

Nature Study for K-12

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Disclosures

- Volunteer on Science Curriculum Committee- Childlight USA

Learning Objectives

- At the end of this presentation, the audience will:
 - 1) Understand why public schools no longer use this teaching method
 - 2) Understand how to use nature study for grades K-12
 - 3) Discuss their possible future contributions to nature study and have resource links

School
gardens!

Nature Deficit
Disorder!

Nature
Journals!

No Child Left
Inside Act of
2009!

The Science Pendulum (for upper class children)

Girls

- American Revolution to Civil War “Science for Ladies”
- 1850-1892- “study delicate flowers and insects”

Boys

- “Classics for Gentlemen” - Latin, Greek
- 1850-1892 study Physics for factory and machine work

Continued: The Science Pendulum (for upper class children)

Girls

- 1890's college admissions. Anna Comstock on Faculty at Cornell, College of Agric.
- 1892-1940's Nature Study- more rigor
- 1911- Moved to Dept. of Home Economics
- 1925- 67% of all High School Biology teachers were female

Boys

1890-1940 High school science popular prep for engineering, mining, and mechanics fields

1892-1940's – Nature Study for boys also but declined in appeal with “feminine” association.

1908-Scouting

Differing philosophies

Charlotte Mason (1880-pres.) England

- For all school children, supplemented by after-work scouting clubs for those not in school
- For all grades; a separate curriculum for Science, starting 3rd grade (equivalent)
- Students must be informed by their own books or by listening to local naturalists

Nature Study movement (1892-1940's)- U.S.

- To promote agriculture for the rural children
- Gradually became “choose Nature Study or Science” as HS graduation rates/college entry increased. Eventually moved into Home Economics by 1912.
- “Study nature, not books” vs. “Study nature with books”
- Handbook of Nature Study : for teachers, not students.

WWII & Sputnik- the death of school nature study

- Science = military applications, not nature study.
- Education reformers saw books, not observation, as a way to organize science materials and keep boys in school*
- Grants were awarded to MEN to become science teachers and professors
- Home economics = proper training for ALL women

Past 20 years

- In full, Charlotte Mason movement-
- In part, Classical Christian Schools, Montessori, and Waldorf (anti-Christian)
- School Garden movement, Alice Waters (Edible Schoolyard)
- No Child Left Inside 2009 S. 866, not yet approved

Nature Study vs. Science

Nature Study

- Direct observation “in situ” in the child’s own environment
- Concrete- look, hear, feel, smell
- Usually out-of-doors
- Finds recorded in children’s own book; their own possession
- Think locally, act locally

