

Grading High-School Science Work

Motivation comes in all forms with high-school students. Some are motivated to learn because of various fears; others, because of the possibility of success and prestige. For most young people, it is a little of both. In a perfect world, all of us would be motivated to learn because of an intense desire to “know everything.” In fact, we start out that way. We do not have to assign grades or give assignments to babies to make sure they build their blocks or learn how to talk. They learn because learning opens up totally unexplored territory to them and it excites their curiosity. But as we get older, the exciting days of learning often give way to busywork and boredom, especially as peer relationships and activities outside the classroom become more important. In the BJU Press science materials, we encourage young Christian minds to approach the study of science as a thoroughly Christian thing to do. By learning that true science is about studying God’s creation to uncover the secrets He has hidden in nature for His glory, students become motivated again. True science is an affirmation of Scripture, which is edifying to the students’ faith. Therefore, in a well-taught science class, grades should not be the principle, or even an important motivator for students.

Although assigning grades is an imperfect process, it is the best way we have at this point to gauge the success of imperfect people. As a science teacher, you must be able to strike a balance. You are a guide in leading your students from the point of misinformation and ignorance to the point of knowledge and understanding. Christian teachers must not forget that compassion has a place in every classroom. On the other hand, you must set your standards high enough that students are challenged and focused. Please consider the following recommendations concerning grades:

- 1. Grade on a point system.** Each homework assignment, test, or lab should have a point value assigned to it. Using a point system removes some of the subjectivity to grading. At the end of the grading period, the percentage of points each student has earned will determine his grade (dependent on your grading scale). You may want to assign different point values to different types of questions. For instance, a question that can be answered from choices visible on the paper is assigned one point. Answers that must be provided from memory or through reasoning are assigned two points. Essays or questions involving calculations may be assigned additional points. Be sure students know what your point system is. The grade for a quiz or test is the percentage correct of the total points on the paper.
- 2. Weight your assignments.** No student will have a complete understanding of a topic at the early stages of his or her study. To avoid giving disproportionate weight to these early assessments, daily homework and section quiz grades should not be counted equally with lab assignments, tests, and long-term projects. You can weight your various grades by several different methods, but the easiest is multiplying the final grade for each area by the percentage of the total grade that it represents. Be sure that all your percentages add up to 100%! Then add the resulting weighted partial grades to obtain the composite grade. (Use a spreadsheet or commercial grade book software for this work.)

Example of Weighting Assessment Areas:

	Grade End of Period	Percentage	Weighted Grades
Section Homework	52	10%	5.2
Quizzes	68	15%	10.2
Labs/Investigations	93	30%	27.9
Papers/Projects	88	25%	22.0
Chapter Tests	86	10%	8.6
Class Participation	<u>90</u>	<u>10%</u>	<u>9.0</u>
Totals/Averages	79.5	100%	82.9
	(simple average)		(weighted average)

- 3. Be careful regarding class grade distribution.** Some teachers have the philosophy that the grades in their class should resemble a bell curve (also known as a Gaussian distribution curve). For example, in a class of 25, the teacher has determined before the school year begins that 3 students will get A's, 4 will get F's, and everyone else will fall neatly in between "on the curve." This practice has severe problems, not the least of which is relegating student achievement to a predetermined math function. Your students' abilities will not fall on a bell curve, and you should not expect their grades to do so either. If a bell curve results after you compute your class grades, that's fine—but don't force the grades to fit the bell curve.
- 4. Adjust test or paper grades judiciously, if at all.** There is nothing wrong with adjusting grades that you think are flawed because of misinformation or lack of sufficient teaching. However, if you adequately prepared the students for a test and many did poorly anyway, then don't "curve" it—but do explain to them why you are not going to do so (lack of attention in class or poor study skills, for example). Students appreciate a firm stand from you, but not stubborn adherence to preconceived expectations. If adjusting grades is often necessary, you need to reevaluate the level of your teaching, the ability of the class, your method of assessment, and/or even recurring schedule factors that may interfere with proper test preparation, such as mid-week evening church services or away athletic games.
- 5. Recognize students' effort.** Assigning grades is not just a mechanical process performed by a spreadsheet program. Students struggle with science because of unfamiliar terms and the higher thinking skills involved. Some students may require accommodations for their particular learning styles or learning difficulties, such as reading test and quiz questions to them or taking oral answers from them. Only by becoming personally involved with each student can you assess if he is working up to his potential. If you are giving the student a poor grade on his report card but you have seen some honest effort, let him and his parents know. Some schools use report card comments; others have special "effort grades." Failing a student that is not working up to his potential is a signal to him and his parents that he needs to apply himself more. For a student with low ability who consistently applies himself, assigning a low but non-failing grade documents his academic performance without the stigma of failure.
- 6. Be able to defend the grades you assign.** Accuracy in grading is very important, and the more information parents and students have, the better. There are several software programs available commercially that will allow you great latitude in informing students of their progress. Not only do such programs simplify your life by organizing class grades, but they also instantaneously calculate averages so that you can print out grade summaries. This helps reduce grading errors on your part because the student can see his grades for each assignment, not just an overall grade. Note that you should still keep a paper grade book in addition to electronic files. (This is a requirement in many states.) If you want to be creative with weighting your assignments and find commercial software too constraining regarding such options, you may prefer a spreadsheet program, such as Microsoft's Excel™, which permits you to format your input exactly the way you want and allows you to create formulas and automated functions to provide the output you need.