

# **What are my RESPONSIBILITIES**

## **as a teacher of mathematics?**

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The overriding responsibility of the teacher of mathematics is to provide the mathematics student with the best possible opportunity to learn mathematics. In satisfying this responsibility, the teacher has the two responsibilities of doing the best job of which he is now capable, and working continually to increase his capacity to do a better job by improving himself and those about him.

Considering these two responsibilities, the responsibility to do the best job possible with present capacities needs little elaboration. But what of the other responsibility? What does the teacher do to increase his capacity for doing a better job? This second responsibility in turn suggests several responsibilities.

Too often, when the mathematics teacher considers the question of increasing his capacities, he looks to the college or university. This need not be the case. Consider each of the following responsibilities having an increased capacity as its end result.

### *1. RESPONSIBILITY TO READ PROFESSIONAL JOURNALS*

No other means is so available to the teacher to keep abreast of the newer developments in mathematics education than the professional journal. There is more gained for time spent through this reading than through any other one thing. In the professional journal one finds suggestions for presentation of certain mathematical topics as well as information of new developments and trends. One need not spend the time to read every word of every article, but one should take the time to scan the journals and pick out those articles particularly appropriate for him.

### *2. RESPONSIBILITY TO STUDY MATHEMATICS*

The teacher of mathematics should be continually improving his understanding of mathematics. This need not be a crash program. It should be a gradual and continual thing. One may begin by merely acquainting himself with the mathematics taught by the other teachers in his school. The third grade teacher may begin by studying the seventh and eighth grade tests. The high school algebra teacher might study the trigonometry texts. After these are completed, the progress thus begun should be continued. There is no excuse for the elementary mathematics teacher of several years experience to complain that he has never had a course in algebra, or for the experienced high school teacher to complain that he has never had a course in trigonometry. These are things within his grasp. He should reach out and get them.

In the study of mathematics, the teacher has the responsibility to seek help from his fellow teachers, and teachers always have a responsibility to a

student of mathematics, even if that student is a fellow teacher. We all have the responsibility to share our knowledge and understanding. There have been instances of high school teachers setting up special sequences of lectures for elementary school teachers, publicizing this, and welcoming all elementary teachers who would come. There have been instances of two or more teachers banding together to support each other and share ideas in working through certain problems to increase their mathematical knowledge and understanding.

Whatever the device, the teacher should be increasing his knowledge continually. In order to be a good teacher, one must first be a good student.

### 3. RESPONSIBILITY TO ATTEND MEETINGS

Few teachers have considered this as being related to their improving themselves as teachers. Yet, it is usually only at these meetings that a teacher has opportunity to meet face to face with the national leaders, those who are instrumental in setting the direction and formulating the policies in this field. It is usually only here that these leaders can be engaged in informal conversation. Nowhere else is such an opportunity so readily available to the classroom teacher.

Meetings should not be considered only as a place where the teacher goes to absorb information, although they would be worthwhile if that were their only function. Of greater importance, the meetings provide an open forum for the exchange of ideas. If a teacher has a particularly good idea, this is a place where it can be expressed. If it is an idea which could influence general policy by expressing these ideas in informal gatherings with some of the national leaders, the teacher stands a better chance of seeing something done than if he keeps the idea to himself and expresses it only to his friends in his own school.

Only at these meetings does one find such a broad cross section of the mathematics teaching population. While this is true of state meetings, it is even more true of national meetings. Through his informal discussions, the teacher can determine what is being done to meet certain problems in other sections of the country. If he has an approach or an idea that should be shared, again it is here that it can be done. It is too easy for teachers to live in their own little worlds. Through sharing their ideas with others, they increase their own perspectives and broaden their own backgrounds.

### 4. RESPONSIBILITY TO PREPARE ARTICLES FOR PUBLICATION

If a teacher has a good idea, it should be shared. Not only does the teacher of mathematics have a responsibility to improve himself, he has also the responsibility to improve other teachers. In writing an article for publication, both of these ends are met.

In the course of preparing an article for publication, the teacher has to clarify and crystallize his own thinking on the topic. He must organize his information, and in so doing may gain new insight into that which he is presenting. Of course, when the material is published and is made available to others, the teacher is satisfying his responsibility there.

In summary, the responsibility of the teacher of mathematics to the student of mathematics takes him far beyond the immediate classroom. This list of responsibilities is by no means complete. Does this mean that the teacher who is not exercising these responsibilities is not a good teacher? No, not necessarily. However, the teacher who is not exercising these responsibilities, while he may still be an acceptable teacher, is not as good a teacher as he could be.

IT behooves each of us to ask ourselves if we are moving toward realizing our full potential as teachers and are giving our students the best we can offer. Are you the teacher who, at the end of 25 years of teaching, has 25 years of experience, or are you the one who has had one year's experience 25 times? Are you a teacher of mathematics, or someone merely holding down a job and holding a job down?

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# Flow Charting and Mathematics

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Many pupils experience difficulty or failure in mathematics and other disciplines as well because of their inability to proceed logically in the solution of problems. Much of this inability to solve problems can be attributed to the use of the formalized results of rote learning without having any concepts underlying the facts involved. The situation is further compounded by their frustrating experiences in regard to problem-solving which tends to undermine any confidence in their thinking abilities. Several pupils in slow learner classes have been observed to berate and downgrade themselves and their classmates with expressions such as "dumbie", "dodo", "dumbbell", and many other like expressions. With such a negative self-image and attitude of mind, it seems likely that scant achievement, if any, will be experienced by these individuals.

There are, no doubt, many different approaches to eradicating a negative self-image or attitude of mind. The underlying theme in all approaches must be to engage in activities that tend to lead to heightening self-confidence. Flow charting, properly and enthusiastically used, can be an excellent vehicle on which to develop such activities.

A flow chart is a pictorial outline of a sequence of steps to be accomplished to solve problems. It is actually similar to a road map in that it shows the routes from a starting point to an ending point. Any procedure involving a series of operations may be flow-charted. The skill of flow charting has been found to be very valuable, both in mathematics and in everyday life situations. Each flow chart is a linear diagram from start to end and there-