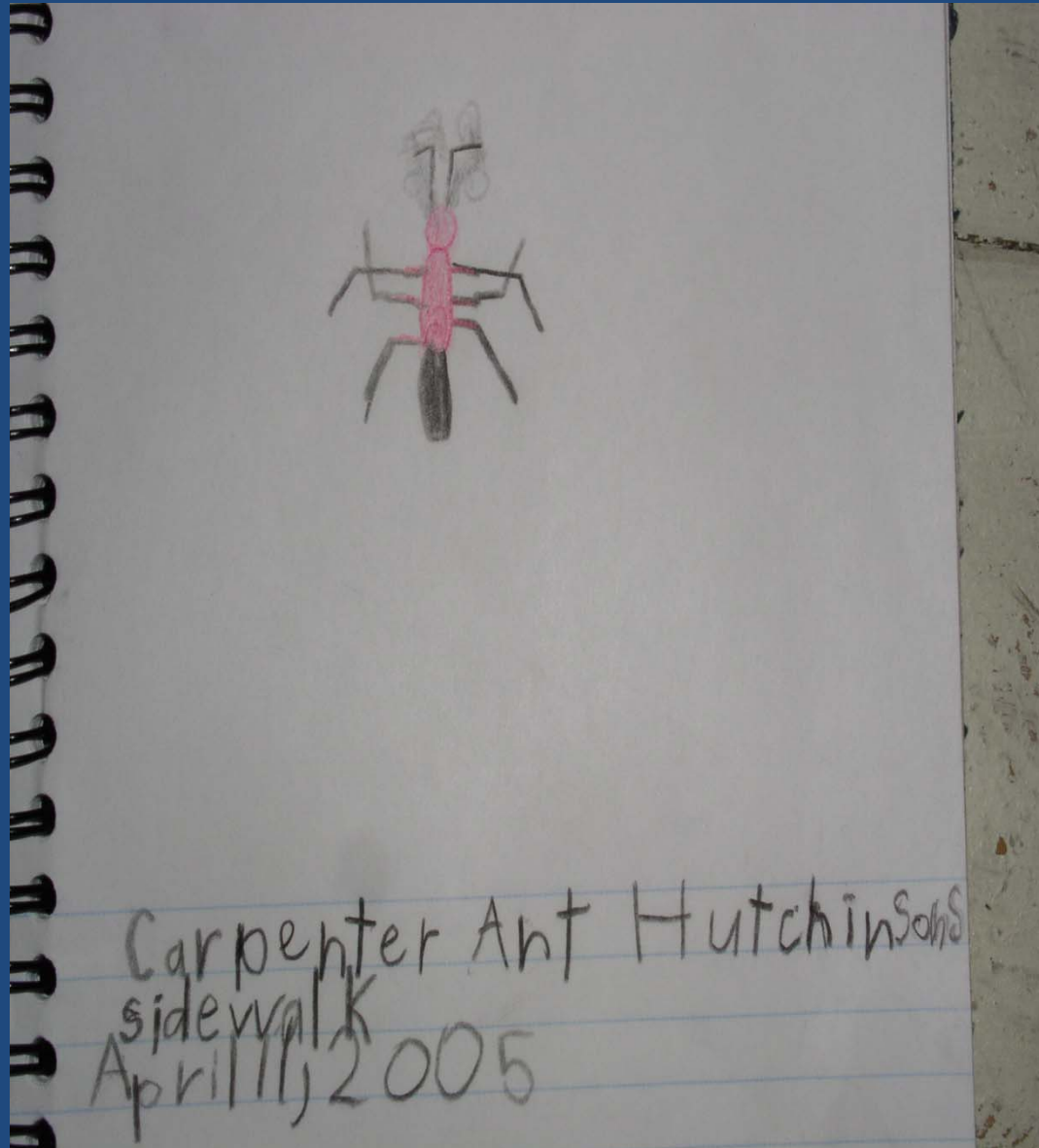
Science

- Learn from predecessor's ideas, observations, theories
- Distance learning with webcams, etc.
- Extend learning with experimentation in lab or field
- If...then thinking
- Hypothesis to theory (or natural law)

Nature Study: < 6 yrs old

- Play outdoors to burn energy
- THEN, send kids on an **exploring expedition**, “Who can see the most about yonder hill....” (or sky, garden,...)
- Upon return, “Who can tell the most about what you saw
- If not detailed enough, send back
- **Seasonal observation**- Ex. Visit “their tree” over the year

Insect on sidewalk, Age 5



Nature Study, age 6-12

- Theme for the term
- Frequency- once per week- once per month
- Nature notebook
- Date and location of find
- Recording- dry-brush watercolor; also, digital photos, rubbings, pressed specimens, newspaper articles

Plant study, Age 7

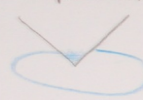
NonVascular Plant

"A plant that does not have tubes inside the leaves."

Moss

"This plant gets water through the air and damp surfaces. It absorbs water."

We did an experiment with a paper towel, water, and blue food coloring. We put the tip of the paper towel into the mixture. The paper towel absorbed some of it, and the water kept climbing through the paper towel.



"Oral
narration
10-19-04
Drawing
10-20-04"

