

# Botanical Illustration for the Classroom

*Bringing Art to Science...*



Partially supported  
with funds  
provided by the  
American Society  
of Botanical Artists



# Applying botanical illustration techniques to teach science in the classroom

## Skills

- Scientific observation (Both qualitative and quantitative)
- Drawing
- Attention to detail
- Following a method
- Neatness
- Completeness



Is it complete?  
Is it neat?







Students improve with exposure to techniques of observation, drawing and painting



Example of a student's first botanical painting ( Jill Chapman).

Before



Example of the same student's work after tuition.

After



Example of a student's first botanical painting (Jack Harding).



Example of the same student's work after tuition.



## **First Hour**

Introduction to Botanical Illustration as it  
can be applied in the classroom with a  
demonstration

## **Second Hour**

Hands on workshop



# How will this be useful in the classroom

- Enabling students to produce quality work in recording observations in science
- Give teachers confidence and techniques in teaching drawing and observational skills
- Provides context for students exploring and understanding the history of recorded science illustration
- Promotes discipline in observing and recording data
- Provides a different and rewarding approach to curriculum diversification



# Botanical Illustration a la carte

- History
- Science
- Botanical Illustration
- Art Skills
- Career Educations





# History

- **Early man**
- **Egypt**
- **Greece**
- **Rome**
- **Europe**
- **Today**



# Early Man

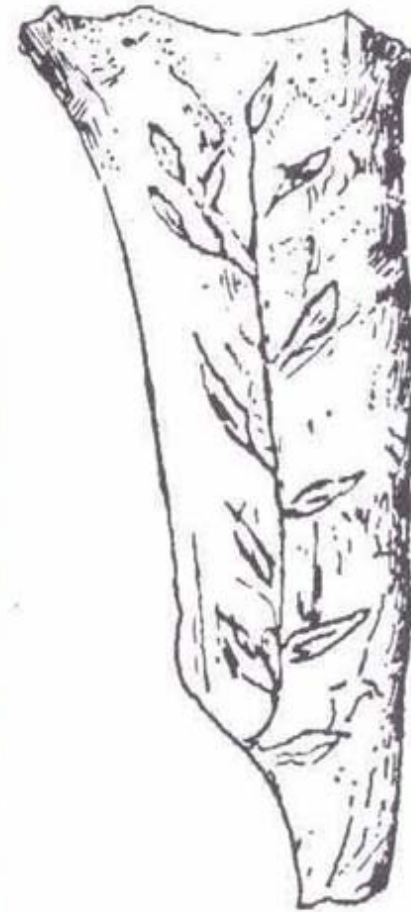


FIGURE 1. Plant form. Scratched on bone; paleolithic





# Ancient Egyptian Times

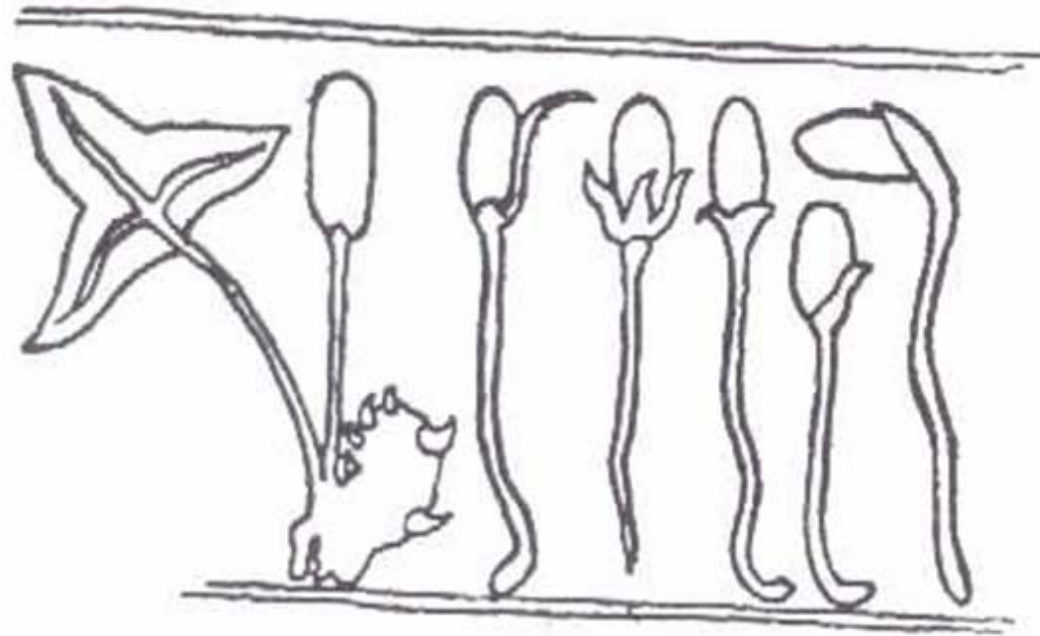
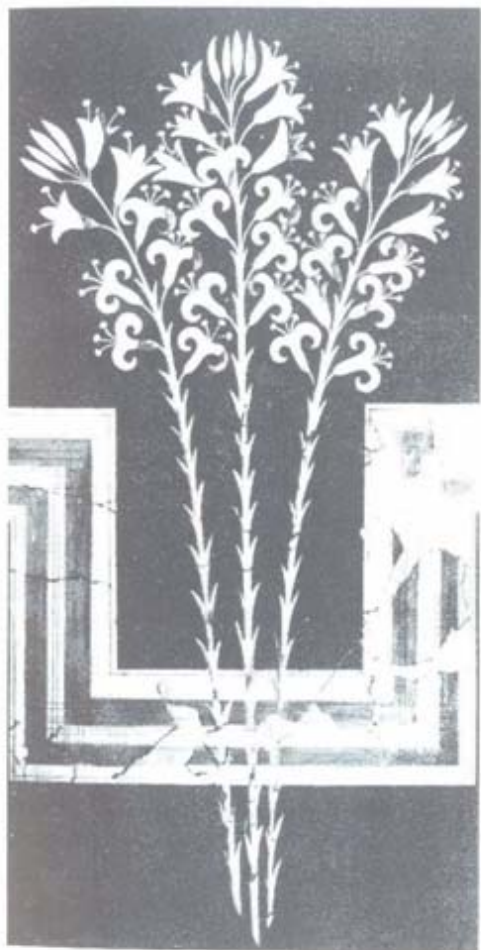


