Chapter 6

Developing and Applying Selection Criteria

When you design criteria to reflect your goals and address your needs, you will have a powerful tool to use in your selection process. Your criteria will standardize the ways committee members review candidate curricula and will focus your evaluation on how each curriculum would help you achieve your goals. The criteria provide a set of common questions to ask of each program. You can use these questions to compare different curricula and also to compare different reviewers' evaluations of the same materials. Much of the work you have already done to articulate your goals and assess community needs and resources will be useful in designing your selection criteria. Developing your selection criteria will also help you to continue clarifying and articulating your goals and values for mathematics education.

Begin working on your criteria early in the process to make sure you develop and refine a set of questions that address the issues that are most important to you. You should have a working set of criteria early enough so that you can practice using them before you begin reviewing curricula in earnest. This gives you time to calibrate the ways that people are using the criteria, see how long it takes to use the criteria to review a curriculum, and clear up any questions or problems that arise—similar to playing an open practice hand when you learn a new card game.

Don't skimp on developing your criteria—they will help make your selection process rigorous and thoughtful. It takes time and thought to construct them, but you don't have to start from scratch. There are a number of resources you can call on. Your state or local frameworks can serve as a touchstone for developing questions about *how* the curricula address these frameworks. (However, recognize that the wording in the frameworks themselves generally doesn't translate into good criteria because it usually lacks the necessary level of specificity.) With your frameworks (or the NCTM *Standards*) in mind, look at the review criteria you have used in the past and see which are still relevant. If you find that previous criteria fail to address your current goals, look elsewhere for guidance, for example, to colleagues in districts that have already explored standards-based curricula. We have included sample questions at the end of this chapter to get you started, and some additional examples used by districts are included in Appendix 4.

This chapter discusses some of the important issues to consider when crafting selection criteria, grouped into the following categories:

- mathematical content
- approaches to teaching
- approaches to learning
- presentation and organization of curriculum materials

The chapter concludes with a section on the design and use of selection criteria.

Mathematical Content

Because the mathematical content in standards-based programs is often not as apparent on brief examination as it is in traditional texts, you will have to study standards-based lessons more carefully to get their mathematical point(s). There are a number of reasons for this.

1. Units or chapters in standards-based programs may not be identified by topic, so you will have to look more closely to find out what mathematical ideas they address. Chapter titles may describe the contexts in which the mathematical ideas are presented rather than naming the ideas themselves—for example, "Family Portraits" focuses on comparing function families and "Between Never and Always" is a unit on probability. Many publishers do provide analyses of the curricula that identify the units addressing particular standards to help orient you to the mathematical content.

2. Standards-based curricula are more likely to integrate a number of different mathematical ideas within a single unit, resulting in a lack of strict correspondence between lesson and topic. Lessons that are, on the surface, about such practical problems as designing a house or planning a journey may contain opportunities to develop and practice a variety of skills and concepts, such as computing fractions, converting units of measurement, and writing and solving algebraic expressions. Because many standards-based curricula embed a good deal of problem solving and skill mastery in games or practical applications, you have to study lessons more carefully to make sure you don't overlook some of their mathematical goals.

3. Because lessons may extend over several days (or even weeks), the mathematical ideas they target unfold over time as well, which makes it difficult to review a single lesson and draw reliable conclusions about the mathematics being developed.

4. When programs embed mastery of technical skills in games or activities (a common feature of standards-based programs), reviewers may be inclined to conclude, incorrectly, that the curriculum does not provide opportunities for students to learn important facts and procedures.

In keeping with the recommendations of the *Standards*, some of the mathematical content also differs from that of traditional texts. The curricula include new content areas (e.g., discrete mathematics, probability, and data analysis) and focus less on procedural or computational topics (e.g., long division, factoring polynomials). You may find that topics and ideas traditionally taught at one grade level are introduced in a different grade, so you will have to keep an eye out for the progression of mathematical ideas. This is particularly true for the high school curricula, where integrated programs follow a pathway that differs from the traditional Algebra I–Geometry–Algebra II–Trigonometry/PreCalculus sequence.