10-4-04
AMERICAN

Vascular
LINDEN

Plant

Tilia americana

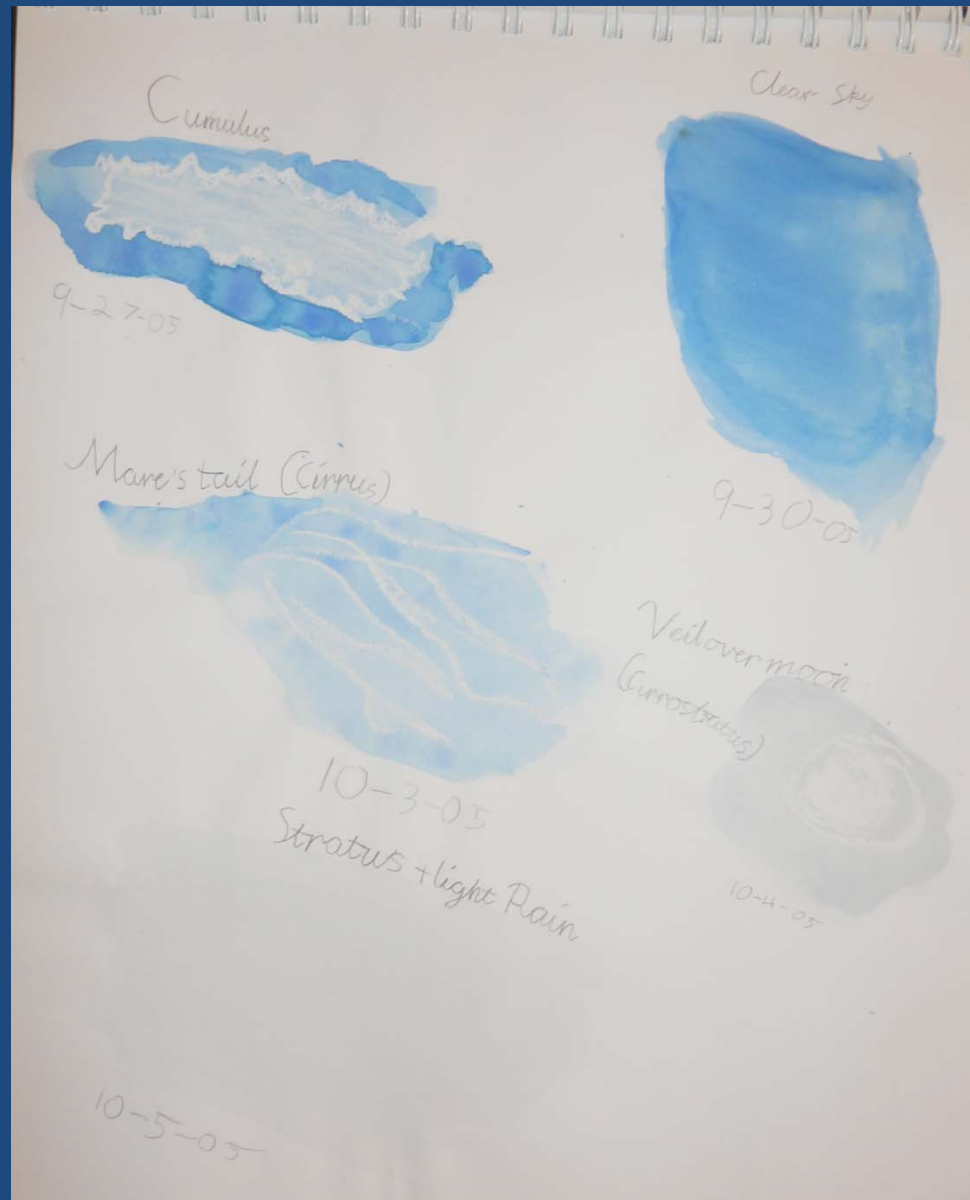


Mar. 28-0

"A vascular plant has tubes inside of it. The tubes carry plant food and nutrients. My vascular system carries blood and oxygen around my body. Our tubes are called veins and arteries. We call plant tubes veins also."

oral narration 10-13-04

Clouds, Age 8



Feathers, Age 8

FEATHERS

4-03-06

Feathers as clothing

Feathers serve as raincoats.
They are also like down jackets
which provide insulation.

A hen oils her feathers by pressing
an oil gland at the base of her
tail feathers and then rubbing
her beak on and through her
feathers.

