Curriculum Compacting: A Getting Started Guide for Math

As more and more emphasis is placed on differentiation within the regular classroom, teachers are searching for ways to meet the needs of all students at all times. One model that meets the needs for differentiation that many schools in Iowa are adapting is the Instructional Decision Making Model which examines student populations as a whole and then determines what type of instruction; direct, remediation, or enrichment, best serves their needs. Curriculum compacting fits into this model perfectly and is a way for regular classroom teachers, with the support of the talented and gifted services offered in their building, to differentiate.

Curriculum compacting, according to Joseph Renzulli and Sally Reis, is a procedure used to streamline the grade level curriculum for high potential students to provide time for more challenging and interesting work. It is an instructional technique that is specifically designed to make appropriate curricular adjustments for students in any curricular area and at any grade level. It is a concept that has been on the fringes of mainstream educational practice for the last couple of decades.

Curriculum compacting, as a form of differentiation, appealed to us because it meets the individual needs of our varied populations. Muscatine has eight elementary schools and each one has a unique demographic. Because of the variance in backgrounds we have found curriculum compacting to be the perfect answer for our differentiation needs.

We adopted curriculum compacting in math as a means of differentiation based on the knowledge that our brightest students weren't being adequately challenged in a math program every day. Because of the structure of our program, it wasn't feasible for us as ELP teachers to provide every day programming because we are only in a building two days per week. We discussed the possibility of subject acceleration and realized that for most students this isn't practical because it requires that students be performing at least 1-2 whole grade levels above their current grade and we discovered that most students have gaps in their grade level expectations. For some students, however, subject acceleration is a viable solution and should be considered.

The curriculum compacting program we started in the schools we serve provides an opportunity for students to apply the math skills in a given chapter at a higher level instead of completing the “regular” classroom assignments. This change allows students to have a deeper understanding of these skills and how they're used in the real world. For instance, instead of learning about different types of graphs along with the classroom, compacting students are making posters to display in the room about graphing and how it is used, or looking for examples of graphs in newspapers and magazine and summarizing how they contribute to the effectiveness of the article.

It is important to note that all curricular areas can be modified by curriculum compacting, however for the purposes of this article and our experience, we will focus on curriculum compacting in math at the upper elementary level. These steps and suggestions can be easily modified to suit any grade level and any subject.

For some of the schools and some classrooms in the Muscatine School District, this is second year of this program and others are just beginning this year. Along the way, we've refined and reworked some of the logistics to make it more challenging for students and easier to administer from the teacher's perspective. The important thing to remember is that it isn't and doesn't have to be exactly the same across a district. It is tailored to the needs of the students and the classroom teacher.

Getting Started with Curriculum Compacting

Step 1: Recruit an ally (or two!) As with any project it's important that it be successful from the outset. In order for curriculum compacting to take root and expand in a school system it's important to have the support of your administrators. The next step is finding an ally in the form of a regular education classroom teacher. As important as administrative support is, the support of classroom teachers is crucial. Choosing the right person with whom to collaborate is instrumental in the success of the program. Without a classroom teacher’s enthusiasm in providing challenge for all students, the process of curriculum compacting will be doomed to fail. When choosing a person with whom to collaborate consider the following: Is this teacher considered a leader in the school system? Will this teacher have the necessary skills, i.e. organization, ability and desire to differentiate? Do you work well with this teacher? Does the teacher have students who could potentially benefit from curriculum compacting? Generally, you will have a gut feeling about who this person will be based on your previous interactions with this teacher.

Step 2: Determine what area to compact based on your students’ needs. It's important to start small. It's
critical to have success with this program from the start so that teachers and students can see its benefits and will want to collaborate with you in the future. The one area to be careful of is trying to do too much. The excitement students feel when starting curriculum compacting can expand quickly to other classes and it’s important to manage the growth or else it can get out of hand easily.

We chose to start with math, because again, we knew our students had a need and that this would be an area that would be manageable. Math is less abstract than social studies or science and we knew we could get teacher buy in from the start.

**Step 3: Determine level of mastery needed for curriculum compacting.** Generally speaking this is 90% or above on a pretest. However, we have discovered that often there are students who don’t meet that criteria, but are only missing one or two concepts from the chapter. In this case we work with the classroom teacher to determine if the student needs replacement curriculum, classroom work or a combination of both. In math we have found that it’s often the vocabulary that can prevent a student from achieving a 90% or above on a pretest and classroom teachers generally feel this is an easy thing for them to learn. Classroom teachers have the responsibility to be sure the concepts missed are taught to the students either before compacting begins or as the chapter is taught. Classroom teachers also allow students to take the final test if mastery isn’t shown on the pretest.

**Step 4: Determine who should be pretested.** This is a really individualized decision based on the classroom teacher’s preferences. We’ve found that some classroom teachers choose to pretest the entire class and then use the results of the pretest to guide instruction. This is definitely our preference, but we understand that it can be time consuming. The other option is that teachers choose to pretest those who have a reasonable chance of being successful on the pretest based on past performances. The downfall of this is that students who have a specific pocket of knowledge on a topic may be missed. An example of this is in the area of geometry. We’ve found this is one area where students who may not ordinarily be able to compact out of the curriculum have success. Likewise, students who compact often find geometry to be challenging and their needs are met within the classroom setting.

**Step 5: Provide replacement curriculum.** This is the most fun part of curriculum compacting for us, but it can be challenging to find just the right materials and we’ve found it can be time consuming. It’s important that the replacement curriculum isn’t busy work, but provides students with an opportunity to apply critical thinking skills and use higher order thinking. We also think it’s important to provide students a choice of projects that best meets their learning styles. In the beginning all students were completing the same work and we found it to be a manageable place to start, however we quickly learned that students wanted the opportunity to choose how to apply their mastered skills. After looking at a variety of resources we chose to look at a “menu” approach for compacting where students can choose from a variety of projects that relate back to the concepts being taught in the regular classroom. Students are responsible for selecting and completing projects with assigned points totalling 100. Higher order thinking projects have a higher point value and projects with less real world application have a lower point value. We include a variety of difficulty for students because we are in the building two days a week and want to ensure that students are always working.

We’ve found this is an excellent time for students to integrate technology into their projects. We’ve had students create SMART board lessons, complete webquests, plan a week’s worth of meals for their family using online resources, create blogs, and complete assignments on a blog.

**Step 6: Assessment of student work.** After students have created this wonderfully creative work, make sure to plan time to properly provide feedback to students. We’ve found this feedback is necessary to attain the quality work expected of this independent study program. In addition, classroom teachers need feedback on how their students are performing so that they can use the information to provide appropriate grades for their students.

This is a piece of the compacting issue that we are currently addressing because of the time needed to properly assess and provide feedback to teachers and students. Find time in your schedule for this important step.

As we move forward with this program, teachers’ and students’ roles in the Instructional Decision Making model have allowed for their needs to be met in a challenging and appropriate way. Curriculum compacting is doable form of differentiation in that you can use the resources you already have and it can be tailored to meet the needs of both students and teachers.

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Submitted by Stacy Emrich and Ginger Dahms, Muscatine Community School District

To contact us:
Stacy slemrich@muscatine.k12.ia.us
Ginger gadahms@muscatine.k12.ia.us