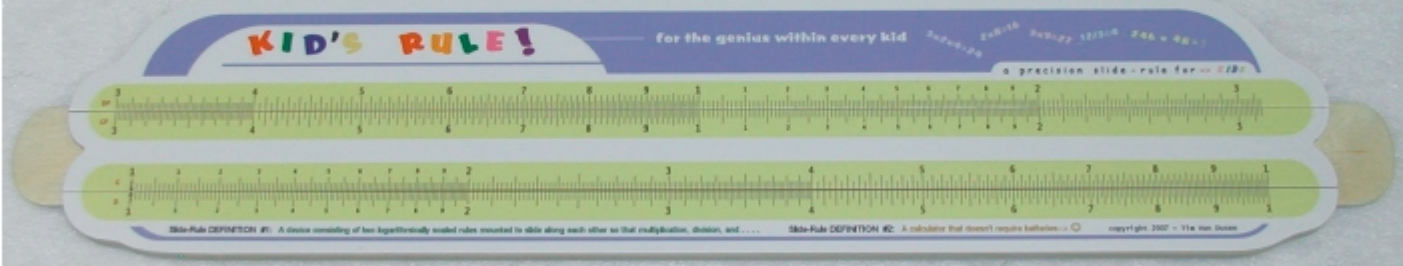
The Slide Rule

- a handy math tool from the past -



Learn about the history of this calculator in use for over 300 years. Solve difficult mathematical problems and discover the relationship between numbers that make math fun.

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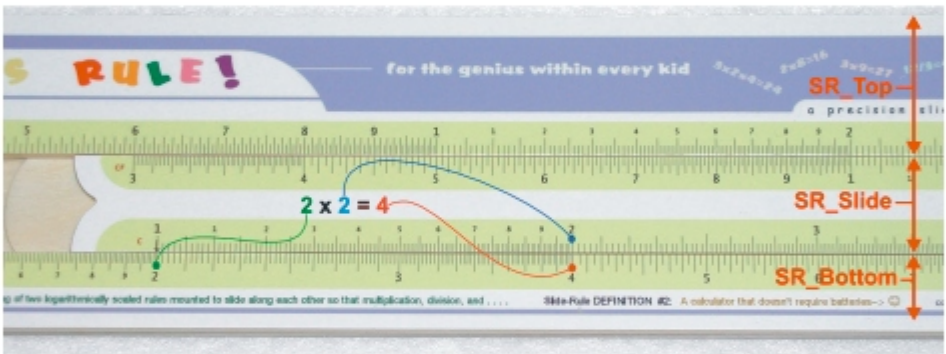
Basic Multiplication

1. Place the **1**, on SR_Slide over the number you want to multiply. In this example, the number is **2** and in the picture below, it has a green dot (•) over it and is located on SR_Bottom.

2. Find any number, anywhere on SR_Slide, and opposite it, will be the answer to the multiplication problem. In this example, the number is **2**, and it has a blue dot (•) below it. The answer is **4**, and it has a red dot (•) over it.



Things to remember:

1. The number you multiply, is located below the number **1** on SR_Slide. We can also use the number above the **1** on the upper half of SR_Slide, but that's something that will be explained later.

2. The answer is always on either SR_Bottom or SR_Top.

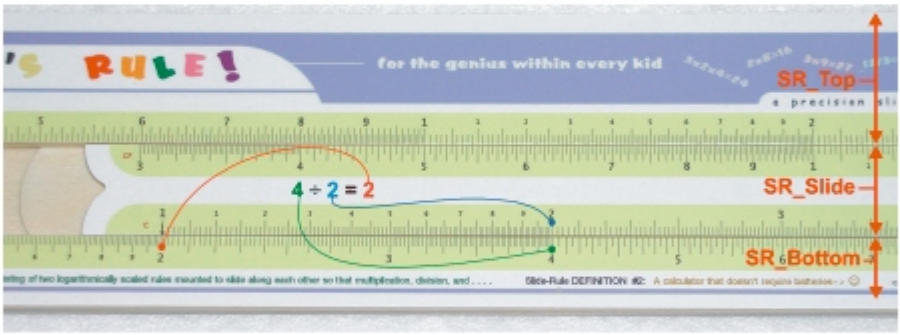
Basic Division

First - something to remember: 

1. Find a dividend on SR_Bottom or SR_Top. In this example, we'll use **4** as the dividend which is on SR_Bottom and has a green dot (•) above it.

