students took issue with the vagueness of a claim, such as "The Middle Passage took a long time." While they didn't argue with the basic premise of that claim, Tammy's students felt it was a bit yellow light, noting that "a long time" seemed too open and not concrete enough. Tammy's students also critiqued the actual language of the posted claims, identifying potential red lights any time the words *all*, *never*, or *always* were used. Tammy felt the language of Red Light, Yellow Light helped her students examine these claims not only with a sense of healthy skepticism but also a sense of precision and veracity that pleased her.

Some days after introducing RLYL to her students, Tammy asked them to look through their social studies journals and find one of their own Claim-Support-Question entries to scrutinize using red lights and yellow lights. In doing so, Tammy wanted to draw students' attention to being self-critical in their own claim making. Tammy had students join together with partners to look at each other's selections, again asking them to watch for red lights and yellow lights as a way to help each other refine their claims and make them more solid. "I noticed how much better their own claims became when they interacted with each other in this way. They talked about each other's ideas with one another and did not simply say, 'Right or wrong,'" Tammy reported. "They offered each other valuable feedback using red and yellow lights. Everyone seemed really into it."

Tammy believes that before too long, the language of this thinking routine will become a common phrase in the culture of her classroom: *What are our red lights here? Where are we seeing yellow lights in this material?* She believes this will become a natural routine to draw upon when the class encounters moments of disagreement or controversy. "Even though I've just started using this thinking routine, I see how red lights give students an opportunity to challenge a particular viewpoint with thoughtful reasoning. And when red lights seem a little harsh, yellow lights give students an opportunity to simply keep some ideas up for skepticism," Tammy said. "I can already see that the scaffolding that Red Light, Yellow Light provides will truly promote conversations, feedback, and self-reflection that will be richer for my students."

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CLAIM-SUPPORT-QUESTION

Drawing on your investigation, experience, prior knowledge, or reading:

- Make a *claim* about the topic, issue, or idea being explored. A claim is an explanation or interpretation of some aspect of what is being examined.
- Identify *support* for your claim. What things do you see, feel, or know that lend evidence to your claim?
- Raise a *question* related to your claim. What may make you doubt the claim? What seems left hanging? What isn't fully explained? What further ideas or issues does your claim raise?

For students to be more critical consumers of information, they need to become better at spotting and analyzing "truth claims." These may be ideas and opinions that are being presented by the speaker or writer as facts but in actuality might be better thought of as generalizations, conjectures, hypotheses, or propositions. A collective way of referring to these is as *claims*. These claims need to be evaluated in terms of their supporting evidence as well as those things that make us question the validity of the claim. The Claim-Support-Question (CSQ) routine evolved from these steps.

Purpose

Teachers and students come across declarations of fact or belief all the time. Claim-Support-Question is a thinking routine designed both to identify and to probe these claims. Identification of claims calls on students to look for patterns, spot generalizations, and identify assertions. Sometimes these come from others, but we can also put forth our own claims about what is going on based on our analysis of events or investigation of phenomena.

In classrooms in which explanations or interpretations are identified and discussed, conversations frequently tilt toward getting students to say whether they agree or disagree with a particular claim. Often this happens in a casual manner, without much depth or challenge. However, rarely are claims entirely black and white. One purpose of CSQ is to help students take notice of the claims presented, either as truths or as potential truths, and hold them up to thoughtful scrutiny. This thinking routine focuses students on evidence as the arbiter of the truth or validity of a claim: What support can we muster for it? What makes us question it? Offering supporting or conflicting evidence for a claim provides students a rich opportunity to make their thinking visible beyond merely offering their opinions, reactions, or feelings about a particular matter.

Selecting Appropriate Content

Inundated with scientific research debating the existence of global warming and politicians persuading constituents with oversimplistic arguments to support a policy, a thoughtful member of society must be able to cipher through what is true and what is questionable. The public forum thus provides many sources for potential claims. These can be found in newspapers, magazines, television debates, even political cartoons.

