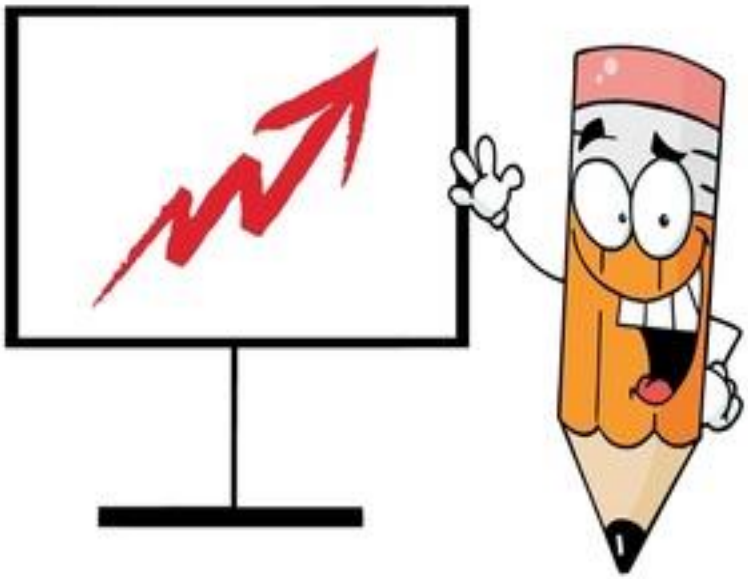

Fundamentals of Student Learning Assessment and Grading Procedures for Middle and Secondary School Teachers

Dr. Mary Ellen Adams, Indiana State University, Terre Haute, Indiana

Pamela Ray, Northridge Middle School, Crawfordsville, Indiana

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Introduction

This document is part of a series of papers focused on various aspects of effective teaching. (All documents in this series are available from the Learning Connection.) In this series, specific teaching-learning challenges are addressed to help new and less experienced teachers and teachers with limited preparation in instructional methodology become more effective in their classrooms. This document addresses the development and administration of assessments that address higher order thinking and long-term meaningful understanding rather than memorization of facts or nonacademic factors such as neatness, attendance, etc. The intent is to gain insight into the extent to which students are mastering learning objectives. (At various points throughout this document, ideas are presented on how to handle nonacademic factors in the assessment/grading process.) This document may contain useful reminders for more experienced teachers as well as for new and inexperienced teachers.

The basic component of being a good teacher is having depth and breadth of knowledge in one's content area(s). However, that alone is not adequate preparation for teaching. Harry K. Wong and Rosemary T. Wong (*The First Days of School*, page 9, Harry K. Wong Publications, Inc., 1998) state that teachers must be proficient in three characteristics; namely, (1) have positive expectations for student success; (2) be extremely good classroom managers; and (3) know how to design lessons for student mastery. It is important for teachers to understand the types, purposes, and methods of assessment so they can select the best procedures to determine the extent to which their students are mastering the objectives of their courses. In addition to being crucial for effective teaching-leaning, course assessments may help prepare students for state and system-wide assessments and technical certifications.

Teachers are encouraged to use the many good resources available on assessment and grading to enhance the quality of instruction and learning outcomes in their courses. It is

important for teachers to be familiar with the grading policies and procedures stipulated by their schools. They should take advantage of opportunities to have input into these policies and procedures.

The approaches to assessment presented in this paper are focused on what individual classroom teachers can do in their courses, not on program or curriculum assessment. This information on assessment should be considered in the context of standards-based assessment. Two broad types of assessment are discussed in the following section.

Assessment Types

Assessment is a broad topic that includes many forms of testing and accountability measures. Two broad categories of assessment, formative and summative, are critical for helping students achieve standards. Summative assessment is comprehensive and evaluates student learning at the end of a course or program. It is used to determine whether students have met some standard or goal. Formative assessment provides feedback that allows teachers to improve their teaching and that helps students improve their learning at various points during the time instruction is being given in a course (or program). These two types of assessment are discussed further in the following sections of this paper.

Formative Assessment

Formative assessment gives teachers feedback during the instruction process regarding whether students are progressing toward the desired outcome; it gives students constructive feedback on the effectiveness of the processes they are using to make timely progress. Also, it forms the basis for teachers to make decisions regarding adjustments in teaching methodology. Formative assessment is administered during the learning process; it is not used to determine grades. Improving student performance is the basic purpose of formative assessment. Uses of formative assessment include:

- Assessing knowledge prior to beginning instruction.
- Assessing recall of previously taught information, concepts, and applications.
- Assessing understanding of what has been taught (explaining ideas and concepts).
- Assessing skill in creative thinking (using what has been learned previously to create new ideas, products, or ways of viewing things).
- Assessing skill in applying what has been learned to performance in similar situations.
- Assessing skill in using analysis and synthesis to engage in critical thinking.