2. Find a divisor on SR_Slide. In this example we'll use the number **2**, which has a blue dot (•) below it.

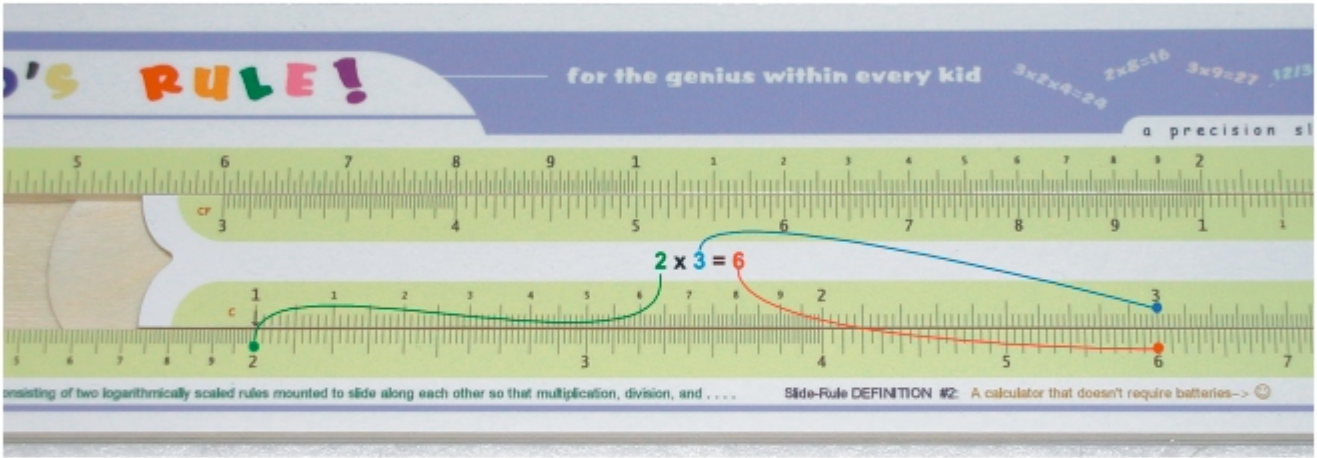
3. To find the quotient, look beneath the **1** on SR_Slide to see the answer **2,** which has a red dot (•) above it.



Things to remember:

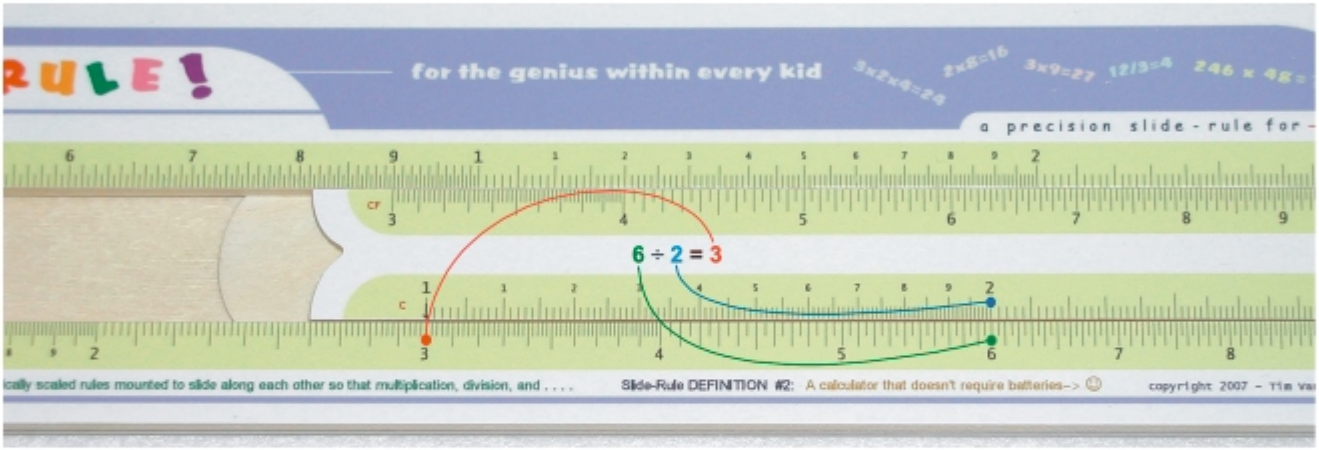
1. The dividend is always on either SR_Bottom or SR_Top, and the divisor is always chosen from one of the numbers on SR_Slide.

