

Math Instructional Materials Review Tool

Please use the following rating scale to identify your level of agreement, then use the space below to cite evidence from the materials to support your rating:

- 1** **Low level of agreement**
5 **High level of agreement**

CATEGORY 1 MATHEMATICAL CONTENT

The mathematical content of the program reflects the curriculum Core and Content Standards and the NCTM Process Standards.

• Mathematics as problem solving is built into the program at all levels.

The mathematics is developed from problem situations that are interesting to students and appropriate to their level of understanding. Situations are sufficiently simple to be manageable but sufficiently complex to provide for diversity in approach. They are amenable to individual, small group, or large group instruction; involve a variety of math content; are open and flexible as to the methods to be used, and provide opportunities to reflect on the problems, solutions, and processes.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Mathematics as communication is built into the program at all levels.

Students have many opportunities to use language to communicate their mathematical ideas to peers, teachers, and others. The opportunity for students to organize and communicate in a variety of contexts is built into the daily lesson plans. The program asks students to explain, conjecture, and defend their ideas orally and in writing. Students are asked to form multiple representations of ideas and the program values a variety of strategies. Students are provided opportunities to analyze and evaluate the mathematical thinking and strategies of others.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Mathematics as reasoning is built into the program at all levels.

Throughout the program students are asked to make and investigate mathematical conjectures. Students are asked to explain and justify their thinking and to question the mathematical statements of others. The program focuses on thinking analytically about mathematics.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Mathematical connections are clear in the program.

The program approaches mathematics as a whole. Concepts and procedures are connected and interrelated through specific instructional activities and build on one another. Connections integrate the Core and Content standards within a grade and across the grades. Connections are made to other mathematical topics and build mathematical awareness in school, home, various careers, and real life situations.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Mathematical representation is built into the program at all levels.

The program develops and uses a variety of representations of mathematical ideas. Informal representations and models are used to represent and understand ideas. Representations include use of models, pictures, equations, charts, and graphs to model and solve problems, with developmentally appropriate progression from concrete to symbolic representations.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The program is comprehensive and includes the mathematics content identified in the Core and Content Standards at each grade level.**

The program emphasizes depth of understanding and provides connections among mathematical ideas. The content of the lessons matches the Core and Content standards.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The program develops computation concepts through multiple meaningful strategies. The program provides practice to develop computational fluency.**

The context of the lessons provides opportunities and resources for students to practice and demonstrate proficiency.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The mathematics is a mile deep (rather than a mile wide and an inch deep).**

The lessons develop and deepen the mathematical concepts. The lessons connect to previous learning. The mathematics content is developmentally appropriate, coherent, and increases in complexity throughout the year.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The mathematics content builds from grade to grade in an organized and cohesive way.**

The program progresses, rather than spirals, from grade to grade. It builds on the Core and Content standards learning from previous grades without repeating and it leads the way for the Core and Content standards for the following grades.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **For middle school programs, the instructional material is clearly identified for each of Grades 6, 7, and 8.**

The instructional materials provide a three-year middle school program that includes a full-year of study using the Core and Content Standards for Grade 6, for Grade 7 and for Grade 8. Instructional materials do not omit the important content of these grades as they prepare students for algebra and for their long-term mathematical knowledge. Programs that offer an algebra course in Grade 8 (or earlier) should include the Core and Content Standards of Grade 8 in Grade 6 or Grade 7. Alternatively, these topics could be incorporated into the high school program.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

Comment:

TOTAL RATING FOR CATEGORY 1: MATHEMATICAL CONTENT _____/50

CATEGORY 2 ORGANIZATION AND STRUCTURE

The program is organized into cohesive units, multi-day lessons, and worthwhile tasks.

