

Introduction

Lab Options

AP Environmental Science requires the completion of hands-on lab activities and has been approved by the College Board as meeting all requirements for a laboratory science course.

To conduct the hands-on laboratory activities in this course, you will need to obtain the materials listed in this document.

Lab Manual

There is no lab manual for this course. It is strongly recommended that students keep a detailed notebook of their work as some colleges require proof of experiments.

See the [Course Materials List](#) for required textbooks.

Disclaimer

Apex Learning® has no liability whatsoever regarding any hands-on laboratory activities. The personnel at the school at which the student conducts the hands-on lab activities, or the student's parent or guardian if the lab activities are completed at home, are responsible for all such hands-on lab activities, including ensuring that qualified personnel are available to supervise the activities.

Questions

Contact Apex Learning Support by phone at 1-800-453-1454 or by email at support@apexlearning.com.

Hands-On Lab Materials

Investigate Your Ecological Footprint

Semester 1 1.1.1

- No materials required

Investigate Cycling of O₂ and CO₂

Semester 1 1.1.2

- 6 clean, small-mouth bottles (plastic or glass)
- Permanent marker
- 3 large drinking glasses (clear plastic or glass)
- Tape (clear or masking)
- Distilled water or dechlorinated tap water
- Baking soda
- Scissors
- 3 sprigs (4 – 6 inches long) of a living plant
- Strong light source (e.g., sunny windowsill, table lamp, flashlight [no LEDs])
- Teaspoon measure
- 3 packets of dry baker's yeast
- ½ cup of granular sugar

- Measuring cup
- Tap water, very warm
- 6 medium balloons (12 inches)
- Clock
- Measuring tape

Investigate Watershed Analysis

Semester 1 1.2.1

- Computer with Internet
- Water test kit — the more detailed, the better (found at local store or aquarium store)
- 3 local natural water sources (including an upstream source and a downstream source)
- 3 sealable containers (for collecting water samples)
- 3 clear glass or plastic cups (for water testing)

Investigate Passive Heating and Cooling

Semester 1 1.2.2

- Computer with internet access
- Graph paper
- Cardboard
- Scissors or knife
- Transparency film or cellophane for windows
- Glue, tape, duct tape, toothpicks, etc. (for assembling the parts of a model house)
- Housing materials (tile, wood, carpet samples, shingles samples, paint, and insulation materials such felt, plastic foam, bubble wrap, cotton, etc.)
- Heat lamp or incandescent floodlight (needs to generate heat)
- Thermometer or CBL temperature probe

Investigate Using a Dichotomous Key

Semester 1 1.3.2

- Glass jar or sealed container
- Gloves
- Pencil or pen
- Paper for making observations
- Computer with Internet access

Investigate Primary Productivity

Semester 1 1.3.3

- 3 shallow, flat containers (10 x 10 cm)

- 3 pieces of grass sod (10 x 10 cm) labeled 1 D, 1 R, and control, 2 D, 2 R (If sod is unavailable, soil and grass seeds grown for approximately 2 weeks is acceptable)
- Ruler
- Scissors
- 3 craft sticks (for labels)
- Spray water bottle
- Balance or precise scale
- Paper towels
- Large books or heavy objects of equal size

Investigate Estimating Population Size

Semester 1 1.4.1

- Large piece of burlap, linen, or cotton (approximately 3 feet long by 2 feet wide)
- Roll of twine
- Protective gloves
- Nontoxic, fine-point marking pen (yellow, orange, or bright green)
- 4 handfuls of small objects (e.g., beads, uncooked beans, pieces of cereal, paper clips, etc.)
- Paper lunch bag, small cup, or small box
- Calculator

Investigate Resource Consumption

Semester 1 1.4.3

- 100 pieces of cereal
- Table
- 2 spoons of the same size
- Cup
- Timer or clock that shows seconds
- Other small items (e.g., paper clips, beans, pasta, rice, etc.)
- Other grasping devices (e.g., tweezers, tongs, fingers, etc.)
- Pencil
- Paper

Investigate How Pollutants Affect Plants

Semester 2 1.1.9

- 15 – 20 small plastic cups
- Scissors
- Permanent marker
- Tray or bin
- Potting soil

- Radish seeds (or other fast-sprouting seeds)
- Distilled water
- Salt
- Measuring cups and spoons
- Stirrer
- Pollutants needed for investigation (could be oil, vinegar, detergent, window cleaner, etc.)
- pH strips from a pool-supply or aquarium store

Investigate Food Security

Semester 2 1.3.8

- 10 foods found at home or in a grocery store
- Computer with Internet access
- Paper and pencil
- Map of North and Central America
- Calculator

Investigate Home Energy Usage

Semester 2 2.1.8

- Computer with Internet
- Electric utility bill

Investigate Sustainable Energy

Semester 2 2.2.9

- Safety goggles
- Lab apron or long-sleeved shirt
- 3 plastic, chemical-resistant gloves
- 1 wide-mouth glass jar (e.g., Mason or Ball jar) that can be closed tightly and does not leak
- 250 mL graduated cylinder
- Balance
- 30 mL of methanol
- 1 g of KOH, or 0.7 g of NaOH
- 150 mL of virgin vegetable oil
- Tape, plastic or masking
- Separatory funnel and ring stand
- 2 100 mL beakers

Investigate Recycling Practices

Semester 2 3.1.8

- Household trash
- Large plastic trash bags
- Computer with Internet access
- Sturdy gloves (gardening or work gloves)

Investigate Air Quality

Semester 2 3.2.9

- Computer with Internet access
- Gloves

Investigate Human Carrying Capacity

Semester 2 4.1.9

- Computer with Internet access

Investigate Dissolved Oxygen Levels

Semester 2 4.2.8

- Yeast
- Water
- Teaspoon measure
- 5 test tubes
- Test tube marker or paper and tape
- Test tube rack
- Milk (apple juice or a sugar water mix can be used)
- Methylene blue in a dropper bottle (can be purchased online if not available through your school)
- Gloves
- Watch with second hand
- Materials needed for self-designed experiment will vary but could include a thermometer, fridge, freezer, microwave, and more