FIGURE 2. *Dracunculus vulgaris* seedlings. Egyptian stone relief in the Great Temple of Tuthmosis III at Karnak, c.1450 B.C.





# Greece





# Rome and the Renaissance



Michelangelo





# Europe

## Herbals



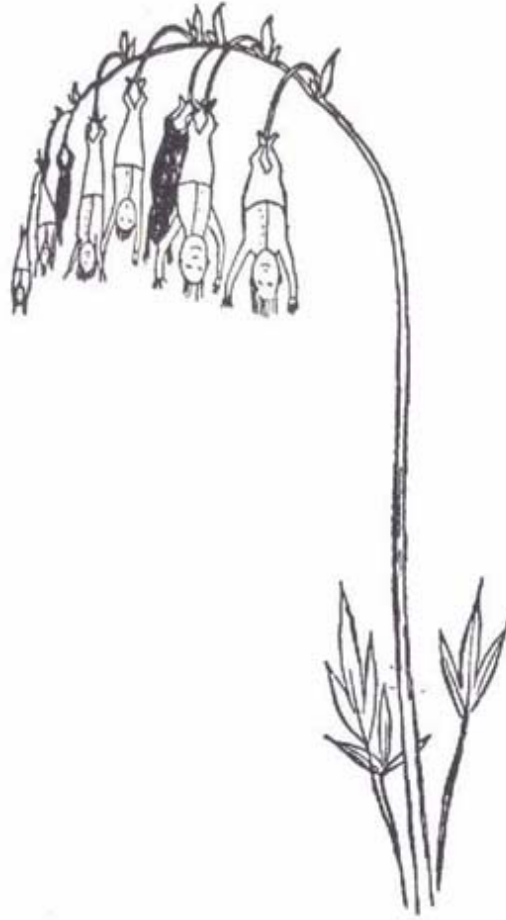
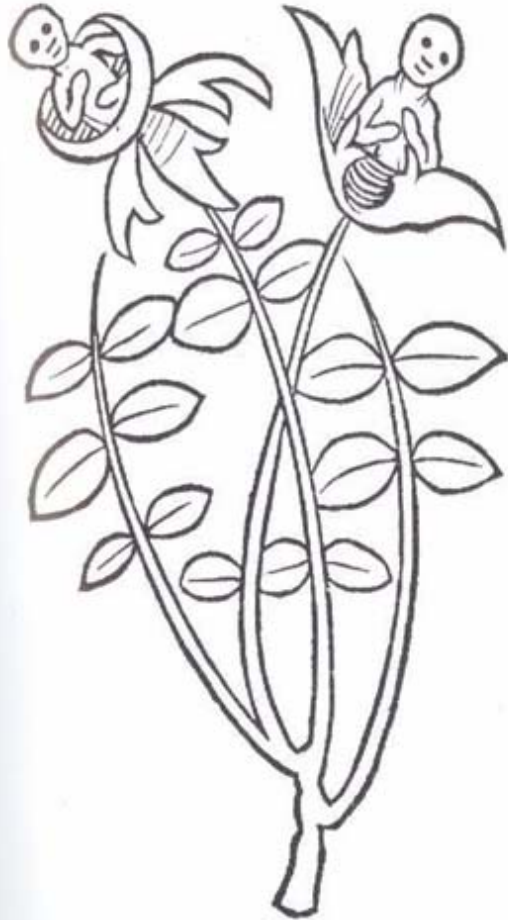
Horticulture including new plant species have been recorded through history by paintings prior to photography.





PLANTING OF IRIS







# Explorer's Records

Captain Cook's Second  
Voyage 1772 – 75

Johann Georg Forster

World explorers brought  
artists with them to collect  
and record plants by painting  
and journaling.





England early 1800  
Mrs. Augusta Withers

Early European women's  
"refinement" lessons  
required training in painting  
in botanical art.

