

RELATED ACTIVITIES

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The following questions will probably sound familiar to mathematics teachers. *Is drill necessary? How much drill is needed?* These questions are frequently asked, and they are answered in varying ways. One argument often presented is that in order to teach mathematics in the upper elementary grades, the pupils have to know the basic facts. If they do not know these facts, some means must be found for teaching them.

A possible method of presenting or reviewing basic facts might be in the form of presenting numerous related activities. These activities could be a game, puzzle, or a search for some pattern or relationship. In this way pupils can apply what they have learned or what has been presented to them, and at the same time they practise mathematical skills.

As an example, let us consider some multiplication facts. Suppose the discussion is centered around the basic facts dealing with 7, 8, and 9. The following activities could be presented to the pupils.

The Adding Wizard: Ask one of the pupils to dictate four (or more) numerals consisting of four (or more) digits. Write these numerals on the board. For higher grades it might be necessary to state the following restriction $1,100 < n_i < 9,000$ for $i = 1, \dots, 4$. Their given numerals might look similar to this:

1,263
4,569
3,276
2,892

Now tell the pupils that you want to show them how quickly you can add, but first you are going to match these numerals with four others. ("Adding four is too easy, I'll make the problem more difficult.") Each digit is matched in such a way that the sum of any two digits is nine. This results in the following four numerals:

8,736
5,430
6,723
7,107

Since there are four nines in each column, the sum 39,996 can be written on the

board without much hesitation. Is the answer correct? Most students will want to check it, and they add the columns willingly.

Depending on the grade level, one of the following things could be done next: Why is the answer correct? You could show them the numerals that were matched. How were they matched? Tell the students that you arrived at the sum by using the 9 - times table. Ask them to find out how many nines divide into that sum.

Once the matching pattern is discovered, the following problems could be presented to the class: For a similar trick, how many numerals would your friend have to write down and how many would you have to write down to yield a sum of 29,997? Suppose you have the sum 4,995 in mind. How many digits would there have to be in the numerals your friend writes down? How many of these numerals would you ask him to write down? Similarly, how many for 59,994; 7,992; and so on. Could the same procedure be used for multiplication facts with the 8 and 7 (or even 6)? What restrictions would you have to state or make before your friend dictates his numerals to you?

Finally, a suggestion for a homework assignment that almost every pupil will complete: Ask your students to "impress" their friends or parents by showing them how quickly they can add. (Challenge Dad to an adding match for 10¢).

An example of related activities was presented. There exist many others. Is this drill? Well, it is practice with a purpose and perhaps with the same or even better results.

THE ONTARIO JUNIOR MATHEMATICS CONTEST

The total number of competitors in the 1969 Ontario Junior Mathematics Contest was 17,171, representing 791 schools. The *second highest score* in Canada was made by L.W. Tu of Harry Ainlay Composite High School in Edmonton. *Five other Alberta students made the Canadian Honour Roll.* These were R. *Liknaitzky*, Jasper Place Composite High, Edmonton; R.J. Nowakowski, St. Francis High School, Calgary; D.N. Williams, McNally Composite High School, Edmonton; D.E. Anderson, Paul Kane High School, St. Albert; and L.R. Custead, William Aberhart High School, Calgary. The individual champion is Brian Calvert of G.A. Wheable Secondary School, London, Ontario.

In the Canadian Team Competition, the championship was won by Sir Winston Churchill Secondary School, Vancouver. The Harry Ainlay Composite High School team from Edmonton was fifth in the Canadian Team Honour Roll, which included 41 schools across Canada.

Eighty-one students were listed on the 1969 Alberta Provincial Honour Roll for the Junior Contest. Congratulations are extended to all those who participated in the contest.