barbs

fluff

quill

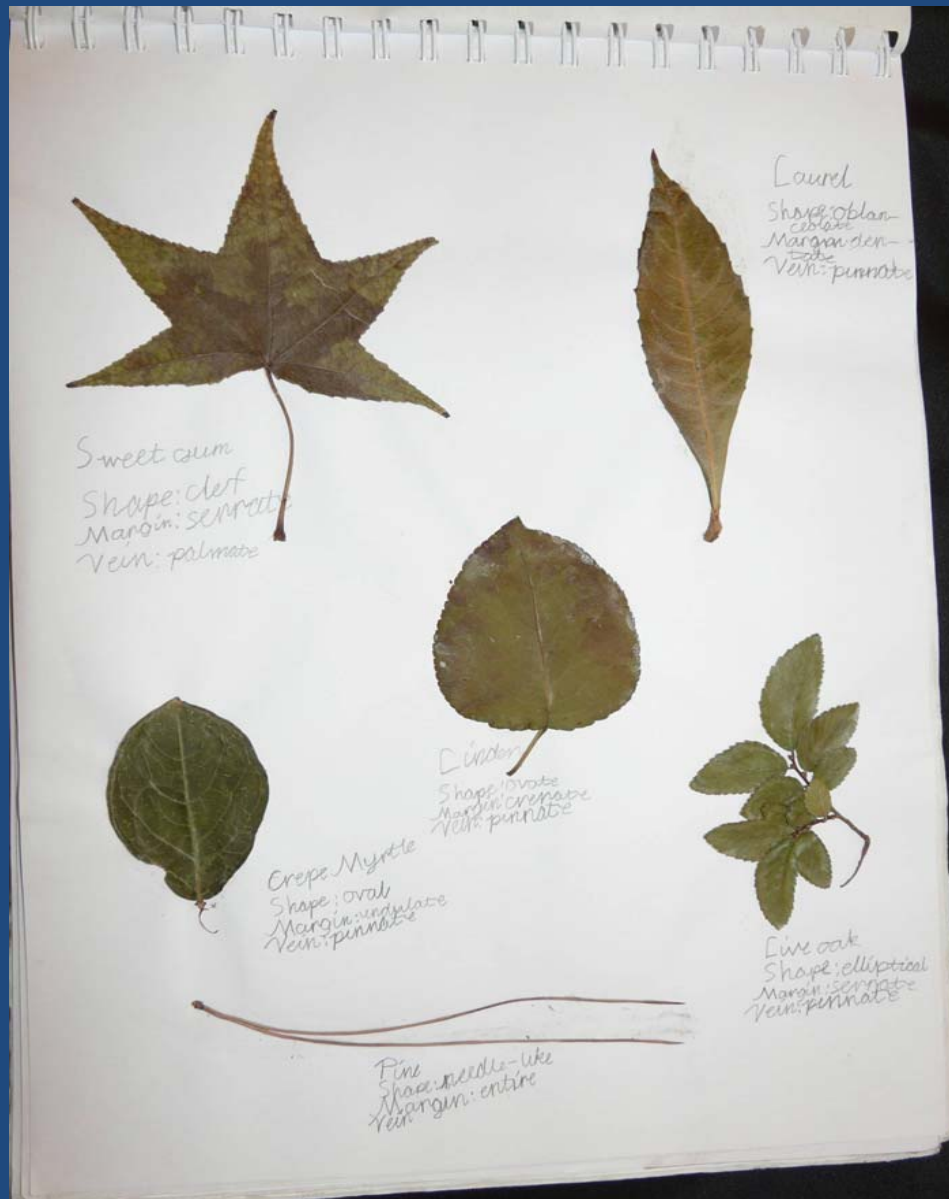


3-3-06

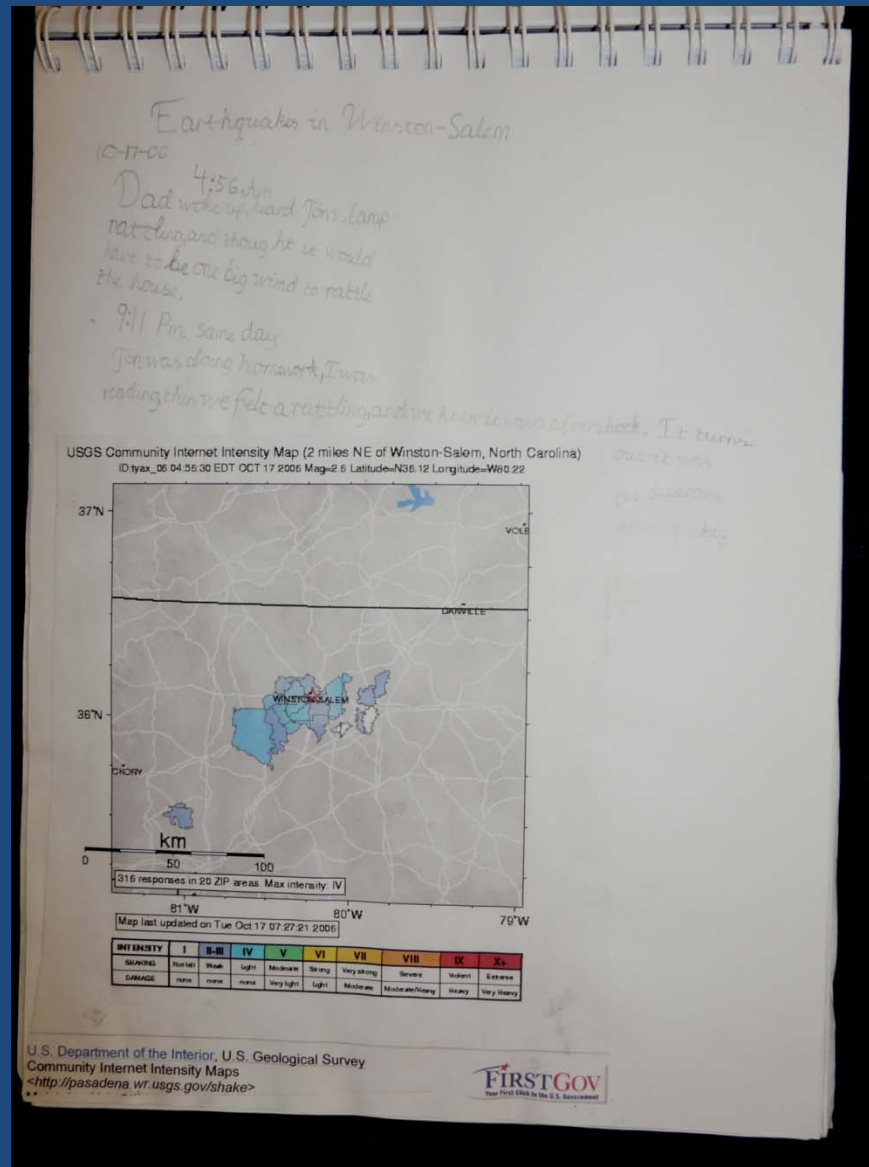


