GAP CLOSING RESOURCES
PRINT MATERIALS
The Student Book and Facilitator Guide support students and teachers in closing specific gaps in learning. Each general topic has a diagnostic and a set of precisely focused intervention materials. Each lesson includes a single-task Open Question approach and a multiple-question Think Sheet approach that addresses the same learning goals, and represents different ways for students to engage in and interact with the mathematics. Facilitator guides include three-part lesson suggestions for both approaches helping teachers understand their roles in use of the materials. Students can be given direct access to the materials at www.gapclosing.ca.

E-PRACTICE MATERIALS
Interactive e-Practice aligned with each Gap Closing lesson is being developed in response to students’ requests for more practice to ensure they have understood a lesson. E-Practice activities are being released as developed at www.eppractice.ca. “Not like the textbook or sheets we get in class...I would actually want more, like when I go home.” (Student)

IMPLEMENTATION SUPPORTS
Materials and supports are available in MathGAINS at www.edugains.ca.
- Videos on Co-teaching and Co-planning lessons using Gap Closing materials
- 2-page summaries: Gap Closing Materials, Gap Closing Evidence, Principals as Math Leaders
- Adobe Connect professional learning series Watch MathGAINS for registration information.
- English and French language versions
- Research reports and slides

WHO MAY BENEFIT FROM THE USE OF GAP CLOSING I/S RESOURCES?
The Gap Closing package is designed to help Grade 9 teachers provide precisely targeted intervention for students whom they identify as being significantly behind in mathematics. The goal is to close gaps in Number Sense, Algebra, and Measurement so that the students can be successful in learning grade-appropriate mathematics. However, the materials may also be useful to Grades 7 and 8 teachers in providing alternative approaches they had not considered to some of the content or for teachers of Grade 10 Applied or Grade 11 and 12 Workplace courses.

WHAT EVIDENCE DO WE HAVE OF THE EFFECTIVENESS OF USING GAP CLOSING RESOURCES?
Students who used some of the Gap Closing materials in either Applied and Academic streams during 2010-2011 field tests showed significantly higher gains from the pre- to post-test than students who used none of the Gap Closing materials. (N>2000)

Students who worked on Algebra modules of Gap Closing showed significantly higher gains in the Algebra portion on the post-test. This was also true for Number Sense.
For Measurement, the students who used Gap Closing Measurement materials not only made gains but surpassed the achievement of the students who did not use Gap Closing by 8.0 percentage points.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Non Gap Closing</th>
<th>Gap Closing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Pre-Test</td>
<td>30.0%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Average Post-Test</td>
<td>39.5%</td>
<td>47.5%</td>
</tr>
<tr>
<td>Percentage Point Change</td>
<td>+9.5</td>
<td>+21.0</td>
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</tbody>
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**WHAT DO TEACHERS AND STUDENTS SEE AS BENEFITS OF USING THE MATERIALS?**

Teachers named the diagnostic tests for differentiation, the three-part lessons in the materials and the linkages to the use of manipulatives as some of the benefits of using the materials.

The materials helped students prepare for other Grade 9 topics and helped students to work more independently. As well, the embedded Gap Closing strategies improved their teaching.

Students emphasized the “easier” learning of math because of the diagrams and models presented to them in the materials. The survey results showed that most students assigned Gap Closing reported increased use of a visual representation when solving a problem.

“Like when you read it and it shows you examples of how to do it and they explain how to do it and how find the answer... it is good ‘cause it shows a number line or diagrams on it. So it gives you ways to understand.” (Student)

**HOW ARE GRADE 9 TEACHERS AND STUDENTS USING THE MATERIALS?**

All of the teachers in the case studies used the Gap Closing materials with the whole class as they found that all students could benefit from working with the materials.

In the case studies, teachers indicated that the diagnostic test results helped them decide which lesson each student would work on, showing the high degree of personalization of the resource.

Materials were incorporated as part of the unit of study and as a review before the unit of study. Materials were also selected for direct instruction.

**WHICH IMPLEMENTATION MODELS APPEAR MOST EFFECTIVE IN CLOSING GAPS FOR GRADE 9 STUDENTS?**

The results of the pilot research study show significant differences between the various implementation models used by teachers for the Gap Closing materials. Individual instruction by the teacher yielded the highest gains. Results from one board are shown below.