Botanical painting was a  
way women could  
contribute to science.



ODONTODICTION GRAYE.



# Dutch Masters

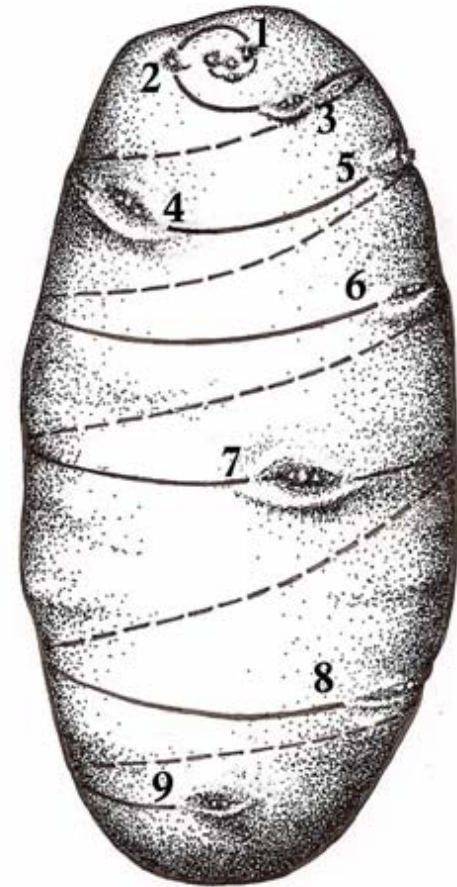
European royal families maintained elaborate gardens and retained botanical painters.





# Today

- A demand for illustration of plants for science books, art pieces, and other publications.
- Botanical art can depict more accurately than photos









# Art Skills

- Media techniques (materials, media, mixing colors, moving color, building form, etc)
- Drawing
- Perspective
- Composition
- Observation
- Appreciation of accuracy, neatness, patience



# Science

- Observation
- Measurement
- Recording data
- Accuracy
- Diversity in nature
- Identification
- Ecology
- Ecozones
- Relationships in nature
- Classification
- Anatomy
- Life cycles/reproduction



# Botanical Illustration

- Multiple Step Method
  - Getting to know your subject
  - Drawing
  - Composition
  - Transferring the Image
  - Tea Stage
  - Building form (making 2D into 3D)
  - Overlap (defining depth)
  - Details (adding what you see)
  - Transition (tying it all together)
  - Finishing