3-30-06 Contact paper
attracts feathers

Leaves, Age 9

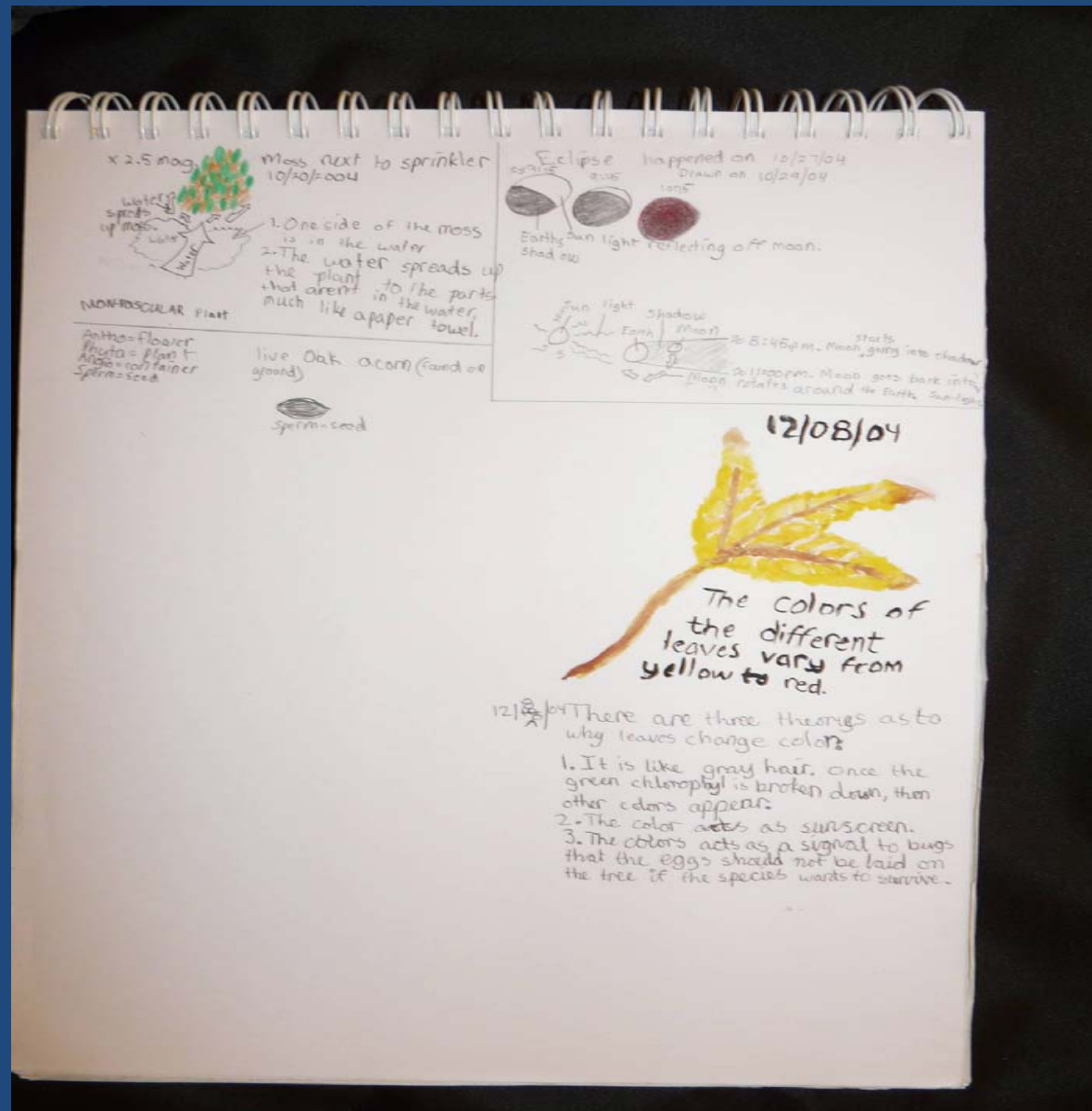


