybug life cycle. Upon my completion of this formative assessment, it became apparent students needed further exposure to and practice reciting the life cycle stages of a ladybug as none of the students within the sample group were able to correctly identify all of the stages of the life cycle. Clearly, making a life cycle wheel, reading informational texts, and dramatizing the ladybug life cycle were not sufficient. After a conversation with my CT regarding my formative assessment data, she and I planned the implementation of an additional life cycle lesson to be taught using a felt board and plastic life cycle stage replicas. In this additional lesson, I revisited the four stages of the life cycle first by prompting students to identify felt-backed images of the egg, larva, pupa, and adult ladybug stages. Next, I placed the numbers one through four in a circle on the felt board. I questioned students why they thought I put those numbers representing the four stages of the life cycle in a circle and not in a straight line. This line of questioning led students to the understanding that the ladybug life *cycle* is cyclical and starts over again after the fourth or adult ladybug, stage. Following this discussion, four students were invited to place the images drawn at random in their respective places on the felt board. With each placement of a life cycle stage, students chorally repeated the name of the stage and its preceding and subsequent

stages. With the help of the class, I placed labels beneath each of the images. Next, using plastic life cycle stage replicas, I invited four more students to come to the felt board and Velcro them to their corresponding places. Following this lesson, the plastic replicas were placed on the science table for further independent investigation by students.

This implementation of an additional life cycle lesson was intended to support students' progress toward learning goal one. As evidenced by the group's choral responses to my prompting, students' eagerness to participate in the placement of the images and replicas on the felt board, and the class' facility at reciting the stages with increasing speed as I pointed to each of images on the felt board, students were highly engaged in this particular lesson and grew tremendously in their ability to recite the stages of the ladybug life cycle. I am confident my implementation of an additional life cycle lesson specifically targeting learning goal one was based on sound instructional decision-making and greatly impacted student learning.

Situation 2

Lesson three of my TWS involved students in a whole-class shared-writing activity of the "What We Know about Ladybugs" fact sheet following a read-aloud of the book Ladybugs by Posada. As described in my assessment plan, I formatively assessed student learning by means of observation throughout the read-aloud and fact-writing activity. Surprisingly, I found the class' initial enthusiasm for detailing what they learned about ladybugs to be significantly diminished after reading the text. Although students had expressed initial interest in creating what one student deemed a "data sheet," excitedly calling out things they knew about ladybugs prior to the list-making, when the time came to decide on a significant fact and transcribe students' ideas, few students offered ideas to include on the list. In my haste to conclude the lesson, I prompted students to include the fact "Ladybugs eat aphids," accompanied by a picture clue of an aphid on the fact sheet.

Following the lesson, I expressed my surprise and displeasure in the class' disinterest in making the "What We Know about Ladybugs" fact sheet to my cooperating teacher. In our debriefing of the lesson, she and I agreed upon a better approach to the list-making that capitalized on students' excitement for fact-finding and made transcribing students' ideas less laborious. In my reading of the book Ladybugs by Berger the following day, I implemented my learning interventions, which consisted of prompting students *before* the read-aloud to be "on the look out" for salient facts they might include on the fact sheet and making additions to the fact sheet *during* the read-aloud, immediately after students propose their ideas. Focusing their listening gave students a purpose during the read-aloud, while transcribing facts immediately after their proposal capitalized on students' initial enthusiasm and interest in the fact. During the read-aloud, students were notably more engaged in the text and evidenced greater interest in proposing facts to be included on the fact sheet (students made two-three fact suggestions per page). Twice, I stopped during the read-aloud to transcribe students' proposed facts that were especially salient on the "What We Know about Ladybugs" fact sheet. Students were clearly more focused, engaged, and interested in collecting data during the read-aloud and shared writing activities in response to my learning interventions. I am confident this modification of my teaching improved students' progress toward the learning goals, specifically learning goal two in that students were more engaged and invested in the facts they were learning during the read-aloud and consequently, more apt to remember them during the shared-writing activity and beyond.

ANALYSIS OF STUDENT LEARNING

In the following narrative, I analyze assessment data collected from a sample-group of students in my internship classroom to profile student learning and communicate information about student progress and achievement concerning learning goals one and two of my TWS mini-unit.

Analysis of Group Learning

Although the lessons in this mini-unit were taught to the whole class, a group of five students comprise the “sample-group” of whose pre-, post-, and formative assessment data will be analyzed to draw conclusions about the effectiveness of my instruction and the progress and achievement of the class as a whole. The five students described below were chosen on the basis of their respective learning abilities and behaviors, previous group experience, gender, language proficiency, and performance level within the classroom:

- Andrew: Male, high-functioning, rich home life, pre-kindergarten experience
- John: Male, qualifies for special education services
- Natasha: Female, high-functioning, rich home life, pre-kindergarten experience
- Paul: Male, lower-functioning, no pre-kindergarten experience
- Gretchen: Female, high-functioning, limited English language proficiency

For the purposes of this analysis, I have chosen to assess student progress and achievement relative to the two learning goals detailed in the unit’s instructional objectives: **Learning Goal One (LG1): Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues, and Learning Goal Two (LG2): Students will be able to explain orally the importance of a ladybug as an asset in an ecological system.**

Assessment of Learning Goal One

Although the expectation of learning goal one is that students are able to recite the stages of the ladybug life cycle, in my pre- and post-assessments students also performed a number of additional tasks as a means of shedding further light on students' knowledge and their existing misconceptions as well as to determine the effectiveness of my instruction. In my analysis of my pre-assessment data described in detail in the Design for Instruction portion of the TWS, it became evident students were completely unaware of the life cycle of a ladybug and its component stages. After having taught my initial life cycle lesson (as detailed in my Instructional Decision-Making narrative) and completed my formative assessment, it became apparent students needed further exposure to and practice reciting the life cycle stages of a ladybug, as none of the students within the sample group were able to correctly identify all of the stages even with picture support. Thanks to the instructional interventions I employed (additional lessons targeting life cycle stages), the post-assessment data reflected significant gains in students' level of understanding. In the post-assessment of learning goal one, students were asked "What do you know about ladybugs?" and "Do ladybugs change during their lifetime?" (See **Appendix A**). As anticipated, students answered these questions with varying degrees of specificity and insight. Pertaining to the second question, however, concerning whether ladybugs change over time, three out of five of the students confirmed the statement and provided adequate justification describing ladybugs' metamorphosis. John, although he indeed confirmed that ladybugs change over time, justified his reasoning by describing ladybugs' tendency to change in *color* from orange to red (a fact bulleted on our "What We Know about Ladybugs Fact Sheet"). Prompting further, I asked whether ladybugs change in form/shape. John replied that ladybugs change into the color blue. I attribute this seemingly arbitrary answer to his struggles with language-processing. Gretchen apparently didn't understand the second question regarding ladybug change (despite my ELL adaptation efforts) and therefore provided no answer or justification.

As further means of determining students' familiarity with the ladybug life cycle, students were asked to complete a series of performance tasks, the first being to draw what students think a ladybug looks like at the beginning of its life and during its life (See **Appendix B**). By far the least understood and most often missed portion of the post-assessment, this drawing task proved to be poorly-worded and developmentally inappropriate for the majority of students in this sample-group. Students clearly weren't able to translate their understanding of the life cycle stages into pictorial representations depicting the beginning of life and during life as only two of the five students correctly completed this task. Natasha and Andrew drew preceding stages of the life cycle ("larva" and "egg" respectively) in the box entitled "Beginning of Life" and an adult ladybug beetle in the box entitled "During its life." I wonder had I worded this task differently to say "First Life Cycle Stage" or something similar, and "Last Life Cycle Stage" if students would have been more successful in their completion of this task. Relative to the pre-assessment, however, in which no students correctly completed the drawing portion, some students evidenced significant growth.