# Getting to know your subject





# Drawing





# Composition





# Transferring the Image



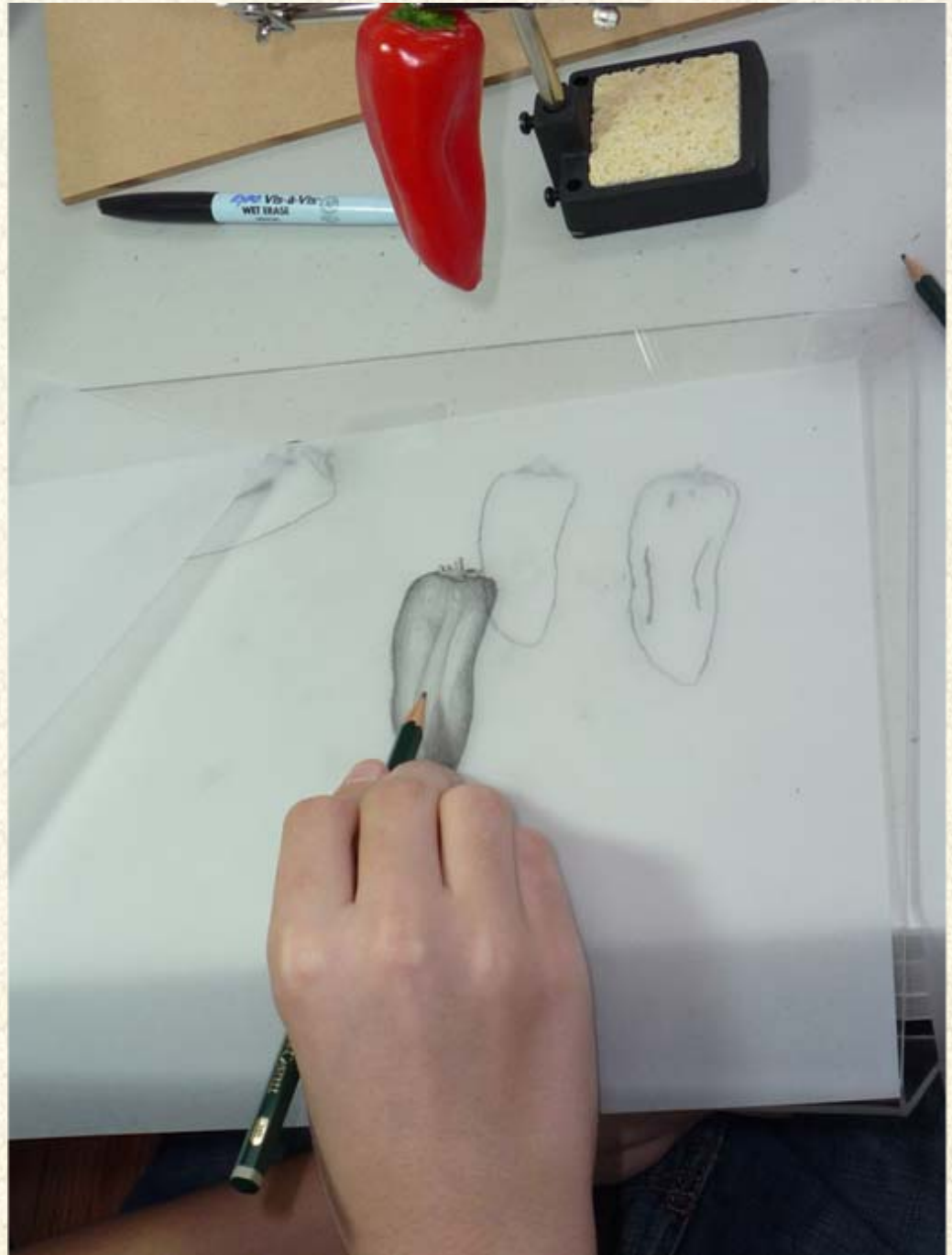


# Tea Stage





Building form  
(making 2D  
into 3D)





Overlap  
(defining  
depth)





Details (adding what you see)





# Transition (tying it all together)





# Finishing



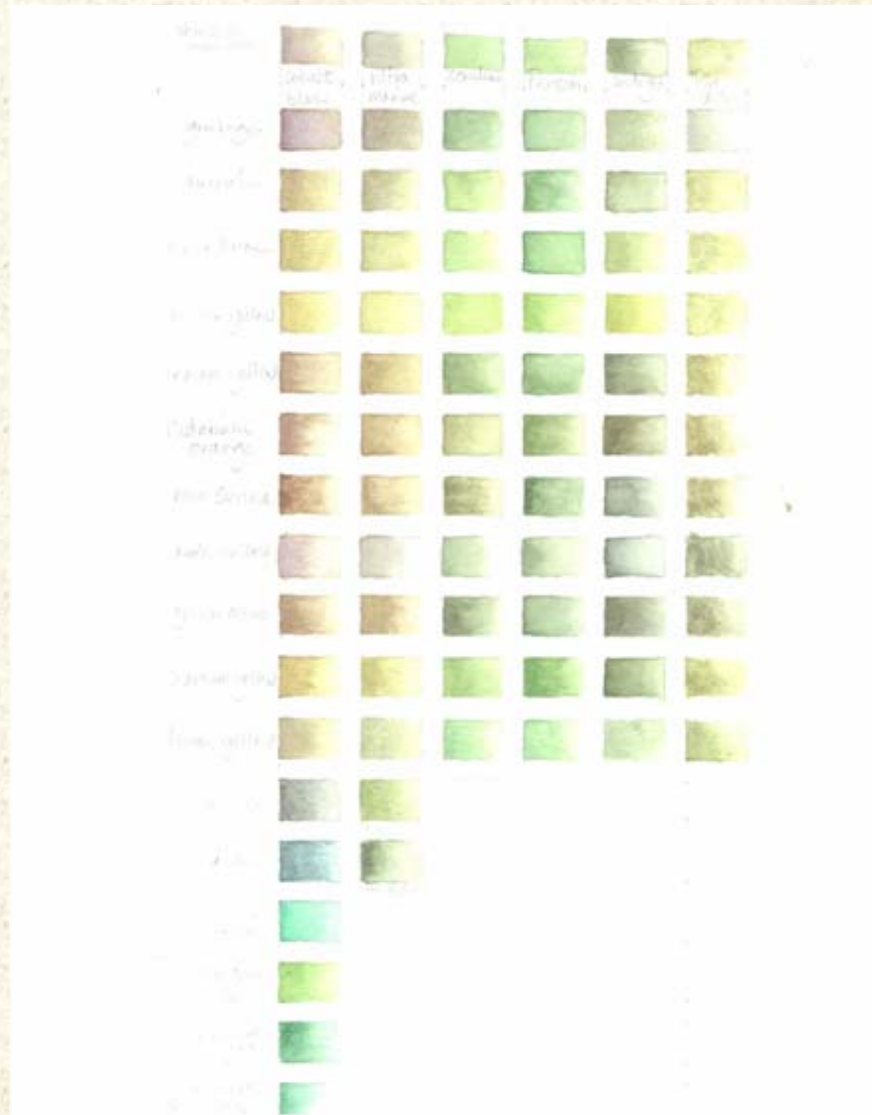


# Media Techniques

- Which materials to use?
- How do you chose and mix colors?
- How do you move paint?
- How do you show 3D on 2D surface?
- How do you transfer images?



