I. Classroom Culture and Norms

Purpose of norms
OpenSciEd materials rely on students collectively figuring out science ideas together through productive discourse and classroom talk. This requires a classroom culture where all students feel like they belong and it is safe to participate, share their ideas, disagree, and productively struggle together. Classrooms are learning spaces in which students’ varied cultural and linguistic experiences and ways of knowing are an integral part of the learning community’s sensemaking and can be leveraged to help develop and push all students’ learning forward. The development and ongoing use of classroom norms can support safe and equitable student participation in collaborative sensemaking.

Norms to Support Productive and Equitable Participation

Respectful
In order for students to take the risk of making sense of complex ideas with their peers they need to feel safe and know that they will not be ridiculed or mocked. Establishing and enforcing norms that work to make the classroom a safe space to share is a prerequisite for productive talk. Providing each other with support and encouragement, sharing time to talk, and critiquing the ideas we are working with, but not the people we are working with are some norms that can support respect. Including students in conversations around establishing such classroom norms can be very helpful. For instance, have a conversation with students about what might prevent someone from participating in a discussion. Then brainstorm together agreements the class can make that might help all students feel comfortable sharing ideas. Explicitly addressing the idea that disagreements are an essential part of making sense in science, that these disagreements can sometimes feel like conflict, and then brainstorming ways that we can disagree with others’ ideas is also essential. Additionally, working together to figure out reasonable and realistic consequences when someone says something disrespectful can help build the community norms and help students know what to expect as they continually work towards respectful discussions. These conversations can take place at the beginning of the school year, but also throughout the school year, to ensure that all students continue feeling supported and safe sharing their ideas in the classroom.

Equitable
If we value the importance of discourse in helping us figure out science ideas together, then all students need to have access to the conversation. This does not mean that every student has to talk during every discussion, however it should be clear that they are welcome and expected to participate. Discussions are not equitable if a few students dominate the conversation or if other students assume that certain students will carry the discussion. Norms to support equitable discussions include monitoring our own time spent talking, encouraging others’ voices who we have not heard from yet, and recognizing and valuing that people think, share, and represent their ideas in different ways. Have a discussion with your students about ways to make sure that everyone feels welcome to join the conversation. When we engage students in academically productive talk, we are asking students to talk in ways they may not be comfortable with and would not be expected to talk at home. For students who are by nature very shy, for emerging multilingual students, for students with high-frequency learning needs, or for students new to academic discussions, scaffolding and support (both from the teacher and peers) may be required to help students formulate arguments and explanations in a way that others can hear, make sense of, and understand. One strategy to help students
who may be reluctant to participate is to ask them to simply repeat what someone else has said, in order to help clarify a classmate’s idea. This strategy, along with revoicing an idea allows students to begin to be involved and allows others to hear the idea again so that they can work with it. Additionally, as students begin to see that these discussions are about making sense and thinking deeply, versus getting the right answer, they may feel more comfortable sharing.

**Committed to our Community**
We are working to “get smarter together”. This means that WE learn together and it is not enough to just share our ideas without connecting to others’ ideas. Establishing norms around being prepared and focused during discussions are important. Developing the idea that we all have a responsibility to our learning community to come prepared, share our thinking so that others can understand, and that we listen carefully and ask questions is important. Encouraging students to contribute ideas even when they are not sure and celebrating ideas (both correct and incorrect) goes a long way in supporting these norms.

**Moving our Science Thinking Forward**
We engage in these academically productive discussions in order to deepen our understanding and make sense of complex science ideas. Here we are talking about rigorous conversations where the focus is on using evidence and reasoning. Wrong or incomplete ideas are important resources and welcome opportunities to explore together as a community. Students will be asked to explain their thinking and say why they made a particular claim, regardless of whether their ideas are scientifically accurate or not. It is important to be aware that these types of questions traditionally signal to students that they are wrong. Consequently, it is important to establish norms around asking questions and working together to move our science thinking forward. We need to explicitly teach students how to use and build on others’ ideas, the importance of providing and asking for evidence, encouraging others to clarify their reasoning, and being open to changing our minds based on new evidence. You can explain the kinds of talk moves you might use and then ask them how it makes them feel. For example, you might say, “I will ask you, ‘why do you think that?’”. If students indicate that such questions make them feel like they are wrong and not want to participate any further, you can explain and reinforce the importance of sharing their reasoning and how critical it is to help everyone learn. The more explicit we can be with the types of moves we (and they) can use to help move our science thinking forward, the more comfortable students can become.