The next performance task on both the pre- and post-assessments asked students to sort pictorial representations of the ladybug life cycle within a t-chart beneath the headings "ladybug" and "not a ladybug" (See **Appendices C and D**). No students in the pre-assessment correctly sorted all of the pictures so that the egg, larva, pupa, and adult ladybug pictorial representations were placed on the "ladybug" side of the t-chart. Contrastingly, in the post-assessment, only John evidenced confusion on this task and incorrectly sorted the pictures. The rest of the sample-group students correctly placed all of the pictures on the "ladybug" side of the t-chart. It should be noted as well, that no students on the post-assessment considered *only* the "adult" ladybug stage to be a "ladybug" as found overwhelmingly in the pre-assessment. The table below summarizes the post-assessment data described in the paragraphs above.

Table 6

Post-Assessment Results for LG1 (compilation of additional performance task data and interview responses)

	1	2	3	4				
Student	Identifies 3 or more facts about a ladybug.	States that ladybugs change over time and explains why.	Draws only an adult ladybug to represent a ladybug at the <i>beginning of its life</i> and <i>during its life</i> . 	Considers only the “adult” ladybug stage to be a “ladybug.” <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="text-align: center;">Ladybug</td> <td style="text-align: center;">Not a Ladybug</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </table>	Ladybug	Not a Ladybug		
Ladybug	Not a Ladybug							
								
Andrew	x	x						
John	x		x					
Natasha	x	x						
Paul		x	x					
Gretchen			x					
Total	3	3	3	0				

The post-assessment differed from the pre-assessment at this point of the student interviews as students were then asked to satisfy learning goal one and recite from memory the four stages of the life cycle in order, with automaticity and without prompting or picture clues. The table below details students’ achievement on the post-assessment relative to learning goal one.

Table 7

Level of Achievement Rubric: Learning Goal One (Post-Assessment)

Name	Dimension of Performance	Level of Achievement			Total
		3	2	1	
Andrew	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	3
John	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	2
Natasha	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	3
Paul	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	3
Gretchen	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	3

As evidenced above, four out of five of the students scored the full possible points on the post-assessment of learning goal one. John, although unable to recite the stages without picture support, when given the pictorial representations of the life cycle stages, successfully ordered and correctly identified each of the four stages. In the pre-assessment of this task, zero out of five of the students were able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues. The figure below compares students' pre-assessment data and students' post-assessment data relative to learning goal one. Clearly, students evidenced significant growth in their level of achievement relative to learning goal one

from the administration of the pre-assessment to the administration of the post-assessment at the completion of the TWS mini-unit. “Next steps” for students in this sample-group might entail movement toward a more global understanding of and appreciation for ladybugs within a system (learning goal two).

LG1: Comparison of Pre- and Post-Assessments

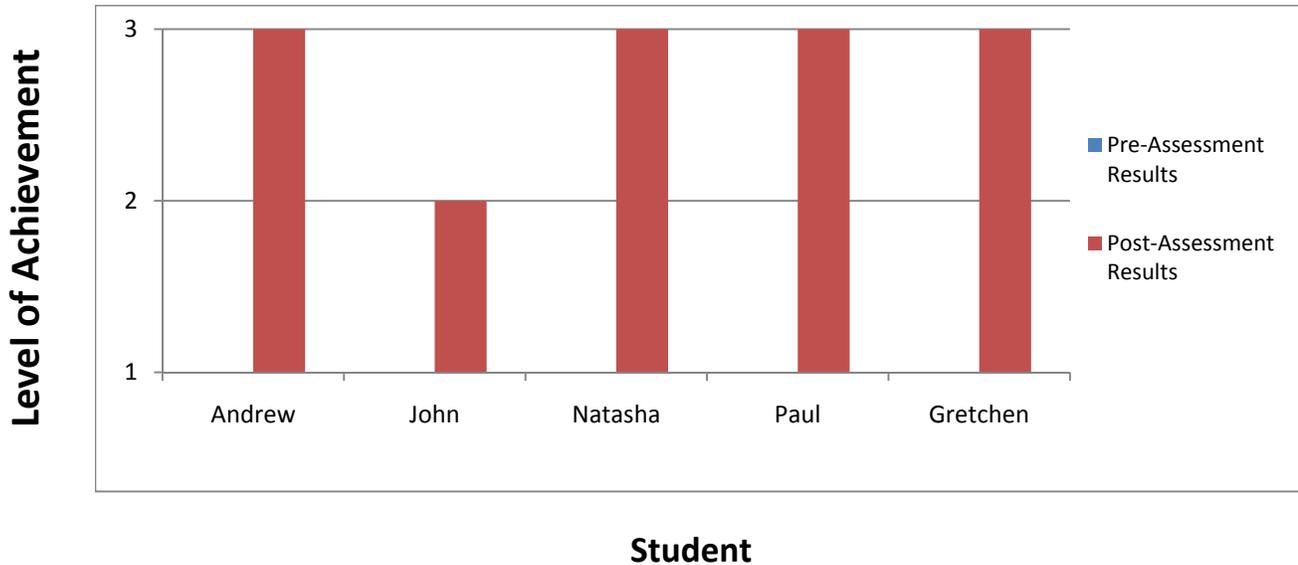


Figure 2

LG1: Comparison of Pre- and Post-Assessments

Assessment of Learning Goal Two

Much of the assessment for learning goal two was completed formatively by way of observation throughout the TWS mini-unit. The pre- and post-assessment format for this particular learning goal relied upon a single interview question transcribed by the teacher: “Are ladybugs good for the garden? Why?” (See **Appendix A** question three). As described in Part b of the Design for Instruction section, the TWS mini-unit lessons were designed to culminate in the release of fully-grown ladybugs (hatched and grown in the classroom) into the Pleasantview garden. As part of a more global understanding of ladybugs and their interdependence within nature, students’ achievement toward learning goal two rested largely on this experiential and cumulative

component of the mini-unit lesson sequence. Regrettably, this experiential learning component took place *after* the post-assessment. As evidenced in the table below, three out of the five students in the sample-group achieved full points in their level of achievement of learning goal two. Each of these students confirmed and adequately explained the importance of a ladybug as an asset in an ecological system. Although they confirmed the importance of ladybugs in the garden, John and Payton were unable to adequately explain their reasoning. Clearly, my instruction prior to the post-assessment of this learning goal was not as effective for Payton and John as it appears to have been for the rest of the students in the sample-group.

Table 7

Level of Achievement Rubric: Learning Goal Two (Post-Assessment)

Name	Dimension of Performance	Level of Achievement			Total
		3	2	1	
Andrew	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	3
John	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	2
Natasha	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	3
Paul	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	2
Gretchen	Understanding of the as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	3

The figure below compares students’ pre-assessment data and post-assessment data relative to learning goal two. Students evidenced adequate growth in their level of achievement relative to learning goal two from the administration of the pre-assessment to the administration (albeit premature) of the post-assessment interview. In the following section I will attempt to make sense of the data presented in this section and justify my conclusion that the “next steps” for students consists of a conclusion of this unit and transition to the next unit of study.

