



CONTENTS ... The ECAL 12s

Introduction	Page 13
Learning the Technique : stage one	Page 14
Three Simple Rules	Page 15
Stage Two	Page 15
3 Rules in Detail	Page 16
Stage Three	Page 17
Notes	Page 18
Other Edinburgh Techniques	Page 19
Your Views	Page 21

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INTRODUCTION

The ECAL 12s

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 12×19 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 12×19 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.



Learning the Technique

The ECAL 12s

This is done in three easy stages: 12 x 1 to 4; 12 x 5 to 9; 12 x 10 to 19.

STAGE ONE is in three steps:

Write down the following:

Looks like:

Sounds like:

Step A:
12 x 1 =

Step B:
12 x 1 = one something write 1

x 2 =

12 x 2 = twenty something write 2

x 3 =

12 x 3 = thirty something write 3

x 4 =

12 x 4 = forty something write 4

Having written Step A, you take your student through it i.e.: Step B.

By the time you start Step C it should look like this:

Looks like:

12 x 1 = 1

and sounds like: 12 x 1 = one something

2 = 2

12 x 2 = Twenty something

3 = 3

12 x 3 = Thirty something

4 = 4

12 x 4 = Forty something



The ECAL 12s

STEP C:

To get the 'something' you simply double the 1, 2, 3, or 4 of the answer, i.e.

12 x 1 = one something : double the 1 = 2, ans: 12

12 x 2 = twenty something: double the 2 = 4, ans: 24

12 x 3 = thirty something: double the 3 = 6, ans: 36

12 x 4 = forty something: double the 4 = 8, ans: 48

Now draw a line and write 12 x 5 to 12 x 9:

3 Simple Rules govern the next two stages:

- 1: DOUBLE IT
2: ADD IT
3: BRING DOWN THE LAST NUMBER

To avoid confusion please use the language of these rules exactly as they are written. Now let's apply them from 12 x 5 to 12 x 9:

STAGE TWO

12 x 5 =

Example: 12 x 7

x 6 =

Rule 1: Double it The 'it' in this case is the 7:

x 7 =

12 x 7 = 14 now Add it, i.e. the 7 + 1, gives

x 8 =

12 x 7 = 14 now Bring Down.....(i.e. 4) ans:

x 9 =

12 x 7 = 14 84

3 Rules in Detail using example...12 x7 **The ECAL 12s**

Rule 1: Double It This applies to the number we are about to multiply by 12, in this case we'll use 7 as an example.

We double it (7) to 14. Now put the 14 above the 7, being careful to put the 1 of the 14 above the 7 itself, with the 4 in 'mid air':

$$\begin{array}{r} 14 \\ 12 \times 7 = \end{array}$$

Rule 2: Add It In this case we add the 7 to the one of the fourteen to give eight and we write it down as the first part of the answer, calling it eighty something:

$$\begin{array}{r} 14 \\ 12 \times 7 = 8 \text{ (eighty something)} \end{array}$$

Rule 3: Bring Down the Last Number The 'something' refers to the last number of the 'double', in this case 14, the last number being 4. So bring it down and put it beside the 8, thus giving the answer:

$$\begin{array}{r} 14 \\ 12 \times 7 = 84 \end{array}$$

So, to do this section all we need to know is simple doubling and addition.

The whole section should look like this:

$$\begin{array}{r} 10 \\ 12 \times 5 = 60 \text{ i.e. } 5 + 1 \text{ (6) and bring down the 0.} \end{array}$$

$$\begin{array}{r} 12 \\ 12 \times 6 = 72 \text{ i.e. } 6 + 1 \text{ (7) and bring down the 2.} \end{array}$$

$$\begin{array}{r} 14 \\ 12 \times 7 = 84 \end{array}$$

$$\begin{array}{r} 16 \\ 12 \times 8 = 96 \end{array}$$

$$\begin{array}{r} 18 \\ 12 \times 9 = 108 \text{ i.e. } 9 + 1 = (10) \text{ and bring down the } 8 = 108 \end{array}$$

The ECAL 12s

Draw the line under 12×9 and finish that section **before** continuing with the next. The reason for the line is to divide it into psychologically manageable chunks. It does no harm to take a five minute break between sections, indeed in many cases it will be essential and in some cases it may require a night between each section. *The time factor is irrelevant. Brain development is what matters, not how long it takes.* Encourage him to answer as soon as he is able.

Use your own judgement, signs of extreme anxiety or boredom (defence mechanism for ‘don’t understand this’) should be met with immediate wind down and the promise of coming back afresh to that section next time. Certainly 20 minutes is the most you should do without a break at any level of study, even a minute or two is useful. For ECAL Techniques, 20 minutes maximum is recommended each day, unless he is really desperate to do more.

The third section below is governed by the same three rules, but be careful to write the double over the last number of the 10, 13, 17, 19 etc as shown below in stage three, otherwise there will be confusion over the additions.

STAGE THREE:

$$20$$

$$12 \times 10 = 120 \text{ i.e. } 10 + 2 \text{ (12) bring down the 0 (120)}$$

$$22$$

$$12 \times 11 = 132 \text{ i.e. } 11 + 2 \text{ (13), bring down the 2 (132)}$$

$$24$$

$$12 \times 12 = 144 \text{ i.e. } 12 + 2 \text{ (14), bring down the 4 (144)}$$

$$30$$

$$12 \times 15 = 180 \text{ i.e. } 15 + 3 \text{ (18), bring down the 0 (180)}$$

$$34$$

$$12 \times 17 = 204 \text{ i.e. } 17 + 3 \text{ (20), bring down the 4 (204)}$$

$$38$$

$$12 \times 19 = 228 \text{ i.e. } 19 + 3 \text{ (22), bring down the 8 (228)}$$

Write down the numbers from 12×10 to 12×19 as above, but without the doubles, and show your student how it works using 2/3 examples if necessary. He should then be able to work it out himself.

NOTES

The ECAL 12s

Remember this is basically a mental exercise but if the student is having difficulty, allow him to write it down until his understanding of the technique grows and/or his counting improves to the point where he can hold the picture of the sum in his head (Right Brain) and do the calculation at the same time (Left Brain).

You can then do the numbers in between e.g. 12 x 13, 14, 16, and 18.

NEVER interrupt the student in mid-flow if he makes a mistake. Give him time to work it out himself. If he still proceeds to give a wrong answer, encourage him to go back over the steps and see where he's gone wrong, the sooner he spots the mistake the sooner he makes the internal corrections which result in correct future answers.

Everyone has a self correcting system, called a **Reference System**, but it will only develop if allowed to, i.e. it won't develop much with us constantly doing the corrections for him before he's even spotted the mistake for himself.

Mistakes of simple addition are not important, they're purely mechanical, the intellectual content of this technique is remembering the rules and being able to apply them, the arithmetic will follow. Also the length of time it takes to master the technique is irrelevant, as are the facts contained within the table; they are a happy by-product of learning the technique. Expect a fair amount of showing off to aunts, grannies, postman etc for a time after the technique has been mastered.

Please Note:

The word 'Brain', when used in conjunction with the words Left or Right, refers to Hemisphere, i.e. Left or Right Hemisphere. 'Brain' is used here because it's less clumsy.



Majestic or What?

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