Implementing Curriculum Compacting and Type III Studies to Reverse Underachievement

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RETURN TO WELCOME SCREEN

— Introduction —
Background Information on Compacting

A Definition of Curriculum Compacting—*Curriculum compacting is a procedure used to streamline the grade level curriculum for high potential students to provide time for more challenging and interesting work. Curriculum compacting is an instructional technique that is specifically designed to make appropriate curricular adjustments for students in any curricular area and at any grade level. Essentially, the procedure involves (1) defining the goals and outcomes of a particular unit or segment of instruction, (2) determining and documenting which students have already mastered most or all of a specified set of learning outcomes, and (3) providing replacement strategies for material already mastered through the use of instructional options that enable a more challenging and productive use of the student's time.*

Teachers nationwide indicate that they are committed to meeting students' individual needs, yet, many teachers do not have background information to put this commitment into practice. Too often, for example, some of our brightest students are asked to learn material they already know, which can lead to frustration, boredom, and ultimately, underachievement. One strategy that has been proven to be effective in addressing underachievement is curriculum compacting and replacement of compacted material, with self-selected work in a high interest area.

This module explains how to streamline or "compact" curriculum through a practical, step-by-step approach. In it, teachers can learn the skills required to modify curriculum, as well as techniques for pretesting students and preparing enrichment options based on individual areas of interest. Practical issues such as record keeping and how to use the compacting form are also discussed. These guidelines can save valuable classroom time for both teachers and students.

Curriculum compacting, as presented in this module, has been researched since 1975. It can be used with individuals and groups of students with above average ability in any academic, artistic or vocational area. Most important, it has been proven to be beneficial. Current research demonstrates that compacting can dramatically reduce redundancy, and challenge gifted students to new heights of excellence. It can be particularly meaningful for high ability students who are underachieving as it provides one clear way to eliminate work that may be too easy and replace that work with self-selected opportunities in an area of interest. This approach is based on the Enrichment Triad Model, developed by Joseph Renzulli in 1977.

To learn to use the two strategies of compacting and replacing work based on self-selected enrichment projects, you should review the information on the following pages, and then complete the checklist on SECTION XVI to ensure you understand these procedures.

Curriculum Compacting   🏠 ◀◀ ▶▶   **NRC/GT**

An Overview of the Enrichment Triad Model

The Enrichment Triad Model was designed to encourage the creative productivity of young people by exposing them to various topics, areas of interest, and fields of study, and to further train them to *apply* advanced content, process-training skills, and methodology training to self-selected areas of interest. Accordingly, three types of enrichment are included in the Triad Model (see Figure 1).
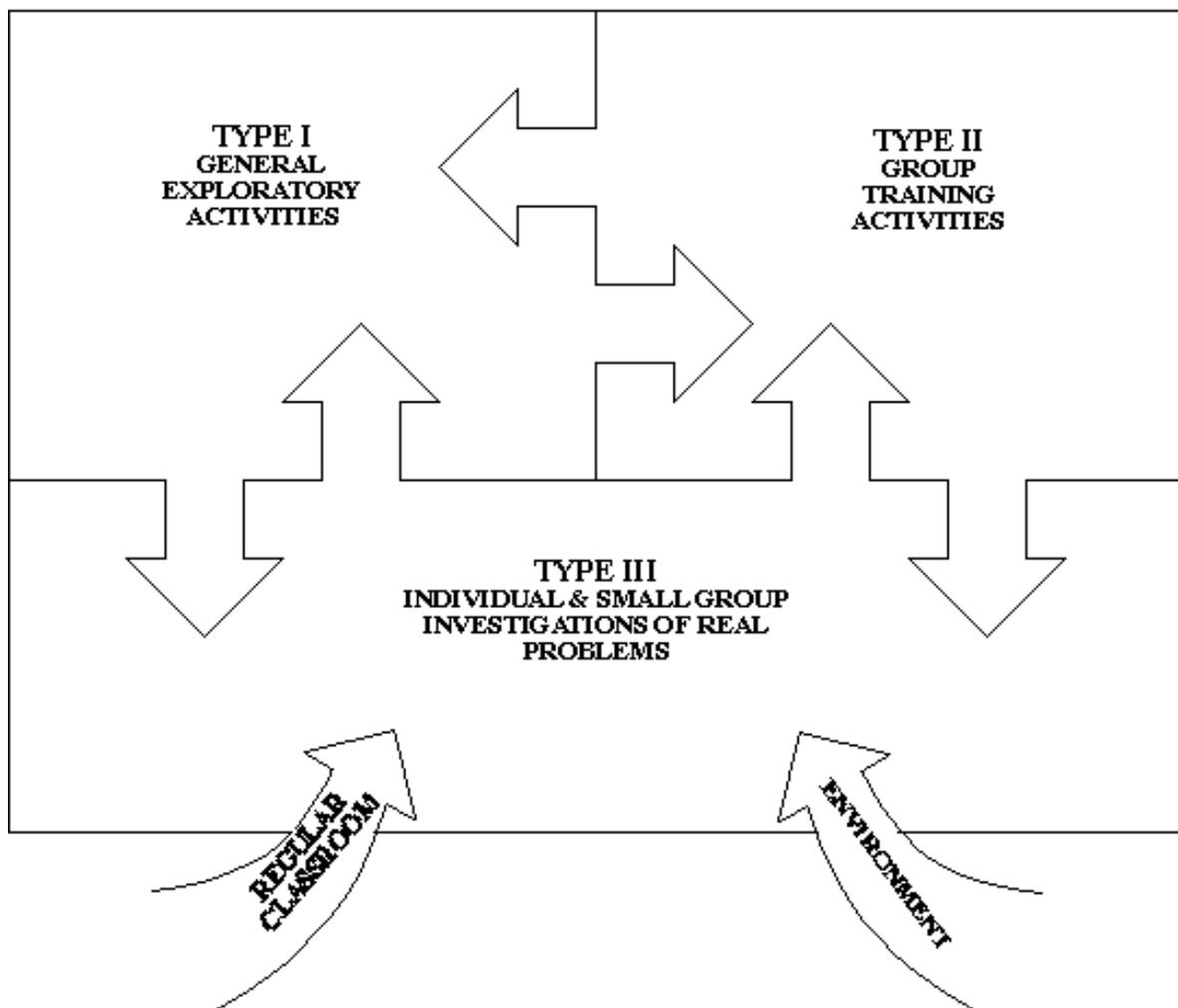
Figure 1.
The enrichment triad model. (Click on the figure to see it as a PDF file.)

- **Type I** enrichment is designed to expose students to a wide variety of disciplines, topics, occupations, hobbies, persons, places, and events that would not ordinarily be covered in the regular curriculum. In schools that use this model, an enrichment team consisting of parents, teachers, and students often organizes and plans Type I experiences by contacting speakers, arranging mini-courses, demonstrations, or performances, or by ordering and distributing films, slides, videotapes, or other print or non-print media.

- **Type II** enrichment consists of materials and methods designed to promote the development of thinking and feeling processes. Some Type II training is general, and is usually carried out both in classrooms and in enrichment programs. Training activities include the development of (a) creative thinking and problem solving, critical thinking, and affective processes; (b) a wide variety of specific learning how-to-learn skills; (c) skills in the appropriate use of advanced-level reference materials; and (d) written, oral, and visual communication skills. Other Type II enrichment is specific, as it usually involves advanced methodological instruction in an interest area selected by the student.

- **Type III** enrichment involves students who become interested in pursuing a self-selected area and are willing to commit the time necessary for advanced content acquisition and process training in which they assume the role of a first-hand inquirer. The goals of Type III enrichment include:

  - providing opportunities for applying interests, knowledge, creative ideas and task commitment to a self-selected problem or area of study,

  - acquiring advanced level understanding of the knowledge (content) and methodology (process) that are used within particular disciplines, artistic areas of expression and interdisciplinary studies,

  - developing authentic products that are primarily directed toward bringing about a desired impact upon a specified audience,

  - developing self-directed learning skills in the areas of planning, organization, resource utilization, time management, decision making, and self-evaluation, and

  - developing task commitment, self-confidence, and feelings of creative accomplishment

Using the Compactor to Facilitate Curriculum Compacting

Review the form below carefully before you read more about compacting.

INDIVIDUAL EDUCATIONAL PROGRAMMING GUIDE
The Compactor

Prepared by: Joseph S. Renzulli
Linda M. Smith

NAME _____ AGE _____ TEACHER(S) _____ Individual Conference Dates And Persons Participating in Planning Of IEP

SCHOOL _____ GRADE _____ PARENT(S) _____

CURRICULUM AREAS TO BE CONSIDERED FOR COMPACTING Provide a brief description of basic material to be covered during this marking period and the assessment information or evidence that suggests the need for compacting.	PROCEDURES FOR COMPACTING BASIC MATERIAL Describe activities that will be used to guarantee proficiency in basic curricular areas.	ACCELERATION AND/OR ENRICHMENT ACTIVITIES Describe activities that will be used to provide advanced level learning experiences in each area of the regular curriculum.

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Figure 2. The Compactor. (Click on the figure to see it as a PDF file.)