LG2: Comparison of Pre- and Post-Assessments

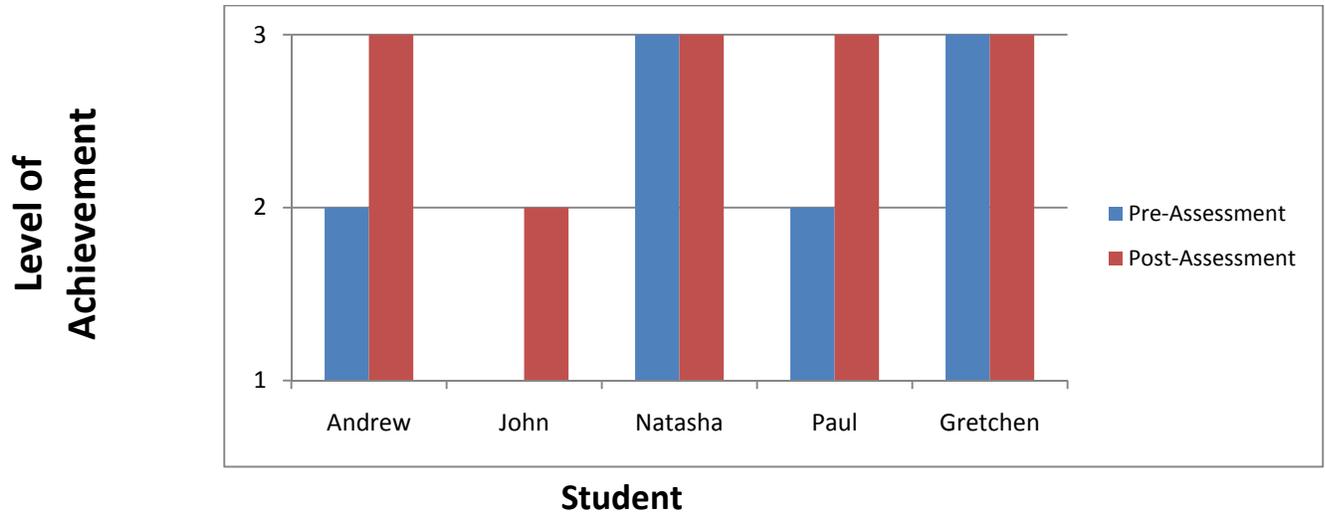


Figure 3

LG2: Comparison of Pre- and Post-Assessments

Analysis of Individual Learning

In the section below, I will interpret a particular student's assessment data to profile their learning and communicate information about this student's progress, level of achievement, and specific learning needs. As detailed in the Assessment Plan section of the TWS, the format employed to assess students' understanding relied largely on interview questions transcribed by the teacher and drawing and sorting performance tasks. Student-based evidence is limited to what students could articulate in words about their understanding or "how they knew" and their respective performances on the given tasks. Because of the nature of my pre- and post-assessments and the developmental level of my students, much of the student-based evidence gathered tells very little about students' thinking. As such, I chose to look more closely at one student's learning not because she evidenced the greatest growth and achievement, but because she was the most capable in voicing her understanding and thinking metacognitively.

In the pre-assessment tasks, Natasha evidenced a relative familiarity of ladybugs and their utility as a garden predator. In the interview questions pertaining to learning goal one, “What do you know about Ladybugs?” and “Do ladybugs change during their lifetime? How?” Natasha stated that ladybugs have spots and can fly. She replied, “I don’t know” to the latter question, suggesting that she doesn’t deny that ladybugs change in their lifetime, but wasn’t completely convinced of their metamorphosis. In the post-assessment interview on the other hand, Natasha was quite outspoken about ladybug change: “When they’re born, they don’t look like a ladybug at all! They change *into* a ladybug! They change from an egg, to larva, to pupa, to an adult ladybug.” To self-assess her knowledge, I asked how she knew, to which she replied confidently, “Because I studied ladybugs” and “I read the book Ladybug’s Life.”

To further assess her familiarity with the ladybug life cycle, Natasha performed a variety of performance tasks on the pre- and post-assessments. As mentioned, I chose to profile Natasha because of her tendency to verbalize her thinking. In the performance task that involved discerning and then sorting four pictures depicting stages of the ladybug life cycle beneath the headings *Ladybug* or *Not a Ladybug*, Natasha, not unlike the majority of her sample-groups mates, sorted all the pictures so that only the adult ladybug picture was placed beneath the heading: “Ladybug” (See figure 4 below).

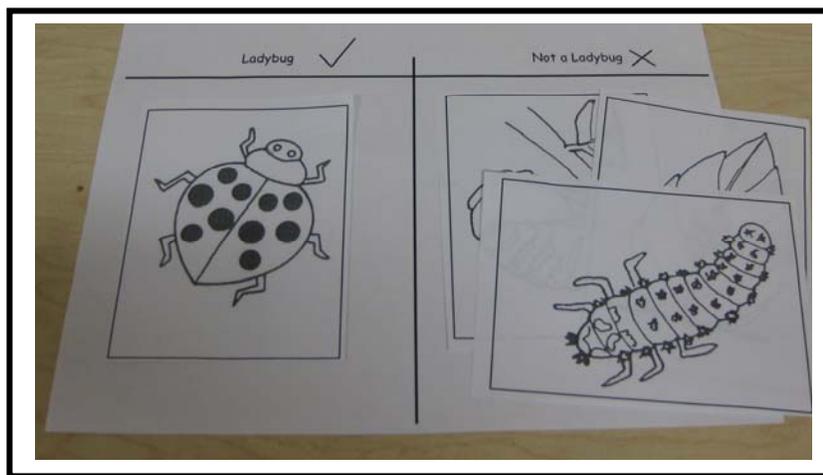
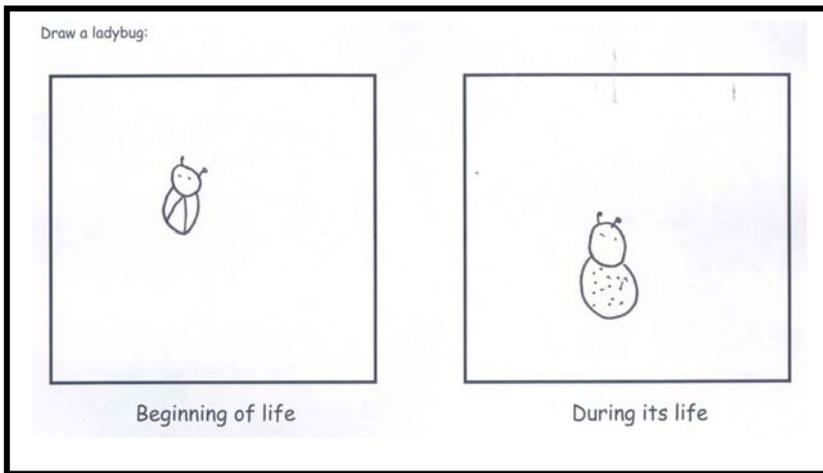


Figure 4

Pre-Assessment Performance Task: Picture Sort

Of greater significance, however, was Natasha’s exclamation as I gave the directions for the task: “I know *exactly* what ladybugs look like! See? It’s easy!” From this remark, I gathered that Natasha had no existing knowledge of the ladybug life cycle and was clearly not familiar with the pictures of an egg, larva, and pupa relative to the life cycle stages of an insect. The post-assessment data regarding this task revealed Natasha no longer considered *only* the adult ladybug to be an actual “ladybug”, as she quickly correctly sorted all of the life cycle stages beneath the *Ladybug* heading, leaving the “Not a Ladybug” side blank.

