

Grade 2

Self-Guided Tour Harmony Farm and Nina Mason Pulliam Children’s Trail



Aligns with the following Arizona State Science Standards

S1C1-01, S1C2-03, S1C2-04, S1C3-02,
S2C2-01, S2C2-02, S2C2-03,
S3C2-01, S3C2-02, S3C3-01, S3C3-02, S3C4-01,
S4C1-01, S4C3-01, S4C3-02

This self-guided tour through Harmony Farm and the Children’s Trail is offered by the Phoenix Zoo as an aid for **second grade** teachers planning a visit to the zoo. The tour outlines discussion points for several locations at Harmony Farm and along the Children’s Trail. These discussions can be the starting point for further activity in the classroom or a means to reinforce or review concepts already discussed. The tour is arranged so that concepts at each location build upon the previous stops.

Notebooks: We suggest that students (either individually or in groups) carry either paper or notebooks and a writing implement to take notes and create a journal. These journal notes can be used for extension activities and discussions in the classroom. For each section on the tour there are suggestions for notes to take in the notebooks.

1. Red Barn

- Allow students to pet and groom the goats
- Point out and discuss the different characteristics of the goats and what they are used for (feet used for locomotion and protection, visible nose and ears used for sensing, teeth used for grinding food and defense).
- In the hallway of the red barn look at the graphic that asks, “Which of these products comes from a cow?” Discuss with students that cows are a resource for humans. Allow the students to practice milking the plastic cow.
- On the outside of the red barn you’ll see live cows. Discuss the visible features on the cow. There will also be a goat in with the cows. Ask the students to compare the cow to the goat. What features do both of them have? Do they have any differences?
- *Notebook:* Record observations of animal features.

2. Sheep Barn

- Outside of the sheep barn you’ll find the sheep in their yard. How are the sheep different from the goats? What body features do they have?
- Go inside the sheep barn and see the stalls that they live in. These stalls are also used when the keepers shave the wool from the sheep. Along the wall there is an interactive station that shows different types of fabric and what it is made from. Discuss with students that we use sheep as a resource for wool. Discuss the other types of fabric and the resources we use for those. (You’ll find fabric made from wool, cotton plants, the agave plant, silk from a silkworm, and synthetic material). Discuss that we can also find ways to make products without using animals.
- *Notebook:* Record observations of sheep. Write down comparisons between sheep and the goats and cows previously seen.

3. Garden

- Typically there are some flowers and vegetables growing in the garden. You can usually see plants in different stages of growth. There is a barrier up to attempt to protect the plants from local rabbits.
- How do we use plants as resources? All of the animals on the farm eat the plants, you saw that we use plants to make materials, and we eat the plants too.
- Discuss the concept of a food chain and how it is a natural system that exists. Plants use minerals from the soil, water, sunlight and carbon dioxide to grow; they produce oxygen and food for animals; animals provide food for other animals.

4. Schoolhouse

- Outside the schoolhouse there is a dirt bin with worms in it. The worms are very important to the health of the soil because they decompose organic materials and replenish the soil with the minerals and nutrients that are needed to make plants grow. Discuss the importance of soil as a nonliving resource as well as decomposers and living resources.
- Explain to the children what compost is. Discuss that composting is a way to conserve resources.
- You will also see some rain barrels outside of the schoolhouse. Talk to the students about the importance of rain as a resource. It replenishes lakes, ponds, streams, and the ocean, which we use as sources for water. Water is another important nonliving resource for humans, plants, and animals.
- You will also find grooming and gardening equipment in the schoolhouse. Allow the students to look at and handle these items. Talk about how technology helped us to make these tools, which help us to be able to do more on the farm.
- *Notebook:* Record measurements made.

5. Playground

- At the playground you will find a tractor that students can play on. Discuss with them that this is another form of technology that is used on the farm to help plant a lot of seeds and prepare the ground for the seeds.
- Compare the tractor as a non-living resource to the other resources you have seen so far. Which resources can easily be replaced? The tractor can be rebuilt but it takes a lot of other resources to build it. The plants and animals can be replaced but it takes time, space, and food to replace them. Chemicals can damage the soil and then it is no longer useable. Water is replaceable and reusable but in the desert it takes longer to replace water due to lack of rainfall.
- Discuss that since these resources are either limited or take time to replace we need to find ways to not use them too fast. What are some ways we could do that? Reusing the tractor parts or keeping it in good condition so it lasts a long time, recycling, refraining from the use of chemicals.

