Art + Science

Watercolor Botanical Illustration

Time:

This lesson can range from a two hours, just focusing on painting one simple specimen, to a unit that lasts for several months, depending on how in-depth you want to go.

BEFORE YOU BEGIN:

Explore this awesome resource to help you prepare:

http://www.botanicalartandartists.com/

(includes extensive information, links, videos, etc.)

Materials:

botanical specimen such as fruit or plant

pencils

eraser

hot press watercolor paper

watercolor paints

brushes

water basin

paper towel

Optional: magnifying glass, science journal

Objective:

Close observation of nature, truly seeing and sensing the live specimen, understand the connection between art and science, learn about plant taxonomy and identification, history of the importance of plants to botany and medicine

LEARNING ACTIVITIES

Introduce students to botanical artists and their work from history: http://www.botanicalartandartists.com/history.html

Students will learn how botanical illustration was an integral part of the study of botany and medicine: http://www.botanicalartandartists.com/what-is-botanical-art.html

Students will learn the parts of plants and parts of flowers

If students are absolute beginners with watercolor, start with teaching some watercolor basics and color theory.

If students do not possess drawing skills, include a unit on observation and drawing. Only choose a complicated botanical specimen if students possess strong drawing skills.

LESSON OPTIONS TO ADD MORE STEAM:

Explore and study plants native to your area. Go outside to collect specimens to use as your botanical specimens.

Students can grow a plant from seed, observing and painting to record the process. This option will be a several week process.

Students can have a unit on seed germination and the life cycle of a plant as well as photosynthesis. They will observe and record, in a science/art journal, the stages of plant growth.

Students can dissect plants and draw their observations. Plant dissection instructions: https://www.asba-art.org/article/science-botanical-art-dissection-how

Students can learn about plant classification: http://data.kew.org/sid/plantform.html

Students can learn about plant evolution and taxonomy: http://www.botanicalartandartists.com/plant-evolution-and-taxonomy.html

Students can learn about mindfulness to help them "see" their specimen better. The following link is a guided meditation on a raisin to give you an idea of what to do to help students become completely aware of their specimen (or just play the video for students). Raisin meditation: https://www.youtube.com/watch?v=_CZEEYMXr8Q Additionally, students can learn about the health benefits and science of mindfulness: https://blogs.scientificamerican.com/guest-blog/what-does-mindfulness-meditation-do-to-your-brain/

WATERCOLOR BOTANICAL ILLUSTRATION INSTRUCTIONS:

1. Have whole class or small group discussions of student's observations of examples of botanical illustrations from history as well as modern examples. What do the students notice in these examples compared to other works of art they have seen. (Some observations to point out include - often white background/lack of background, sometimes light source is not apparent, not a stylistic representation but a true representation of nature with all its imperfections.

2. Give a brief review of the link between botanical illustration and the science. At root, science begins with the observation of nature. This video will walk students through the steps involved in scientific observation: https://www.youtube.com/watch?v=JkEYaP4R1Cs Another approach is to have the students participate in a mindfulness meditation focused on their specimen. This video will show you how to do this, or you can just use the video: https://www.youtube.com/watch?v=_CZEEYMXr8Q

3. Students will observe botanical specimens for a few minutes before beginning, taking time to notice its shape, colors, peculiarities, smell, feel/texture, etc., to truly see the object in front of them.

4. Students will then begin to draw their botanical specimen with a pencil, using light pencil pressure so that the drawing is not predominant in the finished painting. Focus on the main shape first, then begin to notice details and give an indication of them in pencil. Especially note the lightest parts and give an indication of where those are located with pencil. OPTIONAL: lightly shade the shadow areas and details with pencil.

5. Prime the parts of the paper that will be painted with clean water and let dry. OPTIONAL: apply a very light wash of yellow ochre or Naple's yellow which will give a warm glow to the final painting.

6. Check paper to make sure it is dry. Instruct students to be sure a section they have just painted is dry before moving on the the next area to avoid bleeding. To avoid bleeding, move to an area of the painting that is not adjacent to the area just painted until it is dry.

7. Then begin to paint. If there are little marks, such as the tiny dark spots you see on a mango, go ahead and indicate those with brown paint in a fairly dry brush, but not too dark. The reason to do this is because as the color is layered, the pencil marks that indicate these may get lost.

8. When painting with watercolor, you do not use white paint because the white of the paper is your white. For example, if you want a light brown, you load your brush with more water in proportion to brown paint. This doesn't necessarily mean your brush will be sopping wet, just keep the proportions in check Instruct students to begin with the area they feel drawn to and begin painting by building up layers of color. They will want to stain the surface with the color, not create a pool of color.

9. Continue to truly observe the specimen. Do not rely on what you think the specimen looks like - paint what is actually in front of you.

