



Illustrating the Past

Guide for Teachers (5th Grade and beyond)



“Illustrating the Past” is a two part packet for investigating the bone structure of prehistoric creatures in the Beneski Museum of Natural History, and to express that understanding with a drawing and/or creative writing piece.

MUSEUM INFORMATION:

- The *Beneski Museum of Natural History* displays the fossil remains of many different creatures throughout different periods of life.
- While exploring the exhibition, encourage your students to look above their heads to see specimens displayed at different levels of the museum.
- The *Beneski Museum of Natural History* can accommodate up to 45 children and chaperones at a time. Please consider splitting into smaller sub-groups to complete the packet.
- When your students arrive at the museum, they will be given a brief greeting by a museum staff member. After this greeting is a good time for you to talk to your students and chaperones about the *Illustrating the Past* materials.

PREPARING AN ACTIVITY:

- The Museum does NOT provide copies of *Illustrating the Past*. Please prepare copies for your students.
- *Illustrating the Past* asks students to carefully mimic the skeleton or fossil they see before them, and inference what it would look like if it were living today.
- The museum asks that students refrain from leaning on any of the glass cases while working. We recommend providing students with clipboards or notebooks to lean on.

IN THE CLASSROOM:

- Have students go over some basic metric measurements so that they can scale their drawings. This worksheet can be done using Standard English units, but most sciences use metric units today.
- Have the students study some scientific drawings so that they know what they will be creating. Then have them create one of their own.
- In class we suggest that students draw something like their own thumb so that they can observe the nuances and details in something they see every day. This will be helpful with scaling their drawings.

Amherst College



Illustrating the Past Information for Chaperones

Complete this activity in the *Beneski Museum of Natural History*:

- Please allow your students a few minutes to explore the main and bottom floor before beginning the *Illustrating the Past* Packet.
- Allow the students to choose the fossil or skeleton that they would like to draw, make sure they have enough room to sit and draw.
- The worksheet asks students to label the common name but see if they can pronounce the scientific names as well.
- Encourage students to write down observations (e.g. color, textures, size, etc.) of the objects/artifacts that they can't depict through drawing.
- If a student does not feel comfortable drawing their final creative piece, have them try their hand at the writing option.
- Students will be asked to scale their drawings in metric form. Push students towards metric if the teacher has asked them to do so.
- Remind your students to look all around them, even above their heads.
- Remember: The exhibits in the museum are fragile. Please do not allow students to touch any of the exhibits.

Protocol for sketching in the Museum

Pencil drawing is perfectly fine. No markers, paints, charcoal etc. We do suggest that students come prepared with several well-sharpened pencils. We prefer that the sharpening of pencils does not happen in the museum. We suggest having students use some type of board for a drawing surface. We have 30-40 9 x 12 drawing boards available in the museum.

One challenge is finding a place to sit while drawing. Some students will sit on the ground, some on stairs, others on benches. It is fine if a student brings in a small (Sport Type) folding chair. The goal for is to sit without disrupting the flow of visitors.



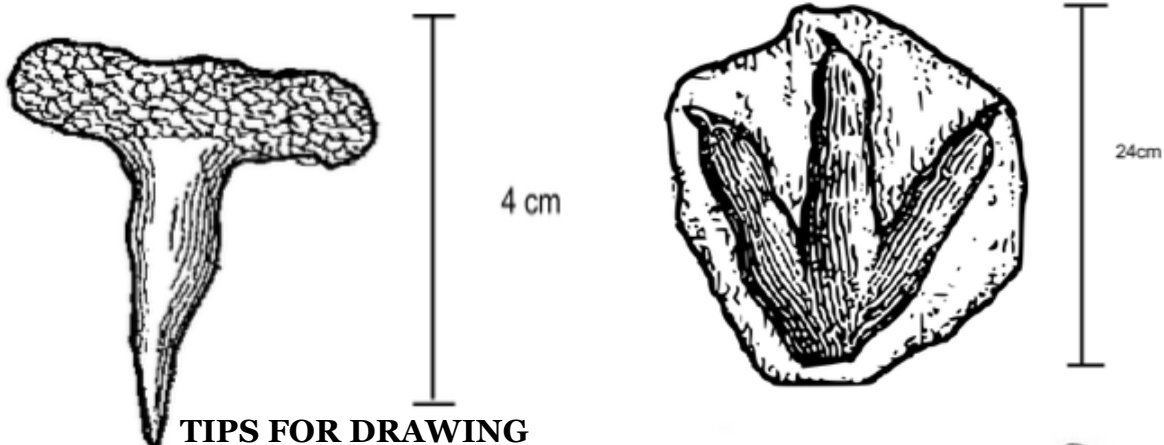
Illustrating the Past Part 1: Scientific Drawing