The Compactor (Figure 2) is divided into three sections:

- The first column, Curriculum Areas to be Considered for Compacting, should include information on learning objectives and student strengths in those areas. Teachers should list the objectives for a particular unit of study, followed by data on students' proficiency in those objectives, including test scores, behavioral profiles, and past academic records.

- In the second column, Procedures for Compacting Basic Materials, teachers should detail the pretest vehicles they select, along with test results. The pretest instruments can be formal measures, such as pencil and paper tests, or informal measures, such as performance assessments based on observations of class participation and written assignments.

Specificity is important; recording an overall score of 85% on ten objectives, for example, sheds little light on what portion of the material can be compacted, since students might show limited mastery of some objectives and high levels of mastery on others.

- Column three, Accelerations and/or Enrichment Activities, is used to record information about acceleration or enrichment options; in determining these options, teachers must be fully aware of students' individual interests and learning styles. We should never replace compacted regular curriculum work with harder, more advanced material that is solely determined by the teacher; instead, students' interests should be taken into account. If for example, a student loves working on science fair projects, that option may be used to replace material that has been compacted from the regular curriculum. We should also be careful to help monitor the challenge level of the material that is being substituted. We want students to understand the nature of effort and challenge and we should ensure that students are not simply replacing the compacted material with basic reading or work that is not advanced.

Rationale for Using Curriculum Compacting
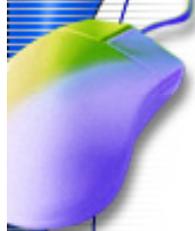
As indicated, curriculum compacting is a procedure used to streamline the grade level curriculum to enable time for more interesting and challenging work. Research clearly supports the need for curriculum compacting in our elementary and middle schools.

The Bad News—Why We Need Curriculum Compacting

It is clear that a major problem facing our schools is the lack of curricular differentiation and academic challenge for many of our most able students. Research also supports this claim. In one study dealing with average and above-average readers, Taylor and Frye (1988) found that 78% to 88% of fifth and sixth grade average readers could pass pretests on basal comprehension skills before they were covered in the basal reader. The average readers were performing at approximately 92% accuracy while the better readers were performing at 93% accuracy on the comprehension skills pretests. This means many more children can benefit from compacting.

One reason that so many average and above average students demonstrate mastery of the curriculum is because contemporary textbooks have been "dumbed down," a phrase used in 1984 by Terrel Bell, former secretary of education. Chall and Conard (1991) concur with Bell's assessment, documenting a trend of decreasing difficulty in the most widely used textbooks over a thirty-year period from 1945-1975. "On the whole, the later the copyright dates of the textbooks for the same grade, the easier they were, as measured by indices of readability level, maturity level, difficulty of questions and extent of illustration" (p. 2).

Findings by Usiskin (1987) and Flanders (1987) indicate that not only have textbooks decreased in difficulty, but also that they incorporate a large percentage of repetition to facilitate learning. Usiskin argues that even average eighth grade students should study algebra since only 25% of the pages in typical seventh and eighth grade mathematics texts contain new content. Flanders corroborated this finding by investigating the mathematics textbook series of three popular publishers. Students in grades 2-5 who used these math textbooks encountered approximately 40 to 65% new content over the course of the school year which equates to new material two to three days a week. By eighth grade, the amount of new content had dropped to 30% which translates to encountering new material once every one and one half days a week. Flanders (1987) suggests that these estimates are conservative because days for review and testing were not included in his analysis, and

concludes, "There should be little wonder why good students get bored: they do the same thing year after year" (p. 22).

The Good News—Why Compacting and Type III Enrichment Work

- In our research on compacting, we have learned that most elementary teachers can eliminate 40-50% of the basal regular curriculum for targeted students in the general student population. Additionally, in both language arts and math, many bright youngsters are able to bypass as much as 70% of the regular curriculum. For more information on this research study conducted at The National Research on the Gifted and Talented, click here.

- In a recent study, researchers modified curriculum for students and used self-selected Type III enrichment projects as a systematic intervention for underachieving gifted students. This approach (Renzulli, 1977) specifically targets student strengths and interests in order to help reverse academic underachievement (Baum, Renzulli, & Hébert, 1995).

Summary on Curriculum Compacting

The many changes that are taking place in our schools require all educators to examine a broad range of techniques for providing equitably for all students. Curriculum compacting is one such process. It is not tied to a specific content area or grade level, nor is it aligned with a particular approach to school or curricular reform. Rather, the process is adaptable to any school configuration or curricular framework, and it is flexible enough to be used within the context of rapidly changing approaches to general education. The research studies described above, and practical experience gained through several years of field testing and refining the compacting process have demonstrated that many positive benefits can result from this process for both students and teachers, and particularly, talented students who are underachieving in school.

BRIEF CHECK TO INSURE THAT YOU UNDERSTAND THE COMPACTING PROCESS

Activity

Complete the following compactor form for students whom you have selected for this process and consider the following questions:

- What areas have you identified for curriculum compacting?
- In what ways can you identify objectives?
- How can you make modification?
- What replacement activities are you considering?

Next, you can compare your form with the examples to follow.

INDIVIDUAL EDUCATIONAL PROGRAMMING GUIDE
The Compactor

Prepared by: Joseph S. Renzulli
Linda M. Smith

NAME_____ AGE_____ TEACHER(S)_____ Individual Conference Dates And Persons
Participating in Planning Of IEP

SCHOOL_____ GRADE_____ PARENT(S)_____ _____ _____ _____ _____

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The Compactor. (Click on the figure to see it as a PDF file.)

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The Good News—Research That Offers a Practical Solution

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A study that was recently completed at the University of Connecticut's National Research Center on the Gifted and Talented (NRC/GT) (Reis, et al., 1992) examined strategies that teachers use to modify the curriculum so that it accommodates the specific strengths of high ability students. A sample of 27 school districts and 465 second through sixth grade classroom teachers throughout the country from collaborative school districts that are a part of the NRC/GT were selected for this study. To participate, districts had to meet two criteria: no previous training or implementation of Curriculum Compacting, and a willingness to accept random assignment to a treatment group or control group. The districts participating in the study represented a wide range of elementary schools from across the country, ranging from a small rural school in Wyoming to a magnet school for Hispanic students in California.

Three treatment groups which received escalating levels of staff development were used to examine the most efficient but effective method for training teachers to modify curriculum. Teachers from a fourth set of classrooms served as a control group and therefore received no training. All treatment group teachers received videotape training and a book about the compacting process. Teachers in Treatment Group 2 also received approximately two hours of group compacting simulations conducted by an experienced trainer. The simulations developed by Starko (1986) have been a standard resource in this type of training. Treatment Group 3 received the same training as Group 2, but also had an additional 6 to 10 hours of peer coaching throughout the year, as suggested by Joyce and Showers (1983). Teachers in the control group continued normal teaching practices which did not include the use of Curriculum Compacting.

Treatment and control group teachers were asked to target one or two candidates in their classrooms for Curriculum Compacting, using a set of criteria outlined in the material provided by the research team. All targeted students in treatment and control groups were tested before and after treatment with out-of-level Iowa Tests of Basic Skills (ITBS). Next-grade-level tests were used to compensate for the "topping out" effect that is frequently encountered when measuring the achievement of high ability students.

Although space does not permit a detailed presentation of the descriptive and nonparametric statistical procedures that were used to analyze data from this study, a summary of important findings will be described, and the interested reader is invited to consult a comprehensive technical report that is available from The NRC/GT (Reis, et al., 1992).

How To Get More For Less!

The most important finding might best be described as the more-for-less phenomenon! Approximately 40 to 50% of traditional classroom material was compacted for targeted students in one or more content areas. When teachers eliminated as much as 50% of regular curricular activities and materials for targeted students, no differences were observed in post test achievement scores between treatment and control groups in math concepts, math computation, social studies, and spelling. In science, the students who had between 40 to 50% of their curriculum eliminated actually scored significantly higher on science achievement post tests than their peers in the control group. And students in group one whose curriculum was specifically compacted in mathematics scored significantly higher than their peers in the control group on the math concepts post test. These findings clearly point out the benefits of Curriculum Compacting so far as standard achievement is concerned. Analyses of data related to replacement activities also indicated that students viewed these activities as much more challenging than standard material.

How to Use the Compacting Process

Defining Goals and Outcomes

The first of three phases of the compacting process consists of defining the goals and outcomes of a given unit or segment of instruction. This information is readily available in most subjects because specific goals and outcomes can usually be found in teachers' manuals, curriculum guides, scope-and-sequence charts, and some of the new curricular frameworks that are emerging in connection with outcome based education models. Teachers should examine these objectives to determine which represent the acquisition of new content or thinking skills as opposed to reviews or practice of material that has previously been taught. The scope and sequence charts prepared by publishers, or a simple comparison of the table of contents of a basal series will provide a quick overview of new as opposed to repeated material. A major goal of this phase of the compacting process is to help teachers make individual programming decisions; a larger professional development goal is to help teachers be better analysts of the material they are teaching and better consumers of textbooks and prescribed curricular material.