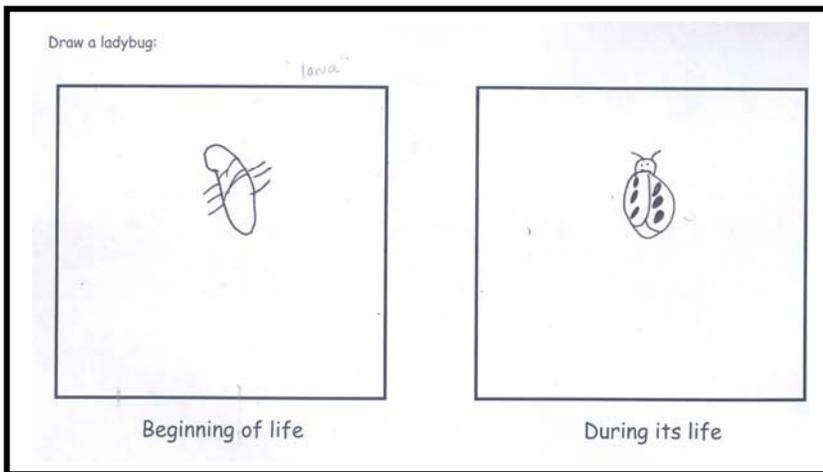
Also reflective of her growth concerning learning goal one was the pre- and post-assessment performance task that asked that Natasha draw a ladybug at the “Beginning of life” and “During its life.” I question the wording and merits of this particular task, but for the purposes of data analysis, Natasha evidenced the following in her pre- and post-assessments of this task:



In the pre-assessment, Natasha thought aloud as she drew what she thought a ladybug looked like at the *beginning of life*: “It has no spots” and “it’s probably really tiny.” Notice in both boxes Natasha depicts the adult ladybug beetle stage.

Figure 5

Pre-Assessment Performance Task: Drawing



In the post-assessment, Natasha described the picture in the first box as “larva.” In the second box, she drew an anatomically correct adult ladybug beetle.

Figure 6

Post-Assessment Performance Task: Drawing

Natasha’s conceptual understanding of ladybugs at the beginning of and during their lives grew significantly through the course of the TWS lessons. Granted, Natasha’s depiction of “no spots” in box one of her pre-assessment drawing suggested she was vaguely aware that organisms look differently during their lifetimes, however, at the completion of this mini-unit she had fully assimilated this concept. Finally, to specifically target learning goal one, Natasha was asked in the post-assessment to recite the stages of the ladybug life cycle. From memory, Natasha recited the stages in order and with automaticity. Evidently, the lessons targeting learning goal one were very effective for Natasha as they successfully moved her toward a well-developed understanding of the ladybug life cycle and its component stages.

As mentioned previously in the Design for Instruction section, in the pre-assessment interview question targeting learning goal two, Natasha confirmed that ladybugs are indeed good for the garden. Her justification of her response indicated she knew *of* the significance of ladybugs in the garden, but perhaps did not entirely understand or had not assimilated the learning *herself*: “My mom said if you find ladybugs, put them on the rose bushes ‘cause the aphids are getting the rose bushes.” The post-assessment of learning goal two reflected a more fully-

developed understanding of ladybugs as an asset in an ecological system, “Yes, ladybugs are good for the garden. They eat bugs, aphids that are not good for the garden.” Again, I asked how she knew, and she replied with confidence, “Because I studied them.” The figure below reflects Natasha’s achievement relative to learning goals one and two.

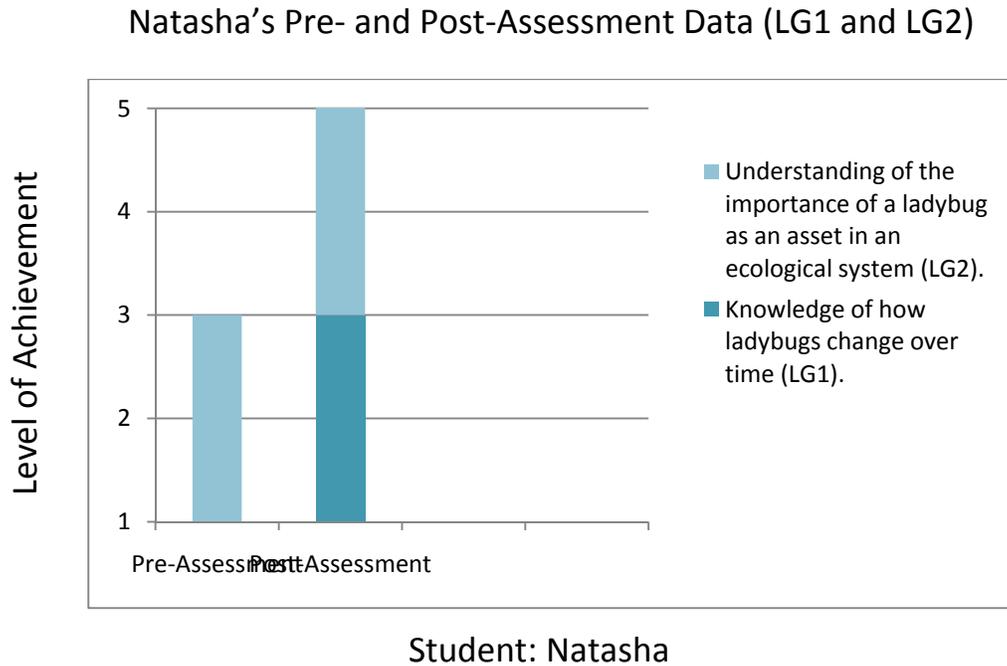


Figure 7

Natasha’s Pre- and Post-Assessment Data

Clearly, Natasha achieved greatly in this mini-unit. Her performances, self-assessments, and verbalizations are reflections of her growth over the course of the TWS lesson sequence in part, to the effectiveness of my instruction in targeting her specific learning needs. As previously mentioned, Natasha has fully-achieved the learning targets and it is my recommendation that she transition to the next unit of study.

REFLECTION AND SELF-EVALUATION

In the following narrative, I will analyze the relationship between my instruction and student learning in the TWS mini-unit as a means of evaluating my performance and indentifying future actions for improved practice and professional growth.

Most Successful Learning Goal: Learning Goal One

I consider **(LG1): Students will be able to recite the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues**, to be the learning goal where students were most successful. Students evidenced substantial growth in their levels of achievement at the completion of this unit relative to their pre-assessment results. Had I not formatively assessed student learning upon completing lesson two of my lesson sequence (*Procedural Write: Ladybug Life Cycle Wheel*) in which students constructed a life cycle wheel and were later expected to name the life cycle stages, pointing to the picture representations as they spun their wheel, however, this may very well have been the *least* successful learning goal. In my formative assessment I found that none of the students in my sample group could correctly identify the life cycle stages of a ladybug with picture support, let alone from memory. As detailed in the Instructional Decision-Making section, my implementation of an additional lesson specifically targeting the ladybug life cycle greatly impacted student learning and no doubt, positively affected the sample-group's level of achievement relative to learning goal one.

The intervention described above not only moved students toward a familiarity with the life cycle stages, but it impacted students' learning in the following dramatizations of the ladybug life cycle. Previously in their "acting out" of the life cycle while I read aloud from the book Ladybug's Life by Himmelman, students were engaged in the text but largely unaware of the specific life cycle stages as I read them aloud. Following my lesson in which students used the

felt board to reinforce their learning of the life cycle stages, in the read-aloud of the book again, students anticipated my reading of the stages aloud and cried out the respective life cycle stages in unison as they excitedly curled their bodies into the shapes of an egg, larva, pupa, and adult ladybug beetle. As expected, not only was the dramatization of the ladybug life cycle highly engaging for students, but it also reinforced students' learning of the specific life cycle stages and moved students' learning toward a more global and meaningful understanding of the life cycle.