Formative assessment provides information needed to adjust teaching so each student can have a better opportunity to achieve the desired outcomes. The performance of a single student

or a class average is not a valid basis for concluding that appropriate progress is being made toward course goals and objectives. Superficial evidence is not a good indicator of whether students understand what is being taught. The outward appearance that students are listening is not assurance they understand—or that they are paying attention (many students are very good at pretending to listen). Assessment procedures that give teachers (and students) feedback on whether understanding has occurred must be used. The following paragraphs provide an example of using formative assessment in an entrepreneurship class.

Assume a teacher has just completed a lesson on the characteristics of entrepreneurs. This lesson addressed the course standards "Analyze the Characteristics of an Entrepreneur" and "Recognize the Role of Leadership and Ethics in Entrepreneurial Ventures" (these standards were taken from those for the Indiana entrepreneurship course). For a formative assessment, the teacher could ask students to write on index cards one real-world application for what they had learned about the characteristics of an entrepreneur and one real-world application for what they have learned about the role of leadership and ethics in entrepreneurial ventures. Incorporating the use of Padlet or another discussion board could be an effective way to engage students in this activity. Some of the possible student responses (which should be accompanied by explanation or examples) are shown below.

Applications of knowledge about the characteristics of an entrepreneur:

- Making career decisions related to becoming an entrepreneur.
- Developing/honing skills in observing, listening, and solving problems.
- Developing responsible risk-taking expertise.
- Developing the ability to persist in pursuing a goal.

Applications of knowledge about the role of leadership and ethics in entrepreneurial ventures:

- Identifying the skill and knowledge components of leadership that pertain to successful entrepreneurial ventures.
- Furthering the ability to be disciplined and ethical in following through on one's word regardless of obstacles.

- Setting an ethical example in all aspects of personal and business dealings.
- Giving a specific example of how ethical or unethical dealings have impacted the success of a company.

Randomly selected students could be asked to share with the class the real-world applications they recorded and to elaborate on the ways in which entrepreneur characteristics and/or leadership and ethics are important in entrepreneurial ventures. (The student responses should not be graded; but the teacher may collect the cards to gain feedback. If the student response is not acceptable, the teacher should look for new ways to reteach the information so students will meet the standards for this content.) The students should realize that acquiring many of the characteristics of successful entrepreneurs will make them better students and equip them to be better employees in an established business in addition to giving them insight into becoming entrepreneurs.

Some educators have suggested that thinking of **for**mative assessment as assessment **FOR** learning is a helpful reminder of its purpose. Formative assessment should not be used to assign grades to students. Rather than grades, descriptive feedback that will help move students toward meeting the course standards should be given on formative assessments.

Quick formative feedback at the end of a class session can be obtained in a variety of ways, including the use of exit questions or "muddiest point" questions to determine whether students understand what was taught. Other formative assessment possibilities include homework, reflection journals, teacher-student conferences, teacher observance of students' nonverbal conduct during teaching sessions, and informal in-class presentations by students. Many of the dozens of other ways formative feedback can be attained are included in the paper in this series titled **"**Active Learning Strategies,**"** available on the IDOE Learning Connection.

Formative assessment and instruction should not be considered separate processes. They should be interconnected and focused on a common purpose—helping students achieve objectives, goals, and standards. Students should be made aware of what the teacher has learned from formative assessments and how they (the students, individually and collectively) can benefit from this information in moving forward in their course work.

The quality of student learning is closely related to the quality of teaching. An important step in improving teaching is becoming aware of when the intended learning is not taking place. Formative assessment techniques, which provide timely feedback about student learning and are linked to ideas for teaching/reteaching, are essential for developing effective instructional strategies.

