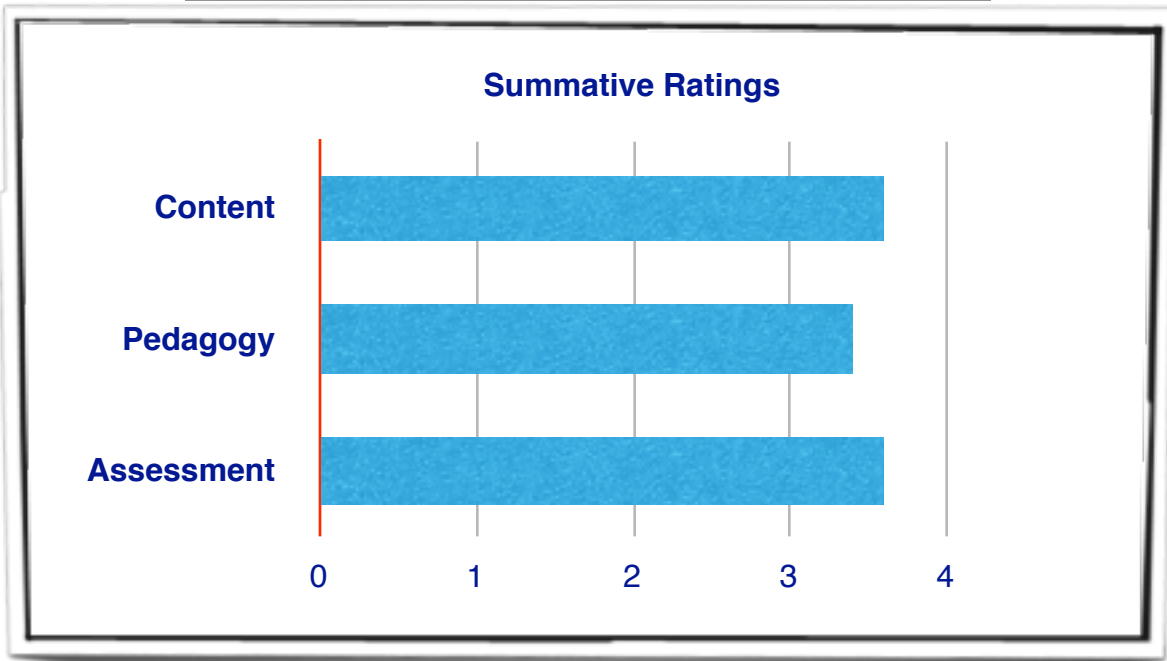


**Curriculum Materials Review
Delaware Mathematics Coalition**

<u>Name:</u>	Core-Plus Mathematics
<u>Authors:</u>	Hirsch, Fey, Hart, Schoen & Watkins
<u>Publisher:</u>	McGraw Hill, Glencoe
<u>Copyright:</u>	2 nd Edition, 2008



- Not Recommended
- Recommended

	Commentary
Rationale	<p><i>Core-Plus Mathematics</i> was judged by our committee to be a set of curriculum materials likely to advance the mathematics knowledge and skills of all students if implemented with fidelity. Known primarily as a curriculum that naturally <i>integrates</i> the study of algebra, geometry, and statistics as well as discrete mathematics within each of the four years of the program, it is also a curriculum that utilizes engaging contexts as a vehicle for delivering new mathematical ideas. Perhaps more than any other set of materials reviewed, <i>Core-Plus</i> is committed to using a wide variety of applications from the real world. Students are expected to build both conceptual and procedural knowledge as they solve challenging problems chosen from a range of contexts with a variety of representations supporting that learning. Our committee felt that there was sufficient scaffolding to promote student learning but also that skillfully managed collaborative learning is probably a must in order to make the most of the considerable opportunities provided by these materials. The integration of technology into the learning process was seen as a very strong feature of the <i>Core-Plus</i> curriculum.</p>