Name: _____

After you have found the fossil or skeleton you wish to draw

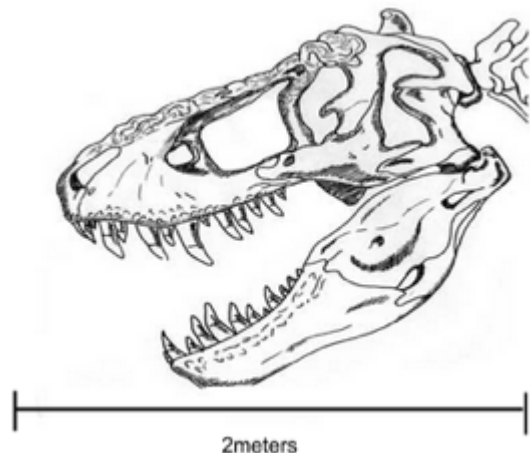
- Look carefully at your artifact before you begin to draw. Always draw what you see, not what you remember it looking like.
- You should notice the differences that make your specimen unique. There might be something important that you didn't notice at first.
- Be as accurate as you can by using a ruler and a sharp No. 2 pencil. If you must estimate, your thumb is ~ 2 cm across, a size 9 shoe is ~25 cm long.
- Label your drawing with your own name, the name of the specimen, and any metric measurements to show the scale of your drawing.

Here are some examples of what an accurate drawing can look like:



TIPS FOR DRAWING

- The artifact can be big or small one piece of a fossil or a whole skeleton.
- Drawing a very light outline of the object could be very helpful for proportions and spacing on your paper.
- Be careful and prepared, so that if you make a mistake it can be easily corrected.
- Make sure you have a good view of your artifact.



Amherst College



Part 1: Start your scientific drawing here...

Artifact Name: _____

Your Name: _____

(Indicate scale where it makes sense for your drawing.)

Observations (size, texture, patterns, color, etc.)



Illustrating the Past

Part 2 a & b: What will you draw or write?

This is a creative piece. It is whatever YOU want it to be. It is based upon the artifact that you have just drawn. Now imagine that the creature that made the footprint, left the tooth or left the bone(s) is alive and walking with us today...

- Where would it be walking? Who would it be walking with?
- Would it be walking at all?
- Will it be angry, happy, sad, or scared?
- Does it have feathers, fur, or scales?
- Will there be a volcano, rivers, or glaciers where it lives?

Here are some images that might help you with your thinking:



Amherst College



Part 2a: What will you draw?

This creation is all up to you: the creature's drawing can be as realistic or as ridiculous as you want.

A large, empty rectangular box with a thin black border, intended for a student to draw a creature. The box is completely blank and occupies most of the page's width and height.

Amherst College



STANDARDS

National Art Education association 2013

Visual Art

Grade 5-8 Visual Arts Standard 1

Content Standard

- Understanding and applying media, techniques, and processes

Achievement Standard

- Students intentionally take advantage of the qualities and characteristics of art media, techniques, and processes to enhance communication of their experiences and ideas

Grade 5-8 Visual Arts Standard 2

Content Standard

- Using knowledge of structures and functions

Achievement Standard

- Students employ organizational structures and analyze what makes them effective or not effective in the communication of ideas

The Next Generation Science Standards

Framework for K-12 Science Education: Practices, Core Ideas, and Crosscutting Concepts (Appendix G)

- **Patterns.** Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.
- **Cause and effect: Mechanism and explanation.** Events have causes, sometimes simple sometimes multifaceted.
- **Scale, proportion, and quantity.** In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.
- **Structure and function.** The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.
- **Stability and change.** For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study.

COMMON CORE

Object-Based Teaching College and Career Readiness Anchor Standards for Reading

Reading an object utilizes the same skills as reading a story, poem, or informational text.

- CCSS.ELA-Literacy.CCRA.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- When students read an object in a group setting, they:
 - When students read an object, they: **Observe** closely, make logical **inferences**; **cite** specific visual details to support conclusions
- CCSS.ELA-Literacy.CCRA.R.2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
 - When students read an object, they: **Analyze** critically – determine central ideas; summarize key supporting details and ideas

Amherst College

- CCSS.ELA-Literacy.CCRA.R.3 Analyze how and why individuals, events, or ideas develop and interact over the course of a text.
 - When students read an object, they: **Go deeper** – analyze an object’s messages, audiences, and roles of an object in society, past and present



College and Career Readiness Anchor Standards for Speaking and Listening

- CCSS.ELA-Literacy.CCRA.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.
 - When students read an object in a group setting, they: **Collaborate**, **build** on other’s ideas, and **express** their own clearly and persuasively
- CCSS.ELA-Literacy.CCRA.SL.2 Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
 - When students read an object in a group setting, they: **Integrate** and **evaluate** information, questioning their assumptions, and evaluate point of view
- CCSS.ELA-Literacy.CCRA.SL.3 Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric.

Acknowledgments

We wish to acknowledge and thank the staff of the following organizations for permitting us to share some of the best lab and field guide materials created for use in the Beneski Museum of Natural History:

- Amherst Public Schools
- Brown University
- Four Rivers Charter School
- Greenfield Community College
- Holyoke Community College
- McAuliffe Regional CPS
- Mount Holyoke College
- Northampton Montessori School
- Northampton Public Schools
- Smith College
- University of Massachusetts
- Williamsburg Schools