Identifying Underachieving Students for Compacting

The second phase of curriculum compacting is identifying students who have already mastered the objectives or outcomes of a unit or segment of instruction that is about to be taught. Many of these students have the potential to master new material at a faster than normal pace; and knowing one's students well, is, of course, the best way to begin the assessment process. Standardized achievement tests can serve as a good general screen for this step because they allow us to list the names of all students who are scoring one or more years above grade level in particular subject areas.

Being a candidate for compacting does not necessarily mean that a student knows all of the material under consideration. Therefore, the second step of identifying candidates consists of finding or developing appropriate tests or other assessment techniques that can be used to evaluate specific learning outcomes. Unit pretests, or end-of-unit tests that can be administered as pretests are appropriate for this task, especially when it comes to the assessment of basic skills. An analysis of the pretest results enables the teacher to document proficiency in specific skiffs, and to select instructional activities or practice material necessary to bring the student up to a high level on any skill that may need some additional reinforcement.

The process is slightly modified for compacting content areas that are not as easily assessed as basic skills, and for students who have not mastered the material, but are judged to be candidates for more rapid coverage. First, students should understand the goals and procedures of compacting, including the nature of the replacement process. Underachieving students often regard compacting as a bargain as they may able to compact out of a segment of material that they already know (e.g., a unit that includes a series of chapters in a social studies text) and the procedures for verifying mastery at a high level should be specified. These procedures might consist of answering questions based on the chapters, writing an essay, or taking the standard end-of-unit test. The amount of time for completion of the unit should be specified, and procedures such as periodic progress reports or log entries for teacher review should be agreed upon.

The Eight Steps to Curriculum Compacting

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Step One

Select relevant learning objectives in a subject area or grade level

The first step in the compacting process is choosing curricular content and learning objectives. Teachers may refer to the formal curriculum guides issued by school districts or states, or the informal guides provided by textbook publishers.

After locating the objectives, teachers must focus on those that are appropriate for their students. Oftentimes, there's a discrepancy between the objectives noted in the curriculum guides and those actually tested by the school districts. Other objectives may be redundant or overly ambitious.

Clearly, teachers must narrow down the field of alternatives. To assist in the task, they may consider the following criteria:

1. **To what extent do these objectives represent new learning?**
2. **Which objectives will best help students increase their use of this content area?**
3. **Which objectives can be applied to the workplace?**
4. **Which objectives deal with developing skills or concepts, as opposed to merely memorizing facts?**
5. **Which objectives are important for high ability students to understand?**
6. **Which objectives cannot be learned without formal or sustained instruction?**
7. **Which objectives reflect the priorities of the school district or state department of education?**

Prioritizing Objectives

After the objectives are selected, they should be listed by priority. Because of their importance, the higher-ranked items are the ones teachers will concentrate on with the entire

class, while the less relevant ones are prime candidates for compacting.

Simply having a set of learning objectives does not tell a teacher how or if these objectives can be adapted to meet students' individual needs. Teachers must know the subject matter, as well as their students' learning styles. Step two in the compacting process can help teachers make these evaluations.

Step Two

Find an appropriate way to pretest the learning objectives

Pretesting, as its name implies, is intended to measure students' skills and talents before instruction begins. It should provide teachers with precise information on:

1. **Which objectives students have already met**
2. **Which objectives students have not yet attained**
3. **Any problems that may prevent student progress with the objectives**

Objective-Referenced Tests
Ideally, a pretest should demonstrate whether a student has full, partial, or little mastery of an objective. Objective-referenced tests can do that effectively, as they usually assess one objective at a time through short answer or multiple choice responses. On a practical level, these "paper and pencil" tests appeal to teachers because they can be administered in large group settings, require little time to oversee or correct, and are readily available from textbook publishers or testing companies allowing teachers to keep records of students' progress.

Performance-Based Assessment
Performance-based assessment is a popular alternative to objective-referenced tests. By asking students to do oral, written, or manipulative work in front of them, teachers can observe and evaluate the process students use to arrive at an answer. This procedure is especially successful with younger children who are not yet ready for paper and pencil tests.

Students may be evaluated individually or in small groups, through conferences, interviews, or portfolios of completed work. As with objective-referenced tests, this requires preplanning. Teachers must take the time

to locate or create the performance tests, making sure that they're aligned with the desired learning objectives.

Step Three

Identify students who should take the pretests

In step three, teachers identify students who should participate in the pretesting activity. To do this, teachers must first discern students' specific strengths.

This step is critical for two reasons. First, it ensures that when students are excused from class for enrichment activities, they're absent only during their curricular strength times. Second, it eliminates the need to assign make-up work when the students return to the classroom.

Academic records, standardized tests, class performance and evaluations from former teachers are all effective means of pinpointing candidates for pretesting. Another method is observation. Teachers should watch for students who complete tasks quickly and accurately, finish reading assignments ahead of their peers, or seem bored or lost in daydreams. Some students will even tell their teachers that the work assigned is too easy.

Step Four

Pretest students to determine mastery levels

Pretests, both formal and informal, help teachers determine student mastery of course material. But what constitutes mastery? Since definitions of mastery vary so, teachers within the same school should strive to reach a consensus.

Administering Formal Pretests
Deciding how and when to pretest students can be a time-intensive exercise. One shortcut is to increase the number of students or objectives examined at one time; for example, if a chapter in a math text covers ten objectives, a small group of students, or the entire class could be tested on all ten objectives in one sitting.

Before starting the testing process, teachers should:

1. **Point out that some students will already be familiar with the material.**

2. **Ask if any students would like to "test out" of some or all of the unit by demonstrating that they already know the objectives being taught.**
3. **Assure the students that they are not expected to be competent in all the objectives being tested.**
4. **Tell the students that their curriculum may be streamlined if they can exhibit mastery of some or all of the objectives.**
5. **Help the students understand that they will not be labeled "poor learners" if they can not pass one or more sections of the test.**

Once students agree to the pretests, teachers can give instructions for completing them. Parts of the examination may be taken independently, reducing the amount of time teachers must serve as monitors.

If small group testing is not feasible, teachers can follow the same procedures with individual students. Some educators may want to install a permanent "testing table" for this purpose; others may let students score and record their own test results to save time.

Performance-Based Testing
Some teachers may want to use performance-based testing. If they choose this form of pretesting, they should observe students closely, by taking notes, tracing thought patterns, and posing open-ended questions to assess proficiency with the objectives.

Let's assume, for example, that the assignment is to write a persuasive essay. The instructions could be to actually create and submit an essay, which teachers would read and analyze for content; teachers could also ask students how they went about organizing their thoughts, to see if they truly understand the assignment.

Similar sessions can be held to assess other abilities, such as decoding rules, solving problems, or processing science skills. Through these evaluations, many teachers will discover the value of performance-based testing as a supplement to pretesting.

An Option: Pretest All Students in the Class
Pretests may also be administered to the entire class. Although it may entail more work for the teacher, it provides the opportunity for all students to demonstrate their strength in an area. In fact, involving everyone in the process can boost individual confidence and build a stronger sense of community in the classroom. Equipped with a matrix of learning objectives, teachers can fill in the test results and form small, flexible groups based on skill needs.

Securing Help for Pretesting

There are a number of resources that teachers can use to help conduct pretests:

- **Parent volunteers, aides, and tutors can lend a hand administering tests.**
- **Reading, math, and other curriculum specialists can assist in identifying learning objectives and student strengths.**
- **District consultants and teachers of gifted children may be available to help with pretests and other aspects of compacting. This service is especially vital during the first few years, when teachers are trying to organize and implement the compacting program.**
- **Companies are developing new computer technology to pretest and provide individual instruction to targeted students.**

Step Five

Streamline practice or instructional time for students who show mastery of the objectives

Students who have a thorough grasp of the learning objectives should be allowed to take part in enrichment or acceleration activities. This exposes them, during class time, to material that is not only new and stimulating, but more closely aligned to their learning rates and abilities.

For illustration purposes, let's say that a student has mastered three out of five objectives in a given unit. It follows, then, that the student should not take part in the classroom instruction of those three objectives. Depending upon the teacher, some students may be excused from specific class sessions (for example, the Monday and Wednesday portions of vocabulary building), while others may forego certain chapters or pages in the text or specific sets of learning activities.

Step Six

Provide small group or individualized instruction for students who have not yet mastered all the objectives, but are capable of doing so more quickly than their classmates

How should teachers instruct students who qualify for compacting, but

have not yet mastered all the objectives? An obvious solution is to have them engage in the same lessons as their classmates. If the brighter students progress at a faster pace, teachers can condense the material through "content compacting."

Content compacting differs from skills compacting. As the name implies, it compresses overall course material that students have already mastered, or are able to master in a fraction of the normal time. Skills compacting, on the other hand, eliminates specific skills that students have already acquired. Content compacting is also designed for general knowledge subjects—social studies, science and literature—whereas skills compacting is intended for mathematics, spelling, grammar, and language mechanics.