- **The program is organized into units, modules, or other structure so that students have sufficient time to explore and investigate in depth major mathematical ideas.**

The units include lessons, activities, and projects that are multi-day, emphasize the connections between mathematical concepts, and promote the attainment of several, related instructional objectives.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The mathematical goals of the lesson are explicitly stated.**

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The program asks students to work on worthwhile mathematical tasks.**

The tasks do not separate mathematical thinking/reasoning from skills and concepts. In other words, they capture students' attention and curiosity and invite them to apply their skills and concepts to speculate and pursue their hunches. The tasks require different levels and kinds of student thinking. The tasks provide multiple pathways to develop concepts and communicate ideas and solutions. The tasks are cognitively demanding, are often real-world problem situations and may have more than one reasonable solution. They require students to reason about different strategies and outcomes and weigh the pros and cons of alternatives.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The instructional materials incorporate calculators and computers and other technology into the program as tools for students to use to do mathematics.**

Technology enhances and extends the students' learning.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The mathematical terms are present in context and are consistent with definitions used on OAKS assessment.**

The mathematical terms are introduced, reinforced, and continuously reviewed. Similar terms and/or synonyms are presented when appropriate. Visual representations augment vocabulary. The definitions match the definitions and vocabulary of the Oregon Assessment of Knowledge and Skills (OAKS). For example, how the terms *natural numbers*, *prime numbers*, *trapezoid*, and *whole numbers* defined? Are the definitions consistent with the language of OAKS?

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The program provides materials in different formats.**

The instructional materials are provided in multiple language formats. The materials address the needs of struggling readers. Practice, remediation, and enrichment to support all learning styles and learning levels (e.g., ELL, SPED, and TAG) are included.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The program is appropriate for all students.**

Lessons in the program offer the opportunity for students to access the content at a variety of levels. All students are expected to experience a broad, rich curriculum and the program recognizes that students will differ in the vocabulary or notations they use, the complexity of their arguments, and so forth.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• The program develops mastery of the Core and Content standards.

The students develop mastery of the Core and Content Standards at each grade level thus preparing them for success in the following grades.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

Comment:

TOTAL RATING FOR CATEGORY 2: ORGANIZATION & STRUCTURE /40

CATEGORY 3 STUDENT EXPERIENCES

The program emphasizes students doing, rather than memorizing, mathematics. Students are actively involved with mathematics.

• The program is designed so that students are active learners.

Students are encouraged to explore and investigate mathematical ideas. They are expected to read, write, and discuss mathematics. The program varies groupings and learning situations within and across lessons to keep students active and engaged in the learning.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Students are expected to construct their own understanding of mathematics.

The program recognizes that students approach a new task with prior knowledge and encourages students to use natural language and informal procedures.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• The program asks students to engage in mathematical discourse.

The materials explicitly ask students to talk with one another and also respond to teachers' probing questions. Students are expected to make public conjectures and reason with others about mathematics. Students are asked to clarify and justify their ideas regularly.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Students use manipulatives and models to explore mathematical ideas, model mathematical situations, construct conceptual understanding, etc.

The manipulatives and models are appropriate to explore, model, and analyze situations and communicate findings. The manipulatives and models build the connections to the concepts.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Students are given opportunities to make judgments about the need to calculate an exact answer or find an estimate or approximate answer.

Students regularly calculate using a variety of strategies: estimations, paper/pencil, mental calculations, or a calculator.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Student materials are "user friendly."

Written tasks and directions are at the appropriate level for students to read. Textual materials are generally well organized and attractive for students. Textual materials provide opportunity for reinforcement of skills and concepts of daily lessons that can be used as classwork or homework, as appropriate.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Students use a variety of learning strategies.

A variety of strategies to engage and stimulate all students are incorporated. These include open-ended questions, journals, manipulatives, and activities that involve the visual, auditory and kinesthetic senses.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **Instructional materials include information that introduces and explains the program to parents and students.**

The information contains an overview of the Core and Content standards students are expected to learn.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **Instructional materials include resources and tools for parents to use as they support their child in homework help.**

Textual and online resources are included for parents and students.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

Comment:

TOTAL RATING FOR CATEGORY 3: STUDENT EXPERIENCES /45

CATEGORY 4

TEACHER'S ROLE

The instructional materials provide suggestions to teachers to assist them in shifting toward the vision of teaching as presented in NCTM's Principles and Standards of School Mathematics.