The article, "Principles of Instruction: Research-Based Strategies That All Teachers Should Know," presents 10 principles of effective instruction; these principles came from: (1) research on how the mind acquires and uses information, (2) instructional procedures used by effective teachers, and (3) the procedures, such as scaffolding strategies, developed by researchers to help students learn complex tasks. These principles, along with elaboration on them and ideas for implementation, are provided on pages 12-19 of that article; the entire article is interesting, informative reading. This material, focused on what the most successful teachers do, is a good blueprint for becoming a successful teacher! The following "17 Principles of Effective Instruction," page 19 of the article, are based on research and the 10 principles for effective instruction referred to above:

- Begin a lesson with a short review of previous learning.
- Present new material in small steps with student practice after each step.
- Limit the amount of material students receive at one time.
- Give clear and detailed instructions and explanations.
- Ask many questions to check for understanding.
- Provide a high level of active practice for all students.

- Guide students as they begin to practice.
- Think aloud and model steps.
- Provide models of worked-out problems.
- Ask students to explain what they have learned.
- Check the responses of all students.
- Provide systematic feedback and corrections.
- Use more time to provide explanations.
- Provide many examples.
- Reteach material when necessary.
- Prepare students for independent practice.
- Monitor students when they begin independent practice.

Students must be involved in systematic review in order to draw upon what is learned and to connect it with new learning. At the conclusion of instruction on a particular block of material, summative assessment is appropriate.

Summative Assessment

Summative assessment takes place after instruction on a particular chapter, unit, or other defined instructional block has ended. Its purpose is to determine whether students have learned what was taught in that instructional block; i.e., did students meet the course goals or achieve the learning outcomes desired?

Student performance on summative assessments is used to determine course grades for report cards and students' permanent academic records. Schools and school districts may use data from summative assessment reports to make personnel and curriculum decisions. Ultimately, summative assessments are used to determine whether the goals and objectives of educational programs are being achieved.

Summative assessments may be state mandated and cover cumulative learning over several grade levels or be administrated at the end of a program to ensure students have met program knowledge and performance standards. Standardized tests administered by states and testing organizations to determine whether students have made acceptable academic progress in

such subject areas as science, math, reading, and writing at certain grade levels are summative. The SAT and ACT used as input for college admission decisions are examples of summative assessments.

It is important to note that academic areas such as music, art, and business that do not have state summative assessments should not be cut from the curriculum to make more time available for the "tested subjects." Teachers in "nontested" areas should be prepared to show how the content they provide and the teaching-learning procedures they use make important contributions to many educational goals as well as provide unique content important for students now and for their future.

The summative assessment procedures discussed in this paper focus on determining whether students have achieved the standards for a particular course. These procedures are appropriate for most courses.

Summative Assessment Methods

Summative assessment techniques include portfolios, internships, clinical performance, licensure or certification, capstone projects, written reports, final tests/exams, and demonstrations. Also, summative assessments may include authentic learning situations which require applying the learning acquired to real-life or simulated situations.

Tests are one of the most frequently used summative assessment tools. Pointers for writing good test items follow. Information on the use of rubrics to facilitate standards-based assessment is included in this section also.

Test Item Creation

Regardless of the test used, it should be valid and reliable. A test is valid if it measures what the user (teacher) intends to measure. For example, if the test accurately measures achievement of the instructional objectives, it is valid. If a test is valid, it is probably reliable.

Reliability refers to assessments being consistent. Therefore, administering a reliable test at different times or on different days should not make a difference in the results obtained. If alternate forms of the same test are created, test reliability is the correlation between scores on the two tests. Generally a reliability coefficient of .80 or higher (1.0 is perfect) is considered good; reliability below .50 indicates a test is not very reliable. A test cannot be valid unless it is reliable.

Writing good test items requires giving consideration to many factors that have a bearing on validity and reliability. The criteria for creating good test items are not intuitive; it is important, therefore, to review test construction guidelines before writing test items. Many of the ideas for creating exams in the article "Creating Exams" from the Eberly Center, Teaching Excellence & Educational Innovation, at Carnegie Mellon University, are appropriate for constructing tests for middle and high school students. This article includes the following points for consideration before writing test items:

- Choose item types that are appropriate for your objectives.
- Highlight how the exam aligns with course objectives.
- Write instructions that are clear, explicit, and unambiguous.
- Write instructions that preview specifics about the exam.
- Word questions clearly and simply.
- Think about how long it will take students to complete the exam.
- Carefully determine the point value of different question types.
- Think/plan how points will be allocated for test items.

Writing objective test questions, such as multiple-choice items, can be a challenge. "Creating Exams" includes a list of 14 important rules for creating objective test questions.

"Constructing Classroom Achievement Tests," by Ruth Axman Childs, ERIC Digest, provides important principles for writing good test questions. This article overviews the three steps of test construction: designing the test, writing the questions (guidelines for writing

different types of questions are given), and checking the test for construction problems. Also, it includes suggestions for interpreting the outcomes of the test.