Earthquake! Age 9



Plants and Eclipse;

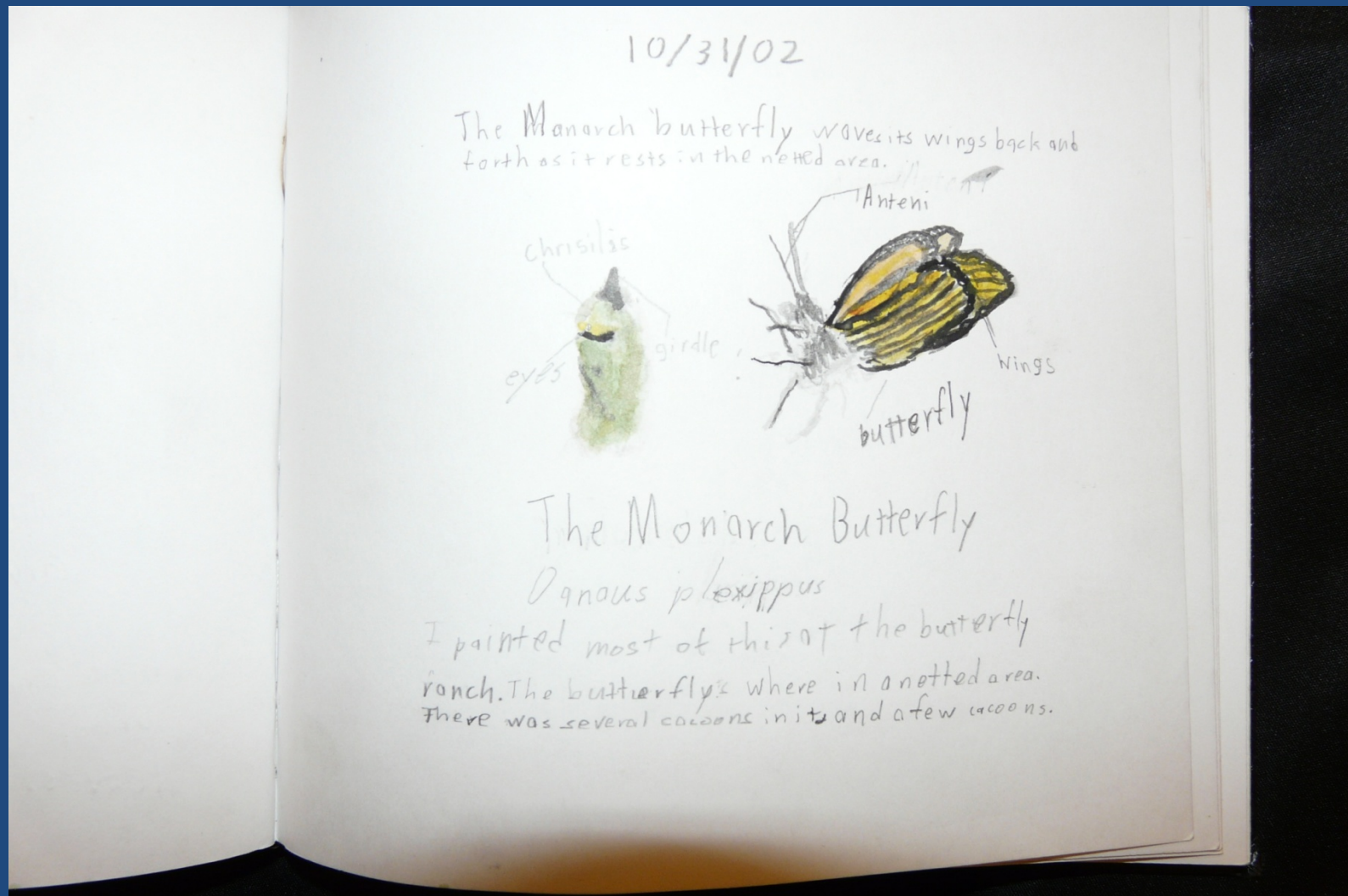
Age 12 (New to Nature study)