Skills compacting is easier to accomplish. Pretesting is a simpler process, and mastery can be documented more efficiently. Content compacting, on the other hand, is more flexible, as students can absorb the material at their own speed. In content compacting, the means of evaluation are also less formal; teachers may require an essay, an interview, or an open-ended short answer test.

Step Seven

Offer academic alternatives for students whose curriculum has been compacted

Alternatives often exist to provide acceleration and/or enrichment for students whose curriculum has been compacted. This step has proven to be the most challenging and the most creative for teachers. The possibilities for replacement activities include:

- **Providing an accelerated curriculum based on advanced concepts**
- **Offering more challenging content (alternative texts, fiction or non-fiction works)**
- **Adapting classwork to individual curricular needs or learning styles**
- **Initiating individual or small group projects using contracts or management plans**
- **Using interest or learning centers**
- **Providing opportunities for self-directed learning or decision making**
- **Offering mini-courses on research topics or other high interest areas**
- **Establishing small seminar groups for advanced studies**

- **Using mentors to guide in learning advanced content or pursuing independent studies, or**
- **Providing units or assignments that are self-directed, such as creative writing, game creation, and creative and critical thinking training**

Teachers will have to decide which replacement activities to use and their decisions will be based on factors such as time, space, resources, school policy, and help from other faculty (such as a gifted program teacher or a library media-specialist). While practical concerns should be considered, what should ultimately determine replacement activities are the degree of academic challenge *and* students' interests. When students understand that if they demonstrate proficiency, they will earn some time to pursue their own interests, they will often work to earn this opportunity. Our role as teachers is to escalate the challenge level of the material students are pursuing to be able to provide adequate academic challenges. **Many additional suggested alternatives for students are provided after Step Eight.**

Step Eight

Keep records of the compacting process and instructional options for compacted students.

Any differentiated program requires added record keeping. Unlike a regular classroom where all students are on the same page or exercise at any given time, teachers who provide a compacted curriculum have students doing different assignments at different levels and different times. Keeping concise records, then, is essential, and can be time-consuming without proper planning. Teachers and administrators should collectively decide how the compacting process should be documented. Regardless of form, all written documentation should contain these basics:

1. **Student strength areas, as verified by test scores or performance**
2. **The pretests used to determine mastery, and the learning objectives that were eliminated**
3. **Recommended enrichment and acceleration activities**

The Compactor was designed expressly to track the compacting process. Teachers employed in states or provinces with mandates for gifted education can substitute the compactor form for the Individual Education Plan (IEP), thus curbing the paperwork required for state-funded services.

No matter what record keeping vehicle they use, it is critical that teachers thoroughly chronicle the compacting process. The facts and figures they compile can be used in parent-teacher conferences. They can also be included in students' permanent academic files. The information can even help win support for compacting when the idea is being "sold," since people tend to react more favorably to issues presented in a written format.

Three Case Studies in Curriculum Compacting

Perhaps one of the best ways to understand the compacting process is to examine four case studies of students whose curriculum has been compacted. The paragraphs below provide an overview of the compacting process completed for Rosa, Eileen, Brad, and David.

INDIVIDUAL EDUCATIONAL PROGRAMMING GUIDE
The Compactor

Prepared by: Joseph S. Renzulli, Linda M. Smith

NAME: Rosa   AGE: 10   TEACHER(S): ____   Individual Conference Dates And Persons Participating in Planning Of IEP

SCHOOL: ____   GRADE: 5   PARENT(S): ____

CURRICULUM AREAS TO BE CONSIDERED FOR COMPACTING Provide a brief description of basic material to be covered during this marking period and the assessment information or evidence that suggests the need for compacting.	PROCEDURES FOR COMPACTING BASIC MATERIAL Describe activities that will be used to guarantee proficiency in basic curricular areas.	ACCELERATION AND/OR ENRICHMENT ACTIVITIES Describe activities that will be used to provide advanced level learning experiences in each area of the regular curriculum.
Teacher-made tests and achievement tests Unit 7 test Macmillan Mathematics 5 Math curriculum post-tests	Language Arts Outstanding grades and scores in all areas Take all unit pre-tests and post-tests. Eliminated material already mastered.	Spend 4-6 hours a week in Enrichment Program.
Is on highest level in spelling kit. Daily work Teacher-made tests where she shows knowledge of spelling rules.	Spelling Words in Economy Press Kit on Individualizing Spelling—one week. Next week—works with teacher in directed activities from Harper/Row Basic Speller 5.	School newspaper (see above) - independent study project on growing plants under different conditions

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Rosa's Compactor. (Click on the figure to see it as a PDF file.)

Rosa Rosa is a fifth grader in a self-contained heterogeneous classroom; her school is located in a lower socio-economic urban school district. While Rosa's reading and language scores range between four or five years above grade level, most of her 29 classmates are reading one to two years below grade level. This presented Rosa's teacher with a common problem: what was the best way to instruct Rosa? He agreed to compact her curriculum. Taking the easiest approach possible, he administered all of the appropriate unit tests for the grade level in the Basal Language Arts program, and excused Rosa from completing the activities and worksheets in the units where she showed proficiency (80% and above). When Rosa missed one or two questions, the teacher checked for trends in those items and provided instruction and practice materials to ensure concept mastery.

Rosa usually took part in language arts lessons one or two days a week; the

balance of the time she spent with alternative projects, some of which she selected. This strategy spared Rosa up to six or eight hours a week with language arts skills that were simply beneath her level. She joined the class instruction only when her pretests indicated she had not fully acquired the skills or to take part in a discussion that her teacher thought she would enjoy. In the time saved through compacting, Rosa engaged in a number of enrichment activities. First, she spent as many as five hours a week in a resource room for high ability students. This time was usually scheduled during her language arts class, benefiting both Rosa and her teacher, since he did not have to search for all of the enrichment options himself. The best part of the process for Rosa was she did not have make-up regular classroom assignments because she was not missing essential work. She became the editor of the school newspaper.

Rosa also visited a regional science center with other students who had expressed a high interest and aptitude for science. Science was a second strength area for Rosa, and based on the results of her Interest-A-Lyzer, (a questionnaire students complete to help assess their interests) a decision was made for Rosa to proceed with a science fair project on growing plants under various conditions. Rosa's Compactor, which covered an entire semester, was updated in January. Her teacher remarked that compacting her curriculum had actually saved him time—time he would have spent correcting papers needlessly assigned! The value of compacting for Rosa convinced him that he should continue the process. The Compactor was also used as a vehicle for explaining to Rosa's parents how specific modifications were being made to accommodate her advanced language arts achievement level and her interest in science. A copy of The Compactor was also passed on to Rosa's sixth grade teacher, and a conference between the fifth and sixth grade teachers and the resource teacher helped to ensure continuity in dealing with Rosa's special needs.

Brad's Compactor. (Click on the figure to see it as a PDF file.)

Brad Brad displays strengths in language arts and mathematics. He attends a large school which has the benefit of having a reading and math consultant on the staff. Both of these consultants helped with the pretesting administered to Brad and several other high potential students from the fourth grade. Brad's Compactor was completed by his classroom teacher who stapled the results of the pretest to the form. This explains why column one is less detailed than in other compacting examples.

Brad did regular curricular work in language arts for only one or two days a week. In spelling, he was consistently able to skip all of the drill and review work necessary to achieve perfect scores on tests, and he used the time saved to pursue advanced reading in the Great Books program.

In mathematics, he was able to master all of his fourth grade curriculum in approximately two days each week. Brad worked with three other students of similar ability in a cooperative learning group (comprised of high ability math students who all liked math) to be able to master math at this pace. The group then selected alternatives listed in column three to pursue separately or as a group during mathematics instruction time.

No gifted program existed in Brad's district, so his classroom teacher had to work much harder to provide appropriate instruction and alternatives for column three. However, assistance was provided by the math and language-arts consultants who worked with groups of either remedial or advanced students and who also provided enrichment materials and appropriately advanced content for targeted students. The media specialist directed the

independent study of students whose curriculum was compacted.

INDIVIDUAL EDUCATIONAL PROGRAMMING GUIDE
The Compactor

Prepared by: Joseph S. Renzulli
Linda M. Smith

NAME David   AGE 11   TEACHER(S) _____   Individual Conference Dates And Persons Participating in Planning Of IEP

SCHOOL _____   GRADE 6   PARENT(S) _____

CURRICULUM AREAS TO BE CONSIDERED FOR COMPACTING Provide a brief description of basic material to be covered during this marking period and the assessment information or evidence that suggests the need for compacting.	PROCEDURES FOR COMPACTING BASIC MATERIAL Describe activities that will be used to guarantee proficiency in basic curricular areas.	ACCELERATION AND/OR ENRICHMENT ACTIVITIES Describe activities that will be used to provide advanced level learning experiences in each area of the regular curriculum.
Math 6th Grade Heath test with 6th Grade Math Curriculum objectives.	Major check-ups: pg. 62, 94, 120, 150, 174, 198, 224, 258, 278, 300 and 316.	Advanced Exposure to Math: Inductive thinking skills: Open Ended Problems by A. Harnadek Logic skills: Classroom Quickies by A. Harnadek What Are My Chances? by A Shulte Aftermath II by M. Laycock
CTBS Score in Math 10/78 8.7 OGE	Concentrated activities to develop mastery in multiplying by a 3-digit number, dividing with fractions, operations with decimals, finding percents, integers	Using above references and others, David will increase his ability to understand problems using probability, induction, deduction, spatial perception, inferences, cause and effect, analogy, relevant information and logic.
Skills test at the end of 6th Grade text Mastery of all skills except for: multiplying a number by a 3-digit number dividing by a 2 or 3 digit number dividing with fractions operations with decimals finding percents integers	Recommended and additional activities in Math as outlined by school's Mathematics Curriculum objectives for Grade 6.	Enrichment resource room for 5 hours a week with the Enrichment specialist. Type I, II and III activities developing creative and critical thinking skills, creative and critical problem solving.

