Paideia Seminar Lesson Plan

Text:

“Anatomy of the Hand” from Gray’s Anatomy

Grade/Subject

MS / Science

Ideas, Values:

Anatomy, Flexibility, Physics, Strength, Structure

Pre-Seminar Content

Launch Activity:

Have each participant use a pencil and a blank sheet of (graphing) paper to trace his or her own hand—both facing up and facing down—and sketch in details like joints (knuckles), veins, etc. Discuss as a whole group why they think the hand is structured as it is.

Inspectional Read:

Distribute paper copies of Gray’s drawing of the interior of the human hand. Have participants compare their own drawings (from the Launch Activity) to Gray’s illustration. Note similarities and differences between the students’ sketches and Gray’s illustration. Have the entire group identify all unfamiliar anatomical terms from the drawing while a volunteer lists them on the whiteboard.
Background Information:
Share as appropriate: Henry Gray (1827 – 13 June 1861) was an English anatomist and surgeon most notable for publishing the book *Gray’s Anatomy*. He was elected a Fellow of the Royal Society at the age of 25. In 1858, Gray published the first edition of *Anatomy*, which covered 750 pages and contained 363 figures. He had the good fortune of securing the help of his friend Henry Vandyke Carter, a skilled draughtsman and formerly a demonstrator of anatomy at St. George’s Hospital. Carter made the drawings from which the engravings were executed, and the success of the book was, in the first instance, undoubtedly due in no small measure to the excellence of its illustrations. The book is still published under the title *Gray’s Anatomy* and is widely appreciated as an extraordinary and authoritative textbook for medical students.

Vocabulary:
While the vocabulary within the text will be readily approachable for most, context words for further discussion especially with an emphasis on science, should be addressed. They include *observation*, *scientist*, and *senses*. *Ideas* and *feelings* and *causes* are all concepts referenced in the seminar questions.

Analytical Read:
Divide the class into five (or more groups) and assign one of the following elements of the hand to each group: bones, ligaments, muscles, nerves, and veins. Using tracing paper, have each group prepare a sketch of their element to display on a document camera for the entire class to examine and discuss.

Pre-Seminar Process

1. Define and state purpose for Paideia Seminar.
2. Describe the responsibilities of facilitator and participants.
3. Have participants set a Personal Goal.
Seminar Questions

Opening (Identify main ideas from the text.):

- Based on the text, do you think the human hand is designed more for strength or flexibility? (vote by show of hands)
- Why did you vote the way you did? (spontaneous discussion)

Core (Analyze textual details.):

- Based on this drawing, what function do you think the bones in the hand serve?
- Why are there so many joints in the hand?
- What are the relationships between the bones, joints, muscles, and ligaments?
- Based on the text, what do you think is the most important element in the structure of the hand?

Closing (Personalize and apply the ideas.):

- Based on the text and our discussion, what role do you think the structure of the hand has played in how humans have evolved?

Post-Seminar Process

- Have participants do a written self-assessment of their personal participation goal.
- Do a group assessment of the social and intellectual goals of seminar.
- Note reminders for next seminar.
Post-Seminar Content

Transition to Writing:

Have students write down everything they said, heard, and thought during the seminar about the various elements of the human hand. Stress that they should capture both ideas and language with which to express those ideas.

Writing Task:

How does the human hand compare to the similar appendage from another species. After “reading” and discussing the anatomy of the hand from *Gray’s Anatomy*, write an essay that compares the human hand to the hoof, paw, or “hand” of another species. Support your discussion with evidence from the text. (Informational or Explanatory/Comparison)

(LDC Task#: 22)

Brainstorm:

Distribute at random a variety of species for comparison (a different species for each student). Once each student has been assigned a different species for comparison, invite them to talk in pairs for two minutes to share thoughts about what the writing task is asking.

Structure the Writing:

First, allow students time to research the structure of the hoof, paw, or “hand” of the species each has been assigned. Suggest that they both sketch the appendage and make notes, similar to the kind of information given by Gray.
Allow a few minutes for all to draft an outline for their writing and refine their thinking. Provide students with one or more possible organizational templates for a comparison essay as needed.

🌟 First Draft:

Challenge all to draft their comparison essays as defined by their outlines. Refer to the original illustration from *Gray’s Anatomy* as well as their research in order to illustrate key points.

🌟 Collaborative Revision:

Have participants work in pairs to read their first drafts aloud to each other with emphasis on reader as creator and editor. Listener says back one point heard clearly and asks one question for clarification. Switch roles. Give time for full revisions resulting in a second draft.

🌟 Edit:

Once the second draft is complete, have participants work in groups of three-four and this time take turns reading each other’s second drafts slowly and silently, marking any spelling or grammar errors they find. (Have dictionaries and grammar handbooks available for reference.) Take this opportunity to clarify/reteach any specific grammar strategies you have identified your students needing. Give time for full revisions resulting in a third and final draft.

🌟 Publish:

Display a large scale print of Gray’s Anatomy of the Hand along with the student essays. Invite other science classes to come into your classroom so that your students can read from their essays and discuss with other students how the human hand is both alike and different from the hooves, paws, etc. of other species.

Collect the essays into an anthology of exemplary science writing for use with future classes studying the same phenomena and/or writing similar essays.

This Paideia Lesson Plan was created by:

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