As you examine different materials, take the time to look carefully at several of the units at each of the different grades. Work through a few of them yourselves to get a more concrete idea of how mathematical ideas and skills are developed within the lessons, and where these ideas might lead. Read the teacher's guide to see how the developers have framed the lesson: how clearly are the mathematical ideas that underlie it presented, and are these ideas important ones for students to learn? Check to see whether the teacher's guide offers samples of student work for the lesson. If there are samples, ask whether they will help teachers to anticipate the kinds of ideas they will encounter with their own students; if there aren't samples, look for other ways that the guide helps prepare teachers to promote students' mathematical thinking.

There are also important differences among the standards-based curricula. Though they all extend more active roles to students, they don't do this in the same ways, nor do they make the same pedagogical demands on teachers. The curricula also differ in the ways they motivate the mathematics itself: some focus directly on investigations of mathematical concepts and ways of thinking; some develop the mathematics through practical applications; some take a technological perspective; and some embed the mathematics in games, stories, or dilemmas. Since these differences can affect both the way that the curricula develop mathematical ideas and the ways that students learn them, you should examine curricula with an eye toward the approach that best suits your needs.

Approaches to Teaching

Standards-based curricula offer an important and challenging role for teachers. Teachers serve as brokers of the curriculum, providing the link between the written materials and the student. Since so much of the learning occurs through the particular interactions students have with the activities, their classmates, and their teachers, the curricula require teachers to make many complex judgments about moving students' learning forward. Teachers new to standards-based instruction may find it initially difficult to anticipate how students will respond to activities, or how the mathematical ideas in lessons will unfold. It is therefore important that standards-based curricula offer teachers guidance and support for transforming the written lesson into actual classroom work. As you review materials, pay particular attention to the quality of the teacher support materials for the different curricula.

There are particular elements of standards-based instruction that may be new and unfamiliar to teachers—for example, the emphasis on engaging students in mathematical processes, or asking them to explain and justify their answers to problems. Below, we identify some of the elements of standards-based instruction that you should consider when reviewing curricula.

Classroom Communication

The *Standards* emphasize classroom discourse as a driving force in the development of mathematical thinking and communication. As the focus of instruction shifts toward students' ability to reason about mathematics and justify their ideas, students' presentation and discussion of their ideas takes a more central place in the classroom. Your selection criteria should include questions about how different programs encourage and support teachers in establishing mathematical conversations in class. The criteria should also include questions about how the materials support teachers in evaluating the mathematical validity of students' responses and asking questions that promote further learning.

Use of Manipulatives and Technology (Calculators and Computers)

Mathematics curricula are no longer distinguished by *whether* they use manipulatives or technology. Many programs—standards-based and more traditional ones alike—now include lessons that involve concrete materials such as base 10 blocks, Cuisenaire rods, counters, fraction pieces, pattern blocks, geoboards, and algebra tiles. Calculators are also commonly recommended for some activities. Certain mathematics programs also use computers, though with the advent of relatively inexpensive graphing calculators, computers are not as central to many curricula as they were expected to be even just a few years ago.

As you review curricula, think about how manipulatives and technology are used and how the *way* they are used reflects your district's agenda for students' mathematical learning. Notice whether the curriculum offers students the opportunity to use calculators as tools and resources for reasoning mathematically. Also consider when calculators or computers function as computation tools and when they offer ways for students to learn skills and represent and model mathematical concepts.

Once you have considered the roles played by manipulatives and technology in a given curriculum, you must ask whether this role is consistent with your expectations and how the curriculum helps teachers make effective use of these materials. For example, does the curriculum offer practical advice about setting up the classroom and organizing students' access to manipulatives, calculators, and computers? What guidance does the curriculum offer teachers for using these tools effectively for instruction?

