

# FLEXITABLE™

## A Folding Multiplication Table

	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

### Introduction

The most ingenious and simplest idea to help children learn their multiplication tables!!

A soft flexible plastic folding table with vertical and horizontal channels allowing children to continuously fold the table again and again without it being damaged – far greater life than paper or cardboard products.

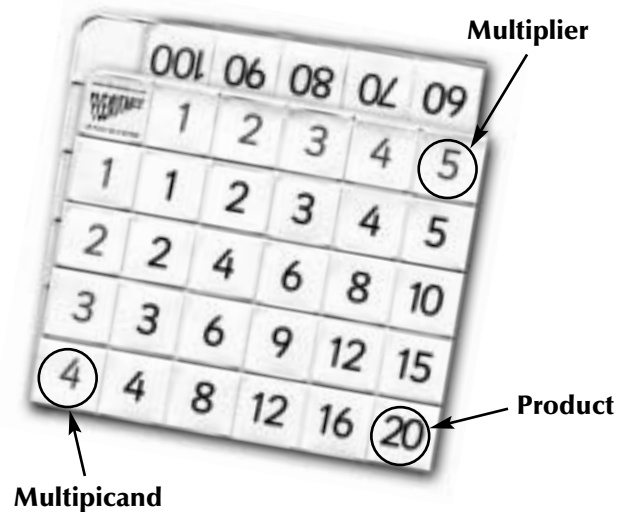
All the materials used conform to EEC safety standards EN-1 & EN71.

### How does it work?

The numbers that run across the top of the grid are in red and are the numbers that run down the far left-hand column. These numbers act as the multipliers and multiplicands in multiplication. In division, these red numbers act as the divisors and quotients.

- 1) Look along the top row and find the 5.
- 2) Fold the table from top to bottom, vertically, under the numbers 1-5.
- 3) Keep the table folded and look down the left-hand column until you find the number 4.
- 4) Fold the table up, horizontally, under this row.
- 5) In the right-hand corner, find the answer, 20!!

$$5 \times 4 = 20$$



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# More Activity Ideas Using Flexitable™ :

## 1. Find the Product/Quotient

*Materials: Flexitables and Multiplication Flash Cards/Division Flash Cards (optional)*

Call out multiplication/division problems or show flashcards and have students find the product/quotient. When a child has found the product/quotient have them hold their Flexitable up to prove their answer.

## 2. How Many Factors?

Call out a product such as 12 and have children find as many factors for 12 as they can. Factors of 12 are those numbers that divide into 12 without a remainder. Children will need to work backwards by finding the product first and then identifying the factors. Make a list of all of the factors they find. Ask them "What does this tell you about the number?" "Do all products have the same number of factors?"

### Example:

Factors for 12 are: 1, 2, 3, 4, 6 and 12.

## 3. How Many Factors? Game

Objective: To get the most points by the end of the game. Points are awarded for each factor identified.

This game is for two players or two teams.

*Materials: Flexitables and small counters or buttons to act as markers.*

- Player 1 identifies a product and all the factors for that product that can be found on the Flexitable. Example: 20 (2 and 10), (4 and 5); the player earns 4 points, 1 point for each factor. Player 1 should record the product and factors on a separate piece of paper and then cover the chosen product (wherever it appears) with a small marker on their Flexitable so that it cannot be picked again.
- Player 2 identifies a product and all the factors for that product that can be found on the Flexitable. Example: 24 (2 and 12), (3 and 8), (4 and 6) - this player earns 6 points. Player 2 should record the product and factors on a separate piece of paper and cover the product (wherever it appears) with a marker on their Flexitable so that it cannot be chosen again.
- Play continues until all factors are found.
- The winner is the player with the most points.

## 4. Find the Multiples

Reinforce the concept of multiples by having pupils select a number such as 3 and then look across a row and/or down a column to find all of the multiples for that number. Have children skip count as they identify the multiples. Example: 3, 6, 9, 12, 15, 18, 21, 24, 27, etc. They will see the pattern created and be able to name the multiples for their numbers that are not featured on the Flexitable; Example: 33, 36, 39, 42, etc.

## 5. Find the Quotient

Call out a dividend and a divisor and have the class determine the quotient.

### Examples:

The dividend is 42 and the divisor is 7, what is the quotient?

The dividend is 27 and the divisor is 3, what is the quotient?

The dividend is 40 and the divisor is 8, what is the quotient?

The dividend is 56 and the divisor is 8, what is the quotient?

As problems are called, record the problem symbolically so the children begin to match the vocabulary to the symbolic representation.

**Example:**  $42 \div 7 = ?$        $27 \div 3 = ?$   
 $40 \div 8 = ?$        $56 \div 8 = ?$

$$56 \div 8 = 7$$

$$\begin{array}{r} 7 \\ 8 \overline{)56} \end{array}$$

## 6. Find the Divisor

Call out the dividend and the quotient and have the pupils determine the divisor.