# How do you chose and mix colors?





# How do you move paint?



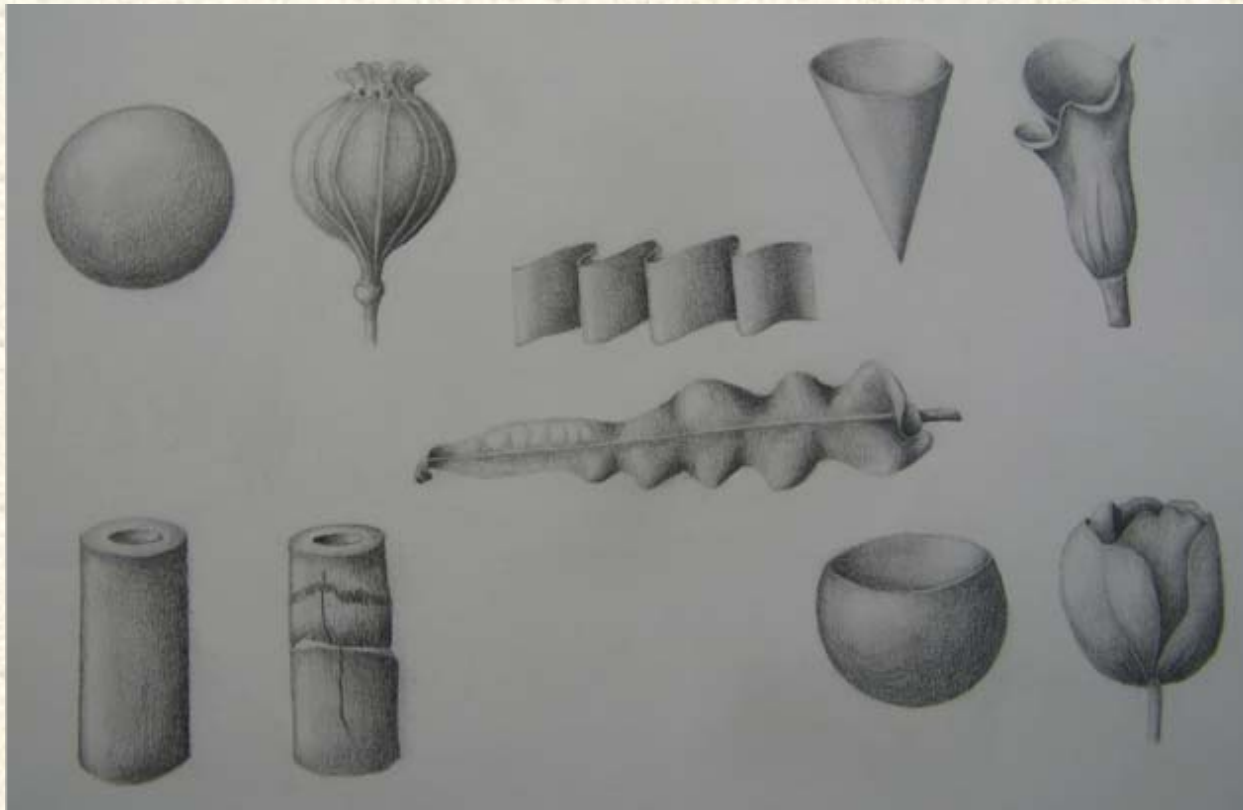


How do you transfer images?





How do you show 3D on 2D  
surface?





# Perspective

How to capture in a drawing?









# Composition

- How do you make the painting appear real and attractive?
- How large should the subject be?
- How much of the plant should I show?
- Do the things in front look different than the things in back?



# Observation

- Looking at all the details
  - Connections
    - between stem and leaf
  - Leaves
    - surface
    - veins
    - habit
    - color
  - Size of each part
    - orientation