While big societal truth claims certainly are interesting to explore, no less important and more frequently occurring in classrooms are the theories, ideas, generalizations, and interpretations students themselves are encouraged to make as they perform and analyze experiments, read texts, solve open-ended mathematical problems, and so on. Mathematics is an area in which you can find or generate a rich variety of claims, generalizations, and conjectures as to what is going on or what is likely to happen—that is, if students are encouraged to explore mathematical events, games, and problems and then speculate and generalize from them. A teacher should listen closely to what students come up with during such investigations, as it is easy to overhear claims that could be interesting for a class to explore further.

Claim-Support-Question fits with any content in which various interpretations or explanations are solicited that might then be worth further exploration and justification. By being primed to recognize claims, interpretations, and generalizations, teachers can use Claim-Support-Question as an "in the moment" tool to press for evidence *in support of* or *in opposition to* claims that students frequently espouse.

Steps

1. *Set up.* The idea of a claim needs to be introduced to the class. The word *claim* was chosen for this routine because it encompasses a lot: conjectures, speculations, generalizations, assertions, statements of fact, theories, hypotheses, and so on. A very loose definition could be, A claim is a statement about "what's going on here." Present the situation to be examined to the class and tell students the group's goal is to figure out "What's going on here?" At the end of the lesson, the class will have a better understanding of the truth and reality of this situation.

2. *Identify claims.* Prior to launching a topic, a teacher might ask her students, "What claims, explanations, or interpretations might you have already about this topic?" Or, after a class has spent some time on a topic, a teacher could invite his class to make or locate claims by asking "Now that we've been studying this topic for some time, what claims can you come up with that offer us an explanation or an interpretation of our topic?" However they are generated, claims should be documented for the entire class to see, leaving room to add more thinking at a later time or in subsequent lessons. Some teachers like to write the claims in the center of the page or board, adding supports on one side and questions on the other.

3. *Identify support.* Ask students, "Now that we have these claims to consider, what can we see, notice, know, or find that might give support to them?" Students might be encouraged to seek out this support through additional experimentation, research, or fact finding in some instances or to draw on previous knowledge in other cases. Have students articulate the supporting evidence for each claim. This should be written near the original claims for all to see and collectively consider. This step is really about asking students to consider the reasons why anyone might stand behind a given claim.

4. *Raise questions.* In this step, a teacher asks students to be healthy skeptics of the claims being examined. Invite students to think beyond the support already offered for the claims and consider what might make one hesitant about the truth or accuracy of a claim. One way of asking this is, "Now that we've given some support for these claims, is there evidence on the other side? What questions do we need to raise about these claims in order to truly examine their credibility? What more might we need to examine or explain?"

5. *Share the thinking.* Documenting the routine as it evolves makes students' thinking visible throughout the process and allows students to build on as well as challenge others' thinking. Having fully examined a set of claims, it would be appropriate to ask students to take a stance toward them. You might have students rank the claims on a line of confidence, from "still questioning" to "definitely believe." If CSQ has been used to explore a particular issue, students can be asked to give their positions regarding the issue.

Uses and Variations

Claim-Support-Question can easily become a valuable pattern of thinking for students to develop. Caitlin Faiman, a mathematics specialist at Bialik, has integrated CSQ as an ongoing part of her dialogue with both primary and middle school students. Caitlin

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often introduces a mathematics problem, one that can be explored from a variety of perspectives with multiple strategies and for which there isn't an obvious, single solution, and then gives her students time to work on it. After ten minutes or so, Caitlin will bring the group together and ask what sort of findings they have so far, what ideas have come up, and what generalizations seem to be emerging. Caitlin documents these initial and tentative claims on chart paper. She then asks students to continue working on the problem, keeping their eyes, ears, and minds open for evidence that seems to support the initial claims as well as evidence that seems to refute or disprove them. Making use of CSQ in this way, Caitlin not only addresses specific mathematics content but also frames the enterprise of mathematics as being about speculation, generalization, analysis, and proof.

