MATH ENRICHMENT CAMP REPORT

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During the summer of 1982, a one-week Mathematics Enrichment Camp was held at Capital University and involved 43 high school students with a staff of four instructors and two student counselors. Funding was provided by a grant from the Martha Holden Jennings Foundation. In order to give them a concentrated experience, students were required to live in the dormitory and eat in the cafeteria.

The motivation for holding such a Camp came from the recognition that there exists a critical shortage of certified and qualified mathematics teachers in the United States. Bringing high school students to the campus and involving them in types of activities and learning situations which would motivate them to consider teaching as a career was an effort to help this situation. Our two specific goals were: 1) to influence them to take as much mathematics as possible in high school, and 2) to convince them that they should consider mathematics teaching as a possible career choice.

Students from central Ohio high schools were invited to participate in the program. They were to have demonstrated good ability in mathematics and must have completed at least Algebra I. Of the 120 students who were nominated by their teachers, fifty were selected and invited to attend. If the program is repeated in the summer of 1983, the participants will be required to have a more extensive background in mathematics in order to avoid the wide range of abilities which caused some problems in 1982.

The selection of courses to be offered was based on the following critieria:

1. We should offer topics which would not duplicate what they could get in high school.
2. Subjects offered should be interesting and challenging.
3. We should offer topics which could be understood by a group with a wide range of backgrounds.

4. Due to the time restriction, it must be possible to select a few topics from each area and still excite the students about the subject.

Using these criteria, we decided to offer courses in Number Theory, Statistics and Computer Science. Two sections were formed with all those who had previous computer science experience being placed in the same section. I believe that this was a good decision. Each class met for one hour each day with additional computer lab time available in the afternoon. All of the course offerings interested the students and they indicated that they had learned some exciting ideas from them.

Other learning opportunities were provided in the following ways:

1. Video tapes obtained from the MAA and titled "Mathematics in Society" were shown.
2. Students were asked to work on some challenging mathematical puzzle problems and then sessions were held in which students or instructors presented solutions.
3. One session was held in which some interesting uses of matrices were presented.
4. The NCTM brochure "Mathematics Teaching as a Career" was distributed and discussed.

The staff consisted of two excellent college teachers, two outstanding high school teachers and two Capital mathematics education majors. All of these people were excellent role models in our efforts to attain the stated goals.

While we feel that the goals of the Camp were achieved to a satisfactory degree, there is really no way to determine at the present time how many of the students will become mathematics teachers. On a questionnaire administered at the end of the Camp, 24 of the 43 students indicated that the Camp experiences had changed their attitude toward mathematics and/or the teaching of mathematics in a positive way. Five of these said it was with respect to the teaching of mathematics. Based on our discussions with them, it is safe to say that many of them found that there are new horizons to be explored in mathematics and computer science and that they are interested in doing this in the future.

We know that capable mathematics students have the opportunity to continue their studies in many different areas and to

find employment in many types of work. However, our experience with this group of young people has convinced us that it is still possible to excite them about becoming mathematics teachers. All of us need to encourage them to consider teaching as a career and to study mathematics each of their years in high school. If we do not do this, who will?

MATH MIND BENDERS

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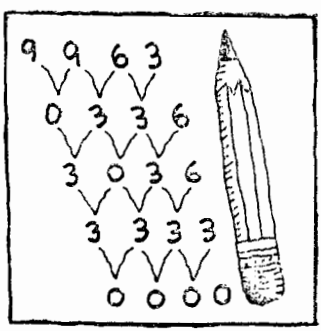
Write down any four-digit number, such as 9963. Find the difference between each adjacent digit (for example 9-9, 9-6, 6-3) and between the two end digits (9-3). Write their answers in a line below the original number. (See diagram)



EXTENSION: Do the above exercise ten different times, using a different four-digit number each time. Keep track of how many times you needed to subtract before reaching all zeros. Graph your results. Notice that you subtracted four times in the example above.