Assessment

You'll probably attend to issues of assessment much more during the implementation phase, but it's also important to consider how assessments are structured within the various curricula as you are making your selection. This will help you see how different curricula align with district perspectives on assessment. As you review materials you should think about how they handle two different types of assessment: those that help guide classroom instruction and those that evaluate student progress.

Classroom assessments that inform instruction help teachers focus on what students do and don't understand, while there is still time to help them understand more. Opportunities for ongoing classroom assessment occur in the course of regular class work and discussion. To some extent, this is the role that homework, tests, and quizzes have traditionally played. As the focus has turned more and more toward how students think about their work and not just whether they are getting the right answers, classroom assessments now focus on helping teachers more fully understand their students' thinking, so they can plan instruction to move that thinking forward. As you review curricula, look for the ways that each program helps teachers focus on their students' thinking through classroom-based assessments.

Assessments that are evaluative (for example, end-of-unit tests, midterms and finals, and state and national tests) are important for documenting student learning and progress. They provide an accounting of the degree of students' success in mathematics classes and are used as a way of ensuring the district's accountability to students and parents. You will need to be clear about the kind of mathematical competence you want (or need) to assess, and review curricula with an eye toward the match between your mathematical goals for students and the mathematical focus of the materials. This is a question you will ask when you are reviewing curricula for their content; you can ask it again with an "assessment spin" to it: Will the curriculum help students develop the understanding, skills, and attitudes they need to do well on the tests they must take to advance to higher levels of education? (This is often a particularly important question for parents.)

One salient issue is the degree to which assessments (particularly such high-stakes tests as college boards and state competency exams) are aligned with the curricula. A common concern is that standards-based curricula won't fully prepare students for standardized tests. In fact, there is little research data about this issue, and no clear support for this concern: there are many anecdotal reports of district scores on standardized tests holding steady or improving, and also some reports of temporary drops in computational scores that may well be due to difficulties with implementation. As with any new adoption, there may be a temporary drop in scores as teachers are learning to fully implement the new curriculum. Ask publishers and the NSF-funded implementation centers for implementation data they have collected and talk with other

Because [the program we chose] doesn't align with MATs [our current assessment instrument], I asked the board of education to hold off on looking there for results, because they wouldn't show right away. (C.U., associate superintendent of curriculum and instruction) districts that have used the curricula you are considering to find out how their students are performing.

For these reasons, it is very important that you carefully consider how adopting a standards-based program will align with current district and state assessment policies. If you anticipate a mismatch between curriculum objectives and the critical assessment measures to which you are held accountable, you will need to develop a plan to address the lack of alignment between teaching and testing. For example, you can include supplementary materials to cover areas of the assessments that are not emphasized in the curriculum. You can also design assessment measures that are better aligned with the learning emphasized in the curriculum to supplement your district's standard assessment package.

Approaches to Learning

Ultimately, you want to know about the kind of mathematical thinkers and learners that different curricula will help students become. To this end, you should examine curricula in terms of the learning opportunities they offer for students.

Equity: High Expectations for All Students

One goal of the NCTM *Standards* is that all students, not just top students, will be able to make sense of mathematics. Include selection criteria that focus on whether curriculum materials are engaging and comprehensible to a wide range of students, with lessons that offer multiple levels of challenge and multiple points of entry. Some of these entry points offer different ways to think about the mathematics to students with varying learning styles and intellectual strengths. Other entry points connect with students' different interests and backgrounds.

It is important for school texts in all subject areas to address equity by representing the diversity of our nation's students, and virtually all curricula have come a long way from the homogeneous perspective with which most of today's adults grew up. But there are much deeper issues at stake here than the question of whether a given student in your school will identify with a name or photograph on one of the pages of the textbook. The heart of the equity challenge posed by the *Standards* is to provide opportunities for all students to develop mathematically powerful ways of thinking without compromising the quality of the mathematics they study.

