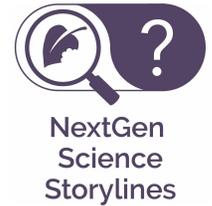


Remote Learning Resource

Discourse



Discourse is the glue that holds learning together. It is critical to the [OpenSciEd instructional model](#), the [inquiryHub instructional model](#), and the [NextGen Storylines instructional model](#).

In a Storylined curriculum, students build ideas through four discussion types:

1. Generating and prioritizing questions
2. Initial Ideas
3. [Building Understandings](#)
4. [Consensus-Building](#)

This Remote Resource focuses on the two last discussion types, [Building Understanding](#) discussions and [Consensus-Building](#) discussions. [This handout](#) and the [OpenSciEd Teacher Handbook](#) have additional information about discourse in a traditional classroom setting,

How Discussion May Be Different in Remote Teaching: General Strategies

Since Storylined curriculum is founded on the premise, “We figure it out together,” it is critical to keep your classroom community learning together. This also signals that students are responsible for meaning-making. **Discourse will not look the same as it does in your classroom, but communication is still essential for sensemaking.** Here are some key principles for supporting remote “conversation.”

The definition of great technology is one that all students can use.

There are many applications that allow different sorts of opportunities for collaboration and communication. But the best ones are the ones that individuals in your classroom can access and use easily. In some cases, that may mean sticking with a single tool everyone can access, maybe even something as simple as a Google doc. In other technologies, teachers may need to act as a moderator and synthesizer across text messages, emails, paper, and collaborative documents who makes sure each student’s voice helps shape the discussion.

Talk connects us to each other and to science.

Highlight home talk practices. At-home discourse tips are embedded in the [CSSS Guidance for Distance Learning](#). Encourage related investigations, and invite students to present and share their learning during synchronous “lab hours.”

Don't give up on figuring out.

There may need to be more scaffolds and longer amounts of time in between lessons, but students should still feel like they are the ones doing the figuring out.

Equity Considerations

Ensuring equity may require use of a wide range of tools for connecting to students. For example, you might encourage students who do not have a laptop to join online meetings via phone and use texting to gather and make use of questions from students who may not have access to online platforms.

Begin discussion sessions by connecting with students on a personal level.

Some students may want to share how they are doing; others will feel more comfortable with a lighthearted connection (e.g., introducing a sibling or pet). Either way, hearing from all students share first about a personal topic may prepare everyone to contribute later to ideas that you are discussing. It also provides a way to make sure the technology is working so that everyone can speak and hear.

Lower the stakes in discussion by promoting the use of chat features.

During synchronous learning conversations, the chat will help students build understandings. You can even require that all students put at least one idea in the chat. This can help students who are not always comfortable sharing their ideas out loud get their ideas into the discussion.

When identifying gaps in understanding, it is important to emphasize “making our ideas stronger,” not “showing we have the best ideas.”

You can also encourage students to take a “coaching” stance here; their role is to ask questions that support others’ ideas, and encourage students to speak up when something needs to be repeated.

Building Understandings Discussions

The Purposes of Building Understandings Discussions

One purpose of a Building Understandings discussion is to provide a forum for students to make their reasoning with evidence public, so that it can be developed further and critiqued in the classroom community. Students who have conducted an investigation, created a model, analyzed some data, or developed an explanation have a chance to share with others how their ideas are contributing to an understanding of the day's investigative phenomenon or the anchoring phenomenon for the unit. And when they do so, their peers have a chance to connect with those ideas, critique them, and perhaps build on them.

A second purpose is to provide teachers with an opportunity to clarify which understandings emphasized in the storyline have been developed and which need further development. The “What We Figured Out” part of every storyline includes some ideal pieces of understanding students build incrementally, as they engage with each lesson's investigative phenomenon. By listening carefully to students' ideas, a teacher has a chance to identify the facets of understanding that all students grasp, some students grasp, or that are missing so far. A teacher can adjust the pace or course of teaching, based on what they hear and on what is missing.

Strategies for Remote Building Understanding Discussions

Of note is that the strategies that can work to support asynchronous discussions can also be used to support synchronous discussion.