The article "Designing Test Questions" from the Center for Teaching and Learning at the University of North Carolina, Charlotte, lists several categories of test questions: true/false, matching, multiple choice, short answer, and essay. Oral exams, student portfolios, and performance measurements are included also. Appropriate uses and advantages and disadvantages of each type of test item as well as tips for preparing these test items are given. These pointers can be used for writing tests for middle and secondary school students.

"Is This a Trick Question? A Short Guide to Writing Effective Test Questions" was developed by the Kansas Curriculum Center to serve as a source book to help teachers learn more about assessment in general and to construct appropriate test items for various learning objectives. This 63-page booklet is informative and well organized.

"Good, Better, Best: Multiple Choice Exam Construction," a document from Duquesne University, Center for Teaching Excellence, gives an analysis of poorly written multiple choice items and follows that analysis with examples of well-written multiple choice items. Specific problems in writing good stems and alternatives for multiple choice exams are discussed. This material is appropriate for writing items for middle and secondary school students.

Some publishers have created test banks which can be adapted to specific summative assessments. However, the use of items at the end of textbooks, in test banks, etc., should be used with caution to be certain they serve the teacher's purposes well. Since these items are created to serve teachers in many school systems, they are not written to focus on the standards for the courses taught in a specific school. Sometimes they are not created according to good test construction principles.

Rubric Creation and Use

A rubric can serve as a pre-assessment scoring tool that enables teachers to inform students of the expectations for an assignment. The criteria on which the component parts of an assignment will be judged and the levels of quality for each component part are described. The component parts correspond to course standards that students should achieve for particular assignments or work.

As assessment tools, rubrics help teachers communicate to students specific requirements and acceptable performance standards to meet course standards. Also, rubrics help teachers be consistent and objective in grading because the assessment criteria are clearly defined in appropriate gradations. Depending on the subject matter and the purpose of the activity, appropriate labels for the gradation are determined. For example, "Excellent," "Good," "Acceptable," "Needs Improvement" might be the labels used. A description of what each label means should be included along with a numerical equivalent of that label which will facilitate combining performances on the component parts. An example of a rubric for grading an oral communication is shown on page 13.

Students should understand the assessment rubric that will be used for grading prior to beginning a project. This understanding will enable them to know what is expected to attain a particular level of proficiency. Rubrics can be used as formative, as well as summative, assessments to help students make progress toward the final goal.

Teachers should prepare rubrics that fit their standards and expectations. However, rubrics available from other sources may be used if they are adapted to the performance expectations of the teacher. Eberly Center, Teaching Excellence & Educational Innovation, Carnegie Mellon University describes the essence of rubrics in the following definition:

A rubric is a scoring tool that explicitly represents the performance expectations for an assignment or piece of work. A rubric divides the assigned work into component parts and provides clear descriptions of the characteristics of the work associated with each component, at varying levels of mastery. Rubrics can be used for a wide array of assignments, including papers, projects, oral presentations, artistic performances, and group projects. Rubrics can be used as scoring or grading guides or to provide formative feedback to support and guide ongoing learning efforts.

Sources of information about rubrics, strategies for developing rubrics, and examples that may be adapted for use in middle and secondary school include:

"Secondary Rubrics," from the West Virginia Department of Education, provides links to a variety of rubrics for different purposes and content for secondary school use.

"How Do Rubrics Help?" from Edutopia, discusses the purposes of rubrics and provides links to websites for review of sample rubrics.

"What Are Rubrics and Why Are They Important?" from an ASCD book by Susan M. Brookhart, discusses the purpose of rubrics and lists the types of performances that can be assessed with rubrics as well as the advantages and disadvantages of different types of rubrics.

"Using Rubrics," from the Cornell University, Center for Teaching Excellence, discusses the benefits of rubrics and provides some online rubric resources that can be adapted to middle and secondary school.

"Journaling and Rubrics: The Pleasure and the Pain," from the University of Delaware, Winter Faculty Institute, January 2006, focuses on outcome-based assessment through journaling and rubrics.

"Developing and Using Instructional Rubrics," from Educational Research Service, a nonprofit research organization, discusses benefits of rubrics and provides examples of rubrics and criteria for evaluating them.

The time and reflection required for preparing and using quality assessment instruments will pay dividends in the development of student skills, understanding, and higher-order thinking.