Active Student Involvement

Another fundamental premise of the *Standards* is that students should be actively involved in the construction of their own understanding. As you review curricula, look for the ways that they involve students in doing mathematics—developing mathematical ideas, testing them out, defending and proving them, and sharing their thinking with others. You should also look at how the supporting material helps teachers make sure that this involvement focuses on substantive mathematical ideas and not simply on working with a lot of "stuff." (Some people have distinguished between "hands-on" activities, which engage students with materials but may not elicit important mathematical ideas, and "minds-on" ones, which do engage students in significant mathematical thought.)

Try to imagine whether the lessons will capture the students' interest. Look at the contexts the curricula use for problems and investigations and determine whether they pose situations your students will care about. Will these contexts help your students make meaningful connections with mathematical ideas?

Presentation and Organization of Curriculum Materials

When you pick up a new mathematics book, the content is probably not the first thing you notice, even though it is the core of the curriculum. You are more apt to notice the way the materials look and feel—the color scheme, graphics, and layout. And while these are certainly not the most important factors in selecting a curriculum, they do matter in the day-to-day use of the materials.

There is more variability among standards-based programs in the organization and presentation of the materials than there is with more traditional textbooks. The curricula vary in their visual presentations. Some are done in four-color printing and others are not; some use photographs to illustrate the text and others use sketches and drawings.

They're also packaged in different ways. Some programs are published as year-long or semester-long student textbooks, some are available as a series of paperback modular units, and some come in both forms. While all are intended to be used as full-year curricula, the modular form allows them to be "unpackaged" and used one at a time or as supplements to textbooks that are already in use in your district. Some curricula that were originally developed as modular units are now packaged in book form, but retain some flexibility in the order in which units can be used during the year. (But you should pay close attention to developers' suggested ordering, as some educators have warned about taking a "mix and match" approach to using the individual modules on grounds that it risks undermining the mathematical coherence of the original sequencing. If you have questions, check with the developers about the kind of latitude in sequencing they advise.)

Users' preferences for these different forms of packaging vary. Modularized curricula may be more convenient for students to carry around, as they are less bulky and lighter than a full-sized textbook, but they may be easier to misplace. Of course, replacement costs for lost or damaged modules will probably be less than for full-year textbooks, as only individual units need to be repurchased. While the paperback modules are less durable, a student would use each module for only a couple of months during the year, so it's not clear which kind of packaging would ultimately prove longer-lasting.

Teacher guides show the same range of packaging options and again, preferences vary. Some teachers prefer having the units bound individually, finding individual units more convenient to locate and carry, and making it easier to focus on the specific work of the unit without distraction. Others would rather have access to the whole year's work so they can situate the unit in the full scope of the curriculum, referring back to ideas that precede the unit and ahead to those that follow. The curricula also differ in the type and amount of supporting material they provide for teachers. You may or may not find tips about organizing and implementing lessons, descriptions of the major mathematical goals for each unit, samples of student work, or problem solutions within the teacher's guide. Find out whether there are certain kinds of support your teachers really value and review curricula with these in mind.

Design and Use of Selection Criteria

Collecting Numbers or Impressions?

As you put together your criteria you will have to decide on the methods you will use to collect information about each curriculum. You have two major choices, which roughly correspond to the difference between multiple-choice and short-answer essay tests. The multiple-choice approach is more *quantitative*, relying heavily on numerical scores. The essay, or *qualitative*, approach relies primarily on descriptions of and judgments about the material.

When you take a quantitative approach you phrase your criteria as questions such as "yes or no?" or "how much/how often?" You assign numerical values or low/medium/high ratings as answers to these questions, and you then can compare curricula by tallying and comparing their scores. With a qualitative approach you answer questions by writing a series of short answers, phrasing your criteria as questions that ask "how," "why," or "where." You answer these questions by synthesizing your impressions of the curricula and organizing your observations into categories, supporting your evaluations with examples from the materials. We recommend a combination of both approaches.

