



## County Implementation Award Program (CIAP) Math and Science Lesson

<b>Unit Title:</b> Ecosystems
<b>Lesson Title:</b> Who Lives Here?
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<b>Grade Level:</b> 2nd Grade
<b>Time Frame:</b> 1 day - 2.5 hours
<b>Targeted Standard(s):</b> NGSS: 2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.  [Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]  Math: CCSS.Math.Content.2.MDA.1 - Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. CCSS.Math.Content.2.NBT.B.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. CCSS.Math.Content.2.MDD.10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. ELA: CCSS.ELA-LITERACY.SL.2.
<b>Short Description of Targeted Phenomenon: Have students go out to their playground to describe the different plants and animals that call the school their “home”. Alternatively, teacher could show photos or videos of various animals in different types of habitats in the surrounding area such as the Yolo Bypass <a href="https://www.youtube.com/watch?v=geAk3ls6xMA">https://www.youtube.com/watch?v=geAk3ls6xMA</a></b>  Students identify and describe* the phenomenon and purpose of the investigation, which includes comparisons of plant and animal diversity of life in different habitats.
<b>Three Dimensions of NGSS</b>  <b>Science &amp; Engineering Practice/s (SEP):</b> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. ● Make observations (firsthand or from media) to collect data which can be used to make comparisons. (2-LS4-1) Additional SEP’s: 5. Using mathematics and computational thinking 6.

Constructing explanations (for science) and designing solutions (for engineering) 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information

**Crosscutting Concept/s (CCC):**

Crosscutting Concept/s (CCC): 1. Patterns. Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them. 3. Scale, proportion, and quantity. In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system’s structure or performance.

**Disciplinary Core Idea/s (DCI):**

Disciplinary Core Idea/s (DCI): LS4.D: Biodiversity and Humans There are many different kinds of living things in any area, and they exist in different places on land and in water.

**Language Supports:**

Teacher scaffolds new science vocabulary during the read aloud of ‘Who Lives Here?’

**Materials Needed:**

Hand lenses, String, stakes, (chopsticks work well for this), images of different habitats, globally and locally (such as around your school campus or school neighborhood), images of grids, access to at least two different habitats, such as a school garden, field area, nearby marsh, park, etc.,. Alternative idea: Plastic tubs could be used to create a small habitat for students to explore with various soils, insects plants. or models of different habitats. Images of different habitats could be used as well and students could record their data from the images. Additional Materials: yardstick or meter stick a science journal, cm graph paper, tape, and access to a digital camera (such as Flip grid, Seesaw, or iMovie).

**Objective(s): Students will be able to:**

1. Identify and mark off at least 2 areas to observe and record different plant types and animals found in each their marked off areas.
2. Compare the two areas for diversity and similarities.

**How Math and Science concepts/skills/practices were integrated in this lesson:**

How Math and Science concepts/skills/practices were integrated in this lesson: Students will be measuring the area of their grid, using addition and subtraction to compare data collected from the variety of student grids.

**Possible Challenges /Misconceptions:**

Few animals/insects found. Being able to find diverse enough “habitats.”

**Formative Assessment:**

<b>Lesson Opening</b>	
<p><b>Teacher Actions</b> Read “Who Lives Here?” by Lanczak Williams or a similar book or share the Habitat Song by Bill Oliver;  <a href="#">‘The Habitat Song’ by Bill Oliver</a></p>	<p><b>Student Actions</b> Students identify the animals as the teacher reads the Habitat descriptions.</p>
<b>Lesson Introduction</b>	
<p><b>Teacher Actions</b> Discuss meaning of habitats Ask: What habitats are around us? What animals and plants might you see? Above ground? On the ground? Below the ground?  Present students with the idea of observing the plants and animals that live in a habitat here at school. Ask, “How could find out what animals live in this habitat?”</p>	<p><b>Student Actions</b> Students share out their ideas. Chart ideas (whole-group, teacher is recording on chart paper)</p>
<b>Body of Lesson</b>	
<p><b>Teacher Actions</b> Explain the activity: Observe and guide students as they work.</p>	<p><b>Student Actions</b> Students will work in small groups to use a meter or yard stick, string and stakes to mark off 2 one square yard or one square meter areas. They may use their hand lenses to look for small animals such as insects in their habitat. They are to take pictures of the insects and different plants they find.</p>
<b>Lesson Closure</b>	
<p><b>Teacher Actions</b> Ask students to summarize their results. What conclusions have they made based on their results.</p>	<p><b>Student Actions</b> Students will summarize their results and share out their findings with the class.</p>
<p><b>Summative Assessment:</b> Performance expectations are listed in order to help teachers design an appropriate assessment: Observable features of the student performance by the end of the grade: 1 Identifying the phenomenon under investigation a Students identify and describe* the phenomenon and purpose of</p>	

the investigation, which includes comparisons of plant and animal diversity of life in different habitats. 2 Identifying the evidence to address the purpose of the investigation a Based on the given plan for the investigation, students describe\* the following evidence to be collected:

- i. Descriptions\* based on observations (firsthand or from media) of habitats, including land habitats (e.g., playground, garden, forest, parking lot) and water habitats (e.g., pond, stream, lake).
  - ii. Descriptions\* based on observations (firsthand or from media) of different types of living things in each habitat (e.g., trees, grasses, bushes, flowering plants, lizards, squirrels, ants, fish, clams).
  - iii. Comparisons of the different types of living things that can be found in different habitats.
- b Students describe\* how these observations provide evidence for patterns of plant and animal diversity across habitats. 3 Planning the investigation a Based on the given investigation plan, students describe\* how the different plants and animals in the habitats will be observed, recorded, and organized. 4 Collecting the data a Students collect, record, and organize data on different types of plants and animals in the habitats.

**Other Teaching Resources:**

Mystery Science - free teacher and student subscriptions biodiversity and habitats lessons

**Lab Safety:**

**Extensions (if any):**

Change the scale of the students' habitats, asking, "What would you expect to find if the area of the grid was much larger?"

Images to use to discuss habitats and biodiversity:



Images to share to show the idea of a grid:

