

pH, Indicators & Dyes

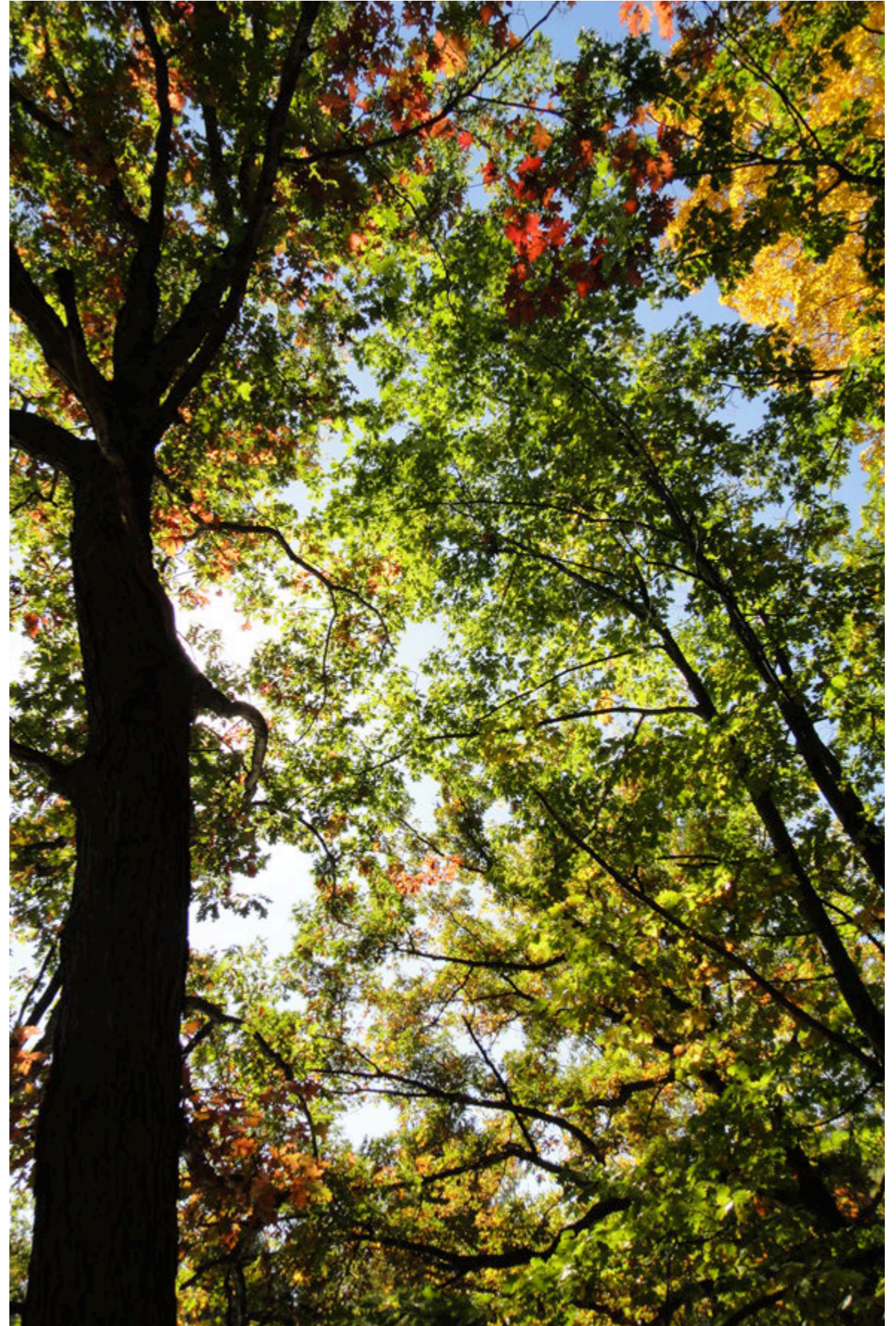


pH, Indicators & Dyes Kit

TEACHING STRATEGY

Kit activities are designed for introductory (grades 6-8) and intermediate-level / high school (grades 8-9) students. There are a total of 6 discrete Model investigations, 3 Inquiry Path investigations, and 2 Going Further investigations.

