Academic Conversations: Productive and Accountable Talk in Science Learning

Rationale:

To acquire a new language, *you must use* it, not merely listen to others using it.

ALL students are academic language learners. They need multiple, varied and frequent opportunities to practice, apply and build their "new" language proficiencies.

We have solid evidence and widespread agreement that academically productive talk is critical for learning in all disciplines.

The Benefits

Productive and Accountable Student Conversations Foster:

- meaning negotiation, idea building and problem-solving
- develops cognition and critical thinking skills (building, shaping and challenging ideas) and supports "focusing stamina"
- Expands vocabulary
- Builds skills that transfer into literacy skills
  - Oral language development leads to better reading comprehension:
  - More complex aspects of oral language, including syntax or grammar, complex measures of vocabulary (such as those in which children actually define or explain word meanings), and listening comprehension were clearly related to later reading comprehension (National Early Literacy Panel, 2008)

And yet….

To develop deep and enduring academic language, thinking skills, and content understandings, we need to create classroom contexts that go beyond "the norm":

- Interrogation (IRE), Regurgitation, Little wait time
- Over Reliance on Sentence starters and Frames
- Quantity rather than quality (Pair-shares)
- Group & whole class discussions in which a few students & the teacher dominate the talk
- Narrow assessment practices (written, MC)
- Isolated & disconnected facts & vocabulary

Experiential Evidence

Batteries and Bulbs lesson Simulation

- Provided an example of a science lesson with literacy and dialogue strategies integrated throughout.

- Provided a model of engaging science and a sample of teacher talk that encourages student engagement.

- Gave you some ideas for inserting strategies that address Common Core standards (S&L, R, W) and engaging science strategies into your lessons.

Deconstructing the Lesson

Engaging Science	Productive Dialogue	Purposeful Reading	Meaningful Writing
Context in real life problem	**Roles**	Graphic Organizer	Graphic Organizer
Anticipatory set (A&D) to activate prior knowledge	**Rules of engagement**	Guiding questions	Persuasive writing
Guided inquiry (student-centered discourse)	**Structured Think-Pair-Share**	Informational text	Arguments with evidence
I do one, you do one	**Paraphrase Passport**	Text-based evidence	Writing to learn as well as formal writing

Common Core Standards
Speaking and Listening Anchor Standards

Comprehension and Collaboration

○ 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.

○ Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

○ Evaluate a speakers' point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

○ Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate, to task, purpose, and audience.

○ Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentation.

○ Adapt speech to a variety of contexts and communicative teaks, demonstrating command of formal English when indicted or appropriate.

The New CCSS AND ELD Standards:
A Broader View of Classroom Language, Disciplinary Practices and
Language Functions

- Moving from language as structures and/or functions to "**language practices**"
- Language-embedded practices occur across the curriculum (math, science, ELA, etc.)
- ALL STUDENTS, including English learners, must be able to engage in language practices across the curriculum to meet CCSS & NGSS.

What might "it" look like? Discussion By Design

You've seen it/experienced it yesterday am:

- Give students' a purpose (controversy helps)—ask a real question.

- Leverage the type of thinking you want (but not the answers you want).

- Create situations where the students' ideas will build on each other.

- Afterwards, ask for reflection.

Structured Discussion

- 1 & 2 discuss while 3 & 4 takes notes in a T-chart.

- 3 summarizes and then asks for elaboration or clarification on one underdeveloped but important point AND joins the conversation while 4 continues to take notes in a 3-chart.

- 4 gives credit to individuals for significant ideas and synthesizes work of the group into a short statement.

- Each person comments on the implications for teachers.

