CONDUCTING THE BIODIVERSITY AUDIT

POST-ACTION AUDIT, GRADES K-2

Did the team work with any resource experts and/or volunteers? _____ Yes _____ No

If applicable, please list. _____

DASHBOARD METRIC

How many different types of native plants have been added to the school grounds to increase biodiversity and support local wildlife populations?

SURVEY

Before starting the Biodiversity audit or going further, survey your students. Record the average response.

1. I can define biodiversity. _____ Yes _____ No

2. Can students help increase biodiversity? _____ Yes _____ Maybe _____ No

GETTING READY TO ASSESS BIODIVERSITY

As schoolscapes are as diverse as they are numerous across the United States, it is hard to prescribe space dimensions that will universally work nationwide. That said, our National Wildlife Federation biologists suggest calculating a **minimum inventory site** based on the overall size of the school's footprint. The advantage of doing so will demonstrate the scale dependencies of assessing biodiversity. Small school areas will have small inventory sites and large school areas will have large inventory sites.

While students in grades K-2 will be able to help with some aspects related to defining the inventory site and observations areas, this task will be mostly left to the adult members of the Eco-Action team. We suggest going through the identification process on your own first to determine how best to structure the learning experience for your students and to determine if support from volunteers is required.

To calculate your school's area (buildings, parking lots, grounds), teams will use Google Earth, www.google.com/earth.

1. Launch Google Earth in Chrome.
2. In the search area, type your school's name or address and click enter. Use the plus sign to zoom in a little closer to your school. Next click, in the bottom right hand corner, 2D.
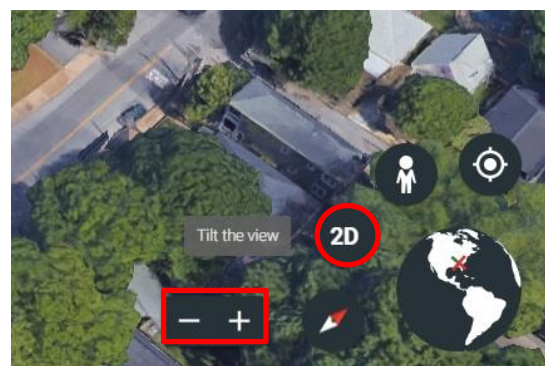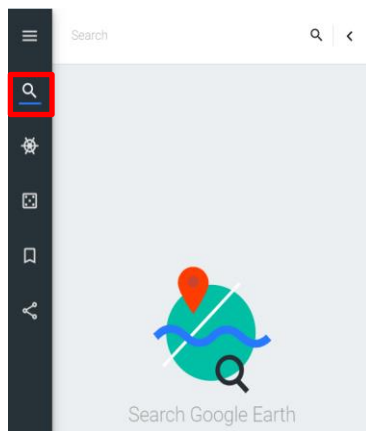
3. In this view, you will see your school from a "birds-eye" or top-down view. Next click on the ruler icon, found in the left-side navigation.
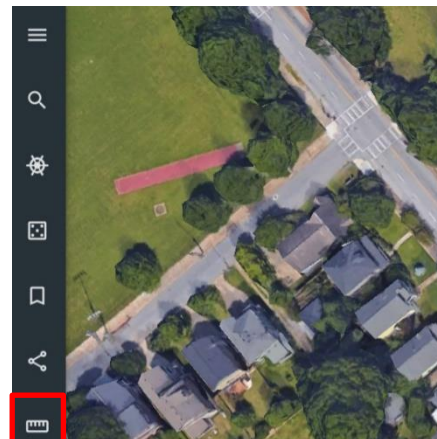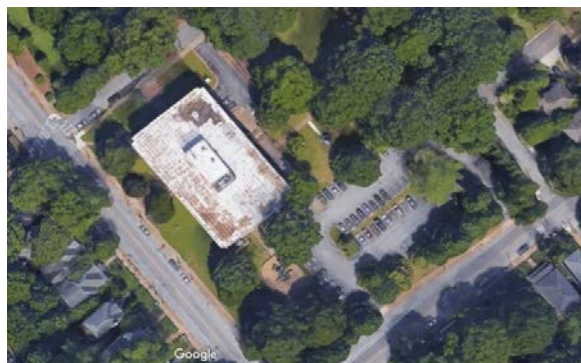
4. Click to drop the yellow marker on the start of the perimeter or irregular perimeter you are measuring. Click at each corner or turn that's needed, until you end where you started. Once complete a yellow box will outline the perimeter. Once the perimeter is closed, Google has calculated the perimeter and area in meters. If required, change the unit of measure to feet/square feet.