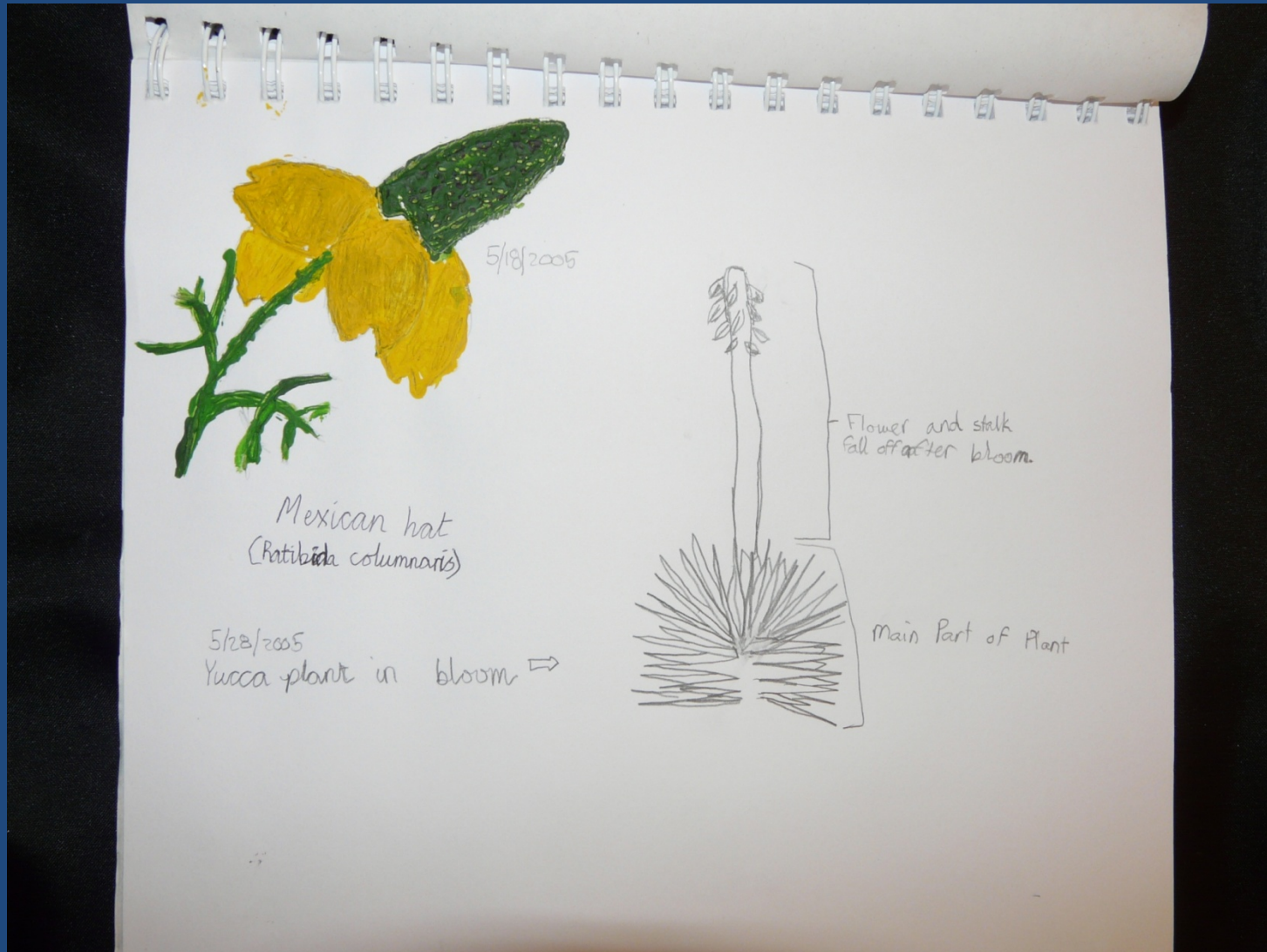
Middle-High school journals

- Additional descriptive components
 - Time
 - Weather conditions
 - Unique characteristics
 - Human impacts and disturbance