You and I, in fact everyone all over the world, we are all literally African under the skin. Brothers and sisters separated by a mere 2,000 generations. Old fashion concepts of race are not only socially divisive, but scientifically wrong. It's only when we've fully taken this onboard that we can say with any conviction that the journey our ancestors launched all those years ago, is complete.
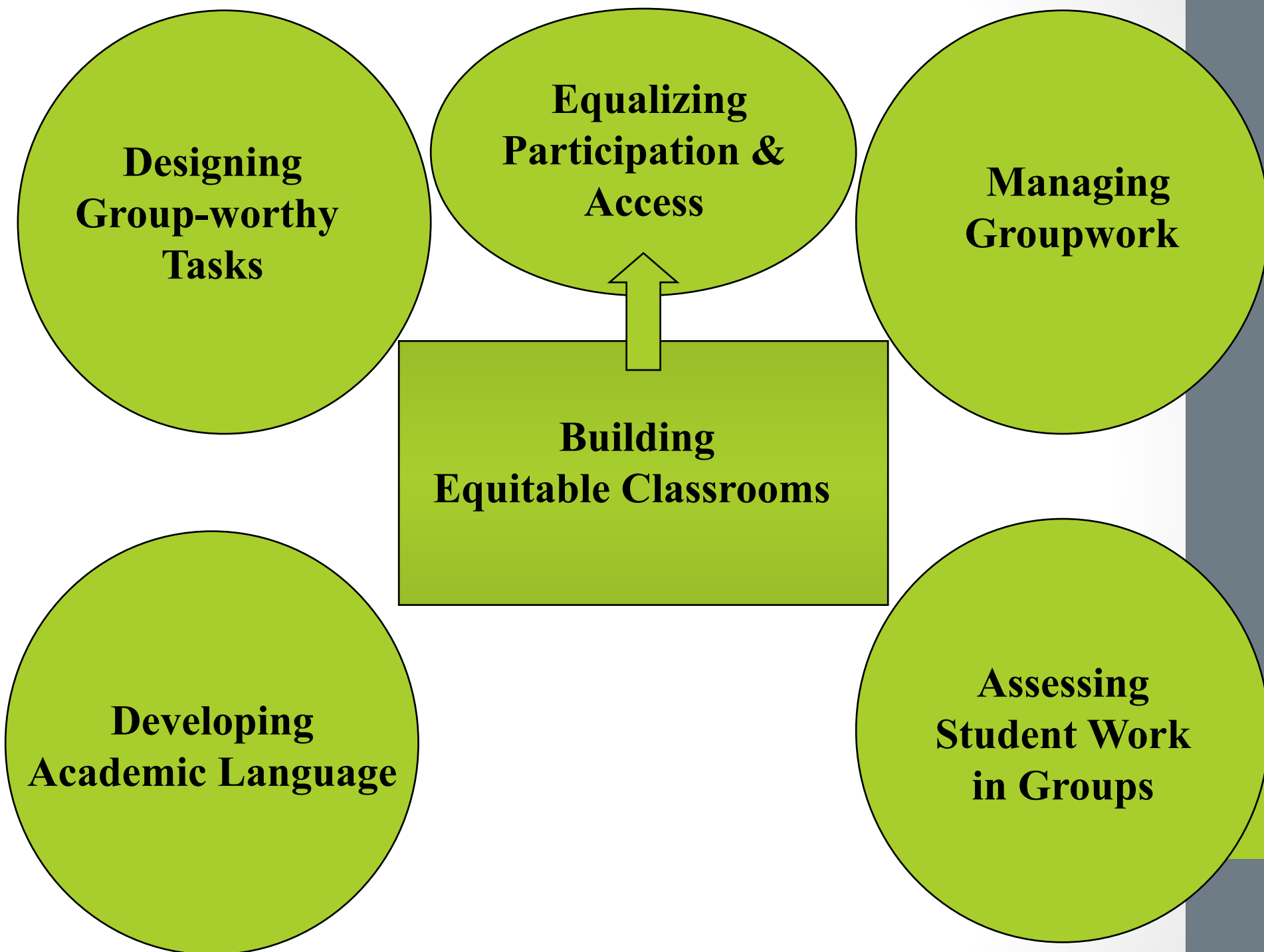
- Spencer Wells

Talk Happens:
Classroom Structure/ Participant Structure

- Whole class
- Individual work
- Partner work/ dyads
- Small group seatwork
- Collaborative work/ cooperative learning
- Complex Instruction
- Long-term group projects (e.g., Group Investigation)

Match between learning task and classroom structure

- Effective pedagogy maximizes the match between features of the learning task and participant structures

