Strategies to Scaffold Science Discussion in the Middle School Classroom
"In order to process, make sense of, and learn from their ideas, observations, and experiences, students must talk about them... Talk forces students to think about and articulate their ideas. Talk can also provide an impetus for students to reflect on what they do—and do not—understand."

Source: http://stemteachingtools.org/brief/6
Purpose and Goals

● Share strategies to help support student discussion in your classroom.

● Share examples of what has worked in our classrooms.

● Think about using a “toolbox” of strategies depending on needs of your class.

● Share resources for you to utilize in your instructional practice.
We have 46 years of combined teaching experience!

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Creating a safe environment for sharing ideas

“No significant learning can occur without a significant relationship.”

-James Comer
Creating a Safe Environment for sharing ideas

In order to facilitate science talk among students, it is imperative that students feel safe enough to step out of their comfort zone and share ideas without fear of judgment.

The first step to creating a “safe” classroom, is to build community among students.

One way that I have had a great deal of success with, is by using the “Restorative Circle” concept.

Before having an open “idea sharing time” we have to put in time for community building.

This takes the form of classroom circles.
The importance of the Circle

Circle’s by their very structure, convey certain important ideas and values

Equity-

Safety and Trust-

Responsibility-

Facilitation-

Ownership-

Connections-
Student Rights and Obligations

Student Rights
1. You have the right to make a contribution to an attentive, responsive, audience.
2. You have the right to ask questions.
3. You have the right to be treated civilly.
4. You have the right to have your ideas discussed, not you.

Student Obligations
1. You are obligated to speak loudly enough for others to hear.
2. You are obligated to listen for understanding.
3. You are obligated to agree or disagree (and explain why) in response to other people's ideas.
THE NEXT TIME YOU ARE AFRAID TO SHARE AN IDEA...

REMEMBER SOMEONE ONCE SAID "LET'S MAKE A MOVIE ABOUT A TORNADO FULL OF SHARKS"
It can feel weird to talk science...

- Use Sentence Stems to support academic conversation
- Share your reasoning for why you want student led discussion
- Establish what it should look like, sound like, feel like

![Diagram of feels like, looks like, sounds like]
Develop protocols for students to follow

**Discussion Protocol**

1. Person #1 begins and explains their Golden Line for page 363 uninterrupted. **1 minute**
2. Repeat for #2, #3, #4
3. The group has 2 minutes to comment and respond to group members.
4. Repeat process for the remaining pages (364-369).
5. Write down any questions about 15.1 that the group has.
Flexible Routines and Feedback

- Think-Pair-Share or Turn and Talk
- Gallery Walk or Carousel
- Model sharing in small groups or under the document camera
- Ask students to rate on scale how well they did in discussion.
- Ask students to hold up finger for how many “talk stems” they used today
- Note what you hear as you circulate and then report out, “I heard...”
Whiteboard Discussion (WBD) / Consensus Circles

What are WBD/Consensus Circles? They provide an opportunity for students to see and talk to one another. They explain, make connections & hear from their peers. They can stand or they can sit - no backs to each other and no blocking another’s view.

What are the goals? The goals of productive talk include:

(1) sharing and clarifying one’s own thinking

(2) listening to one another

(3) deepening one’s own reasoning

(4) thinking and share together.

Whiteboard Circle Discussion

- Be respectful of all!
- Ask clarifying questions.
- All are facing inward to see each other. Not backs to one another.
- Listen first and talk second.
Consensus Circles

Where to begin WBD/Consensus Circles?

- Students stand or bring chairs to **form a circle**
- Consider using **large whiteboards or big paper** to have kids display (holding or lay on the floor)
- Have a **projected slide of what requirements** need to be on students’ whiteboard or paper (model), for example, data table, observations / evidence, a graph to represent
- Make half your projected slide your **questions & other half talking stems**
- Have your **own sheet of guiding questions** to make sure goal, standards, etc are met if students are not familiar with process
Consensus Circles

Have general Questions for you, the teacher, during Consensus Circles. These are two great sources to help you get ideas to support your students.

[Image of a checklist titled "Goals for Productive Discussions and Nine Talk Moves"]

- [ ] 1. Time to Think
  - Partner Talk
  - Writing as Think Time
  - Wait Time

- [ ] 2. Say More:
  - "Can you say more about that?"
  - "What do you mean by that?"
  - "Can you give an example?"

- [ ] 3. So, Are You Saying...?:
  - "So, let me see if I've got what you're saying. Are you saying...?"
  (always leaving space for the original student to agree or disagree and say more)

- [ ] 4. Who Can Rephrase or Repeat?
  - "Who can repeat what Javon just said or put it into their own words?"
  (After a partner talk) "What did your partner say?"


learndbir.org/resources/4-Goals_and_Moves-Checklist.pdf
WBD/Consensus Circles

Where to begin WBD/Consensus Circles?

- Students are **empty handed** when coming in to circle and they are only truly discussing the questions projected, such as your driving questions.
- Or, have kids **bring lab sheet, notebook or writing prompt sheet** (see link on last slide) to circle to correct, add and complete.
- **Start small**... 10 minutes... Can you, the teacher, step out of the circle and just observe? Do you facilitate at first? Can they self-regulate and keep the focus and discussion moving?
- Give an **Exit Slip** (quiz) prior to end of class (what did you like about this lab or dislike or a question that you still have or it could be more formal).
Links to more information:

http://stemteachingtools.org/brief/6


http://stemteachingtools.org/sp/talk-resource-tools-pre-and-post-talk-writing-supports

https://drive.google.com/file/d/0BxyqvQRBX2vWUpmbHRXSDNDZFRLazIQC0ZJckgwamVOVkUw/view?usp=sharing

https://docs.google.com/presentation/d/1c673ksTwg_vW8dRElxMlbLb2_k3scjBHYKaokhzNCyg/edit?usp=sharing

https://docs.google.com/presentation/d/1c673ksTwg_vW8dRElxMlbLb2_k3scjBHYKaokhzNCyg/edit?usp=sharing
Do you have any questions?

What has worked well in your classroom?

The secret word is (SCECH) questions