### Examples:

The dividend is 24 and the quotient is 3,  
what is the divisor?

The dividend is 45 and the quotient is 9,  
what is the divisor?

The dividend is 18, and the quotient is 3  
what is the divisor?

As problems are called, record the problem symbolically so the children begin to match the vocabulary to the symbolic representation.

**Examples:**  $24 \div ? = 3$      $45 \div ? = 9$      $18 \div ? = 3$

*Note: Answers to multiplication problems will be found in the blue section of the Flexitable.*

*Answers to division problems will be found in the red section of the Flexitable.*

## 7. Missing Factor

Let the children know that you are going to call out the one factor and the product. They have to find the missing factor and the teacher should record the problem using the 'X' symbol.

### Examples:

One factor is 8, the product is 32.

What is the missing factor?  $8 \times ? = 32$

One factor is 7, the product is 35.

What is the missing factor?  $7 \times ? = 35$

One factor is 2, the product is 12.

What is the missing factor?  $2 \times ? = 12$

## 8. Find the Square Number

Have the children explore square numbers by finding squares on the Flexitable. Show them the first square, 4. Get the children to tell you that the square is made up of 4 squares on the Flexitable. Have them write it down.

1	2	3	4	5	6	7	8	9	10	
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
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Children should then explore the Table to find other squares. They can experiment by folding the Flexitable. They need to make sure that the squares they find line up to the horizontal and vertical red columns/rows.

The other squares on the Flexitable are 1, 4, 9, 16, 25, 36, 49, 64, 81 and 100.

Now have the pupils find the factors for the squares. Ask, "What do you notice about the placement of the squares on the Flexitable?" (They are on a diagonal). Ask, "What do you notice about the factors of the squares?" (They are all doubles.) Congratulate them on discovering the square numbers.

## 9. Square Roots

Have children find the square root of the number by calling out the square.

### Examples:

What is the square root of 36? (6)

What is the square root of 25? (5)

What is the square root of 9? (3)

Ask, "What is the square root of a number?"

(The square root of a number is a factor. We call it the square root because there is only one factor, the same number multiplied by itself.)

1	2	3	4	5	6	7	8	9	10	
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
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## 10. Number Patterns

Have children record all the patterns that they can find on the Flexitable. Encourage them to be creative as they look for patterns.

### Examples:

Multiples of 5 end in 0 when 5 is multiplied by an even number. When 5 is multiplied by an odd number then the multiples of 5 end in 5.

In the nine times table, the numbers in the ones place of the product are one less than the product produced by the previous equation –

$9 \times 1 = 9$ ,  $9 \times 2 = 18$ ,  $9 \times 3 = 27$  ... 36, 45, 54, etc.

## 11. Greatest Common Factor

Encourage children to use the Table to determine the Greatest Common Factor when simplifying fractions. The Greatest Common Factor is the greatest factor a pair of numbers have in common.

### Examples:

Find the Greatest Common Factor of 8 and 12.

First determine the factors of 8 by finding the product 8 on the Flexitable and then folding it horizontally along the row and then folding it vertically along the column. Then have the children find the factors for 12 by following the same procedure as used above for 8. Now they can determine that the Greatest Common Factor for both 8 and 12 is 4.

Factors of 8 are 1, 2, 4 and 8.

Factors of 12 are 1, 2, 3, 4, 6 and 12.

## 12. Least Common Multiple

Children can also determine the Least Common Multiple using the Flexitable. The Least Common Multiple is the smallest number other than zero that is a multiple of two or more given numbers. A multiple is a product of two numbers.

### Examples:

Find the Least Common Multiple of 2 and 3.

First find the multiples of 2 by locating 2 on the Flexitable on the top factor row, red row. Fold along the column and record each multiple of 2 on a piece of paper – 2, 4, 6, 8, etc. Have children continue the same procedure to find multiples of 3. Record each multiple on a piece of paper. They can now review their lists and determine that 6 is the Least Common Multiple for both 2 and 3.

Multiples of 2 are 2, 4, 6, 8, 10, 12, etc.

Multiples of 3 are 3, 6, 9, 12, 15, etc.

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
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## 13. Reducing Fractions to Lowest Terms

Start with a simple example so children will catch on to the pattern easily.

### Examples:

Find  $\frac{3}{4}$  in the white section of the Flexitable. Have children look and using their fingers, if necessary, go all the way to the left and give you the two red numbers on the same row as the fraction  $\frac{3}{4}$ . It is  $\frac{1}{2}$  which is the lowest term for  $\frac{3}{4}$ .

Have children look at  $\frac{30}{35}$ . They will discover by moving along the same two rows over to the red column that the lowest term is  $\frac{6}{7}$ .

## 14. Further Suggestions for Class Activities & Practice

*Materials: Flexibles, write-on/wipe-off crayon or pen and clear plastic sheet.*

Have children place a clear plastic sheet over their Flexitable and by using a write-on/wipe-off crayon or some type of non-permanent marker, they can trace patterns, mark answers, etc.

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