	Synchronous	Asynchronous	Without Technology
Students make reasoning with evidence public	<ul style="list-style-type: none"> ● As part of a discussion, build out a document where students share ideas about what they think the class now understands about the anchoring phenomenon. ● Create a poll where students identify evidence that supports or doesn't support a particular claim. ● Use Jamboard to have students say what they think the class has figured out so far (that day, or in the unit). 	<ul style="list-style-type: none"> ● Encourage students to record themselves sharing their ideas out loud and posting to a shared space. ● Use discussion boards to have students share their individual ideas of things they've figured out. ● Nearpod Collaborate has a feature in which students can post and respond to their classmates' posts. ● Use Kialo to have students make the reasoning and evidence for competing claims public. 	<ul style="list-style-type: none"> ● Provide students with claims that they can agree with or disagree with, and indicate why they agree or disagree, based on evidence the class has constructed in previous investigations. ● Present students with evidence that has been constructed in previous lessons, and ask them to consider how the evidence is relevant to explaining the anchoring phenomenon.

Strategies for Remote Building Understanding Discussions Continued...

	Synchronous	Asynchronous	Without Technology
Students respectfully critique others' ideas (see also Norms resource)	<ul style="list-style-type: none"> ● Ask students to use talk moves such as, "I agree with X because...." and "I disagree with X because...." ● Post three or four statements that students have made and post comments using sentence starters for providing feedback. 	<ul style="list-style-type: none"> ● Invite students to post comments on one another's ideas in a Google doc. ● Set up students to be "sidebar buddies" with one another, and authorize them to check in both about one another's thinking and other topics in between classes. ● On Flipgrid, invite students to comment on another's recordings. ● Kialo allows students to offer evidence for different positions in an argument. ● Post 3-4 statements that students have made and post comments using sentence starters for providing feedback (with Jamboard or similar). 	<ul style="list-style-type: none"> ● Present some ideas from other students in the class in a packet, and ask students to respectfully critique those ideas, based on evidence from earlier investigations. ● Ask family members to add ideas and comment on students' ideas. ● Have students make journal entries where students are asked to critique their own ideas and provide counter arguments.
Students relate their own ideas to others' ideas	<ul style="list-style-type: none"> ● Use a program like Poll Everywhere where claims can be shared and "voted" on. Follow up the poll with a discussion of the reasoning behind particular claims. 	<ul style="list-style-type: none"> ● Use Jamboard or Pinup, asking students to present an idea they think the class has figured out, then group like ideas together. ● Have each student write in a Google doc their thinking about what the class has figured out so far. Then invite students to use the comments feature of Google docs to say how their own thinking relates to another student's. ● Use threaded discussion boards in which students are invited to relate their ideas to another student's. 	<ul style="list-style-type: none"> ● Assign students a classmate to text or check in with for each assignment to compare ideas. ● Ask students to ask their family members the day's driving question, to discuss one another's thinking, and then write how their own thinking compares with that of a family member.

Strategies for Remote Building Understanding Discussions Continued...

	Synchronous	Asynchronous	Without Technology
Teacher gains a sense of which facets of student understanding are shared by all, some, or no students	<ul style="list-style-type: none">● Use a live tool like PollEverywhere to ask students to say what they think the class has figured out, and invite students to up- or down-vote specific responses.	<ul style="list-style-type: none">● Use Google Forms to construct a brief assessment focused on the “what we figured out” part of the storyline.● Using PearDeck, create slides that present students with various models/explanations and then asking students to drag a marker to show which explanation/model they most agree with. Students could also use the text feature to explain what they agree/disagree with.	<ul style="list-style-type: none">● Present a partially developed set of ideas students might have figured out linked to the storyline, and ask students to refine them and say how past investigations support their ideas.

Consensus Building Discussions

The Purposes of Consensus Building Discussions

A key purpose of a consensus building discussion is to *reach agreement on an explanation or model*. The explanation or model could be of an investigative phenomenon, or at the conclusion of a bend in a storylined unit, the anchoring phenomenon. At this stage, key tasks are to identify and clarify competing perspectives, resolve disagreements, and identify gaps in knowledge or areas of persistent disagreement. It is important to note that at the conclusion of a unit, students are likely to still have unanswered questions, both because their investigations have led to new questions and because there is still more to be understood about a phenomenon.

Another purpose of a consensus building discussion is to *make public* the changes in the class' understanding of a phenomenon. In such a discussion, students formally revise explanations or models, in light of new evidence or concepts and theories they have figured out. A consensus building discussion makes visible the limitations of previous understandings held by individuals or even the class as a whole. In this way, students come to see their own and scientific thinking as provisional and conclusions as alterable.

Strategies for Remote Consensus Building Discussions

Of note is that the strategies that can work to support asynchronous discussions can also be used to support synchronous discussion.

