

UNIT 4 *Rounding and Estimating*

Teaching Notes

Historical Background and Introduction

The unit revises basic calculation in whole numbers and decimals (see Y7A, Units 4, 6 and 8 for the appropriate historical background): it is imperative that all your pupils are both confident and competent in these areas of basic mathematics.

Here we progress to the problems of the *order of operations* in arithmetic expressions as well as the important concepts of *rounding* and *estimating*, and the use of bracket and memory keys on calculators. The reason for the inclusion of these topics is the importance of pupils having the ability to know whether a calculated answer is either approximately right or clearly wrong; this is a vital skill for all pupils, as is competence in using both bracket and memory buttons on calculators.

<i>Routes</i>	Standard	Academic	Express
4.1 Revision of the Four Rules: Whole Numbers	✓	(✓)	×
4.2 Revision of the Four Rules: Decimals	(✓)	✓	(✓)
4.3 Order of Operations	✓	✓	✓
4.4 Problems in Context	✓	✓	✓
4.5 Rounding	✓	✓	✓
4.6 Estimating	(✓)	✓	✓
4.7 Calculator Logic - Bracket and Memory Keys	×	✓	✓

<i>Language</i>	Standard	Academic	Express
BODMAS	✓	✓	✓
Rounding	✓	✓	✓
Decimal places	✓	✓	✓
Significant figures	✓	✓	✓
Estimate	(✓)	✓	✓
Bracket and memory keys	×	✓	✓

Misconceptions

- confusion between meanings of the terms 'decimal places' and 'significant figures'.
- rounding must *not* be term by term,
e.g. *Correct* 4.649 to 2 significant figures is 4.6, since 4.649 is nearer to 4.6 than to 4.7.
Incorrect 4.649 → 4.65 → 4.7 (rounding term by term)

Challenging Questions

The following questions are more challenging than others in the same section:

	<i>Section</i>	<i>Question No.</i>	<i>Page</i>
<i>Practice Book Y8A</i>	4.3	6	68
" "	4.5	10	73
" "	4.7	9	80