Change the unit of measure to feet.
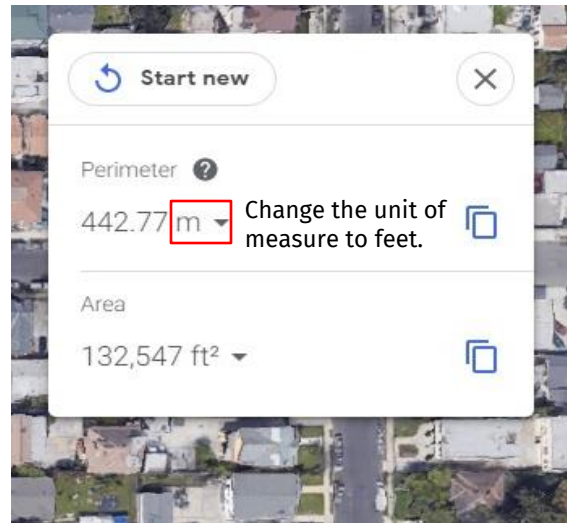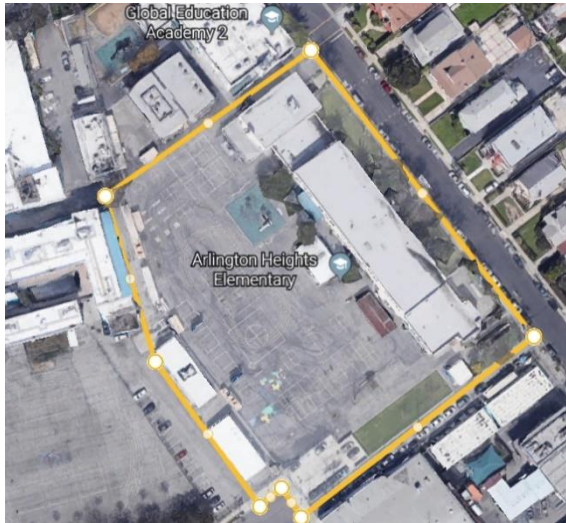
5. Calculate your inventory site. [What is .1% of your school's area?](#) The area of the school above is 132,547 ft². Round this number to the nearest thousand, 133,000 ft². The formula is, .1% of 133,000 (1/1000 x 133,000 is 133 ft².

$$\frac{1}{1000} \cdot \frac{133{,}000}{1} = \frac{133}{1} = 133$$

Want to check your math? https://percentagecalculator.net/). Once you have the square footage you can derive the perimeter; the inventory site for this school is approximately 33 feet by 33 feet (133 ÷ 4 = 33.25). **If .1% of the school's area is less than 25 ft², then use 25ft² to identify and mark the inventory site.** Once the perimeter is marked, have students create a minimum of 3, 3 foot (1 meter) by 3 foot (1 meter) observation areas within the larger inventory site to use while assessing plants and fungi and animals, *Tables 3 and 4*. The entire inventory site will be used to assess trees and shrubs.

During periods of observation, students will determine the inventory site's richness and evenness of plant and animal life. **Richness** is the number of species per sample - the more species present in a sample, the richer the sample. **Evenness** is the measure of the abundance of the different species making up the richness of the area. The team needs to observe the entire space. Ask students to slowly look up, down and all around their site. When they look up, do they see birds flying by? Is there a lizard on the tree in the observation area? How many different plants (richness) are in the observation area?

TABLE 1. DEFINING THE INVENTORY SITE

1. While you are using the same inventory site and observation areas as in the baseline audit, confirm the land cover types, since there are instances where changes may occur. Mark all the boxes that describe the land cover observed in the **inventory site**.	____ concrete ____ asphalt ____ bare soil ____ trees ____ grass ____ rocky/pebbles ____ garden ____ stream/river ____ pond ____ containers on concrete/asphalt

Think about the following question as you summarize the information in Table 1.

1. Did land cover types change within the inventory site from the baseline audit to the post-action audit? Explain.

TABLE 2. TREES AND SHRUBS – INVENTORY SITE
THIS TABLE SHOULD REFLECT THE DATA COLLECTED FROM THE COMBINED DATA FROM TEAM WORKSHEETS.