Despite students' confusion on the drawing task embedded in the assessments of learning goal one, in which students drew pictures of ladybugs in the "Beginning of Life" and "During Life", students successfully achieved the targeted learning goal. In their self-assessment of their learning, students identified the reciting/sorting of the life cycle stages as the easiest question/task simply because "they knew it" and "because it was easy-squeezy." This self-assessment data suggests that students understood the life cycle stages very well- well enough to consider it "easy-squeezy", as a matter of fact, a good indication that this learning goal was a success. I consider my interventions, attention to students' level of engagement, frequent collaboration with my CT, and my successful implementation of a number of meaningful lessons/activities possible reasons for my students' success.

Least Successful Learning Goal: Learning Goal Two

I consider **(LG2): Students will be able to explain orally the importance of a ladybug as an asset in an ecological system**, to be the least successful learning goal for a number of reasons. As described in Part b of the Design for Instruction section, the TWS mini-unit lessons were designed to culminate in the release of fully-grown ladybugs (hatched and grown in the classroom) into the Pleasantview garden. As part of a more global understanding of ladybugs and their interdependence within nature, students' achievement toward learning goal two rested largely on this experiential and cumulative component of the mini-unit lesson sequence.

Regrettably, the hatching, growth, and release of the ladybugs occurred a week after the post-assessment for this unit was administered for reasons out of my CT's and my control.

Presumably, had I been able to administer the post-assessment following the ladybugs' release into the garden, *all students* (particularly those hands-on learners) would have evidenced further growth in this content area.

Additionally, because much of the assessment for learning goal two was completed formatively by way of observation throughout the TWS mini-unit, I didn't gather any hard data detailing students' level of understanding until the final post-assessment interview question "Are ladybugs good for the garden? Why?" My assumption that students would garner a more *implicit* understanding of ladybugs as an asset in an ecological system from the read-alouds prior to the hatching/release of the ladybugs was faulty. Clearly, some students' learning needs went unmet throughout the mini-unit, as two students were unable to justify their reasoning that ladybugs are good for the garden. To improve my teaching practice, I will most certainly work on my observation skills as a means of formative assessment.

Professional Development

Two possibilities for my professional growth come to mind as I reflect on the learning goal in which my students were least successful. The first, finding and utilizing the Bellingham School District's recommended teaching resource, the "GEMS Ladybugs" kit (GEMS: Great Explorations in Math and Science). Although my CT and I attempted to find this teaching resource, we were unable to locate a copy in use within the district. Though we presumed much of the content would be similar to the lessons in our ladybug unit and information we might find online, I am curious to know why this particular teaching resource is recommended and what new and different suggestions it might offer. Should I get the opportunity to teach this unit again, I will most certainly seek out this resource as a possible means of guiding future instruction.

Secondly, I hope to become more proficient at developing and employing effective assessment strategies. In developing this unit, I found I had the greatest difficulty in assessing my students' learning whether it be formally or informally. My teacher, on the other hand, has developed and refined systematic assessment plans and recording systems that work expertly in the kindergarten classroom. First, I intend to initiate a dialogue with my CT about the process she undergoes to develop these assessment plans and recording systems and what she considers to be best practice in kindergarten. I will inquire about possible resources she might recommend and discuss with her the merits of various assessment strategies I've been introduced to in other classrooms, what I've found in my research/classes, and what our colleagues are utilizing in the school/within the district. From my efforts, I hope to refine my own system of collecting, analyzing, and using informal and formal assessment data to modify instruction, communicate students' progress, and ultimately, improve my students' learning.

References and Citations

Berger, G., & Berger M. (2002). *Ladybugs*. New York: Scholastic.

Himmelman, John.(1998). *A ladybug's life*. CT: Children's Press.

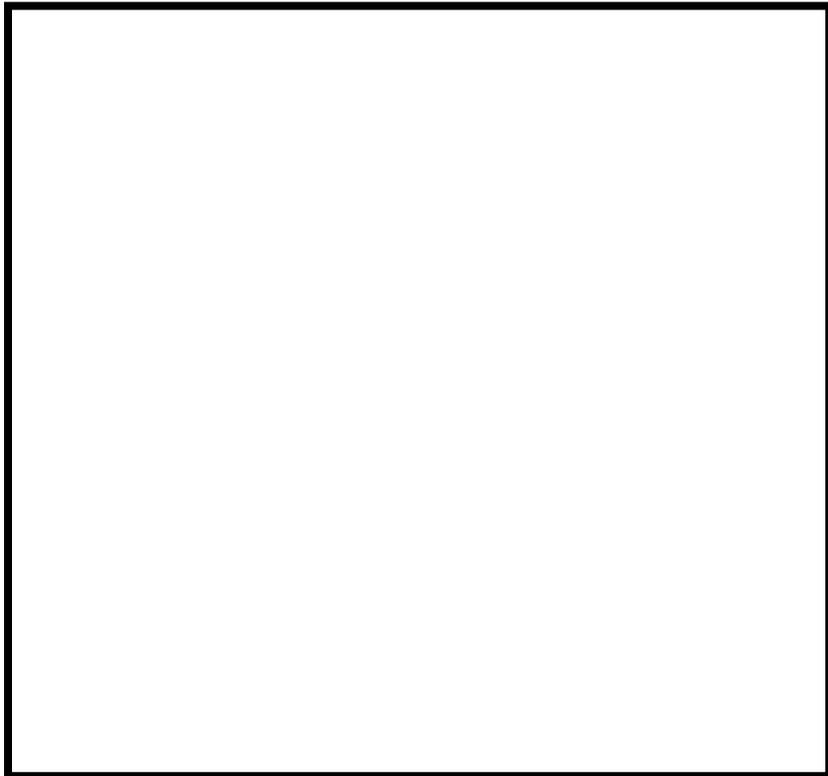
Posada, Mia. (2007). *Ladybugs; Red, fiery, and bright*. First Avenue Editions.

Tomlinson, C. A., & McTighe, J. (2006). *Integrating differentiated instruction and understanding by design*. Alexandria, VA: ASCD.

