



BOTANOGRAPHY (bə'tæn-o-grafee)

STEAM Curriculum: *Arts focussed literacy and botany lessons for K–12 students.*

Developed by:

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Botanography (501c3)

Use and Application:

1. Deep engagement with school gardens and the natural world as a part of classroom instruction
2. Prioritize literacy, awareness, and understanding of the natural world
3. Integrate arts as an integral part of literacy and STEM instruction
4. Apply multi-sensory principles as a part of STEAM instructional models

Botanical Curricular Themes:

1. Cellular | Letters & Words
2. Plant | Words & Sentences
3. Ecology of Plant Life | Words & Sentences in Stories



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PRIORITIES and GUIDING PRINCIPLES:

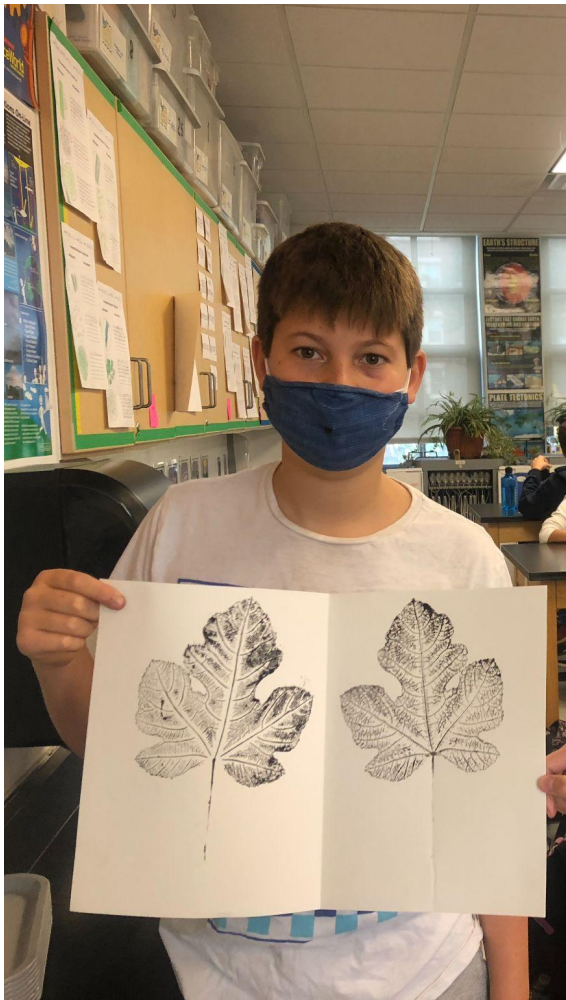
1. STEAM (a wholistic pedagogical model)
2. The Orton-Gillingham Approach Principles ([www.https://www.ortonacademy.org/resources/og-approach-principles/](https://www.ortonacademy.org/resources/og-approach-principles/)) (Sensory engagement with plants and botanical language)
3. *A New Approach to Ecological Education, Engaging Students' Imaginations in Their World*, Gillian Judson, Peter Lang Publishing, Inc., New York, 2010.
4. Nature Printing as a simple printing technique that creates images of plants which has been historically used by artists and botanists and a manner by which students can work with plants to study their biology and use as a basis of imaginative and scientific literacy lessons.
5. Value of reflective writing in STEAM pedagogy. All lessons include an element of reflection. Reflective writing exercises based on prompts that encourage students to think creatively and scientifically about plants.
6. An ADAPTABLE CURRICULUM. (Botanography would like to partner with educators and schools to develop lessons meaningful to their curriculums and school culture.)



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Botanical Curricular Themes (singular and series of lessons):

1. **Cellular | Letters & Words:** lessons that consider the cellular scale of plants and language (letters, sounds, and words as well as cellular elements of plants)
2. **Plant | Words & Sentences:** lessons that address the meaning of words, the structure of sentences, biological significance of parts of plants, and structure of plants (words and their relationships to sentences, parts of plants and their relationship to the function of plants as organisms)
3. **Ecology of Plant Life | Words & Sentences in Stories:** lessons that address the meaning of words and sentences in imaginative and descriptive stories about the natural world and the significance of plants as a part of urban and natural ecologies



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Forms of Introductory Discussion, Preparation, and Reflection to extend lessons

1. **Field Trip** (a walk about in the neighborhood to collect and observe plants)
2. **Field Trip** (a visit to a Philadelphia arboretum or garden)
3. **School Garden Visit** (time for observation of plants and a reading of a story that relates to a lesson)
4. **Collecting and Sorting Plants** in various categories in preparation for lessons and nature printing
5. **Journaling with Photographs, Writing, and/or Drawings** (types of plants worked with in lessons; process of nature printing; observations about plants)



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Tools and Materials Useful in Nature Printing

Tweezers

Brayers

Bruners

Wax paper

Masking tape

Scissors

Student grade paint brushes

Linseed oil

Ground charcoal

Ground pigments

Paper towels or cotton rags

Student grade cotton printmaking paper

*portable printing press (provided by Botanography)

Non-toxic cleaning supplies (ie. Windex vinegar mix)



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Models for Nature Printing Workshops

1. **Workshop(s) for Classroom Teachers** (whereby teachers are then able demonstrate nature printing techniques to students in the classroom for use in lessons)
2. **Workshop(s) for Art Teachers** (whereby art teachers in schools are integral to Botanography classroom lessons)
3. **Workshop(s) for Students** (whereby Botanography instructors teach nature printing directly to students as a part of lessons or a series of lessons)