	Synchronous	Asynchronous	Without Technology
Students identify and clarify competing perspectives	<ul style="list-style-type: none"> Using pinup.com tool, students identify reasons for two competing claims put on either side of a board; they can then link related pieces of evidence before polling students about which sources of evidence are more compelling. 	<ul style="list-style-type: none"> Students use Padlet tiled responses (mode of response varies: text, drawing, video, voice, etc) to share perspective, then like/vote up or down other perspectives. Students post responses in class Google Slides presentation for models or in a class Google Doc for written responses. Students asynchronously review, using the comment feature to identify alternative perspectives. Have students take a picture of their work, use a photo app to annotate (e.g., circle what you want the teacher to look at and give feedback), then send the photo to the teacher. The teacher can annotate on the photo, too, then resend to the student. Students can also communicate to one another in this same way. Students use Screencastify, Voicethread, Flipgrid, or Zoom to record a video clip in which they state their perspective including any evidence. 	<ul style="list-style-type: none"> Provide two or three competing perspectives after students have written theirs and ask them to compare. Identify critical aspects of perspectives that make them different (i.e., how are the perspectives actually competing explanations for phenomena) Ask family members to provide their own perspective and then identify and explain the differences between their current perspective and family members' perspectives. Students phone or text a classmate to share their current positions and then note the similarities and differences between their ideas.

Strategies for Remote Consensus Building Discussions Continued...

	Synchronous	Asynchronous	Without Technology
Students resolve disagreements	<ul style="list-style-type: none"> ● Use a strategy of “double polling” to first get students’ initial positions, then engage in group discussion about evidence supporting or disconfirming different positions, and poll students again on where they stand. In the new poll, incorporate new options based on the reasoning of the group. 	<ul style="list-style-type: none"> ● Invite students on a discussion thread to first post their positions, then ask students to respond to the prompt, “I would agree with you if....” Then, ask students to say what their revised position is on any disagreement. ● Ask students to email the teacher points of disagreement, then present them again and ask students to propose a way to resolve the disagreement (e.g., with a new investigation, by reviewing evidence). 	<ul style="list-style-type: none"> ● Provide claims and ask students to identify evidence in support or refutation from their own notes. Ask students to provide a response to one or two of the competing perspectives. ● Ask students to take on a perspective that is NOT their own and use it to make an argument - to better understand other perspectives. ● Ask a pair of students to call each other to identify and discuss agreements and disagreements. Provide a template to ensure students make a record of similarities and differences.
Students identify gaps in knowledge	<ul style="list-style-type: none"> ● Use pinup.com to build a new mini-DQB for students’ remaining questions and to prioritize them. 	<ul style="list-style-type: none"> ● Using the Crosscutting Concept Prompts tool for systems and systems models, students label relevant components, interactions, mechanisms, and boundaries, identify gaps in one or more of these aspects of models. 	<ul style="list-style-type: none"> ● Explain the phenomenon to a family member. Reflect on what questions were difficult that you could not answer. ● Students identify unanswered questions toward the end of the unit from the DQB and propose some ways to answer it. ● From one of the multiple perspectives and arguments for/against, ask students to identify the gaps in the perspective or argument and some ways to gather evidence. ● Provide a rubric for self assessment, possibly using gotta-have-it-checklist format.

Strategies for Remote Consensus Building Discussions Continued...

	Synchronous	Asynchronous	Without Technology
Students identify areas of persistent disagreement	<ul style="list-style-type: none"> ● Use PollEverywhere to identify areas of disagreement. Can use forced choice if time is constrained, or open-ended if you want to provide opportunities for students to refine how they are describing their areas of disagreement 	<ul style="list-style-type: none"> ● Use Jamboard or Padlet to post ideas then the teacher and students can asynchronously sort ideas into groups (similar ideas) for later discussion about the ideas in different groupings. 	<ul style="list-style-type: none"> ● Share the Driving Question Board and identify questions that are difficult to -answer or were difficult to answer throughout the unit (even at the end of the unit). Ask students to discuss why the disagreements occurred - and what evidence supported a resolution (if there was one - might be useful to only pick an area of disagreement over time) ● Ask students to dig into the resolution of a Driving Question Board question by showing how and when the class developed new ideas or changed ideas about the answer to the question.
Class identifies how its ideas have changed over time and basis for those changes	<ul style="list-style-type: none"> ● Students can use and annotate a progress tracker or incremental model tracker live to mark their progress 	<ul style="list-style-type: none"> ● Students can annotate their initial models in a slide or picture with components, links, or mechanisms that shows what now is agreed upon by the class needs to be in the model, indicating the basis for their additions or changes 	<ul style="list-style-type: none"> ● Send back to students a list of the model components that were common in the class and those that were different at the beginning of the unit after getting to the end a unit; ask each student to name 2-3 ways their models are different and say why

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