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David's Compactor. ([Click on the figure to see it as a PDF file.]) 📄

David

David is a mathematically talented student who is a sixth grader in a school district which has a policy against vertical acceleration in mathematics. Many of the districts that have participated in field tests of curriculum compacting have stated policies that do not allow students to be accelerated past their chronological grade level in any content area. Obviously, this is a dilemma for talented students and their teachers.

In David's case, curriculum compacting resulted in the completion of his math work for the entire year in the first six weeks of school. His teacher decided to compact in this way instead of having David work with his group one day each week for the year. The teacher believed that this option worked in a more efficient manner for his very organized, structured classroom. Also, the identification of another student with abilities similar to David's enabled David and her to work as learning partners throughout the year.

The classroom teacher selected various mathematics enrichment activities, as described in the district's math curriculum guide for David's grade. He also selected several math alternative enrichment activities for David's work in the

classroom. David also spent two hours a week of his mathematics instructional time in the gifted and talented program resource room with a teacher who further enriched his math program with computer skills.

Curriculum Compacting   **NRC/GT**

Examining Curriculum Alternatives: Type III Opportunities for Students

The most challenging part of compacting is deciding what students should do with time that they have earned. In this module, we recommend the use of Type III enrichment for time saved through curriculum compacting. To begin, we should review the concept of Type III enrichment. **Type III products are self-selected investigations in which students have an interest and they can occur in one of several formats: visual, written, oral, artistic, technological.**

Several examples of Type III products completed by elementary and middle school students are below:

Type III Products

Literary

Literary Magazine
School Newspaper
Collections of local folklore
Puppet show, plays
Series of books
Greeting cards with original poetry
Comic book series
Calendar book
Children's page in a city newspaper

Historical

Historical monologue
Historical walking tour of a city
Slide/tape presentation of historical research
Historical board game
Investigation of local elections
Film on historical topic
Archeological dig
Anthropological study
Oral history

Scientific

Science Journal
Daily meteorologist posting weather conditions
Organize a natural museum
Establishment of a nature walk
Acid rain study
Prolonged experimentation involving manipulation of variables
Science article submitted to a national magazine
Science column in newspaper

Mathematical

Editing of computer magazine for school
Contributor of math puzzles, games, quizzes for children's sections of newspapers
Math consultant for a school
Math tutoring service
Graphics for films or videos
Programming for computers

Media

Children's radio show
Children's television show
Children's reviews of books, movies on local news shows
Photo exhibit
Pictorial tour
Photo essay
Slide/tape show

Alternatives Based on Enrichment
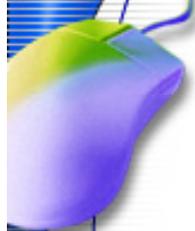
As noted earlier, the Enrichment Triad Model has been used as a way of offering academic alternatives for students whose curriculum has been compacted. Alternatives often exist to provide acceleration and/or enrichment for students whose curriculum has been compacted. This step proved to be the most challenging and the most creative for teachers. The possibilities for replacement activities include:

- **Offering more challenging content (alternative texts, fiction or non-fiction works)**

- **Adapting classwork to individual curricular needs or learning styles**

- **Initiating individual or small group projects using contracts or management plans**

- **Using interest or learning centers**

- **Providing opportunities for self-directed learning or decision making**

- **Offering mini-courses on research topics or other high interest areas**

- **Using mentors to guide in learning advanced content or pursuing independent studies.**

- **Helping students to use the Internet effectively, gathering data and information and helping them to use this to further their advanced reading and information gathering techniques**

Selecting Enrichment Options

These enrichment materials may include self-directed learning activities, instructional materials that focus on particular thinking skills, and a variety of individual and group project oriented activities that are designed to promote hands on research and investigative skills. The time made available through compacting provides opportunities for small group, special topic seminars that might be directed by students or community resource persons, community

based apprenticeships or opportunities to work with a mentor, peer tutoring situations, involvement in community service activities, and opportunities to rotate through a series of self-selected mini-courses.

Decisions about which replacement activities to use are always guided by factors such as time, space, and the availability of resource persons and materials. Although practical concerns must be considered, the ultimate criteria for replacement activities should be the degree to which they increase academic challenge and the extent to which they meet individual needs. Great care should be taken to select activities and experiences that represent individual strengths and interests rather than the assignment of more-of-the-same worksheets or randomly selected kits, games, and puzzles!

Challenging Enrichment Activities, Including Type III Studies

A case of a really outstanding Type III enrichment product completed by a fifth grade student can be accessed by clicking here. You should understand that Type III products take many forms and that the initial efforts of underachieving students may be much more modest. In the study described earlier, however, in which the majority of underachievers reversed their underachievement after doing a Type III study with a teacher or counselor, many students completed high quality, independent work. The example of Type III describes a book written by a fifth grade student named Gretchen who had two major interests: the literature of Louisa May Alcott and cooking. Gretchen read all of Louisa May Alcott's books and identified each time a specific food was mentioned. She researched the recipes of the time that would have been used to make the food (such as buckwheat cakes), field-tested each recipe (including making substitutions for ingredients no longer available), and created an original cookbook entitled The Louisa May Alcott Cookbook, published by Little Brown. In this Type III, both the process and the final product involve high levels of creative engagement and clear evidence of creative work.

Curriculum Compacting   NRC/GT

The Louisa May Alcott Cookbook
by Gretchen Anderson, Grade 5
Haynes School, Sudbury, Massachusetts

Description of Type III

Gretchen spent a year and a half working on a cookbook that combined vignettes of scenes from Little Women and Little Men with many authentic 19th century recipes for making the foods described in the novels. Cooking was Gretchen's hobby and she became fascinated with the foods mentioned in the novels and learned how to recreate them. Because Gretchen believed that other youngsters would also be interested in these foods, she sent her book to Little Brown Company. *The Louisa May Alcott Cookbook* was accepted and became the first book contracted by them with a child author.

Teacher's Role and Comments

Gretchen's teacher, Elizabeth D. Beloff, reported that Gretchen's enthusiasm for reading the books and researching the recipes could not sustain her through the writing of each scene and the incredible attention to detail necessary in creating the recipes.

Therefore, Ms. Beloff needed to complete the following steps to help Gretchen complete her project.

1. Vary the assignments (e.g., text writing/research/recipe writing).
2. Assign tasks that could be completed in one or two sessions.
3. Break large segments into small parts.
4. Use a system to record accomplishments (e.g., weekly or daily check sheet).

Gretchen's teacher also indicated that Gretchen was always able to envision the book, but had a problem getting organized. She was able to help her by suggesting ways of organizing information. Particularly useful was a file box to keep recipes and notecards that recorded steps to be taken.

Assessing Students' Interests
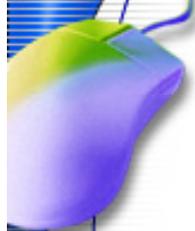
Many excellent enrichment activities are available to help students think about their interests and the types of enrichment they would like to pursue. One way to get started is learning about student interests, to find out what types of areas students have an interest in pursuing. To help you in this process, we recommend two interest assessment devices: *If I Ran the School* and the *Interest-A-Lyzer*. For this intervention, students should be asked to complete both *If I Ran the School* and the *Interest-A-Lyzer*.

Student interests are key in choosing enrichment or acceleration options. When asked what they enjoy most about compacting, children consistently cite the freedom to select their own topics of study; conversely, their biggest objection to regular curriculum is the limited opportunity to pursue their favorite subjects.

We commonly assume that when a student excels in a given area, he or she has a special interest in it. This is not always true. Often, students perform well in a course because they've been directed and rewarded by parents and teachers. Students may also lean toward one academic area simply because they've had little exposure to others. Completing the first brief interest assessment form, *If I Ran the School*, provides an outstanding opportunity to discuss the students' underachievement and their opportunity to work with you on a self-selected product.

The second form, the *Interest-A-Lyzer* will take a bit more time and should not be rushed. You should carefully review the instructions below and give the student(s) with whom you are working some time to pursue this in the next week or two. It will provide you with an excellent opportunity to get to know him/her better.

Interest-A-Lyzer

The Interest-A-Lyzer is a brief questionnaire devised to help students examine and focus their interests. Basically, the youngsters are asked to imagine themselves in a series of real and hypothetical situations, and then relate how they would react.