6. Raccoon Exhibit

- Ask the students to describe the environment that the raccoon lives in. What kind of environment is it? What are some of the main features?
- Point out and discuss the living and nonliving components of the exhibit.
 - Living components: raccoon, trees, grass, insects in the grass
 - Nonliving components: soil, water, air, rocks
- Discuss changes that could take place in this environment.
 - Possible beneficial changes: planting more plants (raccoons will eat it, insects will get more food, more oxygen will reach the air, plants will hold the soil on the stream bank); cleaning the water (fish available for raccoon to eat, healthy plants, healthy raccoons); cleaning up any trash; plants dying (some plant death is natural and replenishes the soil)
 - Possible harmful changes: cutting down the tree (where will the raccoon sleep); too many raccoons moving in (not enough food to go around); trash left on ground (chemicals leak into ground, raccoons love trash but it is not healthy for them)
- *Notebook:* Record observations of components of the environment.

7. Wallaby Exhibit

- Ask the students to describe the environment that the wallaby live in. What kind of environment is it? What are some of the main features?
- Compare the wallaby environment to that of the raccoon. Do they look the same? How are they different? What does this mean about the needs of the wallaby versus the raccoon?
- Discuss the living and nonliving components of the exhibit.
 - Living components: wallaby, plants, trees, food
 - Nonliving components: dirt, air, rocks
- Discuss possible changes to the environment.
 - Possible beneficial changes: planting more plants; cleaning up any trash; plant pollination by insects
 - Possible harmful changes: too many wallaby; using pesticides; trash left on ground
- Observe the wallaby and discuss how they use their body features; what functions do they serve?
 - ears can be seen moving when the wallaby are listening closely
 - nose can be seen moving for smelling
 - tail helps with balance during locomotion
 - hind legs designed for specialized locomotion of hopping, also can be used to create a warning thump
 - front legs used for feeding and slower locomotion
- *Notebook:* Record observations of components of the environment.

8. Butterfly Garden

- Look for butterflies moving between the flowers.
- Explain that the butterflies eat nectar that is produced by the flowers and the butterflies help to pollinate the flowers. While they are eating from the plant some pollen (find a blossom that has visible pollen) gets on their wings. When they visit the next flower they leave that pollen there and the two pollens mix together so the plant is able to produce seeds.
- This is one example of how plants and animals depend on each other. Ask the students to think of other examples of plant and animal dependency that they have seen so far at the zoo.

9. Golden – Lion Tamarin Exhibit

Observe the tamarins and discuss their features and how they use them

- Tail used for balance during leaping
- Small fingers can reach into tiny places to look for food. You may catch them trying to grab crickets out of the puzzle box on the side of the cage.
- Hind legs help with leaping through the trees
- Large eyes help with viewing predators and food
- Fur serves to protect from the elements
- *Notebook:* Record observations of components of the environment.

10. Feel the difference

Allow students to walk through, feel the animal statues, and listen to the sounds.

14. Children’s Trail Lake

- Ask students to describe this environment and how it is different or similar to the wallaby and raccoon environments.
- Discuss the living and nonliving components of the lake environment.
- Living components: ducks, fish, turtles, algae, logs, plants, trees, grass
- Nonliving components: dirt, rocks, air, water
- Discuss possible changes that could take place in this environment.
- Possible beneficial changes: planting plants around the bank (helps maintain soil so bank doesn’t erode causing changes in the water); cleaning the water; duck migration (keeps a balance in the usage of the lake so food isn’t all used up)
- Possible harmful changes: removing plants from bank; leaving trash in water; removing too many turtles or fish
- *Notebook:* Record observations of components of the environment.

15. Wrap-up

- Introduce the idea that the components of the environment work together to create an ecosystem. Ask the students to draw conclusions about what is needed in a healthy ecosystem and what can be done to change an ecosystem.
- Ask students to consider questions that they may ask to determine if an ecosystem is healthy.
- Discuss that the food chain is a subsystem within an ecosystem.