10. Proceed with painting by building up layers of color to achieve deep rich colors.

11. *Remember to preserve the lightest areas by not painting over those areas. Sometimes it helps to not paint near those areas because they can easily get lost.

12. Finish up by going back over any small details that might have gotten lost in the layers.

FIELD TRIP – LIVE OR VIRTUAL? IS THERE A BOTANICAL GARDEN LOCATED NEAR YOU?

Links to botanical gardens in Florida: https://en.wikipedia.org/wiki/List_of_botanical_gardens_and_arboretums_in_Florida

Links to botanical gardens in the US: http://www.botanicalartandartists.com/botanical-gardens-in-the-usa.html

Links to botanical gardens worldwide: http://www.botanicalartandartists.com/botanic-gardens.html

RESOURCES:

Botanical Artists from history to Explore: http://www.botanicalartandartists.com/history.html

Time Lapse of a Seed Growing: https://www.youtube.com/watch?v=iZMjBO6A7AE

VIDEOS:

Video on the history of botany (1 hour long and is 1 of 3 in a series): https://www.youtube.com/watch?time_continue=18&v=cVDpdmlpZKw

Instructional videos on botanical Illustration: http://www.botanicalartandartists.com/botanical-art-video-tips.html

Botanical illustration videos on youtube: https://www.youtube.com/results?search_query=botanical+illustration+for+kids

Selection of videos on Photosynthesis: https://www.youtube.com/results?search_query=photosynthesis

BOOKS:

Botany Textbook - McGraw Hill textbook chapter "Plant Form and Function": http://www.mhhe.com/biosci/genbio/raven6b/graphics/raven06b/other/raven06_37.pdf

Botanical Illustration Instruction Books:

Botanical Illustration Course with the Eden Project

Botanical Sketchbook

Billie Showell's Botanical Painting in Watercolor

A-Z of Flower Portraits: An Illustrated Guide to Painting 40 Beautiful Flowers in Watercolor

Watercolor Fruit and Vegetable Portraits

The Modern Flower Painter: A Guide to Creating Vibrant Botanical Portraits in Watercolor

Botanical Illustration for Beginners: A Step By Step Guide

HELPFUL TIPS:

Specimens - begin with bright colored specimens that aren't too complicated, such as a mango. As student's gain skill, move to more detailed specimens, such as intricate flowers. Reserve white fruits, vegetables, and flowers for later lessons after students have had the opportunity to build their observational painting skills.

Paints - good paints ensure successful outcomes. I prefer Sennelier, MaimeriBlu, M. Graham. Sennelier are not the most expensive, but they are of high quality, pure, bright colors. Winsor and Newton Cotman is a more economical choice, but still good quality. Their travel set is a good option. Children's palette sets can be used as a last resort. If these are used, instruct students to not use too much water so that they can get more pigment onto the paper.

Brushes - it is important to use brushes that will hold a good bit of paint, but also come to a nice point when wet. Many botanical illustrators prefer Winsor and Newton Series 7 watercolor brushes. Another good choice is Raphael. These may be pricey options, but I wanted to let you know the preferred choice of botanical artist. Rosemary and Co. makes nice brushes as decent prices.

Paper - hot press is best for botanical illustration. high quality paper - Arches, Fabriano hot pressed Blick and Fabriano make a decent student grade paper.

Presentation of watercolor: watercolors are usually matted and framed under glass to protect them. If you are planning to exhibit student work, it is helpful to have student's paint on a usual size of paper that will easily fit into a pre-cut mat or frame.

VOCABULARY

In **botanical illustration** - the emphasis is on the scientific record and botanical accuracy to enable identification of a plant. Records might also be made of the plant growing in its natural habitat

In **botanical art** - the emphasis is on the plant or flower but without the requirement for ALL the information required by the botanists. There's more of an emphasis on the aesthetic value to be found in the plant or flower.

In **flower painting** - flowers are often found in vases sitting within a still life context - or in a garden or the countryside. The emphasis is much more on a pleasing painting and much less on the botanical accuracy or the various features of the flower

A **Florilegium (**click here to see how to pronounce this word**)** is a collection of flower illustrations. It provides an illustrated record of all the plants found in one place such as a garden. Learn all about Florilegium and Flora: http://www.botanicalartandartists.com/florilegia-and-flora.html

A **Flora** is a botanical record of the plants associated with a specific place - country, region or habitat. Floras are often illustrated and are being produced today and will continue to be produced into the future.

Illustrated records of plants and flowers were first made in books called **Herbals.** These were used by doctors as inventories for medicating patients - and early botanical illustration focused on enabling the accurate identification of plants for medicinal purposes. Learn all about Herbals: http://www.botanicalartandartists.com/herbals.html

Plant **taxonomy** is the science that finds, identifies, describes, classifies, and names plants.

Hot press watercolor paper is paper with a very smooth surface. It is good for botanical illustration because paint takes longer to dry, give the artist more time to work.