The primary purpose of this exercise to identify students' interest areas is to stimulate thought and discussion. Students not only come to know themselves better, but also get a chance to share their discoveries with both teachers and

peers. To ensure that students draw a true "self portrait," teachers should:

- Tell the students that there are no grades, or right or wrong answers.
- Assure students that their responses will be kept confidential, if they wish.
- Instruct students to follow directions carefully, to avoid group conformity or stereotyped responses.
- Allow students to complete the questionnaire without pressures or time constraints.

Teachers play a dual role in fostering student interests. Once they've identified general categories of interest, they must refine and focus them, then provide students with creative and productive outlets for expressing them. A child who enjoys rock music, for instance, may want to become a musician, but there are other avenues he or she could pursue as well, such as that of radio announcer or concert producer. Teachers must be sensitive to students' talents and inclinations within their fields of interest, and at the same time, encourage them to explore a range of options within those fields. Once students have completed *If I Ran the School* and the *Interest-A-Lyzer*, you are ready to pursue a number of ways to stimulate their interests.

Enrichment Materials to Help Stimulate Type III Studies

Now that you have some idea about possible interest areas, you will be able to think about ways to motivate underachieving students to pursue enrichment in one or more areas.

Gifted education teachers or enrichment specialists are excellent sources for enrichment activities and for advice about alternative teaching units or materials, and mentoring student projects.

For teachers who don't have access to specialists, many commercially published materials are available. These kits, books, and activity cards offer high quality at reasonable prices, and can be adapted to individuals or small student groups of all ages. To see a description of some enrichment materials available in print, click here.

Of course, these are only some examples!! Hundreds of resources are available in your school, thousands in your library, and millions on line to help students' interests. The time you spent with the student helping him or her compact out of the regular curriculum and find an interest may create the bond that we believe will help this student break the underachievement cycle.

Encouraging underachieving students to develop interests and pursue projects that can help them to develop a love of learning. If students develop an interest and want to pursue an independent study, a 12 step process for guiding students through independent study is provided in the next section.

Enrichment Materials

NRC
G/T

Available form [Creative Learning Press](#)

A Blueprint for Geometry by Brad Fulton and Bill Lombard

During a 2-3 week project based on the blueprints provided with this resource, students become junior architects as they make scale drawing, compute building costs, correct elevations, plan the number of electrical outlets, and answer other questions architects and contractors deal with every day. Grades 5-8. ISBN: 1-57232-278-0. $16.95.

Fun with Your Microscope by Shar Levine and Leslie Johnstone

Students learn about different parts of a microscope, various slide preparation techniques, and the importance of keeping a journal to record findings. Grade 3-8. ISBN: 0-8069-9946-2. $9.95.

Hands-On Archaeology by John R. White

Young archaeologists try their hands at excavating a site using the same methods as modern archaeologists. Grades 3-12. ISBN: 1-882664-34-5. $21.95.

How to Tape Instant Oral Biographies by William Zimmerman

Students learn how to create a library filled with spoken histories from families and friends. Grades 4-8. ISBN: 1-55870-526-0. $12.99.

Inventing Stuff by Ed Sobey

In addition to presenting techniques for inventing and information about invention contests, *Inventing Stuff* encourages learners to ask questions, look for patterns, and keep tinkering with their inventions. Grades 5-12. ISBN: 0-86651-937-8. $11.95.

Painting the Sky by Shelley Tucker

These exciting exercises and activities help students learn to use metaphors, similes, personification, and other poetic elements. Grades 3-6. ISBN: 0-673-36211-6. $12.95.

The Story in History by Margot Fortunato Galt

Using sources such as early maps, Walt Whitman's account of the Civil War, Sioux Indian oral histories, diaries from women on the Oregon Trail, ads from the 1940s, and their own historical research, students explore events as they write their own historical accounts. Grades 6-12. ISBN: 0-915924-39-0. $15.95.

Used Numbers Series (Counting; Measuring; Sorting; Statistics: Middles, Means, and In-Betweens; Statistics: Prediction and Sampling; Statistics: The Shape of the Data) by various authors

Students learn to collect, record, discuss, and analyze data in many ways. Grades K-6. $13.95 each

Young Cartoonist by Judy Tachell

Step-by-step instructions teach youngsters how to draw cartoons and caricatures of faces, bodies, and animals, as well as movement, scenery, and perspective. Grades 3-9. ISBN: 0-7460-0083-9. $8.95.

The Young Person's Guide to Becoming a Writer by Janet E. Grant

This practical guide helps young writers experiment with different genres, evaluate their own work, locate publishers, prepare and submit work, and more. Grades 6-12. ISBN: 0-915793-90-3. $13.95.

The Young Producers Video Book by Donna Guthrie and Nancy Bentley

This guide moves readers through seven steps to produce a video: they choose a topic and a crew, research and learn how to use the camera, write the script and plan the storyboard, direct, tape, edit, and present the show. Grades 2-4. ISBN: 1-56294-688-9. $7.95.

Guiding Students Through Type III Studies

We have devised a 12-step process for teaching students how to produce quality enrichment projects. This process, which has been applied in classroom and resource room settings, has evolved over several decades and countless activities. Two comments can be made on the steps themselves. First, they do not have to be followed in the order given. Second, some can be eliminated if students can accomplish the learning objectives in other ways.

1. Assess, Find, or Create Student Interests

Students should select topics in which they have an intense interest. In some cases, teachers may have to spark an interest by introducing new fields of study or extending the regular curriculum; the Interest-A-Lyzer and scheduled speakers can also motivate students to pursue interests.

2. Conduct Interviews to Determine Interest Strength

Teachers should try to ascertain, through face-to-face interviews, how deeply committed students are to their interests. For example, if a youngster likes journalism and wants to produce a school newspaper, the student might be asked these questions:

1. **How long have you been interested in journalism?**
2. **What sources have you contacted to learn more about the subject?**
3. **Have you ever tried to publish a class or neighborhood newspaper? Why or why not?**
4. **Have your ever visited your local newspaper?**
5. **Do you know anyone else interested in this topic?**
6. **If I can help you find either books or people to talk to about your project, do you think it might give you some good ideas?**
7. **How did you become involved in journalism?**

Posing these questions will reveal if the student has seriously considered the amount of time independent study entails, and how to go about producing a unique product.

3. Help Students Find a Question or Questions to Research

Most educators have little difficulty recognizing "families" of interest: scientific, historical, literary, mathematical, musical, athletic. Problems arise, however, in fine tuning a broad area, and defining a specific interest as a research question. The majority of teachers are not experienced in asking the questions about some fields of study. Yet, this part of the process is critical. How it is handled will determine whether a student starts on this work. Given that, teachers can help students secure the "how to" books or resource people that routinely probe these important questions. Students who want to ask the appropriate questions about problem focusing in anthropology, for instance, must begin by looking at the query techniques anthropologists apply.

4. Formulate a Written Plan

Once students have brainstormed a question, they should draft a written plan for researching it. Many teachers employ contracts with students. Others prefer journals or logs, and still others use the Management Plan to organize ideas and develop time lines.

5. Work with Students to Locate Resources

For advanced content and methodological aid, teachers should direct students toward "how-to" books, as well as biographies and autobiographies, periodicals, atlases, letters, surveys, films, phone calls and personal interviews. Librarians and media specialists should also steer students to sources beyond references encyclopedic.

6. Provide Methodological Assistance

In this step, the emphasis shifts from learning about topics, to learning how one gathers, categorizes, analyzes, and evaluates data. The teacher's role, then, is to show students how to identify and obtain the resources that explain how to properly investigate their topics. Guidance at this phase almost guarantees that students will be first-hand investigators rather than reporters. Clearly, the caliber of instruction students receive here will differentiate their projects from those of their peers.

7. Help Students Choose a Question

Students can often decide, at this point, which question or area they want to research. In addition, many begin to investigate their topics.

8. Offer Managerial Help

Managerial assistance means that we help students secure the information they need. Teachers can set up interviews with public officials, gain access to laboratories or computer centers, transport youngsters to college libraries, and help distribute questionnaires or other printed pieces. At this stage, the student emerges as the leader and expert, while the educator assumes a more supportive role.

9. Identify Final Products and Audiences

A sense of audience is integral to students' concern for quality and commitment to their tasks. With that in mind, teachers should lead students to appropriate audiences and outlets for their work. Teachers should also stress the impact creative efforts can have. Students should be aware that a job well done can bring more than individual expression and personal satisfaction; it benefits others by changing how they think or feel, or enhancing the quality of life in other, more tangible ways.

10. Offer Encouragement, Praise, and Constructive Criticism

Almost every endeavor can be improved through revision, rewriting or closer attention to detail. Teachers must convey this fact to students, as they review the youngsters' projects with a sharp, yet sensitive eye. For their part, students should feel that the teacher's greatest concern is helping them achieve excellence, and that constructive feedback is vital to the process.

11. Escalate the Process

Oftentimes, bright students resort to simple or unimaginative research methods because they have not been taught more advanced ones. Educators can change this by guiding students to do high level work. Teachers, media specialists, and librarians can assist students in phrasing their questions, designing research, gathering and analyzing data in an unbiased way, drawing conclusions, and communicating their results and make this more challenging process for high potential students.