Quantitative Assessments. A quantitative approach is good for those selection questions that are relatively straightforward. In general, the quantitative approach works well for questions that can be tallied or counted. It also offers a quick way to assess the degree of consensus about an analysis ("Were everyone's scores for this curriculum either 4 or 5?"). A quantitative approach can help you see general patterns of strengths and weakness within a curriculum and broadly characterize differences between curricula. You can easily summarize your ratings by graphing or charting scores and looking (literally) for patterns.

Many people prefer a number-based approach because it feels more objective to them—you can say that Curriculum A achieved a final score of 77 and Curriculum B scored 85, so Curriculum B "won." While such scoring schemes give the impression of objectivity (since they use numbers), most often it is, in fact, little more than that—an impression. There are several reasons why this is the case. First, it is rarely a cut-and-dried matter to assign a number to the questions you will be asking as you review different curricula. (How many times have you filled out 3-point scales on a questionnaire and puzzled over whether to answer "always" or "sometimes," while really wishing for a "sometimes/always" category?)

Because quantitative ratings don't directly reflect the thinking that goes into assigning a score or making a forced choice, it is difficult to know what a particular rating means: do two people who both assign a low score have the same reasons for doing so, or are they using different kinds of evidence for their judgments? When you rely heavily on number scores, either the reasoning that reviewers used to get to the numbers gets lost, or people have to recreate their decisions during committee discussions in order to elaborate on their scoring. So, paradoxically, taking time to jot down your analysis of different aspects of a curriculum may actually save you time. When the time comes to talk about curricula as a committee, you won't have to reconstruct your thinking from a rating sheet that's full only of numbers.

Qualitative Assessments. A qualitative approach is good for selection questions that are more complex and need more in-depth responses. Qualitative descriptions will help you create a more textured and nuanced view of the curricula you are reviewing and will encourage you to think hard about important issues of teaching and learning mathematics. Since part of making qualitative assessments involves explaining your reasoning and finding examples to support your judgments, using this approach prepares committee members to organize and articulate their views. These descriptions are also more informative on their own than simple rating scales are; it is possible for someone to read through a stack of qualitative reviews and get some sense of the particular approaches and characteristics of the different curricula.

The strength of the qualitative approach—its potential for textured descriptions and reasoned judgments—can also be its downside. The task of writing short narratives to many questions may feel overwhelming. This is a more time-consuming process, and, in the interest of being realistic and efficient, it is generally a good idea to suggest a limit to the time reviewers spend answering a set of qualitative selection questions.

Because the questions tend to be open ended, reviewers' responses can be fairly wide-ranging and can vary in their usefulness. This variability is often a result of the way the questions are posed. Vague or global questions generally yield less informative responses because they don't give the reviewers enough of a clue about what you actually want to know. Make sure that the questions are short and to the point. This will help reviewers focus and sharpen their responses. A series of specific questions about student learning, such as, "How does the curriculum help students learn to solve problems by working forward and backward ('doing' and 'undoing'); make conjectures and proofs; and formulate convincing arguments?" will be more likely to give you a sense of students' learning opportunities than the more global (and hence less well-defined) question, "How does the curriculum encourage students' active learning?"

Another potential problem with using a qualitative approach is that you can get buried in information without a clear idea of how to condense it into a manageable form. Read through committee members' evaluations and organize them by category, then make charts summarizing the comments that are relevant to each category. For example, make a category for "Student Interest" and, on a separate sheet for each curriculum, record all of the comments about how the curriculum engages students' interest. Make another category for "Student Thinking" and record all the comments about how different curricula encourage students to pursue mathematical ideas. Use these charts to organize committee members' judgments and to look for areas of strength and weakness within a curriculum, as well as make comparisons between different programs. These summary charts will also help identify issues that need further discussion in your committee.