ACTIVITY 1 can be done independently with introductory-level students. ACTIVITIES 2, 3 and 4 are linked - each precedes the other and are recommended for advanced middle school or high school-level students.



ACTIVITY 1 pH, Indicators & Dyes

This kit supports 40 students working in groups of 4

KIT CONTENTS

- 40 medicine cups
- 10 cotton fabric (4" squares)
- 10 plastic jars , with lids (2oz)
- 100 commercial filter paper strips (1 x 4")
- 1 box, (72) microscope slides
- 1 pH paper strips, pkg./100 (0 to 14)
- 10 pipets
- 10 clothespins
- 1 sheet, black construction paper
- ball, twine (50')

CD-ROM

- ▶ TEACHER GUIDE set PDF
- ▶ STUDENT GUIDE set PDF
- ACTIVITY 1 *Learning About pH, Indicators, and Dyes* PDF
- ACTIVITY 2 *Learning About the Chemistry of Plant Pigments* PDF
- ACTIVITY 3 *Learning About Making pH Paper Test Strips* PDF
- ACTIVITY 4 *Learning About Testing and Accuracy* PDF
- ▶ BACKGROUND INFORMATION set PDF
 - pH, INDICATORS, & DYES (INTRODUCTORY) PDF
 - PIGMENT EXTRACTION (INTRODUCTORY) PDF
 - PLANT PIGMENT BIOMOLECULES & THEIR STRUCTURE (INTERMEDIATE) PDF
 - pH & POH (INTERMEDIATE) PDF
 - PLANT PIGMENTS AS pH INDICATORS (INTRODUCTORY) PDF
 - ALTERING PLANT PIGMENT BIO MOLECULES (INTERMEDIATE) PDF
 - LEARNING HOW LITMUS PAPER IS MADE (INTERMEDIATE) PDF
- ▶ *Learning About pH* PPT and .MOV (with *Study Notes* (PDF))



NEEDED BUT NOT SUPPLIED

From the grocery store

- Bag, Blueberries (bag, fresh or frozen) ACTIVITIES: 1,2
- Box, Baking soda (sodium bicarbonate) ACTIVITY 1
- Bottle, White vinegar (acetic acid) ACTIVITIES: 1, 2, 3
- 10+ Bottles water (8 oz; 240mL), or distilled water ACTIVITIES: 1,2,3
- Container, lemon / lime juice concentrate ACTIVITIES: 1,2, 3
- Container, carbonated water, apple juice ACTIVITIES: 1, 2, 3
- Container, table salt or rock salt ACTIVITIES: 1, 2, 3
- Container, liquid household detergent, hand soap ACTIVITIES: 1, 2, 3
- Container, liquid household ammonia / bleach ACTIVITIES: 1, 2, 3
- Package, Ammonium Aluminum Sulfate¹ - optional ACTIVITY: 1
- Package, Drano® ACTIVITY: 2

From a local source / school / home

- 10 Pairs of scissors ACTIVITIES: 1, 3
- 10 Plastic spoons ACTIVITIES: 1
- 20 Sheets, white copy paper ACTIVITIES: 1
- 10 Coffee filters ACTIVITIES: 1
- 10 Sheets, acid-free paper (fine stationary paper) ACTIVITIES: 1
- 10 Sets, colored pencils / colored markers ACTIVITIES: 1
- 10 Sheets, watercolor paper (optional) ACTIVITIES: 1
- 10 Microscope slides ACTIVITY 2b
- 10 Marking pens ACTIVITIES: 1, 2

ACCESSING DIGITAL CONTENT

- FILE TYPES:
- .pdf - portable digital file (Mac / PC)
 - notes.pdf - powerpoint pdf with lecture notes
 - .pps - powerpoint (PC)
 - .mov - Quick Time
 - iPod .mov Quick Time (iPod / iPad)

NOTE: Animations play within PDF files

See: *Content Delivery Information* to learn more!