12. Evaluate

Students always want to know how they're being "graded." However, we strongly discourage the formal grading of independent projects, since no letter grade, number or percent can accurately reflect the knowledge, creativity, and commitment students develop during their individual study. Feedback for

students can be sought from professionals in the field, adult mentors, or intended audiences.

Nonetheless, evaluation and feedback do promote growth, and should be used. The ideal process is a two-way street: it actively involves students and familiarizes them with the evaluative procedures. To help students appraise their own work, we suggest a short questionnaire, such as the one below:

1. **How did you feel about working on the project?**
2. **What did you learn through your study?**
3. **Were you satisfied with the final product? In what ways?**
4. **How were you helped with your project?**
5. **Do you think you might like to undertake another project in the future? Do you have any ideas what that project would be like?**

The replacement activities given in the next section are available and/or suggested at various web sites and are organized by content area.

Website Resources

If you are just getting started with the idea of independent or small group Type III studies, click here for a few sites within selected content areas to help guide your journey. We have selected one or two within each content area, and you can click on the content area to find others.

Language Arts/Reading

This website focuses on the unique learning needs of precocious readers. Specifically, the author provides browsers with an extensive list of books that are psychologically and developmentally appropriate for young (7-10), but advanced readers. The author organizes her recommendations into 8 categories: picture books, chapter books, timeless fantasy, classic stories, modern fiction 1, modern fiction 2, epic fantasy, and non-fiction.

Just for Kids

The following list of websites provides all students, including those who are advanced readers and writers, with the opportunity to explore a self-selected topic in depth. Precocious readers may want to pursue an author study about their favorite writer or illustrator. Book Links, a magazine designed for teachers, librarians, and media specialists, publishes author studies, essays linking books on a similar theme, bibliographies, retrospective reviews, and other features for those who educate young people. Several websites feature renowned authors and illustrators and invite browsers to explore books, as well as their authors. Some provide students with the opportunity to communicate directly with selected authors.

Book Links
Author Studies for Primary Grades (1-3)
Jan Brett's Children's Literature Site

Bibliotherapy

Use the following websites to provide resources for bibliotherapy with highly able readers and writers. Bibiotherapy is the use of children's books to help young people understand and resolve personal issues. It is a particularly effective technique with avid readers because they are capable of seeing the metaphoric implications of the material not only for the characters in the plot, but also for themselves.

[Molding the Minds of the Young: The History of Bibliotherapy](#)
[Helping Children with Books](#)

Science

The Exploratorium's website, in four languages, is as interactive and hands-on as the museum in San Francisco! Thus, it's not surprising that the website has earned a variety of awards. Monthly, the staff presents "10 Cool Science, Art, and Education Sites". Recently, the sites included Neuroscience for Kids, Calendars through the Ages, Citizen Kurchatov, DNA for Dinner, Project Primary, Understanding Color, Project Full Moon, and The Learning Matters of Chemistry, among others.

[Exploratorium](#)

Mentorships

Provide mentorships for students with a passion in science. Mentors can be located at local universities/community colleges, online, in the business sector, and among parents of young people. Telementoring projects include:

[Scientific American](#)
[Electronic Emissary](#)
[HP E-mail Mentor Program](#)
for (5th - 12th grade students)

Cool Web Sites for Kids

National Aeronautics and Space Administration (NASA) maintains an award-winning website that houses a special link to Cool Web Sites for Kids. Students can access a variety of interactive, hands-on activities and resources about: airplanes, the Earth, planets, space travel, stars, and galaxies. All links are chock-full! Once into the planet site, for example, students have a wide variety of options such as, Make Your Own Scale Model of Galileo, Build Your Own Martian Spacecraft, and Gravity Box, in which students compare Earth's gravity to gravity on the Moon and Mars.

[National Aeronautics and Space Administration](#)

Kids Identifying and Discovering Sites (KIDS) is a biweekly publication produced by K-12 students as a resource to other K-12 students. It is an on-going cooperative effort of 12 classrooms from around the United States. Since 1996-1997, students amassed an archive of sites in science, mathematics, and history, including, for example: Inventions, the Holocaust, and Natural Disasters. Selection criteria are included for readers and can be used by other students who want to use similar criteria for identifying and selecting Internet sites for their own Web pages.

Kids Identifying and Discovering Sites (KIDS)

Social Studies

The American Memory Historical Collection, a major component of the National Digital Library Program, are multimedia collections of digitized documents, photographs, recorded sounds, moving pictures, and text. There are over 70 collections and some investigate themes such as elections, immigration, inaugurations, presidents, and women pioneers.

The American Memory Historical Collection
National History Day

Explore the discoveries and inventions that have changed thinking and history. Some examples include: maps, mapmaking and their role in exploration; photography and the printing press and their ability to preserve the past, the railroads and their ability to bridge people and continents; telescopes and their ability to see into the past and future. A suggested website is Teaching About Turning Points in History. The site provides teachers with strategies and resources to encourage students to think critically about turning points in history and to conduct research about historically significant topics that interest them.

The History Net

Mathematics

This is an award-winning site that contains over 200 pages of information about Fibonacci numbers and the golden section and golden string. Categories of information include: Fibonacci numbers and Golden sections in nature, the puzzling world of Fibonacci numbers, the intriguing mathematical world of Fibonacci and Phi, the Golden string, applications of Fibonacci numbers and Phi, and resources and links.

Dr. Ron Knott

Mathematics Contests and Competitions

Promote student participation in mathematics contests and competitions, including:

- Continental Math League (grades. 2-9), Richard Kalman or John Lufrano, (516) 584-2016, http://www.li.net/-majorbar/cml
- Math Olympiads (Division E: grades 4-6; Division M: grade 7), (516) 781-2400, Mathematical Olympiads\
- John Hopkins Talent Search (grades 2-8), (410) 516-0278, Center for

Talented Youth

Problem of the Day, Problem of the Week
Institute "Problem of the Day" or "Problem of the Week". Gather problems from past competitions of Continental Math League or Math Olympiad at the following sites:

MindWare
Marcy Cook

Books
More contests and competitions can be found in:

- *All the Best Contests for Kids,* ISBN 0-89815-451-0, and
- *The Ultimate Guide to Student Contests, Grades 7-12,* ISBN 0-8027-7512-8.

To make the task of facilitating Type III projects easier, you may want to review the following links. They were selected to help students learn more about independent or small group research opportunities. Some are designed for teachers, but many are appropriate for individual student use.

Electronic Resources to Assist Students in Conducting Research

Mystery Tour - www.teachnet.org/MysteryTour/intro.htm

Experience the fun of being part of an Internet fieldtrip. The only cost associated with this will be postage and 30 stamped picture postcards. In return, your class will receive a United States map, postcards from other tour guide schools, and your class is eligible for prizes throughout the tour.

KIDPROJ, a part of KIDLINK - www.kidlink.org:80/KIDPROJ

At this site teachers and youth group leaders from around the world plan activities and projects for students and other kids age 5 to 15. KIDPROJ is like a "family" who talk to each other, participate in many discussions and work together on many different activities and projects.

Kidpub - www.kidpub.org/kidpub

Aspiring young writers can submit stories, poems, and data to this site for publication.

Poetry Pals - www.geocities.com/EnchantedForest/5165

> In 1998-99 Poetry Pals published up to a maximum of 50 poems per school for the year. Students' names are not posted to protect the personal safety of young people.

Journey North, A Global Study in Wildlife Migration - www.learner.org/jnorth/index.html

> This cite is an ongoing global study of wildlife migration provided by Annenberg/CPM Math and Science project. Participants gather and submit data about migrations, sitings, blooming of plants, etc.

iEARN - www.igc.apc.org/iearn

> This cite enables young people to make a meaningful contribution to the health and welfare of the planet an its people by offering 35-40 structured projects, each with a teacher-facilitator, in social studies, science, environment, math, arts, literature, and interdisciplinary areas.

PROJECTS & PROGRAMS - www.gsn.org/project/index.html

> Projects & Programs provides Internet projects for students. You can design your own project or join an existing project created by other teachers and students. This cite gives access to other organization's projects.

Online Projects - www.pitsco.com/p/collab.html

> This cite provides on-line projects for students to join. The meta-list has over 80 WWW sites that have information on collaborative projects.

GLOBE - www.globe.gov

> Globe is a hands-on program that will link Oceanic and Atmospheric students with other students and with scientists around the world. Students, guided by trained teachers, take environmental measurements identified and designed by an international group of scientists and educators.

Testbed - teaparty.terc.edu/about//about.html

> This cite has created several science projects including

EnergyNet, Global Lab, Classroom FeederWatch Project, and Cyber March.

Scientist Network - www.madsci.org

At this site there is an archive of questions and answers to scientific ponderings. Also, students can pose research questions. Scientist Network includes a listing of edible and inedible experiments.

Museums Hotlist - sln.fi.edu:80/tfi/hotlists/museums.html

Musuems Hotlist provides a listing of science centers and museums that can be used by the students to locate information for a research project as well as providing contact to museum curators.