Crafting Selection Questions

How do you put together a set of guiding questions that reflect the selection criteria you have established? In general, we suggest that you collect questions others have used and then customize them for your own situation—keep the ones that you think will help you to get at the important issues for your district, toss the questions that are irrelevant, and rework the ones that address good ideas but are not well-worded. For example, the question, "How will students coming from middle school be prepared to work with this high school curriculum?" is on the right track, but it's still a bit too general. Asking, "Will students coming from middle school have learned the requisite concepts and skills to work with this curriculum, and, if not, what won't they have learned?" is more specific and closer to the mark.

To start you on this process we propose some sample questions at the end of this chapter. Appendix 4 includes sample instruments from districts recently involved in curriculum selection, and the criteria developed by the U.S. Department of Education and by Project 2061 of the American Association for the Advancement of Science (AAAS).[6] These examples can give you an idea of the kinds of instruments that have been useful to people doing curriculum reviews.

Getting Up to Speed

We encourage you to practice applying your selection criteria to make sure that the members of your review committee are using them in the same way. One important part of this process is to discuss the assumptions about mathematics and mathematics learning and teaching that are implicit in your criteria. If you review curricula for "Student Communication," for example, do you mean that students have a chance to write in journals once a week, or that they should

[6] Project 2061 has used their criteria to analyze commonly used middle grades mathematics curricula. Reports of their results will be available through Project 2061, and also on their website, <http://project2061.aaas.org>.

offer solution strategies during whole-class discussion, or that they debate ideas with their classmates in small groups? We have found that it is common for people to adopt and use the language of reform, assuming that there is consensus about the meaning of the words, when, in fact, there are a wide variety of interpretations.

You can begin to make your assumptions explicit while the committee is putting together the criteria, and you can continue the conversation as you practice using the criteria on some of the curricula you will review. As you begin to see the criteria in action, you will see where you need to clarify or rework them.

You may want to practice using the criteria together before you begin your individual reviews, so that you can discuss your individual judgments and reasoning. (As noted earlier, this is like learning to play a card game by playing a few open hands with a running commentary.) Make sure that you discuss the places where you disagree or where there are uncertainties about how to respond to a question. This will help you develop consistency in reviewers' application of the criteria. The point is to get people feeling comfortable using the criteria as they look through materials and to make sure that everyone is using the criteria as reliably and consistently as possible, so that comparisons between reviewers will be meaningful.

Also, keep your selection criteria in mind when talking with teachers in your district who have worked with particular curricula, or with colleagues from other districts who have been looking into standards-based materials. You will find that you'll be able to focus your conversations better when you have identified specific issues about which you'd like to know more. Similarly, use your selection criteria to review teachers' impressions from any pilot testing you conduct.

Using Your Criteria to Make a Decision

In the end, your decision will rest on discussion among members of the selection committee and a considered judgment based on the range of information you have collected about the different curricula. There is no mathematical formula that will yield a foolproof decision about the right curriculum to choose; there are too many judgments to make that are incommensurate. If, for example, you judge a curriculum to be strong on mathematical processes but weak on teacher support, how do you come up with a summary statistic that reflects an objective weighting of these particular issues? Or if some members of your committee give a program high ratings on criteria that they don't personally value (though the district mathematics coordinator does) and then give the curriculum a low overall score, do you let this score stand or look for a way to factor in the ratings that were ignored? Your judgments about your priorities, goals, and resources will help you sort out the

We ended up choosing [our curriculum] because it promoted deeper understanding of mathematics for students, a more systematic look at and take on the nature of mathematics, greater motivation for students, and access for students ranging from special needs students to the most advanced. This accessibility for all students was really important. In addition, the program was engaging and interesting for teachers to teach, and we had a deep conviction that it would improve student achievement. But improving scores wasn't the only criterion. If we were only concerned with the standardized test scores, we would have gone with another program. (J.G., assistant superintendent for curriculum and instruction) responses to these kinds of questions—not calculating an average (or even weighted average) of the scores.

