Grading for Growth

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The purpose(s) of grades

Grades are a proxy for which of these?

▶ amount of work done
▶ level of understanding
▶ facility with ideas/techniques
▶ adherence to rules
▶ amount of growth over the semester

Answer could include any or all of these.

Do the grades we give accurately reflect and communicate what our expectations are, and how well students are meeting them?
Many traditional grading schemes:

- collapse information (e.g., by taking averages)
- distract from more detailed feedback (by giving assignments “overall” grades)
- reinforce self-image as a certain “type” of student
- require tinkering (e.g., “curving” grades)
- obscure connection between expectations and final grade

These can be overcome to an extent, but often it seems that grades are working against our efforts to communicate.
My goals for grades

- Let students see what they’re doing well
- Indicate to students where improvement is needed
- Elicit meaningful responses to feedback
- Accurately reflect students’ progress towards mastery
- Promote the idea that growth is possible and supported
In SBG, grades are tied to specific skills that students must master (*not* to assignments).

I will describe my implementation of SBG; other instructors have adopted more or less elaborate systems.

**Basic framework:**

- Course content split into 20–30 *standards* (or “skills”, or “skill sets”), approximately 2–3 per instructional week
- All summative assessment based on standards (2–3 for quiz, 8–10 for exam)
- Final grade accounts for level of mastery across all standards
What my syllabus says

The possible scores for a standard range from 0–4.

0 – *no basis for assessment*
1 – *novice ability* “I have some idea of what this means.”
2 – *basic ability* “I can use this with some guidance.”
3 – *proficiency* “I can use this effectively in familiar situations.”
4 – *mastery* “I can use this effectively in both familiar and new situations.”

Each time a standard is assessed, score is updated (replaced). In order to guarantee:

<table>
<thead>
<tr>
<th>a grade of</th>
<th>the student must demonstrate</th>
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<tbody>
<tr>
<td><strong>A</strong></td>
<td>mastery in at least 90% of the standards and proficiency in the rest</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>proficiency in at least 90% of the standards and basic ability in the rest</td>
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<tr>
<td><strong>C</strong></td>
<td>basic ability in at least 90% of the standards</td>
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## Grading Standards for MTH 111, Calculus 1
### Spring 2015, Smith College

<table>
<thead>
<tr>
<th>Standard</th>
<th>Score (0–4)</th>
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<tbody>
<tr>
<td>C.1 Average and instantaneous velocity</td>
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<tr>
<td>C.2 Derivative at a point</td>
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<tr>
<td>C.3 Continuity</td>
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<tr>
<td>C.4 Limit at a point</td>
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<tr>
<td>C.5 Further notions of limits</td>
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<tr>
<td>C.6 Derivative as a function</td>
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<tr>
<td>C.7 Interpretations of derivatives</td>
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<td>C.8 Second derivatives</td>
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<tr>
<td>C.9 Powers and polynomials</td>
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<tr>
<td>C.10 Exponential functions</td>
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<tr>
<td>C.11 Differential equations as models</td>
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<tr>
<td>C.12 Product and quotient rules</td>
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<tr>
<td>C.13 Chain rule</td>
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<tr>
<td>C.14 Trigonometric functions</td>
<td></td>
</tr>
<tr>
<td>C.15 Inverse functions</td>
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<tr>
<td>C.16 Implicit differentiation</td>
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</tbody>
</table>
My grade book

Example: first two quizzes and an exam over the same material

Final scores for the semester and assigned letter grades

Color-coding helps identify which skills need reviewing for whole class and which students need most additional support.
Reassessment

Once a standard has been formally assessed on a quiz or exam, students should have the opportunity to demonstrate a greater level of mastery, if they wish.

I have students arrange a time to meet with me, usually during office hours, to work on questions related to the standard, which we then discuss. About 15 minutes per reassessment.

I limit the number of standards that can be reassessed to two per student per week.

FAQ: Doesn’t this take up all your time?
My answer: This is time I would want to spend talking with students anyway, and time spent reassessing is preferable to counseling a concerned student through some other grading system.
Another possible scoring rubric

From “EMRF: Everyday Rubric Grading” by Rodney Stutzman and Kimberley Race
Another approach: Specifications Grading

(Developed by Linda Nilson)

3 main features:

- All assignments are described very carefully by “specs” and graded pass/fail (or satisfactory/unsatisfactory), with “pass” set at B-level work (doesn’t have to be perfect)
  - Variation (used by Robert Talbert): pass/progressing/fail

- Use “token system”: students have fixed number of tokens for the semester, which can be exchanged for opportunity to revise an unsatisfactory assignment

- “Bundle” assignments into requirements that must be met for certain final letter grades (e.g., one set of requirements for C, to get B or A requires additional or more difficult work—not every student has to do everything)
Some benefits of SBG

For students:
▶ Targeted feedback
▶ Opportunity to demonstrate improved level of mastery, without suffering from early setbacks
▶ Reduced focus on grades, heightened focus on learning

For me:
▶ Ensure material is covered evenly (standards vs. syllabus)
▶ When creating assessments (exams, quizzes), have clear notion of what should be included
▶ Fruitful conversations with students during reassessments

Additional benefit: explicit list of topics that can be compared with other versions of same course
Some tips in using alternative grading

▶ Be clear with students about how your system works, why you’re using it, and how it connects with their final grades.
▶ (For SBG:) Keep the number of standards manageable, and use the list of standards to balance your syllabus.
▶ Have clear, simple ways for students to demonstrate improvement, while still holding them accountable (e.g., reassessments or resubmissions of work).
▶ End-of-semester crunch time! Last chance for reassessments before final exam, so limit how many can be done during this period and set up a scheduling system.
▶ Consider how assessments on final exam will fit into your system (I take scores from final, if higher, or average with previous, if lower).
Resources

Shawn Cornally’s blog “Think Thank Thunk”,
http://shawncornally.com/wordpress/

List of published articles on SBG (collected by Matt Townsley):
tinyurl.com/SBGLiterature

Linda Nilson’s book Specifications Grading: Restoring Rigor,
Motivating Students, and Saving Faculty Time

Twitter hashtags: #sbg, #sbgchat

Google+, other blogs, etc.