Designing Group-worthy Tasks

Equalizing Participation & Access

Managing Groupwork

Building Equitable Classrooms

Developing Academic Language

Assessing Student Work in Groups

In order to prepare students to engage in **Language practices**, teachers must identify the **Language Demands** of a lesson

- Language demands describe the language students need in order to be successful at a certain lesson or series of lessons across communicative modes

- Demands of sample science text (reading, writing)

- Demands of oral language (listening and speaking)

- For example, students may need to control certain types of language practices in order to achieve the objectives of a lesson

    (explanation, evaluation, argument, summarize, synthesize)

Aims of Academic Conversation

To get somewhere.
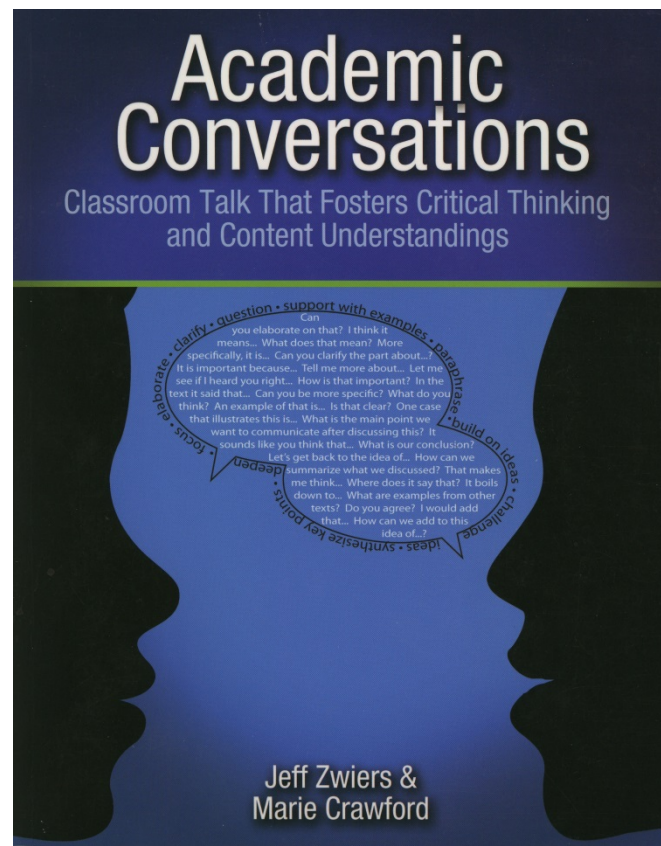
Conversation skills

Many dialogue protocols to choose from (see Using Dialogue Protocols) but….

Teachers must "teach" these participatory structures using the gradual release of responsibility model

-Model-Guided Practice-Cooperative Practice-Independent Application-

○ Rationale:

○ https://novoed.com/classroom-conversations-secondary/video_list_lecture_components/6733/lecture_videos/2760

S1. Lecture Videos S1-6. Course Overview Screencast (Welcome Video) .17- 3.53, 6.18- 11.53

Turn and Talk

- Why would the conversations that use the conversation skills (turns build on previous turns, turns focus on lesson objectives) help students be better thinkers, speakers and writers than the "non-example" conversations?

Oral language development:
What does it sound like when students engage with us and each other in productive ways during discussions?

- Examine the Conversation Analysis Tool- turn to the person next to you- any questions about it?

- Score the Middle School Conversation Sample

- Compare scores

Middle School Conversation Analysis Model

Context: During this 8th grade history lesson students read an original article about the Boston Massacre and were asked to analyze it for personal bias or misrepresentation.

Objective: Students will identify and support notions of bias in primary source documents

Conversation Prompt: Why did the author write this?

(1) Student A: Why did the author write this?
(2) Student B: To tell us about the Boston Massacre. But I saw that only seven people were killed. That isn't a massacre.
(3) Student A: What do you mean?
(4) Student B: Well, a massacre means lots of people die.
(5) Student A: Maybe the people who wrote it wanted to make it sound really bad.
(6) Student B: Yeah. I think they wanted to get people all mad, to fight. Maybe to start the Revolution.
(7) Student A: Why?
(8) Student B: Not all people wanted to fight to be separate. They were okay with England over them. But some wanted to separate.
(9) Student A: Yeah. So calling it a massacre made the British look evil. I would've wanted to fight back too.
(10) Student B: So that's bias, right? It's lying a little, I think.
(11) Student A: Yeah. I wonder how many bias there are in history.