2. The quotient is always on SR_Bottom or SR_Top opposite the number **1**.



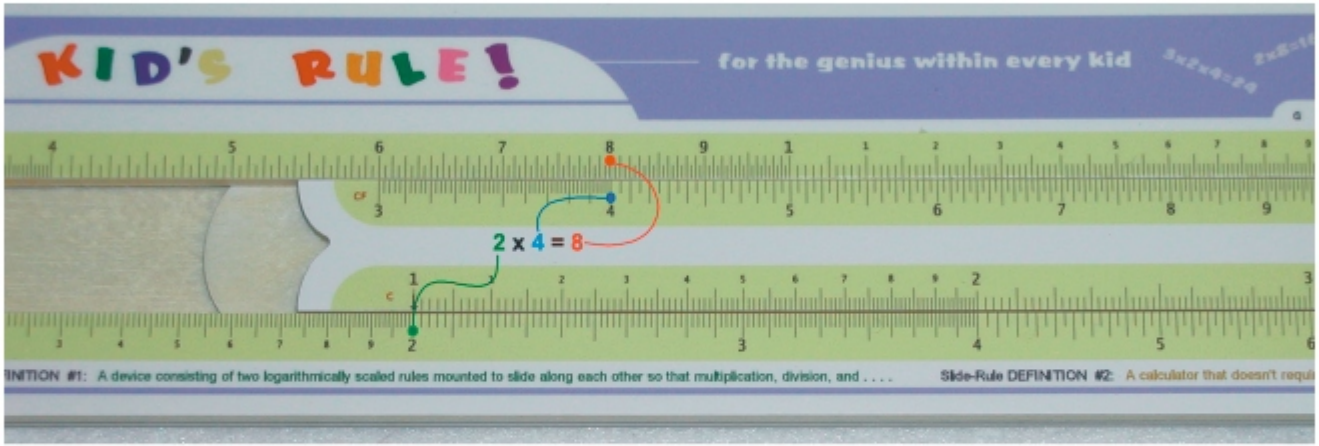
Did you know?

The slide rule has been around for over 300 years.



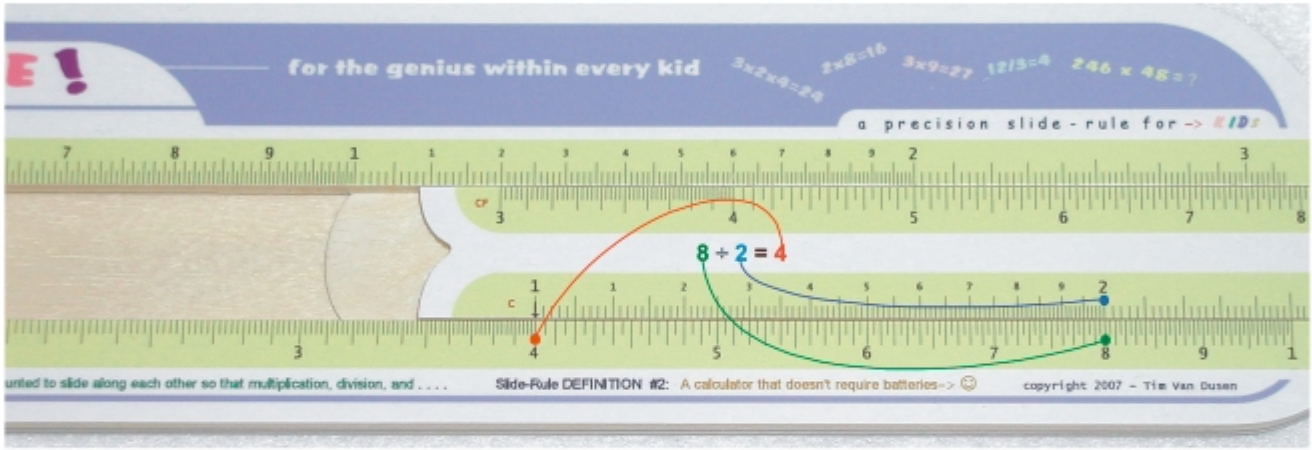
Did you know?

In the early to mid 1970s the electronic scientific calculator made the slide rule mostly obsolete.



Did you know?

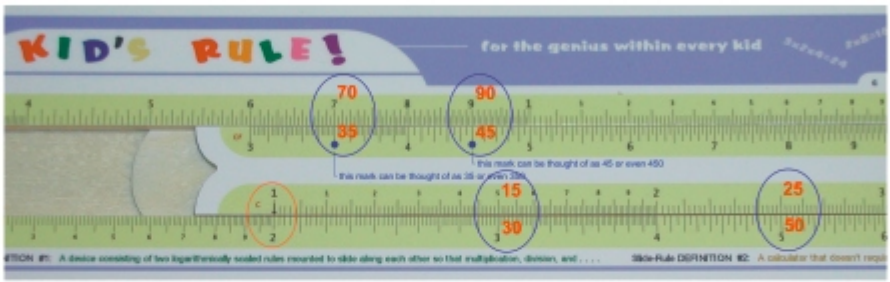
Slide rules were made from many different materials including wood, bamboo, plastic, and metal.