**Important questions to consider:**
- Do you want students to participate in co-constructing classroom norms?
- Do you want the same set of norms for every section of science you teach?
- Do you want to work with your team teachers to establish a shared set of norms for students across all their classes?
- What kinds of consequences will you enforce if students do not follow the norms?
- How often will you check in with students about the norms and whether any need to be revisited or added to?

**Strategies for developing community norms**
When setting up community norms, students should understand how norms help everyone in the community understand what is expected of them. Two strategies for setting up norms include:
- **Give students a set of norms as a starting point**. Hand out a set of community norms at the start of the year. Have students discuss what the norms mean in their own words. Elicit from students the
Co-construct norms with students. Explain what norms are and why we need them for productive science talk and classroom culture. Have students co-construct norms, first sharing ideas in their small group, and then sharing out with the whole class. Compile a list of agreed-upon community norms. As the teacher, you can add norms that may be missing from the list. Make sure to explain to students how you think the norm you added is helpful, so that they are clear about why you are adding it to the list.

Tips for making norm-setting successful

- Every classroom community is unique and the norms for guiding behaviors in the community should fit the unique needs and experiences of the members. Consider the unique needs and experiences of your students and how much support they will need in establishing and following norms for productive talk in science.
- Make the classroom norms meaningful to the students you work with. A rigid list of “norms” given to students with no student input simply becomes a list of “classroom rules” and not a shared set of norms.
- Devote enough class time to co-constructing norms or discussing a set of norms. This will set clear expectations for everyone.

Strategies for actively using and reinforcing community norms

- Help students understand rationale for norms. In the first few weeks using the norms, when pushing students to practice specific discourse moves, ask students to reflect on why you’re pushing them.
  - Why am I asking you to repeat what another student said?
  - Why am I asking for your reasoning?
  - Why is it okay to disagree with another student’s ideas? How does doing so move everyone’s science understanding forward?
- Whole class check in. Discussing progress with the norms regularly helps students understand that norms are expected behavior all the time, not just in the beginning of the school year, or when something has gone ‘wrong’. Check in periodically with the class, asking students to reflect on:
  - How did we do today in our discussion?
  - What talk moves or norms do we feel we were successful with?
  - What talk moves or norms do we need to work on?
- Partner check-in. At the start of class have each student pick a norm they would like to focus on for the day and share that with a partner. At the end of the day, give partners time to share how they did with their focal norm. This elevates the community norms as students become more accountable for their actions, and helps students actively use and improve upon them.

A standard set of OpenSciEd Norms are found on the next page. These are provided with the first units of each grade level (based on the OpenSciEd Scope and Sequence), but serve only as a guide for classrooms. Additionally, the table on the next page provides example talk moves aligned to the norms.
<table>
<thead>
<tr>
<th>Classroom Norms</th>
<th>Talk Moves to Support Norms</th>
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<tbody>
<tr>
<td><strong>Respectful</strong></td>
<td>• “Daniel, that’s a great idea. How do you think we could investigate it?”</td>
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<tr>
<td>Our classroom is a safe space to share.</td>
<td>• Give time to think using wait time, turn and talk, or during individual writing time, such as Stop and Jot.</td>
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<td></td>
<td>• “Why do you disagree with Juan’s idea?” rather than “Why do you disagree with Juan?”</td>
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<td><strong>Equitable</strong></td>
<td>• “I’d like to hear from someone who hasn’t yet gotten a chance to talk.”</td>
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<td>Everyone’s participation and ideas are valuable.</td>
<td>• “How did we do today in our discussion making space to hear from everyone?”</td>
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<td></td>
<td>• “The way Shayna described _____ really helped me think about it in a different way.”</td>
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<td><strong>Committed to our community</strong></td>
<td>• “Who can paraphrase what Selma just said?”</td>
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<tr>
<td>We learn together.</td>
<td>• “What did your partner say?”</td>
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<td></td>
<td>• “What questions do you have for Shereen about her idea?”</td>
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<td></td>
<td>• “I think I heard what you said, but can you say it again to make sure everyone heard?”</td>
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<tr>
<td><strong>Moving our science thinking forward</strong></td>
<td>• “Why do you think that? What’s your evidence?”</td>
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<tr>
<td>We work together to figure things out.</td>
<td>• “Do you agree or disagree with what Juan said? Why?”</td>
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<td></td>
<td>• “Who can add onto Jerome’s’ idea?”</td>
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<td></td>
<td>• “Did you see something represented in someone else’s work that changes how you are thinking about _____?”</td>
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