IDEA 16

PARTITIONS AND PRODUCTS

This is another idea from the ATM *Points of Departure* publications.

Choose a number and ask each student to individually write four or five partitions. For example, using the number ten one student might write:

$5 + 5$

$2 + 3 + 5$

$4 + 5 + 1$

$6 + 4$

$1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1$

Turning each addition sign into a multiplication sign the following products are gained:

$5 \times 5 = 25$

$2 \times 3 \times 5 = 30$

$4 \times 5 \times 1 = 20$

$6 \times 4 = 24$

$1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 = 1$

At this point each student could be asked to provide one of their answers and these could be written on the board/screen. The intention here is for students to see the different range of answers that are possible. A further task at this point can be for students to try to produce the partitions that led to the answers provided.

The main point of this task is for students to explore which partition produces the maximum product. A write-up of one student's work on this problem appears in the ATM journal *Mathematics Teaching* 127, pp 26–27.

An extension for this task is to consider what happens if the rule of partitioning into decimal values is allowed. What will the maximum product be under this circumstance?

IDEA 17

SCALE FACTORS

Take half a dozen pictures from a magazine and copy/photo reduce them onto a sheet of A4 paper. The pictures could be of anything, a shoe, a car, a camera, a person ... anything at all.

This idea is for students to try to work out what approximate scale factors must be applied to each item to enlarge them to life size, so the person can wear the shoe, sit in the car, use the camera, etc.

One way of developing the task could be for students to work in a small group to agree upon the scale factors of enlargement they would use and then for one group to compare their answers with those from another group. This will have the potential for students to discuss degrees of accuracy of the calculations they have done.