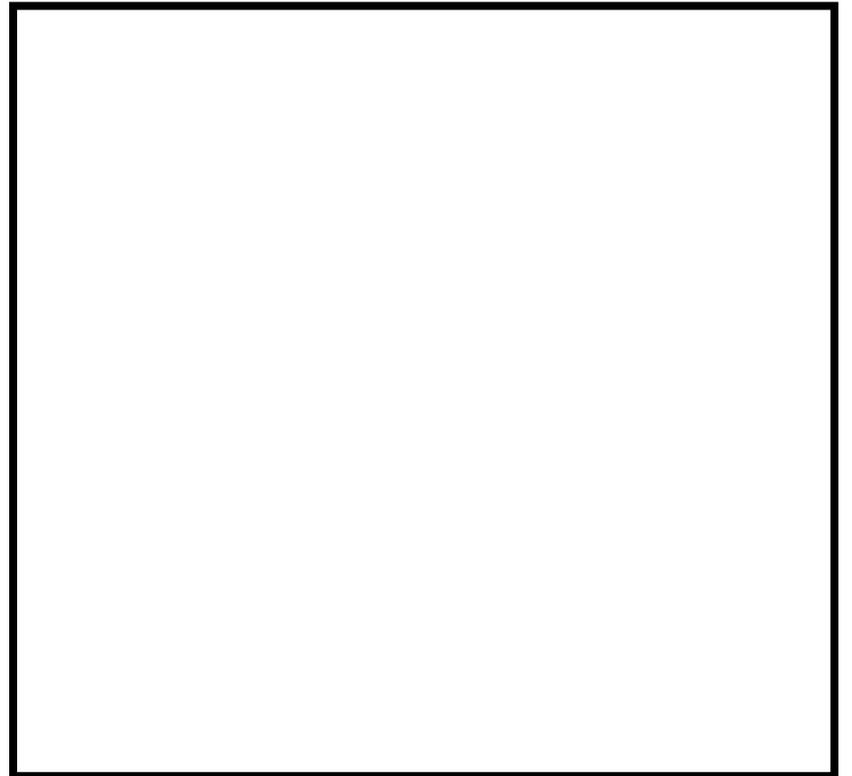
Appendices



Draw a ladybug:

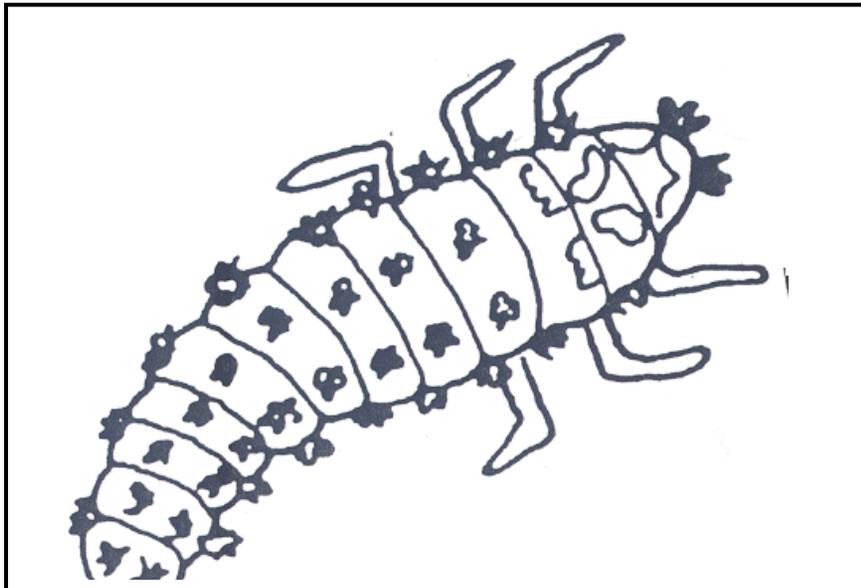
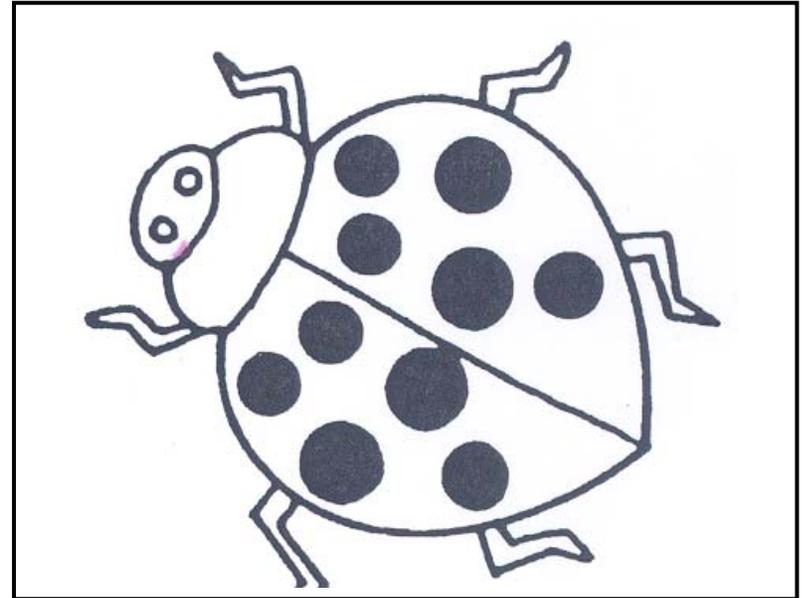
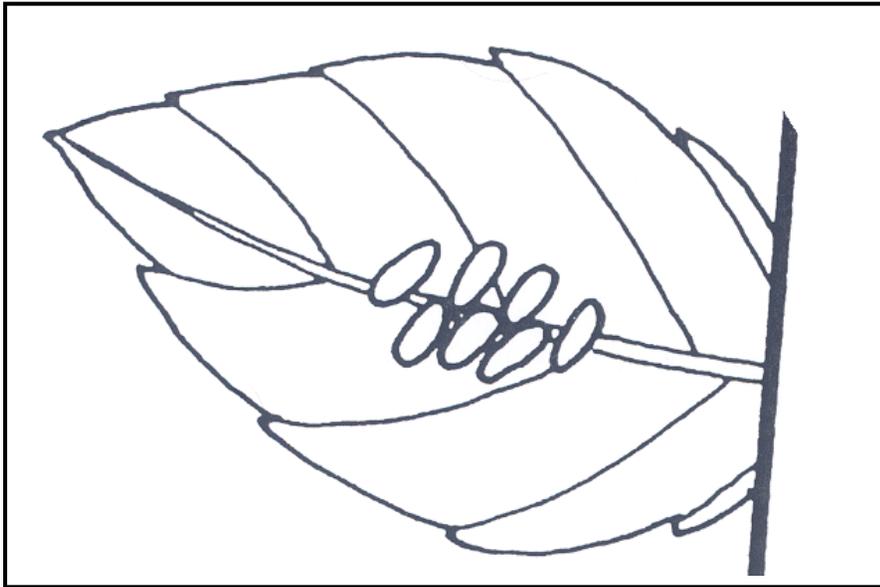