# Classification

## Binomial nomenclature

- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

Using Taxonomic Keys  
New Methods for Identification

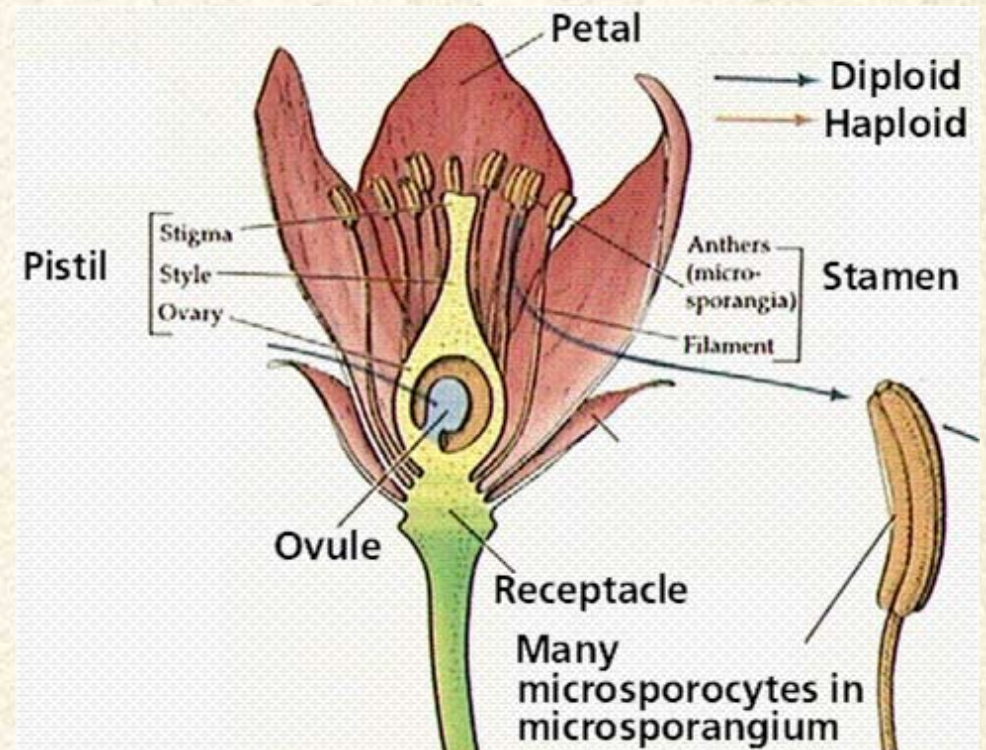
## Linnaeus





# Anatomy

- Identifying parts and their functions
- Roots, stems, leaves, flowers, fruits
- Dissection techniques





# Ecology

- Understanding a plant's habitat and its function in that ecosystem.
- Observing other plants that grow with it and why.
- Understanding where it grows and why.





# Life Cycles & Reproduction

- Understanding different stages of the plant's life cycle.





– Differentiating reproductive parts,  
understanding their function.

– Learning the  
life cycle's  
importance in  
identification  
of plants.





– Understanding plant survival mechanisms.





# Life Skills

- Patience
- Observation
- Accuracy
- Following a method
- Approach to neatness





# Patience

It takes *time* to:

- Observe the plant's details
- Draw the details accurately
- Create the right paint color
- Carefully paint it









# Observation

- Looking at each part of the plant
- Creating accurate line and shape details.
- Reproducing accurate color.
- Figuring out how to represent textures.
- Understanding light and creating form to achieve realism.





3pts Sap Green  
1.5pts Fern Green





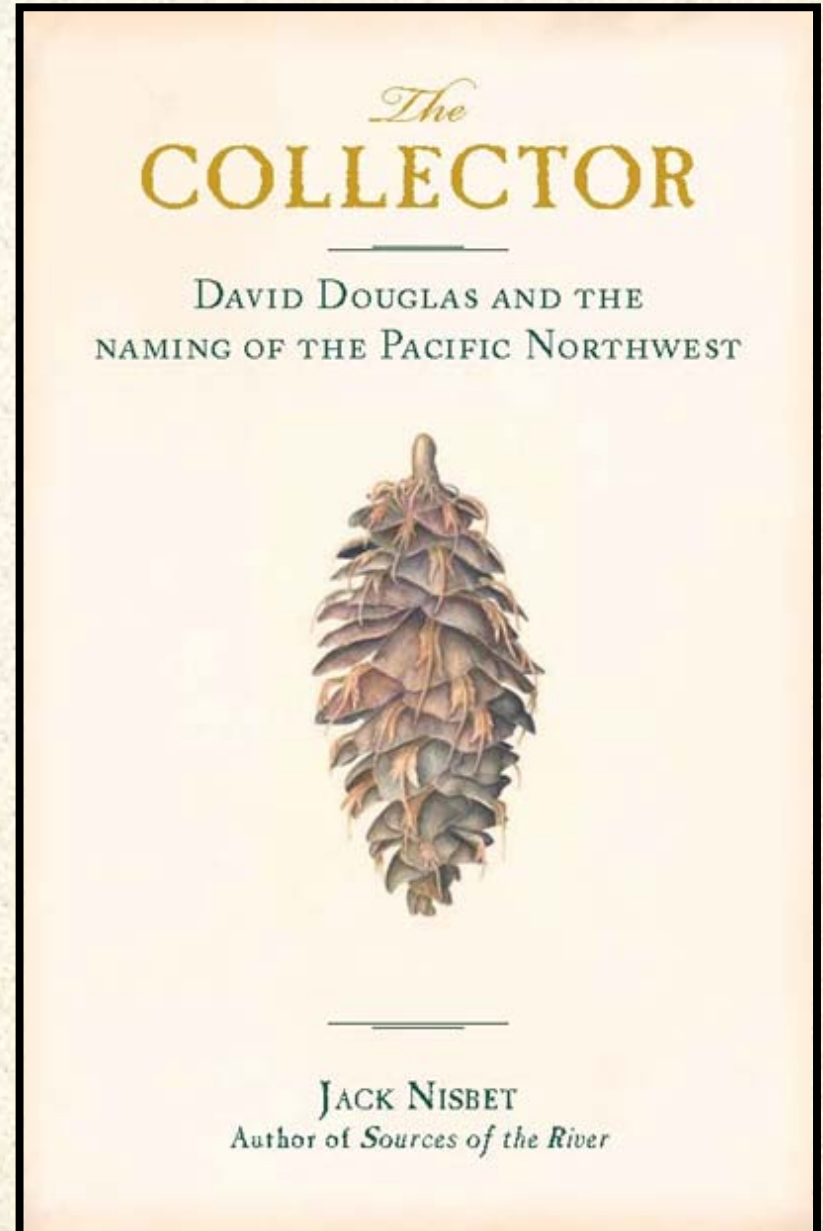
# Accuracy

- Drawing what is seen including:
  - contour
  - lines
  - color
  - perspective

