Lesson Plan on
Grandma Lisa's Humming, Buzzing, Chirping Garden, by Lisa Dosefff

Objectives:

1. Students will understand the enthusiasm and benefits of Grandma's native habitat garden.
2. Students will gain comprehension of key components of creating a natural habitat garden such as; components of a habitat, food chains, native vs. invasive species, pollinators and pollination.

Procedure;

1. Pre-teach vocabulary that students might not be familiar with provided in the glossary, such as appalled, cover, decompose, food web, predator, prey, native, invasive, habitat, pollinate.
   Provide discussion or activities related to the concepts as listed in the Schoolyard Habitat Mini- Unit.
2. What is a native plant? Invasive plant? A mini lesson that can be used either prior to or after reading the book.
   Show and teach students what common native plants are using garden books and catalogs. Show and teach students pictures of non-native ornamental plants that are common to their area.
   A good resource is a colorful sheet of Nature's Least Wanted,
   A picture guide of top invasive plants that should not be planted. https://www.lancasterconservancy.org/wp-content/uploads/2019/12/WildlifeHabitat_ALLSHEETS_2019_r3_Natures-Least-Wanted.pdf This can be printed off and shared with students. After learning about both native and invasive species students can walk around their neighborhoods and school grounds to see if they recognize both native and invasive plants.
3. Read the book and share the pictures. Possible discussion questions;
   a) Why did Grandma's garden not have good food for the insects and bees? (It lacked native species that provide the proper nutrients for animals)
   b) Why was Grandma removing these plants from her garden? (non-native invasive plants take over an area while not providing the necessary nutrition for native insects and birds)

c) Do you know why Monarch's lay their eggs on milkweed? (it provides the food and cover that Monarch's require, it is a host plant)
d) Why do you think Grandma planted milkweed, aster, willow, birch, oak and black cherry? (they attract insects, and are a good source of food, some are host plants)
e) What are some native plants that we've learned about? Why does Grandma want to plant native plants? (they provide the best food for our insects and birds. Many non-native plants do not provide food for any animals)
f) Why does Grandma want to attract insects- don't they sting? (most insects don't sting, they pollinate our crops, decompose matter, and are a food source for other animals)
g) How do insects pollinate crops? (they move pollen from one flower to another which causes the plants to make seeds and reproduce)
h) What does decompose mean? How does decomposition help gardens? (to break down into smaller parts, it enriches the soil)
i) Can you name some animals that eat bugs? Do you know that most baby birds eat caterpillars? Why do think that they eat caterpillars? (caterpillars are easy for birds to swallow and digest, easier than seeds and hard bodied insects)
j) What is a natural habitat? Review the components, and listen as I read if you can hear the components of a habitat in Grandma's garden. (rocks, stepping stones, birdhouse, pile of branches, stone wall, bird bath, water saucer, patch of dried dirt) discuss how these provide water and shelter for the wildlife,
k) If you were a small animal where would you hide? Why do animals need cover? (to hide from predators)
l) Why would you leave a patch of dried-up dirt for birds? (birds dust bathe to keep their feathers in shape)
m) Have you ever observed butterflies gather on mud puddles? Why do they do that? (butterflies take in salts and minerals from the mud, they call this puddling)
n) Review food web, predator and prey. Ask students to listen as you read and recall the animals in the described food web. (list the animals mentioned)

o) Why does Grandma's garden now attract a lot of bugs and birds? (Review the components of a habitat that she installed)
p) Why do the children love to spend time with Grandma in her garden now? What sights and sounds do they hear?

Related Activities: The following activities can be used in conjunction with this story or used as a follow up culminating activity.

1. The benefit of native species versus invasive species; Balanced Meal VS Junk food meal;
   Activity: Have pictures of a balanced, nutritious meal that a child would enjoy. Have a second picture of junk food such as soda, chips, and candy. Ask the children which food they'd rather eat. Then ask them which food will give them the nutrition and energy they need to grow healthy and strong. Make the connection that some plants offer only sugary nectar that does not have the nutrients and proteins that insects need to grow strong.
2. Identifying and Planting Native species;
   Activity: Go outside and see what's growing in the school yard. Can you identify whether they are invasive or native species? Count the type of species. Can you figure out what the percentage of native plants are? (Don't forget the lawn!). Talk about the need to make sure that 70% of our plants should be native in order to help restore the ecology of any given area (according to Doug Tallamy). Garden
3. Dig into Decomposition: Observe a compost pile, start a compost pile on the school yard. An online lesson on composting where students observe decomposition in 6 different glass jars of soil with different materials buried in
   the soil. Students will become familiar with organic and inorganic material.
   https://www.calacademy.org/sites/default/files/assets/docs/pdf/064_compostingascientificinvestigation_updated.pdf
4. Research; Have students research a favorite Pennsylvania insect, amphibian, reptile, bird or mammal. Have them discover the habitat they need to survive and what native plants they need as food. Have students report their findings in a poster, report, or folding zine booklet with illustrations. Have students describe what they would need to plant in order to attract this creature to the schoolyard or backyard habitat.

5. Students work in partners or small groups to plan and design a schoolyard habitat garden. There are numerous resources provided in the mini-unit that provide instruction in attracting pollinators, pollinator gardens, and garden design. Students will include plants and features that they have researched in order to attract their favorite wildlife.