- **The instructional materials provide suggestions to teachers so that throughout the math lesson teachers can help students:**
 - work together to make sense of mathematics
 - rely more on themselves to determine whether something is mathematically correct
 - reason mathematically
 - learn to conjecture, invent, and solve problems
 - connect math, its ideas, and its applications to other topics within math and other disciplines

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The instructional materials foster collaboration within the classroom.**

The instructional materials provide suggestions for teachers in initiating and orchestrating mathematical discourse (e.g., questions that promote deeper thinking that are specific to the different lessons). The materials suggest questions that elicit, engage, and challenge students' thinking. Teachers are encouraged to regularly follow students' statements with "why" and "what if . . ." Also, teachers should ask students to explain their thinking and reasoning.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The instructional materials foster reflection on experiences and observations.**

The instructional materials provide suggestions to teachers to help them reflect on what happens in the classroom so that they can adjust or adapt their teaching plans. Teachers are provided with suggestions on how to observe, listen to, and gather other information so they can assess and monitor student learning.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The instructional materials provide assistance to teachers to facilitate learning by all students.**

Suggestions are provided on how to use a variety of methods so that all students can contribute to the thinking of the class: writing, pictorially, concretely, and orally. The program encourages teachers to accept and respect the thinking of all students by providing examples of how to probe students' thinking and encourage students to follow each other's ideas and approaches.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The instructional materials provide differentiated instructional strategies.**

The program provides support to students with practice, enrichment, acceleration, remediation, and ideas for compacting or expanding the curriculum. The program provides guidelines to teachers of blended/multi-grade classrooms.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

- **The instructional materials provide suggestions to teachers for establishing a classroom learning environment focused on sense making.**

Teachers are provided suggestions on how to:

- structure time so students can grapple with significant mathematical ideas and problems
- use physical space and materials in ways that facilitates students' learning
- assist students to work together collaboratively as well as independently

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• **The instructional materials provide background information for supporting and increasing teachers' content knowledge.**
Teachers are provided background mathematical content as well as where the mathematics will go in the future that helps them to inform their instruction.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• **The instructional materials provide information about common student errors, misconceptions, etc.**
Examples of student work or information about what kinds of common errors or misconceptions students may have about the math content being taught in a lesson or unit is provided with suggestions on how to use the errors without diminishing the demands of the task.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• **The instructional materials provide suggestions to inform and engage parents and other community members.**

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• **Teachers' guides are "user friendly."**

The guides provide a professional development approach in how to most effectively implement this program. The program is easy for teachers to follow and offers appropriate guidance in the use and integration of student materials. It provides clear pacing suggestions and provides reasonable timelines for lessons and units. It is clear what students and teachers will do in the course of a day, etc.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• **The materials needed for use in lessons are easy to access and/or prepare.**

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

Comment:

TOTAL RATING FOR CATEGORY 4: TEACHER'S ROLE /55

CATEGORY 5 ASSESSMENT

The student assessment in the instructional materials provides teachers with information about what their students know and how they think about mathematics.

• Formative, summative, and diagnostic assessments are included.

A variety of assessments provide information for planning instruction for various levels of learners.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Student assessment is integrated into the instructional program.

Assessment activities are similar to learning activities. Assessment activities examine the extent to which students have integrated and made sense of information, whether they can apply it to situations that require reasoning and creative thinking, and whether they can use math to communicate their ideas.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Multiple means of assessment are used, informally as well as formally.

Suggestions are provided for assessing students, individually or in small groups, through observations, oral, and written work, student demonstrations of presentations, student self-assessment, long range projects, and tests and quizzes. The use of technology and manipulatives are built into assessment activities. Assessment is built into the instructional materials as a continuous, dynamic, and often informal process. Assessment determines the depth of understanding of the concepts of the Core and Content standards.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• Assessment is focused on both the process and content of learning.

Assessment is not just focused on the final product but also looks at modeling, making inferences, and reasoning.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

• All aspects of mathematical knowledge and how they are interrelated are assessed in the instructional materials.

Conceptual understanding and procedural knowledge are frequently assessed through tasks that ask students to apply information about a given concept in novel situations. Skills and concepts are assessed through a variety of question types and depth of knowledge levels.

Rating: 1 2 3 4 5

Cite evidence from the materials to support your rating:

Comment:

TOTAL RATING FOR CATEGORY 5: ASSESSMENT _____ /25

Resources used:

Barre Town Elementary School Math Materials Review Tool, 2007-08, Vermont. Beth Hulburt, Coordinator.

Criteria for the Adoption of Basal Instructional Materials, Contract Years 2009-2015 for Grades K-2/3, Grades K-5/6, and Grades 6-8. Adopted by the Oregon State Board of Education January 17, 2008.

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