



Paideia Seminar Lesson Plan

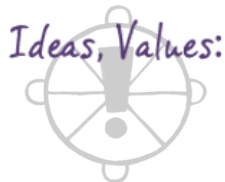


Text:

Laws of Motion (Concept Map)

Grade/Subject

MS / Science



Ideas, Values:

Cause & Effect, Forces, Laws, Motion, Physics, Relationships



Pre-Seminar Content



Launch Activity:

(It is assumed students have some background knowledge on Newton's Laws of Motion.) Have students brainstorm up to 10 facts/occurrences they think are related to the Laws of Motion. Have students share in small groups and then whole group. The teacher may decide to let students voice their opinion about the accuracy of what is being shared, and the teacher is encouraged to record what is being articulated, but should refrain from making corrections at this time. Including a question mark if a public list is being used can denote uncertainties that can be revisited later, perhaps at the conclusion of the seminar cycle.



Inspectional Read:

Distribute the text and ask participants to anticipate what they expect this reading to be like. Students should be given a couple of minutes of quiet time and are encouraged to add any labels as they see fit. The facilitator will want to have students number the

concept boxes in the same manner for quick reference, ideally by way of document camera modeling. (There are 13.) Then systematically read the text aloud whole group. How is it organized? How is it similar and different to other text they know?

Background Information:

Participants should be aware of and have a basic grade-level understanding of Newton's Laws of Motion (Inertia/Force/Action-Reaction), in addition to basics of physical science, including science concepts such as Forces, Friction, Gravity, Inertia, Motion, Relative Motion, Waves. Emphasize that these concept maps or webs show ways ideas may be linked together and how they may depend upon or influence one another.

Vocabulary:





Provide (or mine participants for) definitions for Context/Rare Words: *electricity, magnetism, frictional forces, proportional, exerts...*

Analytical Read:

(Post directions.) Have participants mark words and phrases of interest as well as puzzlement. Participants should also consider independently how the text is organized and why might it be organized as it is. Have participants write down these initial thoughts on the organizational structure of the text. From this point, ask student to paraphrase two Laws of Motion. Lastly, students should attempt to jot down an explanation for at least two relations they can highlight from the map between concepts.



Pre-Seminar Process

-  Define and state purpose for Paideia Seminar.
-  Describe the responsibilities of facilitator and participants.
-  Have participants set a Personal Goal.
-  Agree on a Group Goal.



Opening (Identify main ideas from the text.):

- ❖ The text is titled Laws of Motion. What could be another title for the text? (round-robin response)

Core (Analyze textual details.):

- ❖ What do you make of the (blue) underlined text? (Why is it underlined, and does the underlined text make sense?) As a form of categorization, what alterations or changes might you propose to the underlined text?
- ❖ What key ideas possibly overlooked regarding laws of motion are represented here? Why do those ideas matter in our study of physical science?
- ❖ In the middle of the diagram the following law can be found: “An unbalanced force acting on an object changes its speed or direction of motion, or both.” Does the organization of the text suggest that law is most important? Is it? Explain.
- ❖ What link between the laws do you find most interesting? Most important? Most confusing? Explain.

Closing (Personalize and apply the ideas.):

- ❖ How does the text help you better understand the laws of motion within the physical world?

OR

- ❖ What metaphors or similes can you create between this text and something else we have studied in Science?

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:

Students are asked to revisit their initial list from the *Launch Activity*, and make additions.

★ Writing Task:

After studying the Laws of Motion text, write a short essay in which you explain something that happens in our physical world and link it to key ideas from the Laws of Motion text. Consider your audience older 5th graders just getting ready to jump into MS Science. (Informational & Explanatory/Synthesis)

(LDC Task#: 19)



Brainstorm:

Participants will use the list they have generated and isolate a thing or event that exemplifies aspects of the Laws of Motion. From there, they will create a small web, in which they place different “truths” from the Laws of Motion text in connection to the event they are exploring, and then paraphrase with added details and explanations.

Structure the Writing:

Allot a few minutes for all to revisit the text, draft an outline for their writing, and refine their thinking. Have students use an organizational template as needed. Based on level of experience and rigor desired, the teacher should specify the number of ideas from the text to be exemplified in the essay.

First Draft:

Challenge all to draft their essays by writing the paragraphs defined by their outlines.

Collaborative Revision:

Have participants work in pairs to read their first drafts aloud to each other with emphasis on reader as creator and editor. The reader should make a special note to signify to the listener the connection between an aspect of their selected thing or event and the corresponding link to understanding Laws of Motion as shown in the text. The listener says back one point heard clearly, how it is supported by the text, and asks one question for clarification. Roles are then switched. Give time for full revisions resulting in a second draft.

Edit:

Once the second draft is complete, have participants work in groups of three or four and this time take turns reading each other's second drafts slowly and silently, marking spelling or grammar errors they find, with a limit of 5-per page. (Have dictionaries and grammar handbooks available for reference.) Take this opportunity to clarify/reteach any specific grammar strategies you have identified your students may need. Give time for full revisions and editing, resulting in a third and final draft.



Publish:

Publish (either virtually or on paper) the final copies of the resulting personal essays in a collection to be shared via the class web site and as exemplary personal essays for future MS students—or to be shared with a local 5th grade class!

This Paideia Lesson Plan was created by:

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Organization:

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Laws of Motion

