Voices from the Field – Disciplinary Literacy in Science

This resource provides ideas for connecting the ideas shared in interviews of scientists and engineers to lessons and staff professional development. It is organized by the Wisconsin English/Language Arts Anchor Standards to support disciplinary literacy connections.

In all cases, listening to the STEM professional describe what they do in their day-to-day work (Q1) will help provide context for the other responses.

I. Reading

- Conducting Research on a New Topic

  There are several clips where these professionals discuss how they research a new topic: Eikenberry Q3, Gundry Q3, Oettel Q4, Herzog Q6, and Marquardt Q3. What are their sources for research? How could students apply those ideas? For example, students might email or call a scientist or engineer as part of their project.

- Dealing with Contradictory Evidence in Research

  What if a scientist or engineer comes across evidence that appears contradictory to their ideas or other research conducted? How do they work with sources of evidence, and what does that tell students about being wary of bias in their research sources and ensuring they have multiple sources? Marquardt Q4, Eikenberry Q4, and Syverson Q4

  Dr. Oettel Q5 talks about how he vets information he finds about treating his patients.

  In Herzog Q3, he talks about using scientific models and what he does when those models provide contradictory or different information for weather forecasts.

II. Writing

- Peer Review Process in Scientific Writing

  STEM professionals continually collaborate on their writing and go through a unique process to get articles published in scientific journals—peer review. It's essential to ensure that research and the write-up of it are of the highest quality. Check out Cole Q3, Eikenberry Q5, and Syverson Q3.

- Defending Your Work

  What is the process scientists and engineers go through to defend their work, to argue with evidence about their claims? Herzog Q5, Eikenberry Q5, Gundry Q5, Syverson Q6. Further, Eikenberry Q7 describes the importance of staying objective and letting the data and evidence speak for itself.

- Documenting Your Work

  Students might question the importance of documenting every minute detail of the lab investigations. Teachers might debate whether they need to have students do notebooking (you do!). Listening to Cole Q4, Syverson Q5, Marquardt Q5, and Eikenberry Q6 will provide them with details on how scientists document their work and why. With particular standards and regulations to consider, engineers have specific requirements in their documentation—Gundry Q6 and Roman Q2/Q3.

- Digital vs. Handwritten Notebooking

  These scientists and engineers generally used both handwritten and digital documentation, but emphasized the importance of digital copies of everything (generally scanning in the handwritten notes). So, should students be keeping a notebook and how would that look? What do scientists think? Cole Q5 and Eikenberry Q6 dig into these ideas. Dr. Oettel Q3 provides unique details on documenting patient records and the benefits of doing that digitally.

III. Speaking and Listening

- General Communications and Tools

  These STEM professionals describe various means for communicating in their work, often with various media tools: Cole Q2, Syverson Q2, Roman Q2, Gundry Q2, Eikenberry Q2, Oettel Q2, Herzog Q2, Marquardt Q2.

  Herzog Q7 and Oettel Q6 both stressed the importance of excellent communication skills in their work, encouraging students to take more communication classes and focus more on those skills.

- Know Your Audience

  Discussing the importance of knowing your audience when you're presenting ideas, including the importance of communicating complicated information in an accessible way: Roman Q5, Herzog Q2, and Eikenberry Q2.

- Urgent Communications

  Sometimes getting the word out is critical, such as Ben Herzog's weather forecasting. How do scientists communicate to ensure people are listening? Herzog Q4.

- Asking Good Questions

  Part of being a good listener is asking good questions, which also shows an understanding of content and practice. Students and teachers could generate their own questions as they listen to these clips—this can clarify their own thinking and push others to consider new ideas. Roman Q4.

IV. Language

- Conventions and Vocabulary

  Generally, these STEM professionals did not talk about proper conventions and vocabulary. Those factors assumedly were implied as they discussed the importance of clear communication.

- Jargon

  Marquardt Q2 discussed her interdisciplinary work and challenges posed by different professions having their own vocabulary ("jargon") that causes barriers and has to be clarified in their projects.

- Clear Documentation

  Avoiding contradictions and having clear documentation would suggest proper conventions and consistent vocabulary, such as Roman Q3 and Gundry Q4.