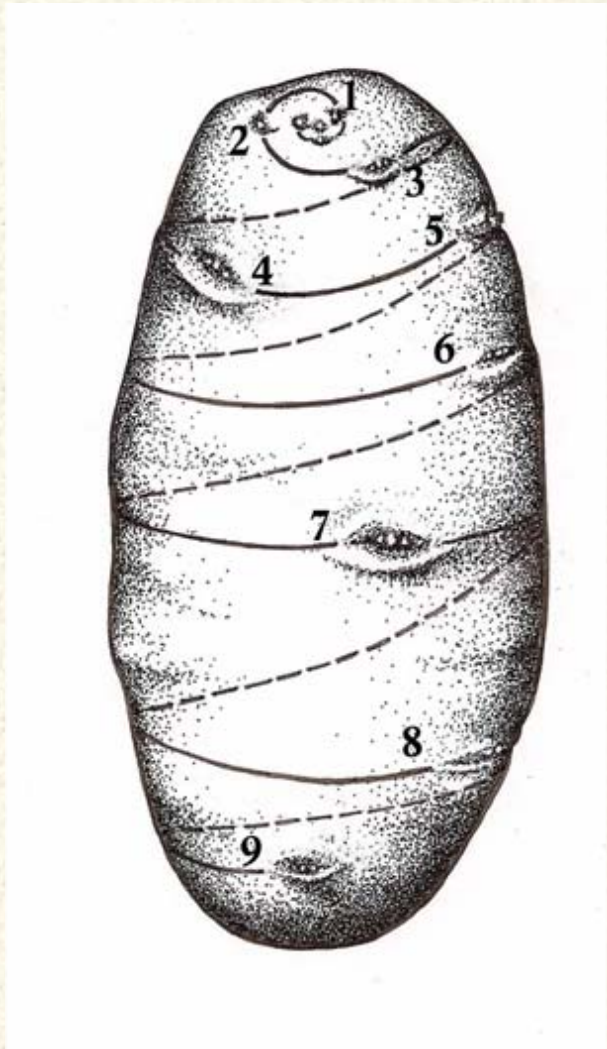


# Careers and Opportunities

- Field Scientist
- Botanical Artist
- Art Instructor
- Book Illustrator
- Scientific Illustrator
- Medical Illustrator
- Working for Museums
- Working for Gardens
- Others



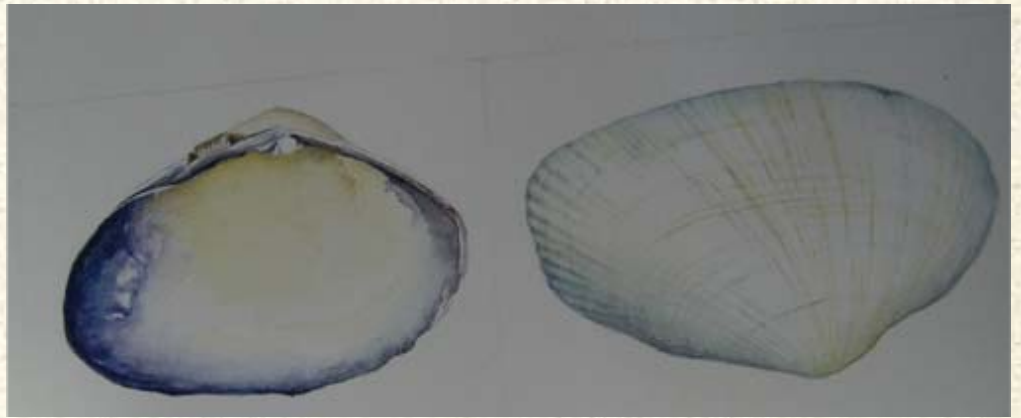














# Demonstration

- Drawing simple object
  - Measurement technique, Plexiglas
- Composition decisions
- Transferring image
  - Light box, Transfer Paper, Graphite
- Tea Stage
  - Colors
- Analyzing Form
- Moving Paint, Building Form