Oral Presentation Rubric

(Created by Alison Fluharty (adapted from Secondary Rubrics, October 2015)

Name: _____ Class Period: _____ Date: _____

CATEGORY	4--Excellent	3--Good	2--Acceptable	1--Lacking
Preparedness	Student was completely prepared and had obviously rehearsed.	Student seemed generally prepared but more rehearsals needed.	The student was somewhat prepared, but it was clear that rehearsal was lacking.	Student did not seem prepared.
Presentation of Information	Stayed on topic all (95-100%) of the time. Ideas were organized and sequenced with a definite beginning, middle and interesting conclusion.	Stayed on topic most (85% minimum) of the time. Topics were organized so ideas could be followed easily.	Stayed on topic some (70% minimum) of the time. The sequence of the topics made them difficult to follow.	It was hard to tell what the topic was. It was difficult to follow the line of thought.
Eye Contact	Made eye contact with the audience throughout the presentation. Worked independently of notes.	Made eye contact with the audience during the presentation. Was not dependent on notes or prompts from others.	Made some eye contact with the audience during the presentation. Was somewhat dependent on notes or prompts from others.	Was unable to make eye contact with the audience during much of the presentation. Was dependent on notes or prompts from others.
Speaking Skills	Spoke clearly and distinctly all (95-100%) of the time; had good inflection and volume; mispronounced no words. Used appropriate body language or gestures to convey meaning.	Spoke clearly and distinctly all (85% minimum) of the time; used some inflection and had good volume; mispronounced few words. Used body language or gestures to convey meaning.	Spoke clearly and distinctly most (70% minimum) of the time, volume was inappropriate at times (too low or excessively loud). Mispronounced some words. Used some body language or gestures to convey meaning.	Often mumbled or could not be understood and/or mispronounced several words. Used no body language or gestures to convey meaning.
Time-Limit	Presentation was 5-6 minutes long. _____minutes	Presentation was 4<5 minutes long. _____minutes	Presentation was 3<4 minutes long. _____minutes	Presentation was less than 3 minutes OR more than 6 minutes long. _____minutes

Comments:

Classroom Grading Practices

Summative assessments, based on the achievement of course standards, provide the most accurate input for determining grades. Teachers/school systems must address many issues and concerns with regard to using appropriate summative assessments. As noted previously, summative assessments are used to determine whether students have met course standards. Therefore, they must be standards based. Plans for determining course grades for students should be made prior to the beginning of a school year or semester so students will know what to expect and so the information can be included in the course syllabus. The plan used should assure grades will be calculated in a fair and consistent manner.

The points presented here are based on the 2011 Hanover Research Report titled "Effective Grading Practices in the Middle School and High School Environments" (Hanover Research examined commonly recommended grading practices for middle and high school teachers). Many important aspects of standards-based grading are discussed in this report. The report includes a discussion of what should be included in grade determination. Questions such as, "Should behavior and participation and other non-academic factors be included in the grading?" were considered. Teachers may wish to explore the report, which contains the following three major divisions:

> Section One examines the theory behind various grading practices. This section explores how achievement-based practices, such as standards-based grading, have come to be highly recommended over more traditional methods. It includes a discussion of the practices, specifically those advocated by standards-based grading, that are now encouraged by educators and academics.
>
> Section Two discusses the effects and effectiveness of standards-based grading practices for both teachers and students. This section considers the reactions of teachers, students, and parents to new standards-based grading systems.
>
> Section Three profiles a number of standards-based grading programs in place at middle schools and high schools across the country.

In examining the theory behind various grading practices Hanover Research (HR) compared standards-based grading practices, now encouraged by educators, with traditional methods. Their research indicated that standards-based grading practices (using assignments and tests that assess students' achievement of standards based on course material) more effectively measure student performance than traditional grading practices. All grading systems incorporate academic achievement; however, frequently many nonacademic factors are included in traditional grading practices. HR compiled a list of grading practices that make grades inaccurate. A brief discussion of these practices reported in HR, pages 9-16, follows:

