

K-5 Next Generation Science Standards & Common Core Sample Lesson Plans at the San Mateo County School Farm



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Key to codes:

Next Generation Science Standards:

Grade - LS (Life Science), ESS (Earth and Space Sciences), PS (Physical Sciences) –
Standard Number

Common Core:

Language Arts

Grade. W (Writing), SL (Speaking and Listening), L (Language). Standard Number

SMCSF Connection to Academic Standards

The HEAL Project (THP) administers all field trip programming at the San Mateo County School Farm (SMCSF). This farm was created in 2010 as a cooperative venture between San Mateo County Health Systems, Cabrillo Farms and THP to give every student in the county the opportunity to have multi-season experience at a sustainable farm. Though not mandatory, the SMCSF field trip program is designed for each class to visit twice in a school year to experience and compare different seasons on the farm.

We believe that outdoor education is a valuable experience for youth. By spending a day on the farm, students can see many science, art, and math concepts come alive. Through interactive activities, we take learning into the field and teach about healthy choices, the environment, and sustainable agriculture.

The following guide outlines the Next Generation Science Standards and Common Core State Standards that THP currently employs at the farm. For each grade we have included relevant standards as well as a sample lesson plan. Our goal is that every student visiting SMCSF has the opportunity to harvest something for themselves, plants seeds, and taste a seasonal crop. Interwoven with these farm activities are interactive lessons that relate to a topic of the field trip. Additionally, experiences on the farm can easily be translated into reflection writing, discussion, and reading when students are back in their school classroom.

The lessons each class experiences at the SMCSF can vary based on teacher needs, student interests, and what is happening seasonally on the farm. These sample lesson plans are examples of a typical field trip at each grade level and are meant to give educators an informed idea of how their class will spend a fun and educational day on the farm, each trip will be tailored to the needs on that day.

Kindergarten

Next Generation Science Standards:

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Common Core:

Language Arts

K.W.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

K.SL.1 Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

K.SL.6 Speak audibly and express thoughts, feelings, and ideas clearly.

K.L.5 With guidance and support from adults, explore word relationships and nuances in word meanings.

Sample Spring Kindergarten Lesson Plan

10-10:30 Welcome to the Farm! Introduce today's topic: Observation Skills

10:30-11 Tour of the Farm. We will use all of our 5 senses to explore what is growing at the farm this season. Let us know if you see an insect!

11-11:30 Harvest.

11:30-12 Lunch Time.

12-12:30 Planting. What can we observe about the seed before we plant it?

12:30-12:45 Reflection Craft. Review the fun things we learned today

12:45-1 Closing circle, reflection, and walk back to the bus. See you next time!

First Grade

Next Generation Science Standards:

1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Common Core:

Language Arts

1.SL.4 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

1.L.5 With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings.

Sample Spring First Grade Lesson Plan:

10-10:30 Welcome to the Farm! Introduce topic of the day: Plant Parts

10:30-10:50 Harvest. You will take home something from the farm. What plant part is it?

10:50-11 Taste a California Speciality Crop. What plant part is it? Does this one taste like anything you have tried before?

11-11:30 Planting. By planting seeds we can learn about one plant part as well as how plants reproduce

11:30-12 Lunch time.

12-12:45 Plant Part Search. In small groups we will go around the farm finding examples of all the plant parts to put into egg cartons. When we gather up with the whole class can we guess just by looking at each others which cartons are which plant parts?

12:45-1 Closing circle, reflection, and walk back to the bus. See you next time!

Second Grade

Next Generation Science Standards:

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

Common Core:

Language Arts

2.W.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

2.L.5.a Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).

2.L.5.b Distinguish shades of meaning among closely related verbs (e.g., toss, throw, hurl) and closely related adjectives (e.g., thin, slender, skinny, scrawny).

Sample Spring Second Grade Lesson Plan:

10-10:30 Welcome to the Farm! Introduce topic of the day: Biodiversity on the farm

10:30-10:50 Go on a hike. From the top of the hill we can observe many habitats

10:50-11:15 Harvest. We grow a large diversity of crops at the farm

11:15-11:30 Taste a California Speciality Crop. We will discuss pollination and how the different flowers the bees visit changes the taste and color of their honey

11:30-12 Lunch time.

12-12:30 Planting.

12:30-12:45 Biodiversity in soil. We will dig in the soil and learn about the many organisms living in there

12:45-1 Closing circle, reflection, and walk back to the bus. See you next time!

Third Grade

Next Generation Science Standards:

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

3-LS2-1. Construct an argument that some animals form groups that help members survive.

3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.

3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Common Core:

Language Arts

3.SL.1b Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

3.SL.4 . Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

Sample Spring Third Grade Lesson Plan:

10-10:30 Welcome to the Farm! Introduce topic of the day: Plant Life Cycles

10:30-10:45 Weed off Game. Learn about weeds and think about how they might impact a crop's life cycle

10:45-11:30 Plant Life Cycle Tour and Taste of the Farm. We will tour the farm while touching, tasting, and assembling a burrito of the plant life cycle. When we get back to the outdoor classroom we will have found them all and identify them. We will also taste a California Specialty Crop grown locally.

11:30-12 Lunch Time

12-12:30 Planting. We will plant something in the field from seed. What stage of the plant life cycle is this?

12:30-12:45 Harvest. What stage of the plant life cycle is this crop in?

12:45-1 Closing circle, reflection, and walk back to bus. See you next time!

Fourth Grade

Next Generation Science Standards:

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Common Core:

Language Arts

4.SL.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

Sample Spring Fourth Grade Lesson Plan:

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| 10-10:30 | Welcome to the Farm! Introduce the topic of the day: Pollination |
| 10:30-11 | Harvest something from the field to take home. On our way we will taste what is in season |
| 11-11:15 | Honey Bee Observation and Honey Tasting. |
| 11:15-11:30 | Pollinator Flower Search. We will break into small groups and search for what flowers bees, butterflies, and hummingbirds might visit |
| 11:30-12 | Lunch Time |
| 12-12:30 | Planting. We will help the pollinators by planting something that makes flowers |
| 12:30-12:45 | Flower Craft. Since bees love flowers we will learn about what kinds of flowers they like by doing a small craft you can take back to your classroom |
| 12:45-1 | Closing circle, reflection, and walk back to bus. See you next time! |

Fifth Grade

Next Generation Science Standards:

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Common Core:

Language Arts

5.SL.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Sample Spring Fifth Grade Lesson Plan:

10-10:30 Welcome to the Farm! Introduce focus of today's field trip: Decomposition

10:30-10:45 Harvest. Learn about what is in season

10:45-11 Taste a California Specialty Crop. These crops rely on healthy soil, which is created with the help of decomposition

11-11:30 Decomposition Investigation. Use our compost education zone to learn about how to build a compost pile, what lives inside it, and how the decomposition cycle works

11:30-12 Lunch time. Save those banana peels, we will use them in our next compost pile

12-12:30 Planting. We will use some finished compost and plant something in the field

12:30-12:45 Organic Matter Scavenger Hunt. Gather in our digging circle and learn about the diverse animals living in the soil

12:45-1 Closing circle, reflection, and walk back to bus. See you next time!