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This system of counting is not meant to replace anything learned at school but is an aid to learning generally. All ECAL Techniques are designed to develop a strong patterned system of information intake which will aid future learning.

The use of the pronouns He, Him and His are used for simplicity rather than he/she, him/her etc.  
Sorry about that girls

Once we are happy with the *Warm Up* we can move onto the **Doubles**

ex1: 
$$\begin{array}{r} 47 \\ \underline{38} \\ 85 \end{array}$$

ex2: 
$$\begin{array}{r} 37 \\ \underline{28} \\ 65 \end{array}$$

ex3: 
$$\begin{array}{r} 27 \\ \underline{28} \\ 55 \end{array}$$

Step 1: (ex1): Start with the 47 and roll it round onto the 8 of the 38 to give 55. Add 55 to the remaining 30 (38 less 8) giving an answer of 85.

**Sounds like:** 47, 55, 85...i.e. 47 and 8 = 55, plus 30 = 85.

### Leading to 55, 85 and eventually: 85

Often by the time a one number answer comes along, the student will have developed and tailored the strategy to suit themselves, **this is terrific, no problem.**

One example of this is the **Collapsing** of the 2 sets of numbers to produce the answer. Taking ex1., the 4 collapses onto the 3 giving 70 which we add to the collapsing 7 onto the 8 (15) giving 85. His thinking would sound like: 70, 85. But he simply says 85 as the rest of the calculation is completed by a now **automatic process at a subconscious level**, i.e. he now **knows** that 47 and 38 is 85.

ex2:

**Sounds like:** 37, 45, 65. Later it's 45, 65 then finally: 65.

ex3:

**Sounds like:** 27, 35, 55. Then, 35, 55, eventually: 55.

Once the student is happy with doubles, which keep to within 105, we can move onto the larger doubles e.g.

Ex1: 
$$\begin{array}{r} 77 \\ \underline{68} \\ 145 \end{array}$$

Ex2: 
$$\begin{array}{r} 67 \\ \underline{88} \\ 155 \end{array}$$

Ex3: 
$$\begin{array}{r} 87 \\ \underline{78} \\ 165 \end{array}$$

## INTRODUCTION

Unlike Tables 2 to 9, the 12's are learned by a simple formula using both sides of the Brain as usual, but in this case primarily the organisational talents of the Left Brain.

### Objective

The reasoning behind learning the 12's up to  $12 \times 19$  is both **Practical** and **Psychological**. You can imagine the boost it gives to students when they can suddenly do the 12 times table up to twelve 19's, especially those who have been struggling with tables for years or who are at the early stages of learning tables. It might not seem a big deal to us but I can assure you it speaks volumes to them in terms of Boosting their **Confidence** and **Self - Esteem** by reflecting their *actual* intelligence back to them.

On a practical level it helps to develop the Left Brain's organisational abilities, laying down neural pathways along which other information can be more easily transmitted. The laying down of **structured** neural pathways to aid future information intake, storage and retrieval is the main **Practical** feature of all ECAL Techniques. Though the **Psychological** feelings of well-being, raised confidence and higher self esteem are judged to be of greater importance. Needless to say, the ability to do the 12 times table to  $12 \times 19$  makes all other table learning seem easy by comparison.

This twin approach of Practical and Psychological benefits runs through all of the ECAL Techniques. To learn the 12's the student only has to know the 2 times table. If he doesn't know it, it can be learned first via the ECAL Internal Eyescan Technique, our Primary Learning Tool. If he doesn't yet know the 2 times table he will also find the ECAL Numbers Ladder particularly useful at this stage of his Numerical development.

## Circular Arithmetic      Worksheet Contents

<b>Level 1</b>	<b>Worksheet 1</b>	<b>Pages 23 - 27</b>
<b>Level 1</b>	<b>Worksheet 2</b>	<b>Pages 28 - 32</b>
<b>Level 1</b>	<b>Worksheet 3</b>	<b>Pages 33 - 38</b>
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<b>Level 3</b>	<b>Final Base Camp</b>	<b>Pages 50 - 52</b>
<b>Level 4</b>	<b>THE SUMMIT</b>	<b>Pages 53 - 61</b>

**The Worksheets include Parent/Teacher and Student Notes.  
Only proceed from Base to Base once your student  
can do the additions mentally.**

The following 40 pages or so will seem a little daunting at first sight. Just take it bit by bit and slowly you will see the Pattern emerging. Write the answers down at first until you can do them in your head, which is what this exercise is all about after all.

These exercises are designed to be done over a period of weeks or even months. Be patient. It will come I promise you. Good luck.

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