Beginning of life



During its life

APPENDIX C Performance Task: Picture Sort



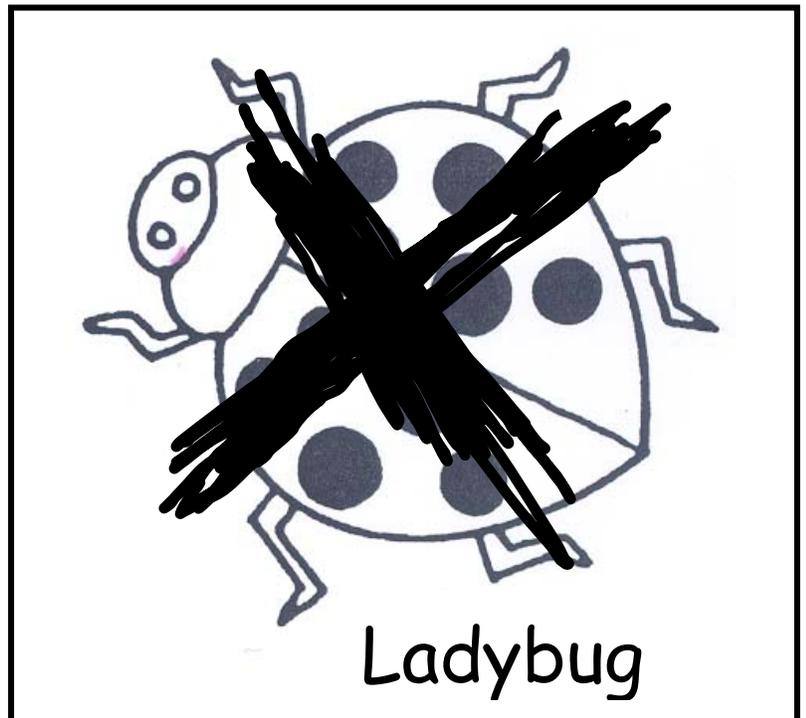
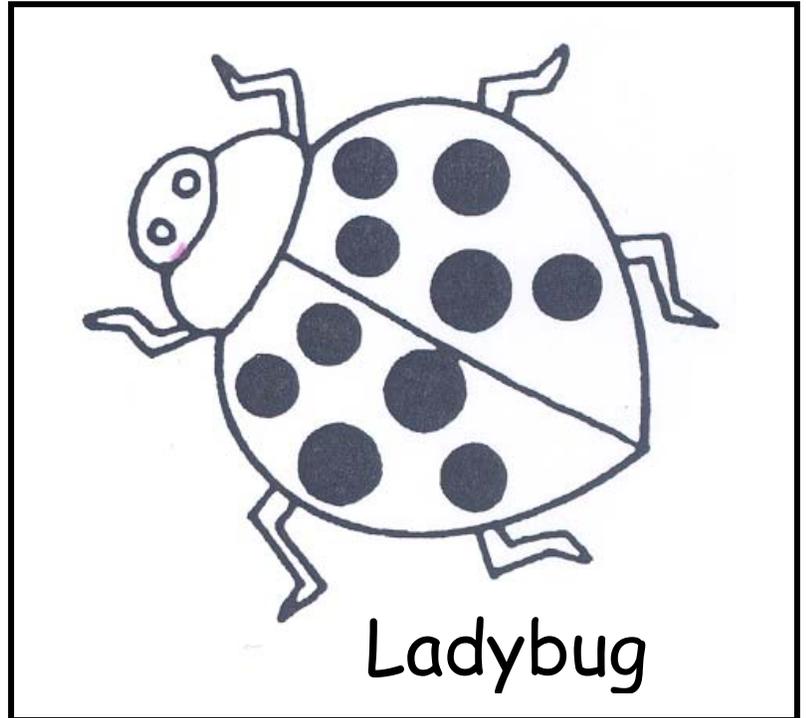
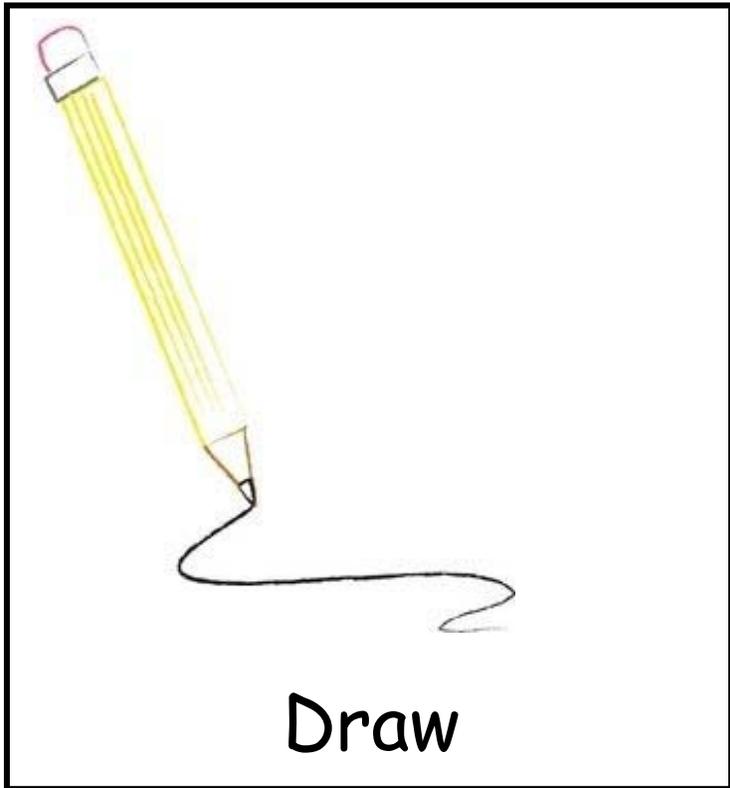
Performance Task: Picture Sort (Appendix D)