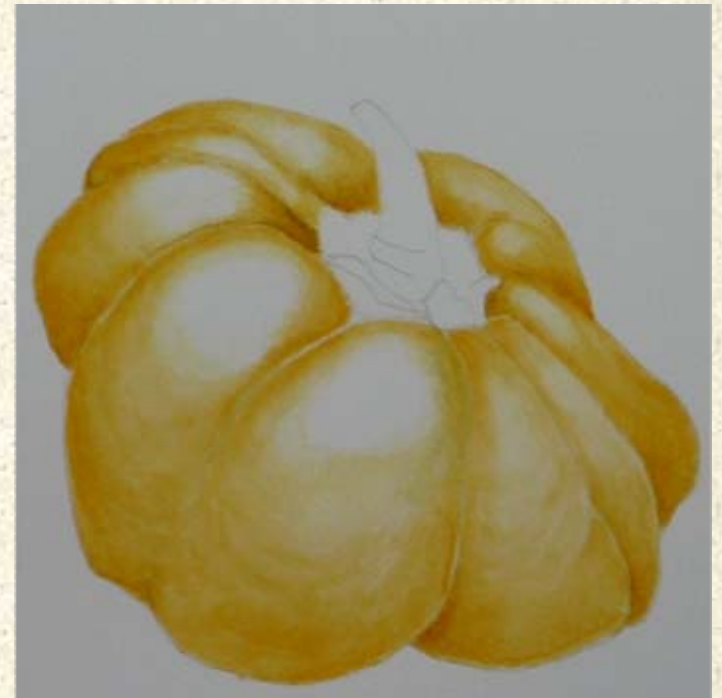




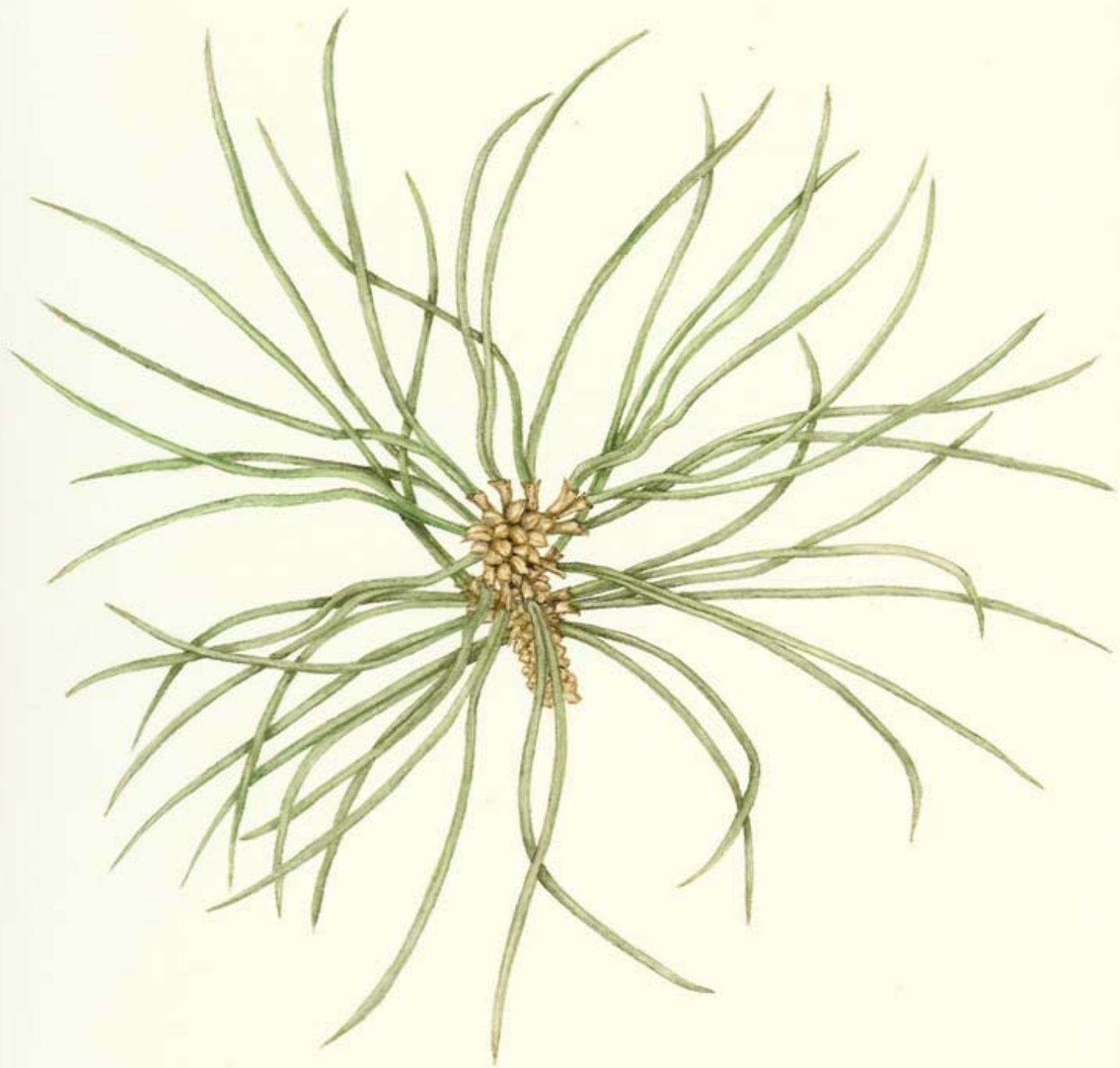






















# Hands On

- Materials
- Draw object freehand
- Draw object from multiple perspectives with Plexiglas tracing frame
- Decide on best composition for purpose
- Use tracing paper to transfer image to white watercolor paper
- Use tracing paper to understand shading and contours
- Discussion about how to use in classroom



# Hands On continued

- Additional exercises
  - Mixing colors and choosing the right ones
  - Moving paint and brush strokes
  - Creating notes and a record of the experience for future reference



# How could you use this to --

- Scientific observation (Both qualitative and quantitative)
- Drawing
- Attention to detail
- Following a method
- Neatness
- Completeness





**THANK  
YOU**