Use the iNaturalist SEEK app or Google Lens app, local field guides and/or local experts to provide identification assistance. If the name of the tree or shrub cannot be found, enter a description.

1. CATEGORY (TREE OR SHRUB)	NAME OR DESCRIPTION	QUANTITY	ALIVE	DEAD	HOLLOW
EXAMPLE. TREE TYPE A, or if tree is known-Live Oak	TALLER THAN THE SCHOOL, LEAVES ARE DARK GREEN ON TOP AND ARE OVAL, BARK IS ROUGH AND DARK GREY	10	8	1	1
	TOTALS				

2. **Total number** of trees and shrubs combined from the inventory site. _____ (If greater than 50, write 50+)

3. **Richness**
   Number of different tree and shrub types _____

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TABLE 3. PLANTS AND FUNGI-OBSERVATION AREAS
THIS TABLE SHOULD REFLECT THE DATA COLLECTED FROM THE COMBINED DATA FROM TEAM WORKSHEETS.

Use the iNaturalist SEEK app or Google Lens app, local field guides and/or local experts to provide identification assistance. If the name of the plant or fungus cannot be found, enter a description.

1. CATEGORY (PLANT OR FUNGUS)	NAME OR DESCRIPTION	QUANTITY	ALIVE	DEAD
EXAMPLE: PLANT TYPE A, or if type is known-Black-Eyed Susan	AS TALL AS A RULER, YELLOW FLOWERS WITH BIG BLACK/BROWN CENTER	5	4	1
TOTALS				

2. **Total number** of plants and fungi combined from all observation areas within the inventory site. _____

3. **Richness**
   Number of different plant and fungus types _____

TABLE 4. ANIMALS–OBSERVATION AREAS
THIS TABLE SHOULD REFLECT THE DATA COLLECTED FROM THE COMBINED DATA FROM TEAM WORKSHEETS.

Insert both the total number of each animal type observed and how many different kinds of each type.

ANIMAL TYPE	NUMBER OF ANIMAL TYPE OBSERVED	NUMBER OF DIFFERENT KINDS OBSERVED
1. B 🐦 birds		
2. M 🐿 mammals		
3. I 🦋 invertebrates		
4. A 🐸 amphibians		
5. R 🦎 reptiles		
6. F 🐟 fish		

OPTIONAL: If known list the names of the types of wildlife observed.

🐦	🐿	🦋	🐸	🦎	🐟

Think about the following questions as you summarize the data in Table 2-4.

1. After the team has spent time talking about (analyzing) their observations (data), answer the following questions.

- Does the team feel like they saw more trees and shrubs during the post-action audit or more trees and shrubs during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same

    Explain.

- Does the team feel like they saw more plants and fungi during the post-action audit or more plants and fungi during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same
- Explain.

- Does the team feel like they saw more birds during the post-action audit or more birds during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same

    Explain.

- Does the team feel like they saw more mammals during the post-action audit or more mammals during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same

    Explain.

- Does the team feel like they saw more invertebrates during the post-action audit or more invertebrates during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same

    Explain.

- Does the team feel like they saw more amphibians during the post-action audit or more amphibians during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same

    Explain.

- Does the team feel like they saw more reptiles during the post-action audit or more reptiles during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same

    Explain.

- Does the team feel like they saw more fish during the post-action audit or more fish during the baseline audit?

    _____ Baseline   _____ Post-Action   _____ the same

    Explain.

2. Based on the teams observations, and after implementing the action plan, how does the team rate the school's biodiversity? On a scale of 1 to 5, where **1 is not a lot of trees, plants and wildlife and 5 is a lot of trees plants and wildlife**, how would the team describe the inventory site?

    ___ 1   ___ 2   ___ 3   ___ 4   ___ 5
    NOT A LOT ⟵—————————————————————————⟶ **A LOT**

              less biodiversity   more biodiversity

    Is the number above, the same as, lower than or more than what was reported in the baseline audit?

    ___ same   ___ less   ___ more

3. What new questions does the team have or investigations does the team want to explore after addressing biodiversity?

Optional: Cross-Cutting Concepts

1. What **patterns** did students identify during their observations?

2. What **relationships** were students able to identify between plants, trees and animal life.