A secondary history teacher in Saginaw, Michigan, in the 2010 election cycle used CSQ to help his students better understand the issues being debated. He identified several claims being made by various candidates around issues ranging from unemployment, job creation, Social Security, health care, Don't Ask Don't Tell policy, and immigration issues without assigning the claims to any particular candidate or party. For instance, the claim that people would be better off if social security were abolished and they controlled and invested their own money for retirement. The class then looked at the supports for the claims as well as what would make them question the claims. After the class discussion, students were given the task to pick a candidate, which could be one they supported or not, and research where that candidate stood on the claims the class had discussed. Many students were quite surprised by what they discovered.

Assessment

When Claim-Support-Question becomes an ongoing pattern of thinking in classrooms, it is useful to notice how often and in what contexts students are spotting and making claims. Do they recognize when suggestions have been made or explanations have been given that seem too broad-stroked to go unchallenged? Are they looking for the generalizations and conjectures that get to the truth of an event? This is an indicator that they are processing information analytically and with a sense of healthy skepticism.

Pay attention to the strategies students are adopting for assessing the validity of claims. When students offer support for a given claim, does it seem anchored in solid, well-grounded evidence versus opinion or personal experience? When students seek to make sense of a given claim, do they recognize what questions might be worth asking of the claim in order to fully comprehend its complexities? For instance, do they recognize special cases that need to be investigated? Within a discipline, do students understand the weight of various kinds of evidence? For instance, finding that something works once or even twice in mathematics is supporting evidence but not proof.

Tips

It can be useful to think of CSQ as an overarching structure for the examination of ideas and the generation of new understanding. However, it is easy for this kind of thinking and learning to be shortchanged or even nonexistent in classrooms. This is often true when the focus is on students taking in rather than examining information. Claim-Support-Question is ultimately about creating opportunities for learners to reason through complex issues from various angles and perspectives with substantial evidence. Using Claim-Support-Question regularly can be a powerful way to convey messages to learners that anything really worth understanding is worth finding support for and scrutinizing with a thoughtful eye.

Keep in mind that CSQ is not necessarily about getting all students to agree or disagree about a particular topic. It is not always about drawing a hard-and-fast line in the sand on a given issue, though in some instances it might be. However, if students suspect that at the end of the lesson you will tell them what is right and what is wrong, they will find the routine pointless. Keep returning to the evidence. If students have missed something important, raise questions for their future exploration rather than tell them.

A Picture of Practice

Upon entering Mary Beth Schmitt's seventh and eighth grade mathematics classroom in Traverse City, Michigan, one is immediately impressed by the mathematical activity of students. Large pieces of chart paper with all sorts of graphs and equations cover the walls, exhibiting small groups of students' attempts to reason with real data. Colorful strips of tagboard on the windows display students' reflections of big mathematical ideas they've studied. Student theories and strategies are posted throughout, giving the impression that Mary Beth values students' mathematical thinking. Mary Beth had always believed in active learning. However, it was not until she went beyond simply creating hands-on lessons for students and began listening more closely to the generalizations, conjectures, and ideas they put forth that she began to notice a powerful shift in the culture of her classroom.

"I already believed that mathematics learning would be powerful for my students if they backed up their ideas with evidence," remembers Mary Beth, "so that's why I was initially drawn to Claim-Support-Question. I suppose I had always done a version of this routine, but it was more like 'claim and support' without much questioning. By that, I mean students would say something like, 'My claim is that $x = 7$ because that is what I found when I did the equation.' They didn't offer much more than that and I didn't ask them to do so." Mary Beth was only asking her students to give solutions and justify them by the procedure used—a relatively narrow conversation. "Though I asked them to explain their solutions, I really wasn't asking them to seek evidence to support or disprove theories, ideas, or conjectures."

Mary Beth wanted the Claim-Support-Question routine to be broader in scope than analyzing any one particular problem or procedural steps. She decided to ask her students to make initial claims about a big mathematical idea that could be looked at over time from multiple entry points. "I began with a question, a deeper question, a bigger question," said Mary Beth. Asking students, "How do we ever know whether two expressions are equivalent or not?" After providing some think time, she began documenting students' initial ideas (see Table 6.1), regardless of whether they were right or wrong. "Knowing some misconceptions would come up was part of the fun in this for me. I figured then we would have something authentic to investigate and prove," Mary Beth commented.

