

# Sandia Mountain Natural History Center

## Ecology Field Program

### Fun with Forestry Lesson plan

<b>Your Name:</b>	
<b>Grade Level:</b> 5th	<b>Subject Area:</b> Life Science
<b>Lesson Title:</b> Fun With Forestry	<b>Lesson Length:</b> 45 minutes

#### The Teaching Process

##### Lesson Overview

Focusing on producers in an ecosystem, students will examine the vegetation growth and basal area of the surrounding area. Students will make connections about how proximity of trees and growth of ground covering vegetation impact the health of the forest. Further, students will practice developing surveying techniques, developing hypotheses, and using evidence to support their findings.

##### Lesson Objectives:

1. Students will learn how to calculate basal area.
2. Students will use quadrats and cruise angle tools to conduct surveys.
3. Students will make connections about forest health based on observations and data collected.
4. Students will create hypotheses and use evidence to make conclusions about the forest health.

##### Standards addressed

NMSS: NM I- Scientific Thinking & Practice, BM I- Scientific Method 1; Scientific Thinking & Practice, BM III- Measurement & Data 3; NM II- Life Science, BM I- Ecosystems 1

NGSS disciplinary core ideas: LS 2.A, LS 2.B

NGSS crosscutting concepts: Cause & Effect; Systems & System Models; Energy & Matter

NGSS science & engineering principles: Engaging in Argument From Evidence

CCSS: RI 5.4, RF 5.3, L 5.1, L 5.2, L 5.4, SL 5.1, W 5.10

##### List of Materials

Fun With Forestry guides, cruise angle, quadrats, notebooks, pencils. Optional: field guides

## Instructional Sequence

### Phase One: Engage the Learner

Through questioning, the instructor directs students to think about the structure of trees and other vegetation in the forest. Directing questions should focus on what the students see and lead them to think critically about how proximity of trees and growth of ground covering vegetation impact the health of the forest. Then introduce them to the activity, give instructions regarding what they need to find and record, set exploration boundaries, give students roles and expectations (recorder, photographer, etc.), and put students into groups sized 2-3 or larger.

#### What's the teacher doing?

- Guides students through questioning and simple observation to understand what is happening in the area.
- Prompts students to critically think about how producers may impact each other.
- Assists students with understanding how to use the tools provided (cruise angle, quadrats, etc.).
- Models how to use tools provided.
- Models how to conduct survey and what to record.
- Assists students with understanding their roles.

#### What are the students doing?

- Actively listening and asking questions.
- Making connections to their surroundings.
- Use prior and/or recently gained knowledge to actively participate in discussion.
- Prepare for the activity by learning how to conduct the survey and use tools provided (cruise angle, quadrats, etc.)

### Phases Two-Four: Explore the Concept; Explain the concept and define terms; Elaborate the Concept

During this portion of the activity students remain in their randomly selected survey areas to conduct the survey and answer questions regarding the data they have collected.

#### What's the teacher doing?

- Explains directions and describes boundaries for activity.
- Sets up quadrats and distributes other tools used.
- Actively monitors students by checking for understanding, guiding students, and discussing finds.
- Encourages students to critically think about producers in the area.

#### What are the students doing?

- As partners and with *Fun With Forestry*, students observe the area and record their findings in their notebook.
- With close observation, student make predictions and conclusions about the data they have collected.

### Phase Five: Evaluate students' Understanding of Concept

While sharing with the group, students must provide evidence to support their claims as well as use their observations to determine how the forest health is impacted by the producers that are growing there. Teacher will provide information regarding the history of the forest to help students understand whether or not their hypotheses were correct and why.

### What's the teacher doing?

- Gathers students back to meeting area.
- Leads students in sharing their finds and citing evidence.
- Assesses student understanding of the data collected and its role in the ecosystem through questioning and discussion.
- Provides students with necessary background information about the forest health to confirm or refute students' hypotheses.

### What are the students doing?

- As a group, students share the data they've collected, hypotheses, and conclusions made. Students must back up their claims with evidence.

Discovery Education Science  
5-E Lesson Plan Template



Revised by H. Perry, March., 2018