> **Grading for Behavioral Issues.** When classroom behaviors such as class participation, homework completion, punctuality, bringing materials to class, returning signed cards/documents to the teacher, etc., are incorporated into grades, students who do these nonacademic things well will have inflated grades. Their grades do not reflect mastery over the material, and they may have higher grades than students who have proficiency and understanding of the academic work but did not do well on the classroom behaviors. Including nonacademic factors in grading for motivation or punishment purposes only distorts the grades. One solution to the problem is to report data for behavioral and other non-academic factors separately.
>
> **Incorporating Teacher Expectations and Judgments into Grades.** Grading practices which are heavily influenced by teacher expectations, as well as moral judgments, can cause students to achieve grades that do not accurately reflect their academic performance. Teachers should not consider their expectations of students or their moral judgment of them when calculating grades.
>
> **Using Zeroes as Punishment.** When zeroes are given assignments as punishment for incomplete work or student misbehavior, students' grades will be negatively skewed. Some educators have observed that assigning students "Incompletes" for work not turned in or not completed satisfactorily and requiring that the work be done outside of regular class time is more in line with "real world" practices. The consequences of failure to complete a task do not negate the need to do the task in the real world. Taking a few points off for each day an assignment is late could be used as a penalty. Perhaps giving students two different grade reports—one for the academic quality of the work and one indicating the ability of the student to turn in work on time—could be used.
>
> **Using Point Systems and Averages**. Calculating grades using a point system that values assignments equally over the course of a semester can distort recognition of a student's academic accomplishments. If students receive a bad grade or two early in the semester,

their grades are adversely affected even if they significantly improve their performances during the semester. Weighting grades more heavily toward the end of the semester or using the median rather than the mean to calculate grades could help remedy this situation. A grading scheme based on points for various components of the grade can be used to place the desired weight on each component.

Grading Homework and Other Formative Assignments. As noted previously, formative assessments are for the purpose of providing feedback to students and helping them prepare for summative assessments that address the extent to which they are achieving academic standards. If homework and classwork are not "graded," will students treat them as an important part of their work? HR reported on the success of educators who replaced grades for homework and other formative exercises with extensive and specific feedback. This procedure made students aware it was important to complete these assignments. One study reported by HR found that providing specific feedback (without grades) did not change the completion rate of students regarding homework assignments.

Grading on a Curve. Grading on a curve (norm-referenced grading) assigns grades on the basis of how students did in comparison with the class as a whole. It shows the performance of a student relative to the performance of other students in a class. However, the relative performance of students is not the course standard. By definition, grading on a curve means that some students will be at the bottom of the scale. Grading on the basis of course standards (criterion-referenced grading) eliminates these problems. Standards-referenced grading measures the performance of students against the learning standards which convey what students are expected to know and be able to do at a specific point in the course (or at a certain stage in their education). Standards-referenced grading should incorporate summative assessments. Formative assessments are important in focusing students' attention on what they need to improve. They provide feedback on which teachers can make adjustments in their instruction. Students may be permitted to do "do-overs" on formative assessments (following additional practice and/or instruction) to help prepare them for summative assessments. Thus, formative assessments make important contributions to success on summative assessments.

Allowing Students to Receive Extra Credit. Giving students extra credit distorts grades and the determination of whether students have concept mastery and/or performance competency. If extra credit is given for non-academic "help" in the classroom or if it is given for completion of an extra "academic assignment," it is being given for extra effort rather than for academic proficiency. The practice of giving extra credit undermines the meaning of a student's grade.

The HR report included quotations from some middle and high school teachers who were considering the use of standards-based grading ("Effective Grading Practices in the Middle

School and High School Environments," pages 21-25). Positive reactions included the following (with minor paraphrasing):

> If we base our grades on standards rather than attendance, behavior, or extra credit (which often has nothing to do with course objectives), we can actually help students grapple with the idea of quality and walk away with a higher degree of self-sufficiency.
>
> When we decided to limit the weight of formative assessment, teachers expressed the concern that students would stop completing daily assignments because they were worth so little. Yet the scores on the summative assessments were strong. This has caused a critical analysis of homework in our buildings and raised the question: "Do daily assessments support the learning goals for the unit?"
>
> From social studies and science teachers: "Work harder" becomes "work harder on understanding the causes of World War II" and "pay more attention in class" becomes "you need to be able to discuss the steps of photosynthesis." These changes foster an environment of assistance and learning, rather than resentment and frustration. No one wants to fail, but no one wants to guess as to how to pass. Specifics that are based on learning targets are key to this culture change.