After collecting students' initial ideas, Mary Beth told students she would like them to keep these "claims on trial" just as if they were judges in a court of law. "Some of these claims seem true, others perhaps not so much. In either case, we've got some claims that we'll need to get to the bottom of over the next few weeks."

Table 6.1 Eighth Grade Students' Initial Claims About Equivalent Expressions

How do we ever know whether two expressions are equivalent or not?
• Two expressions are equivalent when they have the same solution. • You can decide if they create the same table and graph. (And can be modeled the same way sometimes.) • They are equal when the values are the same. They can be written in different formats, but the value is the same. • You can decide by using the distributive property to find equations in their simplest form, then compare. • You can put in the same number for *x* in both equations and if you get the same sum then they are equivalent.

As her class worked through a variety of mathematical investigations that examined aspects of equivalence, Mary Beth frequently directed her students back to the courtroom of "claims on trial." She asked students to offer supports from their mathematics work that would give credence to some of their initial ideas. She also asked them to suggest questions that needed to be raised regarding some of the claims now that they had gained a little more insight into the topic of equivalence. "I wanted our claims to have purpose and a life beyond any one problem or any one lesson," said Mary Beth. "I wanted my students to build upon their initial ideas and consider how our lessons were leading us to examining more questions, more strategies, and more perspectives for making sense of this big mathematical idea of equivalence than they had originally thought."

Near the end of their unit, Mary Beth asked her students to individually choose one of the initial claims and address the court in their journals: supporting the claim, questioning it, or tweaking it in some way so that it could become a more solid mathematical claim grounded in evidence. The open-ended nature of this opportunity allowed Mary Beth to see what students were understanding about equivalency (see Figure 6.1).

Mary Beth was surprised by the depth of her students' responses. She felt that the routine, with its emphasis on generating claims and searching for supporting evidence, caused her students to engage in deeper thinking about connections, strategies, and processes and not just verbalize specific procedures. "They really seem to own the ideas that they suggest and even own the claims their classmates come up with. They'll actually name the claims of their peers with phrases like, 'Remember the other day when Joe claimed that . . .' or 'You know how Alex claimed such-and-such? Well, I looked that up and . . .' They seem more engaged with each other's ideas now than ever before. I have really been enjoying this shift in how they interact with one another around their mathematical claims and reasoning."

Mary Beth believes that her regular use of CSQ has significantly changed her teaching. "I've found that my own classroom language has changed. The kinds of questions I ask and the kinds of things I listen for as my students share their ideas has gone deeper than simply listening for their solutions and steps," said Mary Beth. "I'm also thinking much more about the connections between mathematical ideas and concepts throughout the year. It seems that I am starting to notice where ideas get revisited and built upon over time now that my students and I are regularly seeking out claims, generalizations, and theories instead of just covering individual skills lesson by lesson."