	Commentary
Content	<p>As its name implies, this curriculum is committed to the use of context in delivering the mathematics and appears, in the judgment of our panel, to use contextualized problem-based learning quite effectively with contexts judged to be age-appropriate, relevant and likely to advance the mathematical learning goals. These materials were felt to be broadly accessible for all students yet of adequate rigor and with obvious attention to the research on student thinking, e.g. a transition from recursive to explicit algebraic representation, and a routine focus on multiple representations. Technology is integrated into most lessons in a manner that both supports the problem solving and promotes facility with the tech tools (e.g. graphing calculator) themselves.</p>
Pedagogy	<p><i>Core-Plus Mathematics</i> exemplifies a problem-based pedagogy with problems of sufficient challenge to promote genuine collaboration and communication among students. Contextualized problems are used to introduce and advance the understanding of new concepts. The main pedagogical structure explicitly supported by these materials (Launch, Investigate, Summarize) is consistent with the approach utilized in middle school materials used in our state. The “On Your Own” questions and Student Study Guide resource provide an abundance of opportunities for purposeful practice on both re-contextualized and de-contextualized problems. The text includes both a spiral review section and a "Just in Time" section. The "Just in Time" questions, when assigned, provide opportunities to develop skills and concepts that are needed for upcoming lessons. Our reviewers did note that there could be more questions in the student text that might incline students to be meta-cognitive about their learning. A sustained program of high quality professional development is probably a must for teachers to learn to implement this curriculum resource with fidelity.</p>
Assessment	<p>The assessments for this curriculum resource were judged to be appropriately aligned with the goals of the lessons/units. The quizzes and unit test(s) included questions that addressed both conceptual and procedural proficiencies. Questions also required that students utilize previously learned skills (e.g. now-next formulas). A variety of question types are available on the assessments including constructed response, "fill in the blank," multiple choice, and true/false questions. Students are often prompted to explain/justify their answers. Formative assessment opportunities are available in the form of “Checking for Understanding” questions as well as application, connection, and extension questions which follow each investigation.</p>

	Commentary
Support	<p>Lessons in these materials are launched with a “Think about the Situation” scenario and explicit questions related to the essential understandings are included at the beginning of each investigation. The teacher’s guide is laid out in a launch, explore (group investigation), and share/summarize format and includes notes related to appropriate places to pause and have classroom discussions, potential misconceptions, important ideas that may need to be addressed, and specific suggestions for how to promote mathematical discourse. There are also notes related to technology use, a math toolkit, collaboration skills, and embedded process skills. Investigations close with an explicit <i>summarizing the math</i> segment.</p> <p>The curriculum resources are available on a CD which also includes a lesson planner, pacing guide, student workbook pages, technology tips, and assessments. Each unit also includes a project, a standardized test practice resource, and a student study guide with 142 pages of additional practice of middle school concepts. The implementation guide includes the scope and sequence by topics so that one can determine when topics are introduced and re-visited across this integrated curriculum.</p> <p>One distinguishing resource available to users is the CPMP tools. These tools were designed to go with the <i>Core-Plus</i> courses, but can be used by anyone because the software it is open source (free). It is downloadable from a site so students can access the tools from home as well. The tools includes applications that support geometry, statistics, algebra, and discrete mathematics. The website also includes links for parents such as homework help, research support, and frequently asked questions.</p> <p>Research regarding the effectiveness of Core-Plus Mathematics can be found at http://www.wmich.edu/cmp/bibliography.html.</p>
Organization	<p>These materials are organized in what has come to be called an “integrated” fashion in which topics traditionally segregated into algebra, geometry, or statistics books commingle within the same text although less frequently within the same chapter. These materials also contain chapters on discrete mathematics in each of the <i>four years</i> of the series, a set of topics not currently represented in the Delaware content standards. The first year features algebraic topics on patterns of change, linear, exponential and, new to the second edition, quadratic functions. The emphasis in the first of the four books is on multiple representations and applications of these functions with an increasingly abstract treatment of these topics developed in subsequent volumes. Alignment of content coverage with the Delaware Content Standards was judged to be quite high.</p>