

A Collection of Ideas for Secondary School Mathematics Teachers

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As a department, we wish to share our ideas with other teachers involved in teaching mathematics in secondary schools. In particular, we hope that our collection will assist beginning teachers and rural teachers. Hopefully, other people of our profession will also benefit from our practical collection.

1. Stress and mark important points in your classroom teaching.
2. Vary the beginning of a mathematics class. Some suggestions for variation:
 - (a) Practice mental mathematics.
 - (b) Demonstrate the application of mathematics - charts, newspapers, letters from federal and provincial governments, and so on.
 - (c) Use brain teasers - puzzles.
 - (d) Discuss good study techniques - provide handouts.
 - (e) Review key ideas of last day's work.
 - (f) Short quiz - oral or written - could be an arithmetic quiz.
 - (g) Tell a joke.
 - (h) Demonstrate mathematical models.
 - (i) Clearly indicate objective or objectives of class period.
(This should be done in every class period.)
 - (j) Discuss some aspect of history of mathematics.
3. There are various ways of providing for individual differences:
 - (a) Independent study. Careful selection of students is necessary. A good deal of helpful information is available to select students for independent study.
 - (b) Varying daily assignments.
 - (c) Remedial classes.
 - (d) Enrichment for the gifted.
 - (e) Discovery lessons.
 - (f) Mini-pak approach.
 - (g) Circulate in class to provide for individual students.
 - (h) Tutorials by teachers.
 - (i) Allow better students to tutor weaker students in small groups.
 - (j) Vocational and consumer mathematics courses.
 - (k) Supervised study periods.
 - (l) Student involvement in classwork.
 - (m) Whenever possible, begin at the concrete level.

(n) Audio-visual presentations.

(o) Provide an adequate number of examples.

Note: The above is not an all-inclusive list. It does indicate that no one method can be used to provide for individual differences successfully.

4. Attempt to present lessons in unique ways in order to draw students' attention.
5. Make a sincere effort to demonstrate the applicability of mathematics.
6. Summarize your ideas or encourage students to summarize them.
7. Involve people in speakers' bureaus in your mathematics education.
8. Organize a class into groups of two, select a problem, let students do it, check, answer and discuss. This is a form of a "buddy" system.
9. Use response books to check work. Students do their own checking while teacher circulates to assist them individually.
10. Let students make up problems related to classwork you are doing. Exchange these problems with other students. Let the other students do them.
11. Allow students to make up examples as you teach.
12. Occasionally, spend some time discussing student concerns.
13. Discuss news items that may or may not pertain to mathematics.
14. Allow students an opportunity to talk about their life history. You may wish to tell them something about yourself.
15. Introduce a new topic with a problem.
16. Examine a new topic from a historical viewpoint.
17. Wherever possible, use an active approach to get the students to learn by doing. You may have to motivate students, because certainly not all students are self-motivated to learn mathematics.
18. Challenge better students. Expect intellectual effort from your students.
19. Sometimes, the lecture approach is the best to use with very able and mature students.
20. Have certain students' names on blackboard prior to beginning of class. These students would be required to do certain problems on the board.
Example: #1) Sally #2) Susan #3) Lynn
 #4) Dennis #5) Shirley
21. Discuss literature, announcements or events of a particular interest to that grade level.
22. Let students do a problem related to previous day's work. Row competition could be used to see which row does best.
23. Give any interesting information regarding a student(s) involvement in any extra-curricular activity.
24. Give student *positive* comments when due.
25. At times, one could let students stand, stretch and move. This could be a good idea for a class break (Monday morning or any other time as seen fit).
26. Have students close their books and place pencils or pens down before you start teaching.
27. Attempt to treat students as individuals, but demand a degree of rigor from them.

28. At the beginning of a school term, set up a schedule of course events for the students. Though this schedule may be tentative, it is comforting for students.
29. Use chapter tests in texts as regular or review assignments.
30. Provide a variety of types of questions on examinations.
31. Admit you are incorrect when you make an error in class.
32. Always prepare adequately before you teach a lesson.
33. Discuss openly topics of mutual interest to the students and yourself. Healthy digressions never hurt anyone.
34. Be prepared to explain relationships between the topic under discussion and the real outside world - that is, point out the application of theory.
35. Recognize minority or individual views, but stress the democratic ideal of majority rule - for example, arriving at term marks.
36. Command respect, and you will get it. There is a fine line between you and the students. Make them aware of it without making them feel that you are unapproachable.
37. Take a humanistic approach toward students as much as possible.
38. Be flexible. Things will not always work out the way you planned them.
39. Try to involve the whole class. Students are quick to notice when certain people are left out.
40. Vary your approach. Even the highly academic student will get fed up with pure mathematics.
41. For slower streams, attempt to deal with practical topics. Avoid getting involved in abstract concepts all the time.
42. Take the time to meet students or groups of students outside the classroom. This is a good technique to develop student rapport.
43. Assess yourself as a teacher. Where can you improve? How?
44. Attempt to get students to feel that what they are doing in their classes is important.
45. Give special assistance in how to study, how to use the text or texts, how to locate information in order to promote individual progress.