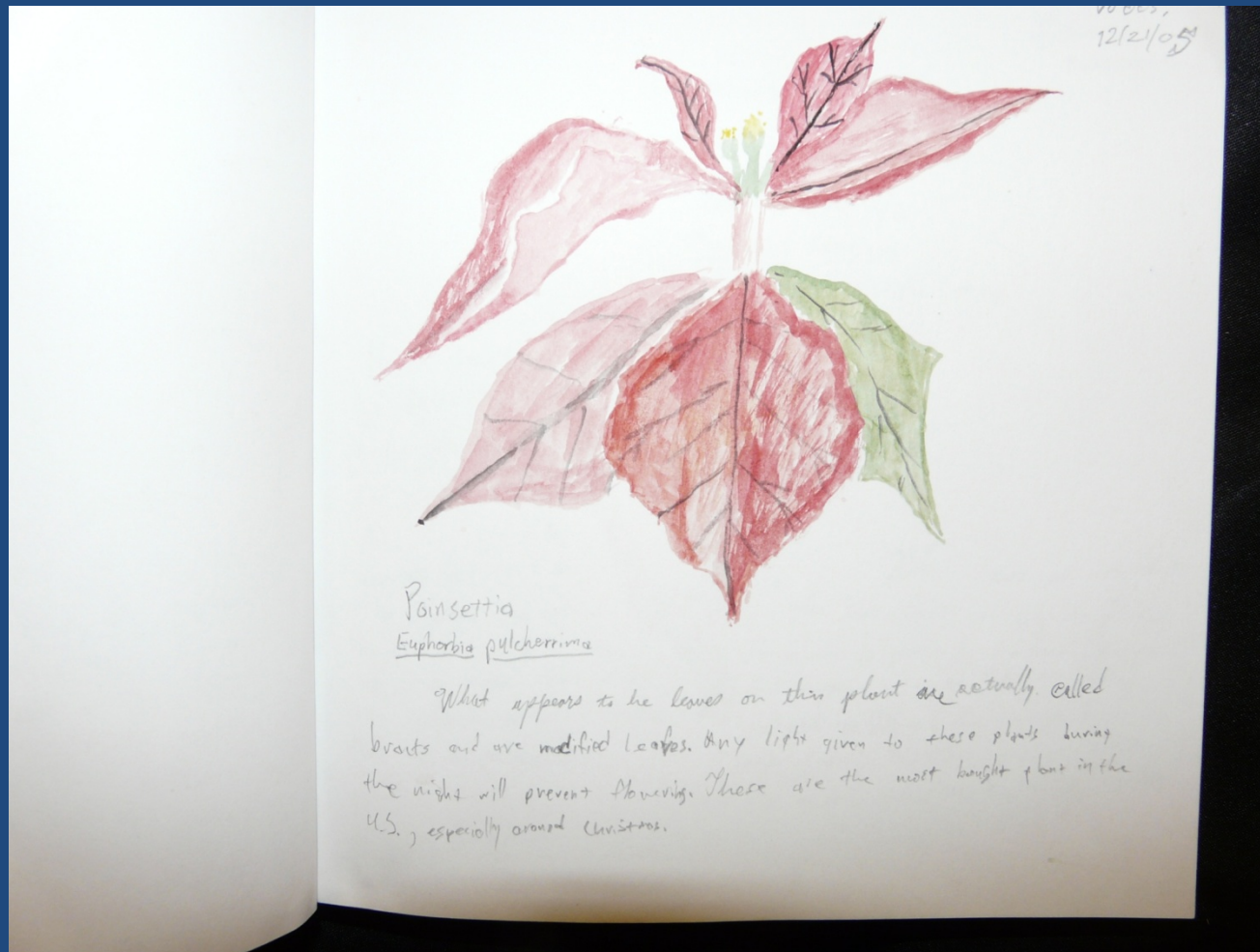
Metamorphosis, age 12



Age 13, first year of Nature Study



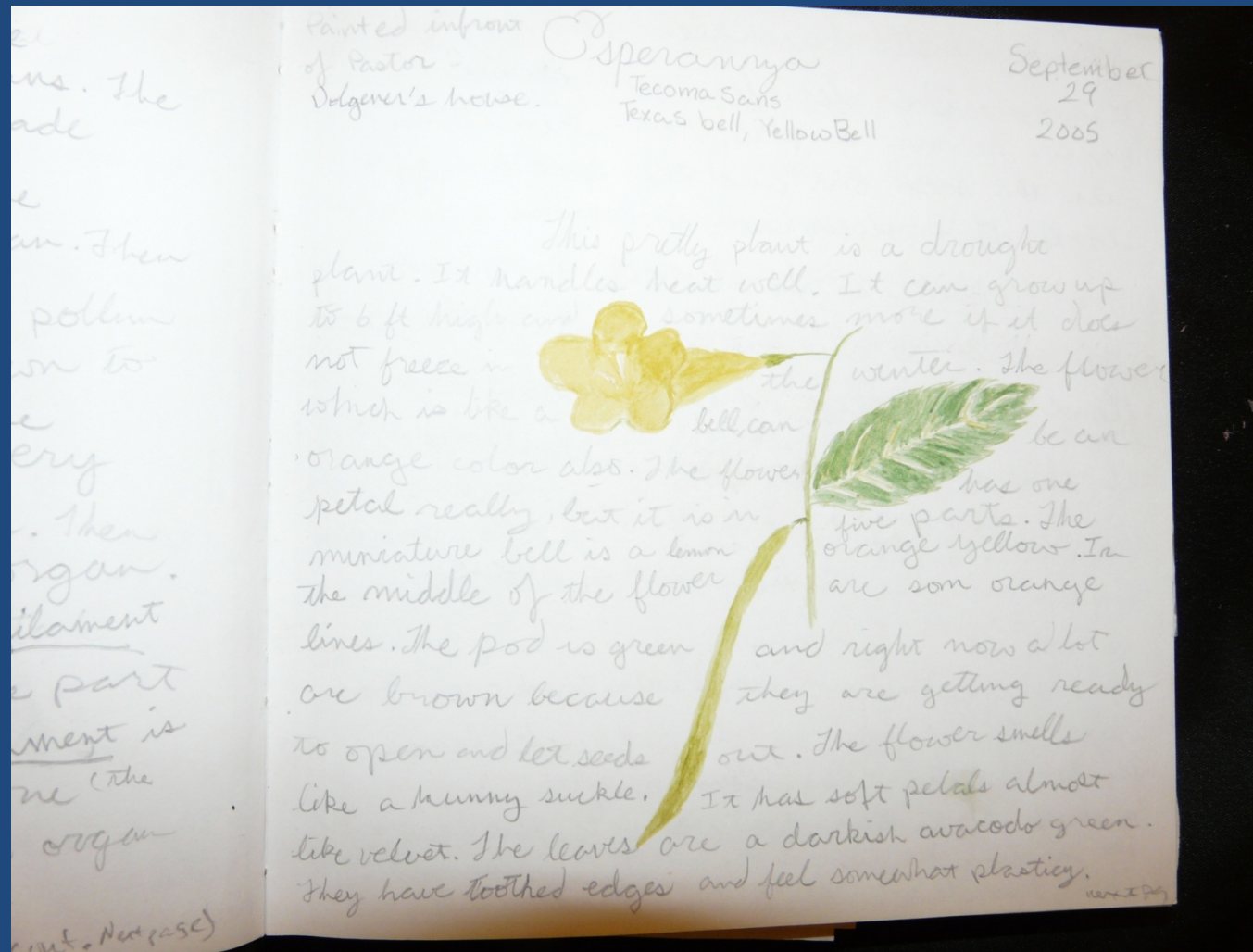
Poinsettia, age 12



Poinsettia
Euphorbia pulcherrima

What appears to be leaves on this plant are actually called bracts and are modified leaves. Any light given to these plants during the night will prevent flowering. These are the most bought plant in the U.S., especially around Christmas.

Esperanza, age 12



Additional Methods

(Middle - High School)

- Personal “First” sighting lists of migrating or seasonal things- hummingbirds, catkins, flowers, baby rabbits...
- Write what you have learned for younger kids
- Community service- Monarch tagging, Bird counts, planning and planting community or school gardens
- After school-
 - Scouting
 - Master Gardener or Master Naturalist certificate
 - Certified Bee-keeper
 - 4-H
 - First Aid/CPR certification
 - Volunteer in nature centers, hospitals, etc

A Call for Action

- Parents- just get started!
- Scientists and educators:
 - Review books in your specialty area that written for kids, both in nature study and science.
 - Literary, accurate, personal interest, do not “dumb down” or get cutesy;
 - Consider the cognitive abilities of the age group for which the book was written.

Call for Action, cont.

- Know your own neighborhood habitat.
- Volunteer in local schools or homeschool co-ops.
- Develop field studies, such as “Maymester” bug camps, for your students
- Consider “Citizen-scientist” opportunities for all
- Do Evidence-based research:
 - Do nature studies increase scientific understanding and/or vocational interest in science?

I Kings 4:29-34 (ESV)

- And God gave Solomon wisdom and understanding. ... He also spoke 3,000 proverbs, and his songs were 1,005. He spoke of trees, from the cedar that is in Lebanon to the hyssop that grows out of the wall. He spoke also of beasts, and of birds, and of reptiles, and of fish. And people of all nations came to hear...

Resources

- www.childlightusa.org
- Contact me for copy of comprehensive outline at cmasonhomeschool@gmail.com
- www.amblesideonline.org for primary sources

Questions and Answers