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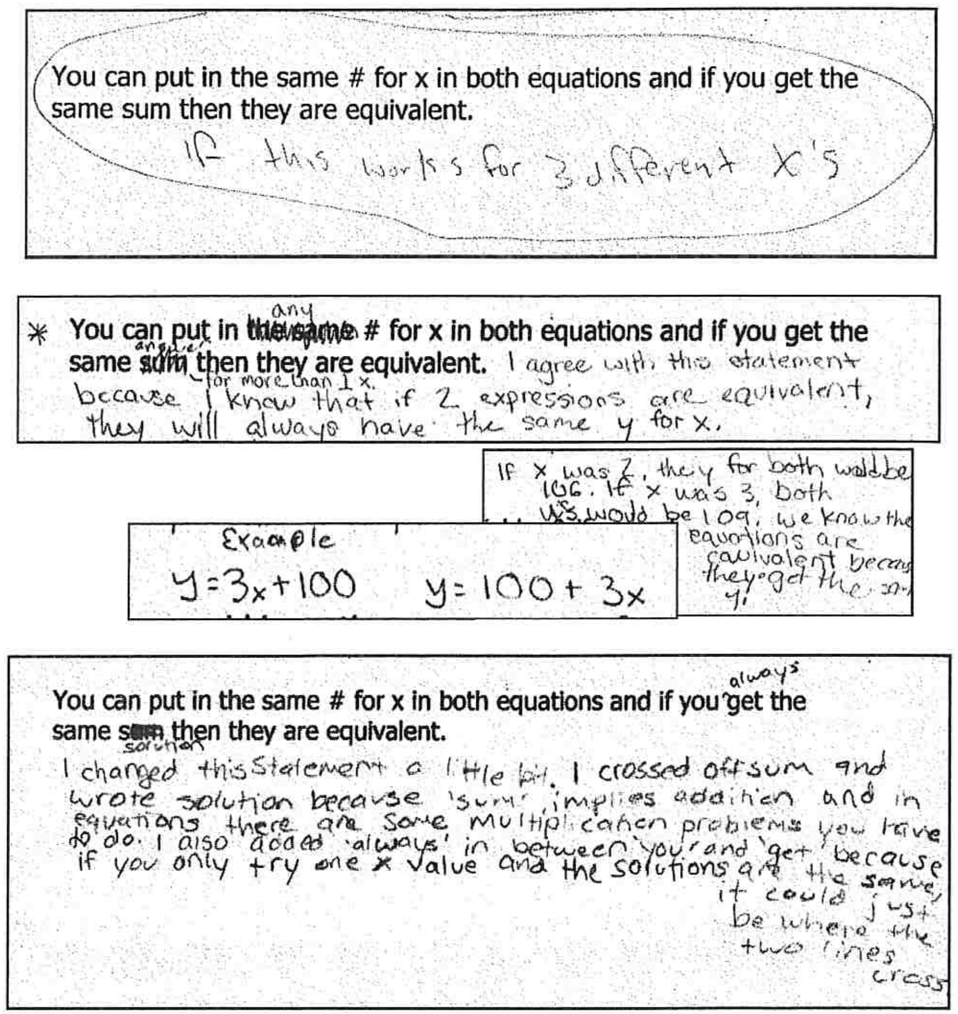
Figure 6.1 Eighth Grade Students' Evaluations of Equivalency Claims



TUG-OF-WAR

Place a line across the middle of your desk or table to represent a tug-of-war rope. Working with a dilemma that can be considered from multiple perspectives or stances:

- Identify and frame the two opposing sides of the dilemma you are exploring. Use these to label each end of your tug-of-war rope.
- Generate as many "tugs," or reasons that "pull you toward," that is, support each side of the dilemma as you can. Write these on individual sticky notes.
- Determine the strength of each tug and place it on your tug-of-war rope, placing the strongest tugs at the farthest ends of the rope and the weaker tugs more toward the center.
- Capture any "What if . . . ?" questions that arise in the process. Write these on sticky notes and place them above the tug-of-war rope.

When we thought about the challenges of decision making, a metaphor that came to mind was that of a game of tug-of-war. You have one group of factors, reasons, or influences pulling one way and another group pulling the opposite. However, in a tug-of-war, not all pulls are of equal strength. The anchor positions on the rope are generally the strongest, whereas those closer to the center are the weakest and most likely to be pulled over the line. The Tug-of-War routine uses this metaphor to explore issues and ideas.

Purpose

Taking a stance on an issue and supporting that stance with sound reasoning is an important skill. However, taking a stance on issues too quickly and rushing to defend that stance before examining the complexity of the issue can lead to narrow thinking and an oversimplification of the problem. The Tug-of-War routine is designed to help students understand the complex forces that "tug" at opposing sides in various dilemmas, issues, and problems. It encourages students initially to suspend taking a side and think carefully about the multiple pulls or reasons in support of both sides of the dilemma. By inviting students to explore the arguments for both sides of a dilemma, Tug-of-War strives to develop appreciation for the deeper complexities