Frame your discussions of the curricula in terms of the following "big questions," using your curriculum reviews, discussions with teachers and other districts, and pilot data to support your judgments:

- What makes the mathematical content of the program strong?
- How does this curriculum match our vision for students' learning?
- Will our teachers be able to teach the program well?
- Can we afford to buy it and support its implementation? (This question is the focus of the next chapter, "Cost Considerations.")

Summary

Developing selection criteria and applying them to the curricula you are considering is a very important part of the selection process. The criteria are one way to focus and standardize your review of the programs under consideration and to organize information you may collect through other means (e.g., informal conversations with colleagues, classroom observations, and pilot testing).

When you design your selection criteria, make sure that you consider these important categories:

- mathematical content
- approaches to teaching
- approaches to learning
- presentation and organization of the curriculum materials

Careful crafting of selection criteria will help you make well-researched and well-planned curriculum choices.

Sample Selection Questions

We have included some sample questions below to help you get started on developing your own selection questionnaire. These questions all take a qualitative approach, and reviewers' answers should be supported with concrete examples from the curricula. This collection is not intended to be comprehensive or definitive, but rather to help you start developing your own questionnaire that will reflect your district's particular goals and emphases. See also Appendix 4 for samples of selection questions that other districts have used.

Mathematics Content

- What mathematics content is particularly well-developed in this program?
- Are there important mathematical ideas that students will not have a chance to develop adequately with this program? If so, what are they?
- How does the curriculum encourage the development of technical skills?
- How will this curriculum connect with the mathematics of curricula used in other grades?
    - ~ Will students coming from (elementary school/middle school) have learned the requisite ideas and skills to work effectively with this curriculum? If not, what are the areas of weakness?
    - ~ How does the mathematics that students will learn in this curriculum prepare them to progress to our (middle school/high school) curriculum or to college?
- How does the program fit with our curricula in other subject areas?

Pedagogy

- What instructional approaches does the curriculum use to encourage students' mathematical learning?
- How does the curriculum make mathematical concepts and skills accessible to students with different learning styles, backgrounds, and intellectual strengths?
- How does the curriculum help students learn to:
    - ~ ask mathematically important questions?
    - ~ make conjectures?
    - ~ advance convincing arguments?
    - ~ develop proofs?

Technology

- How does the curriculum's use of calculators and computers advance students' mathematical understanding?
- How will calculators and/or computers in this curriculum affect students development of technical and computational skills?

Assessment

- How does the program help teachers assess student learning for the purposes of instruction (e.g., homework, suggestions for discussion questions, quizzes)?
- What kinds of assessment opportunities does the curriculum offer for purposes of accountability (e.g., in-class performance, portfolios, individual and group projects)?
- What opportunities exist for students' self-assessment?

Teacher Support

- How does the program help teachers understand the important mathematical ideas of the curriculum?
- How does the program help teachers:
    - ~ assist children with a range of abilities and learning styles develop mathematical understanding?
    - ~ focus on advancing students' mathematical thinking?
    - ~ encourage mathematical communication?
    - ~ use technology effectively?
- What guidance does the curriculum offer teachers for communicating with parents and administrators?
- What kind of professional development—in content and pedagogy—will our staff need to teach this curriculum effectively?
- Will we have the necessary professional development resources to help teachers make these changes?
- Will our teachers find this an interesting curriculum to teach?

Organization and Structure of Materials

- What kinds of student and teacher materials come with the program?
- How are the materials organized? What are the advantages of the way(s) the materials are packaged?
- What additional materials (e.g., computers, classroom supplies) does the curriculum require?

- How does the organization of the curriculum create a coherent and comprehensible program?
- How do the supporting materials convey the organization and coherence of the curriculum to the teacher?
- How easy is it to use the materials?
    - ~ Are the mathematical goals of the units and lessons clear?
    - ~ What must teachers do to prepare for lessons?
    - ~ Are the directions clear?
    - ~ Are the materials needed for lessons readily available?
    - ~ Are solutions to problem sets included?