Dimension 1: Turns build on previous turns to build up an idea	*Score* 4
Rationale for score Most (nearly all) of the turns in this example build on previous turns to develop an understanding of what bias, why it might be present in historical documents, and what effects it could have on others. Additionally, while it obviously takes some time for the two students to "sort out" their understanding (which is the point of conversation!), their ideas are coherent, connected, and relatively complete.	
Dimension 2: Turns focus on the knowledge or skills of the lesson's objectives	*Score* 4
Rationale for score Additionally, nearly all the turns in this conversation sample focus on lesson's learning objective, which was to identify bias in primary documents and support this identification with evidence. (We assume this "support" should come from the text as well as from students' experiences and ideas.) In this conversation sample, the students provide lots of the latter type of support, which leads them to a deeper understanding of bias and its effects. And while the students don't specifically *cite* evidence from the text, they do mention what they had read in the course of their attempts to understand bias.	

HS Sample

Teaching Conversation Skills- The How To

Key Ingredients for Constructive Conversations:

- authentic purpose

- clear prompt

- original language

- sufficient content knowledge

Teachers must model and teach specific skills in order for students to engage in high quality conversations

S2. Lecture Videos S2-3. Teaching Conversation Skills (Slidecast)
What's Missing? 3:30-10:06

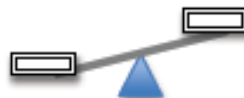# Constructive Conversation Skills Poster

Create

Prompt starters:
What is your idea?
How can we combine these ideas?
What do we need to do?
What are other points of view?
What do you think about…?
Why…How…I wonder…

Response starters:
One idea could be …
My hypothesis is…
That reminds me of…
I noticed the pattern of…
I think it depends on…

Goal: Students independently build up ideas (knowledge, agreement, solution) using these skills.
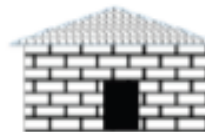
Negotiate

Prompt starters:
What is your opinion?
Where do you disagree?
How might we take the best from both ideas?
How can we decide which is the more ___ idea?
How does evidence for your argument compare to mine?
How doe the two ideas similar and different?
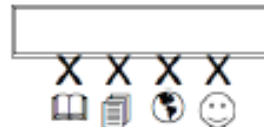Which has the strongest evidence?

Response starters:
I see it a different way,
On the other hand, …
A point of disagreement that I have is…
Even though it seems that …,
That is a valid point, but…
I think the negatives of… outweigh the positives of …

BUILD IDEA

Clarify

Prompt starters:
Can you elaborate on the…?
What does that mean?
What do you mean by….?
Can you clarify the part about…?
Say more about…
Why.. How…What…When…
How is that important?
How does it support your point that…
I understand the part about…, but I want to know…
Can you be more specific?
Is what I just said clear?
Does that make sense?
Do you know what I mean?
What do you think?
I'm not sure if I was clear.

Response starters:
I think it means…
In other words,
More specifically, it is … because…
An analogy might be…
It is important because…
Let me see if I heard you right…
To paraphrase what you just said, you…
In other words, you are saying that…
What I understood was…
It sounds like you think that…
It all boils down to…
A different way to say it..

Fortify

Prompt starters:
Can you give an example from the text?
Where does it say that?
What are examples from other texts?
What is a real world example?
Are there any cases of that in real life?
Can you give an example from your life?
What is the strongest support for…?

Response starters:
For example,
In the text it said that…
Remember in the other story we read that…
An example from my life is
One case that illustrates this is…
Strong supporting evidence is

Getting Conversation Work Started

1) One skill at a time

2) Use familiar content

3) Model each skill

4) Provide plenty of practice

5) Formatively and self-assess the skills

Video Example

- In this clip, students had read an article on whether or not pizza should be given as a reward for reading. They had already worked with the 3-D Argument Scale manipulatives in previous lessons. The focus of this activity was to come up with reason and evidence cards and evaluate their "weight" on each side of the argument.