HP E-mail Mentor Program - mentor.external.hp.com

The Hp E-mail Program is a structured, project-based program where HP employees worldwide volunteer to telementor 5th - 12th grade students in unique one-to-one electronic relationships. The focus of this program is to help students excel in math, science, professional communication skills and to develop solid education and career plans for life beyond high school.

Department of Education - www.ed.gov/pubs/emath

E-mail based volunteer programs designed to help students master challenging mathematics, science and technology.

My Hero - myhero.com/home.asp
This cite is used to honor heroes and to pay tribute to local heroic figures such as MLK Jr, Mark Twain, Nelson Mandela, Albert Einstein and Rosa Parks. Through this web site parents and children can share their heroes.

Classroom Projects - teams.lacoe.edu

This site provides projects and contests for the classroom as well as giving a list of projects and contests from other organizations.

KidsConnect - www.ala.org/ICONN/kidsconn.html

This cite is a question-answering, help and referral service to K-12 students on the Internet. The goal of the service is to help

students access and use the information available on the Internet effectively and efficiently.

National Student Research Center - youth.net/nsrc/webs.html

NSRC serves as an outlet for student investigations. This site is on-line to assist teachers and their students on how to conduct scientific research. Students can submit their research findings to this site for publication.

Places to Publish Student Products - www.edbydesign.com

Knowledge Check Through Frequently Asked Questions

Curriculum compacting demands time and energy on the part of both teachers and students. Yet, over the years, we've discovered that it saves teachers precious hours, once they're familiar with the process. Most educators who now compact effectively say that it takes no longer than normal teaching practices. More importantly, they tell us that the benefits to all students certainly make the effort worthwhile. We have included a short section on commonly asked questions on curriculum compacting, see if you know how to respond.

Questions and Answers

Q1. What is required before you start compacting?   Answer

Q2. Can classroom teachers compact curriculum without the help of teachers who work with gifted children?   Answer

Q3. What should I tell my students about compacting?   Answer

Q4. What are the least difficult subject areas to compact?   Answer

Q5. Am I correct in assuming that if I teach process writing or the "whole language" approach, compacting is unnecessary?   Answer

Q6. Is it better to compact by time period (every marking period, for instance) or by instructional unit?   Answer

Q7. Do you recommend compacting an entire semester, leaving the last two months free for student self-selected projects, or compacting 2 1/2 days a week, leaving the rest of the time for alternative work?   Answer

Q8. If I compact for my high ability students, and let them leave the class for alternative activities, won't the quality of my classroom discussions suffer?   Answer

Q9. How do I grade when I compact curriculum?   Answer

Q10. Is there a way to physically reorganize my classroom space to

make compacting easier?   Answer

Q11. What advice do teachers who have successfully used compacting give to other teachers?   Answer

Answer to Q1

To compact effectively, you must have:

1. A clear understanding of your curricular objectives
2. Knowledge of which students have already mastered those objectives, or are capable of mastering them in less time.

It also helps to have some background information on the compacting process, and an idea of the pretest devices and alternative activities that you plan to use. *Curriculum Compacting: The Complete Guide to Modifying the Regular Curriculum for High Ability Students* provides in-depth coverage of the subject.

Close Window

Answer to Q2

Yes! In fact, classroom teachers bear the primary responsibility for implementing the compacting process. But, if gifted program teachers are available, they can ease the job by procuring enrichment resources or upgrading the challenge level of the regular curricular materials.

Close Window

Answer to Q3

Compacting should be explained in simple terms to all students. Among the points you should touch upon are pretests, the fact that some students may already know the material being tested, and that exciting learning activities exist for students who have already mastered the material.

You should also spell out, in advance, the rules regarding behavior while students are doing alternative work. Two such rules may include working as quietly as possible, and not interrupting the teacher while he or she instructs the rest of the class.

Close Window

Answer to Q4

Usually, skill areas with highly sequential curricular organization, such as spelling, mathematics and grammar, are the least difficult to compact. Once you're familiar with the process, you may compact any subject area. Teachers have even reported wonderful results in art and music.

Close Window

Answer to Q5

No. With process writing, youngsters who master the writing objectives for their grade level shouldn't just move up another difficulty notch, as is often the case. Instead, they should be allowed to pursue enrichment assignments or projects of their choice.

The same holds true for the whole language approach. If students show mastery of the learning objectives, simply replacing time with grade level trade books, for example, may not be the best option. The alternatives presented must be challenging, and keyed to students' interests.

Close Window

Answer to Q6

Compacting by instructional unit is best. A "unit" generally refers to an instructional period that revolves around a theme, chronological time period, or a set of academic objectives.

For example, to compact a sixth grade unit on Johnny Tremaine, the teacher would modify the curriculum for students who have either read the novel, or who could read and master the learning objectives more quickly than their classmates.

At the elementary level, teachers frequently compact a basic skills unit of instruction, such as the teaching of long division.

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Answer to Q7

Most teachers prefer to compact two or three days a week, and set aside one or two days or short blocks of time for enrichment assignments. When you compact a semester, it demands tremendous time and energy to plan a full two months of enrichment options.

Close Window

Answer to Q8

Many teachers have expressed this concern, which is merited to some degree. However, we must also remember that less able students are sometimes intimidated by the presence of brighter students, and, consequently, don't contribute to the discussions.

To resolve the problem, teachers might try some classroom discussion sessions with the gifted students, and some without them; if the discussions succeed better with the advanced students, then it makes sense to include them.

Close Window

Answer to Q9

Many teachers have expressed this concern, which is merited to some degree. You should grade on the regular curriculum which has been compacted. In our opinion, grades should reflect mastery of content and not time spent in a subject area.

When you do substitute independent study, it should not be graded. Some qualitative, holistic evaluation of the work done would be preferred.

Note: If you find that students are not using their time for alternative study wisely, you should talk over the problem with them. You might reiterate the concept of compacting, and explain what the next step would be if behavior doesn't change (such as a parent meeting). Compacting represents a radical educational departure for most students, and it takes time for them to adjust.

Close Window

Answer to Q10

Yes! You can set up "student stations," consisting of a desk or table with two or three chairs for independent study or free reading. A small, comfortable library corner, or special learning or interest centers can also be established.

Close Window

Summary

Now consider what you will need to do to begin

1. Whose support is needed to help you implement your compacting plan for the underachieving student(s) you have selected?
2. What type of assessment tools will you need to identify the students for whom you will compact curriculum?
3. How will you gather resources for enrichment?
4. What options do you have to supply these resources?
5. What problems might you anticipate while implementing your plan to compact curriculum? How will you deal with them?

Assessing how well you have done: After you have completed a preliminary compactor form, you can complete the assessment form to see how well your compacting works as compared with hundreds of other teachers who have completed the process with their students.

Curriculum Compacting   **NRC/GT**

The Curriculum Compactor Assessment Form

The Curriculum Compactor Assessment Form (See below) was developed to assess the quality of teachers' implementation of the curriculum compacting. The following procedure was used to provide an estimate of the instrument's reliability. First, a ten-item checklist for assessing completed compactors was developed. The items on the checklist reflected the elements of quality compactors advocated by curriculum compacting experts (Reis, Burns, and Renzulli, 1992).

Each item is given a score of 1 if the teacher has integrated it into the compacting process.

In order to become better acquainted with the compactor form and process complete the activity below. The time you spend on this will be worth the effort because you will develop a good sense of how to complete a compactor form for your student or group of students in Lesson 9.

Name of student _____

Column on Compactor	Rating
Column 1	
1. Are curricular strength-areas of the student(s) clearly identified (e.g., language arts, mathematics)?	_____
2. Are pretests, or general assessments of student strength areas provided (such as language arts pretests or achievement test information)?	_____

Column 2

3. Are specific areas of content to be eliminated or modified listed?

   _____

4. Are various types of skills assessment to prove evidence of proficiency (i.e., passed various level tests) documented?

   _____

Column 3

5. Are alternative activities listed for students?

   _____

6. Are the activities based on alternative enrichment activities, i.e., not extensions of regular curricular exercises?

   _____

7. Do the alternative activities listed appear to have taken into account the students' interests (e.g., independent study options, specific types of alternative reading assignments)?

   _____

Column 1-2-3

8. Is it apparent that various pieces of information have been taken into account, regarding students' curricular strengths, the documentation of proficiency and the replacement of more appropriate enrichment and/or acceleration? In other words, is there a clear connection between Columns 1-2-3 on the compactor?

   _____

9. Does the teacher appear to have completed the form with care and attention to detail, and does the compactor form reflect appropriate time spent by the classroom teacher?

   _____

10. Does the completed compactor form reflect the overall quality expected in the curriculum compacting process?   _____

Total Score *(0 to 10 possible)*   _____

Now it is your turn! As you prepare to work with a student, remember how much students like to have the opportunity to work with a teacher one on one. You can change a life by participating in this research.

Curriculum Compacting   ◀ **Back**   **NRC/GT**
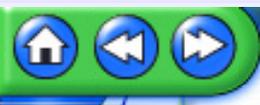
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