Teacher comments that raised concerns about standards-based grading included the following (minor paraphrasing has been used):

> Sixth grade students do not understand that assignments are designed for them to practice specific objectives and hone their study skills. I know that my students will not do assignments that they are not held accountable for. They have already become in tune with teaching practices of not taking grades on everything and often ask whether I am taking a grade on an assignment. Translation: "If you aren't taking a grade, I'm not going to bother doing the assignment."
>
> We are supposed to be measuring achievement, not work ethic. However, I feel there does need to be some kind of penalty for late work. Otherwise, why complete the assignment on time? What happens if you pay a bill late? You get a late fee! Some deadlines in the real world can be flexible and if a student comes to me in advance about a problem with meeting a deadline, I'm flexible too.
>
> We are told, "Don't factor attendance into grades." I would love to know how your district deals with students who are habitually tardy for significant portions of the school day or have excessive absenteeism.
>
> Concerns about not giving zeroes for work not handed in were expressed. Also, there was fear that standards-based grades would not be motivational.

The following two references, pertaining to the Edmonds School District, Lynnwood, Washington, and the Excelsior Springs School District, Excelsior Springs, Missouri, respectively, provide additional discussion about standards-referenced grading. "Standards-Referenced Grading," Edmonds School District, contrasts standards-referenced and traditional grading practices as well as formative and summative assessments. It contains "Guidelines for Grading on the Progress Report" in a standards-referenced system. A section on "Grading Students in Special Programs" is included also. "Assessment & Grading Handbook" presents grading practices for the Excelsior Springs School District. Four district grading practices are listed and the benefits of each are discussed (pages 4-7). On pages 10 and 11, answers to frequently asked questions about standards-based grading are provided. The roles of formative and summative assessment and a contrast of traditional and standards-based grading are discussed.

The following diagram, taken from "Assessment & Grading Handbook," page 8, summarizes the contrast between traditional and standards-based grading. This diagram makes clear that many traditional grading practices do not facilitate mastery learning.

Traditional Grading System Versus Standards-Based Grading System	
Traditional	**Standards-Based**
Based on assessment methods. One grade per subject.	Based on learning goals with a grade for each.
Based on a percent system; often norm-referenced; criteria not clear.	Criterion-referenced and proficiency-based using a limited number of levels with criteria and targets known to all.
Uses an uncertain mix of achievement, attitude, effort, and behavior. Uses penalties and extra credit.	Measures only achievement; behaviors reported separately. No penalties or bonuses given
Includes group scores.	Includes individual evidence only.
Scores and includes everything regardless of purpose.	Uses only summative assessments for grading.
Includes every score regardless of when it was collected.	Emphasizes the more recent evidence of learning.
Grades are calculated using the mean.	Uses median, mode, and professional judgment to determine grades.
Assessments vary in quality. Some evidence comes only from teacher recollection.	Uses only quality assessment and carefully recorded data.
The teacher makes decisions about grading and announces these decisions to students.	The teacher discusses all aspects with students.

Standards-based grading, which is focused on the mastery of learning objectives, must be accompanied with appropriate grading practices. "A Repair Kit for Grading: 15 Fixes for Broken Grades," by Ken O'Connor pinpoints many of the problems in traditional grading and summarizes solutions for them. His "repair Kit" is shown below. (O'Connor is an independent consultant who specializes in grading and reporting issues.)

A Repair Kit for Grading: 15 Fixes for Broken Grades by Ken O'Connor

Fixes for Practices that Distort Achievement

Fix 1: Don't include student behaviors (effort, participation, adherence to class rules, etc.) in grades; include only achievement.
Fix 2: Don't reduce marks on "work" submitted late; provide support for the learner.
Fix 3: Don't give points for extra credit or use bonus points; seek only evidence that more work has resulted in a higher level of achievement.
Fix 4: Don't punish academic dishonesty with reduced grades; apply other consequences and reassess to determine actual level of achievement. (Academic dishonesty may preclude determination of achievement level—a comment from the authors of this document.)
Fix 5: Don't consider attendance in grade determination; report absences separately.
Fix 6: Don't include group scores in grades; use only individual achievement evidence.

Fixes for Low-Quality or Poorly Organized Evidence

Fix 7: Don't organize information in grading records by assessment methods or simply summarize into a single grade; organize and report evidence by standards/learning goals.
Fix 8: Don't assign grades using inappropriate or unclear performance standards; provide clear descriptions of achievement expectations.
Fix 9: Don't assign grades based on student's achievement compared to other students; compare each student's performance to preset standards.
Fix 10: Don't rely on evidence gathered using assessments that fail to meet standards of quality; rely only on quality assessments.