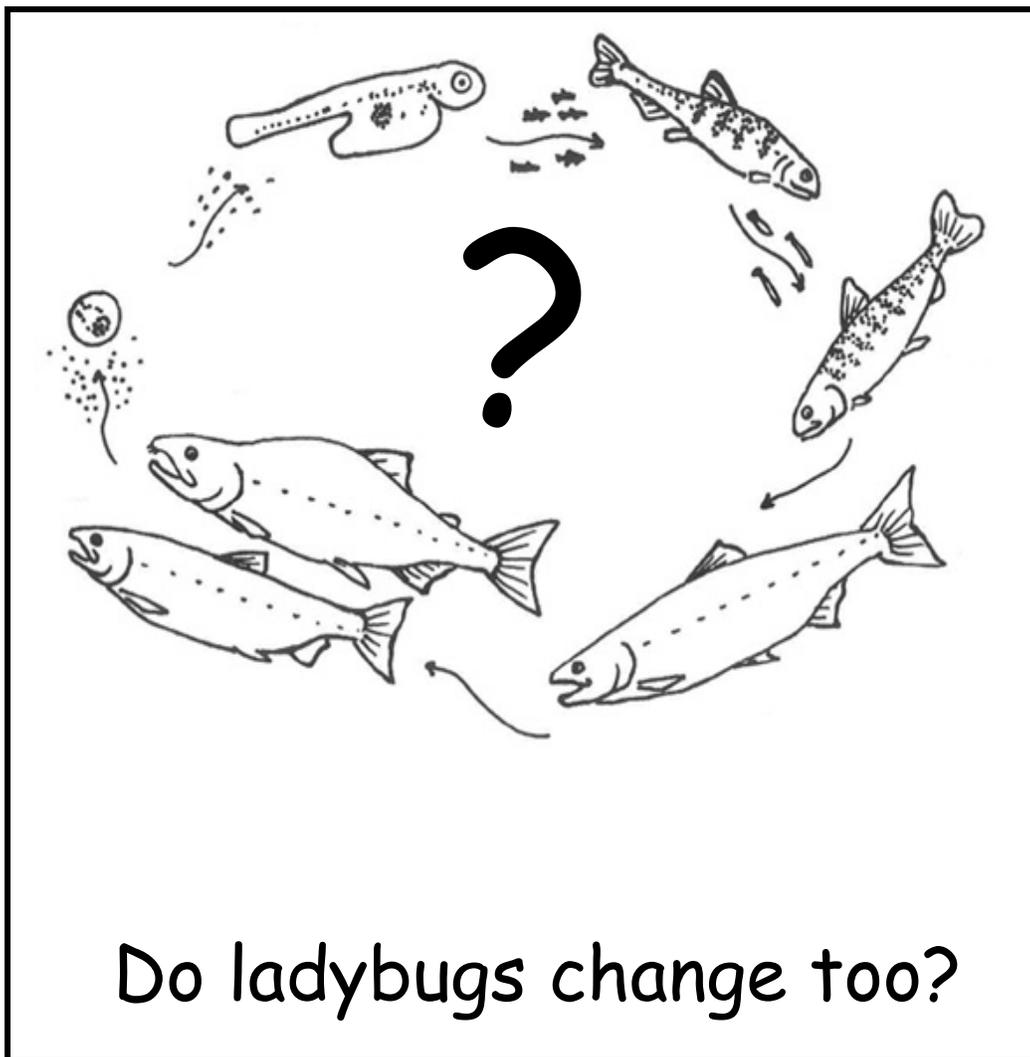
Ladybug



Not a Ladybug







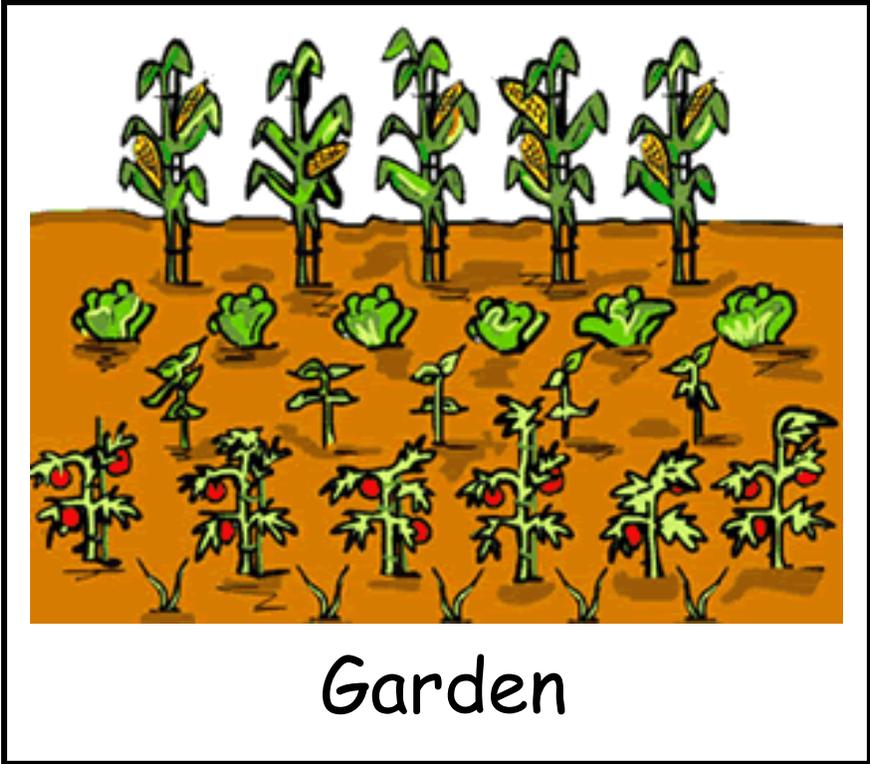
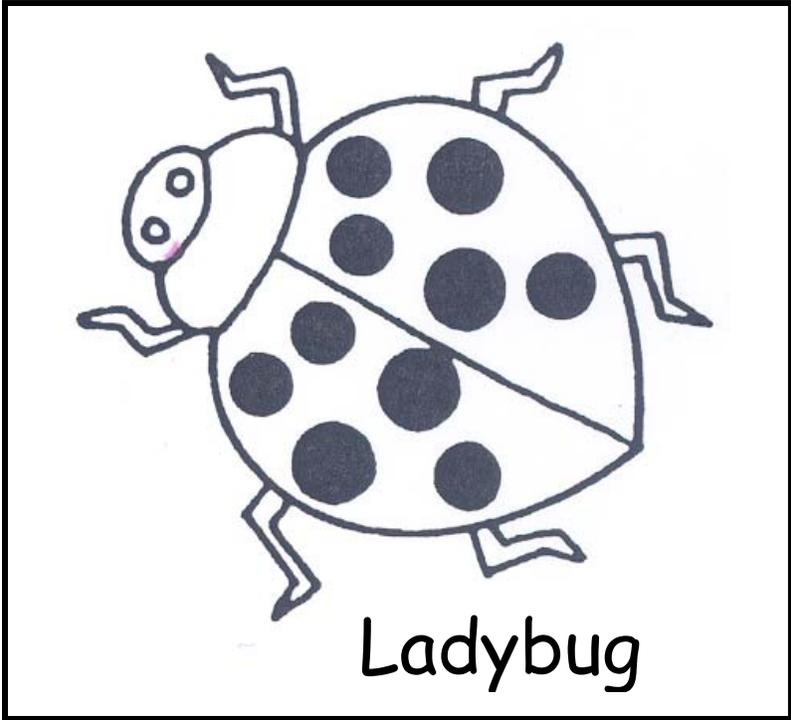
Do ladybugs change too?

Life Cycle Wheel Checklist (Appendix F)

Student	Satisfactory construction of life cycle wheel?	Names the life cycle stages, pointing to the picture representations as they spin their wheel?			
Andrew			_____		_____
			_____		_____
John			_____		_____
			_____		_____
Natasha			_____		_____
			_____		_____
Paul			_____		_____
			_____		_____
Gretchen			_____		_____
			_____		_____

Recitation/Order Checklist (Appendix G)

Student	Recites the life cycle stages in sequential order?	With automaticity?
Andrew	Egg _____	_____
	Larva _____	_____
	Pupa _____	_____
	Ladybug _____	_____
John	Egg _____	_____
	Larva _____	_____
	Pupa _____	_____
	Ladybug _____	_____
Natasha	Egg _____	_____
	Larva _____	_____
	Pupa _____	_____
	Ladybug _____	_____
Paul	Egg _____	_____
	Larva _____	_____
	Pupa _____	_____
	Ladybug _____	_____
Gretchen	Egg _____	_____
	Larva _____	_____
	Pupa _____	_____
	Ladybug _____	_____



Student Self-Assessment (Appendix I)

Student	Self-Assessment Questions
Andrew	<p><i>What was the hardest task/question? Why?</i></p> <p><i>What was the easiest task/question? Why?</i></p>
John	<p><i>What was the hardest task/question? Why?</i></p> <p><i>What was the easiest task/question? Why?</i></p>
Natasha	<p><i>What was the hardest task/question? Why?</i></p> <p><i>What was the easiest task/question? Why?</i></p>
Paul	<p><i>What was the hardest task/question? Why?</i></p> <p><i>What was the easiest task/question? Why?</i></p>
Gretchen	<p><i>What was the hardest task/question? Why?</i></p> <p><i>What was the easiest task/question? Why?</i></p>

Level of Achievement Rubric (Appendix J)

Name	Dimension of Performance	Level of Achievement			Total
		3	2	1	
Andrew	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	
	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	

Name	Dimension of Performance	Level of Achievement			Total
		3	2	1	
John	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	
	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	

Name	Dimension of Performance	Level of Achievement			Total
		3	2	1	
Natasha	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	
	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	

Name	Dimension of Performance	Level of Achievement			Total
		3	2	1	
Paul	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	
	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	



Name	Dimension of Performance	Levels of Achievement			Total
		3	2	1	
Gretchen	Knowledge of how ladybugs change over time (LG1).	Recites the four stages of the ladybug life cycle sequentially and with automaticity, without the use of prompting/picture cues.	Identifies the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	Unable to identify the four stages of the ladybug life cycle sequentially with the support of prompting/picture cues.	
	Understanding of the importance of a ladybug as an asset in an ecological system (LG2).	Confirms and explains orally the importance of a ladybug as an asset in an ecological system.	Confirms the importance of a ladybug as an asset in an ecological system, but provides no justification.	Denies the importance of a ladybug as an asset in an ecological system, uses faulty justification, or provides no response.	