S2-5 Paired Student Conversations 0-1:59, 3:35, 6:52
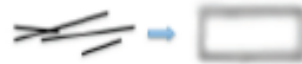
Watch for the following:

- Ways in which the teacher pushes students to clarify ideas and use academic language to compare their "weights"
- How students use the manipulative scales to support their conversations
- Possible next steps that the teacher could take based on the conversation work observed

Your Turn to Try it

○ Practice learning and using these same skills so you can experience what it feels like

○ Research shows that in preservice and inservice education, if the participants do not get to use the target skills themselves they rarely apply them in their practice

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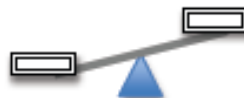
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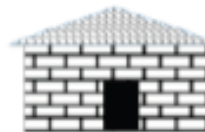
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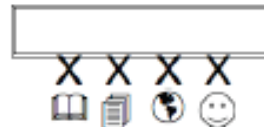Which has the strongest evidence?

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Part 1: <u>Read</u>-Hookworms?

- Create a partnership
- Create a group of four
- Pair one: Read
- Pair two: Read

Part 2: <u>Discuss!</u>

1) Discuss with your partner- use your CCS- the **main causes and effects** as outlined in the article

2) Decide which two-three were the most valuable and conversation-worthy, and rank them. Fill out the Cause and Effect graphic organizer

3) Have a conversation, in your pair, using the text and graphic organizer. Use your "create," "clarify," and "fortify" CCS. Practice making yourself as clear as possible. Take notes on what your partner says if you wish.

Part 2: Discuss!, cont.

- 4) Switch partners and have a second conversation, without the visual organizer or text, or notes. Talk about your conversation with your last partner. Use your CCS in your conversation.

- Extension- Modeling: Language of Negotiation

- 5) Join another pair. In your new group of four, switch the focus of the conversation to argument. Based on your reading of the article, address the following:

"Is the doctor's act of self-infecting himself in the interest of "science" ethical?

- Focus on your CCS negotiating skills (may still use clarify, build and create)

How can you develop *your* students' movement along the oral to written language continuum?
Teach *your* students CCS?

○ How did this lesson/activity you did today (Hookworms) use the four ingredients?

  ○ Engaging and authentic purpose
  ○ Clear and focused prompt
  ○ Opportunities to use original language
  ○ A bunch of sufficient knowledge

As you plan your CCSs/NGSS curriculum unit identify opportunities to teach and have students practice CCS.
• What will the four ingredients look like?

The Oral to written Mode-Continuum

Similar to Batteries and Bulb lesson

The Oral to Written Mode Continuum:

- lesson sequence includes activities structured so that students move from informal to formal oral language production

- students are given multiple opportunities to talk and write informally before producing a formal oral and written product.

- The more formal, written-like, spoken language serves as language bridge between informal talk, the registers of the curriculum, and a written product.

The Oral to Written Lesson Design

- Choose a key curricular concept that is discipline-based. Include an opportunity for students to read and discuss text.

- Group students (using roles/norms). Design a small group task that requires students to draw information from the text and requires discussion of the key concept. Task must be designed with a built-in "information gap" that requires participation and exchange of information using oral language.

- After students' initial discussion, introduce key vocabulary and ask students to use it in their co-creation of a formal oral presentation.

-

- Each group shares their learning with the whole class through formal presentation. Rubric criteria must include using the key vocabulary and language structures to explain their understanding of the key concepts. The rubric should assess content knowledge, content language use, presentation elements and group processes.

- **Students write about the information gained during the experience, using a specific text-type.** Provide model texts and appropriate sentence frame or paragraph scaffolds for lower proficient students.

References

Mooc:

https://novoed.com/classroom-conversations-secondary

Zwiers, J. (2008). *Building academic language: Essential practices for content classrooms*. San Francisco, CA: Jossey-Bass Teacher.

Zwiers, J & Crawford, M*. (2011). Academic Conversations: Classroom Talk that Fosters Critical Thinking and Content Understandings. Portland, ME: Stenhouse Publishers.*