Fixes for Inappropriate Grade Calculation

Fix 11: Don't rely only on the mean; consider other measures of central tendency and use professional judgment.
Fix 12: Don't include zeros in grade determination when evidence is missing or as punishment; use alternatives, such as reassessing to determine real achievement or use "I" for Incomplete or Insufficient Evidence.

Fixes to Support Learning

Fix 13: Don't use information from formative assessments and practice to determine grades; use only summative evidence.
Fix 14: Don't summarize evidence accumulated over time when learning is developmental and will grow with time and repeated opportunities; in those instances, emphasize more recent achievement.
Fix 15: Don't leave students out of the grading process. Involve students; they can—and should—play key roles in assessment and grading and promote achievement.

Although the use of a totally standards-referenced grading system may not be possible in many situations, the advantages and disadvantages should be looked at objectively. Ways to implement grading practices that support learning and eliminate factors that make grades inaccurate should be pursued. Students, parents, and administrators need to understand how the grading is done. Research on the effectiveness of standards-referenced grading continues. Making changes in assessment that contribute to student achievement of standards that are accurate and meaningful is a step worth taking.

Academic integrity is an essential component of student learning. Obviously, achievement of standards does not represent an achievement if it is not based on honest intellectual behavior.

Student Cheating

Cheating in school is not a new problem. However, technology continues to make it easier and even more common. According to "Cheating in School: Facts, Consequences & Prevention," February 24, 2014, by Middle Earth, technology is used for cheating in the following ways:

- Kids have programmed answer sheets into their iPods or recorded course materials into their MP3s and play them back during exams.
- Students have text-messaged test questions (or used their camera phones to picture-message tests) to friends outside the classroom.
- When essays are assigned, some students simply cut and paste text from websites directly into their papers.

- Some students prep for pop quizzes by inputting math formulas or history dates into their programmable calculators.
- Students can buy term papers from a growing number of online "paper mills," such as schoolsucks.com, for up to $10 a page.

This 2014 article reported that in a recent survey of 18,000 students at 61 middle and high schools, 66 percent admitted to cheating on exams; 80% had let someone copy their homework; and 58% had committed plagiarism. There is no doubt that cheating is a widespread problem.

In a research-based white paper, "Cheat or Be Cheated," from Challenge Success 2012 (founded at Stanford University's Graduate School of Education) five misconceptions about cheating in K-12 education are identified and the reasons why students cheat and what we know about how to prevent cheating behavior are discussed. This paper, page 6, provides suggestions for what educators can do to curb cheating behavior and to encourage integrity.

Another Middle Earth article, titled "10 Reasons Why Cheating Is Wrong," lists their top ten reasons for why cheating is wrong. These 10 items could be used as a basis for discussions with students regarding the problems cheating creates.

Additional articles that address various aspects of cheating, including plagiarism, are listed below:

- "Cheating in Middle School and High School," a 2007 article from *The Educational Forum*, provides facts about the extent of cheating, reasons for cheating, and the problem of plagiarism. The abstract of this article includes the following: "There is increasing concern about cheating in the secondary schools. This article describes the prevalence of dishonesty in testing, motivation for student cheating, new forms of deception using technology tools, initiatives to protect security of tests, methods students use to obtain papers without crediting the original source, tools for detecting plagiarism, guidelines to minimize cheating, emergence of cyber laws defining offenses and penalties and rationale for getting parents involved in supporting academic integrity and ethical behavior."
- "Who's Cheating Whom?" A 2007 article by Alfie Kohn in the *Phi Delta Kappan*, addresses several causes of cheating, and cites competition which involves comparing a student's standing in relation to other students in the academic environment as having a negative impact on the goals of education.

- "Changing Cheaters: Promoting Integrity and Preventing Academic Dishonesty," a 2004 Character Counts document, which includes three major sections: "Defining the Problem," "Strategies to Promote Integrity," and "Strategies to Stop Cheating." Each of these sections is divided into several subsections focused on specific aspects of the three major divisions listed above.
- "Promoting Integrity and Preventing Academic Dishonesty," adapted from the Josephson Institute of Ethics "Honor Above All" Manual, describes types of academic dishonesty; lists common rationalizations for cheating and provides appropriate responses to them; and prescribes measures for preventing cheating and plagiarism.

It is clear from the information presented in the articles referred to in this material (and probably from the personal experience of the readers of this document) that cheating is a serious problem in elementary, middle, and high schools, as well as in colleges. However, as discussed in the references listed, there are many ways through which student engagement with learning can be improved and through which cheating problems can be reduced. Academic integrity is a standard that students and teachers must uphold.