Did you know?

Pickett-brand slide rules were carried on five Apollo space missions.

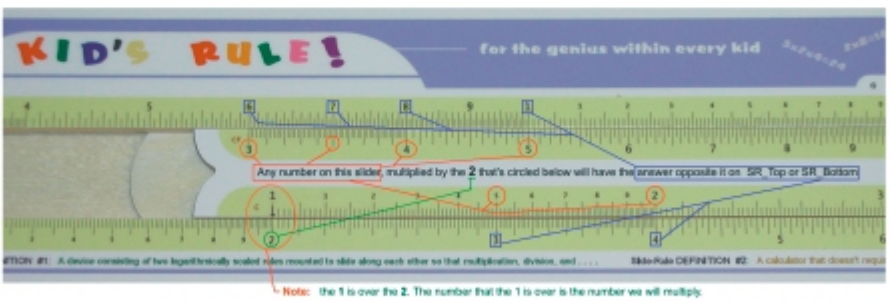
Multiplication (MORE)



Any number on the slide rule can mean the same number with a **0** after it. For example, the **1** can also mean **10**, **100**, **1000**, etc. The marks between the **1** and the **2**, represent such numbers as **11**, **12**, **13**, **14**, etc. The marks between **2** and **3** represent numbers such as **21**, **22**, **23**, **24**, etc. It's the same for the marks between any numbers..

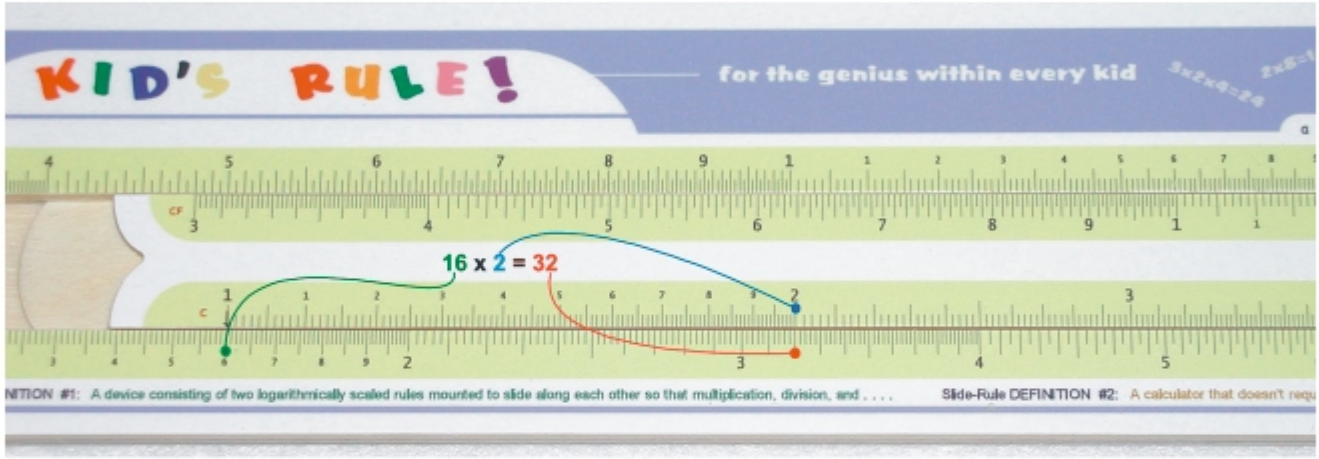
In the example above the **1** is over the **2**, and on the right side of it is a circle around the **15** on **SR_Slider** and **30** on **SR_Bottom**, showing that **2x15=30**. To the right of that is a circle around the **25** and **50** showing that **2x25=50**. There is a circle around **35** on **SR_Slider** and **70** on **SR_Top**, showing that **2x35=70.** Finally, there is a circle around **45** and **90** showing that **2x45=90**.

Any number can be thought of as having a **0** after it. In the previous examples, **2x15=30** can also be thought of as **2x150=300**, and even as **20x15=300**. Since we added one **0** to the problem, we also have to ad d one **0** to the answer. If we were to add two zero's to the problem then we would also need to add two zero's to the answer as in the problem **20x150=3000.** A problem that may look more difficult, is just as easy, for example, **200x1500=300,000**. This may be difficult to understand, but with practice, it can become simple.



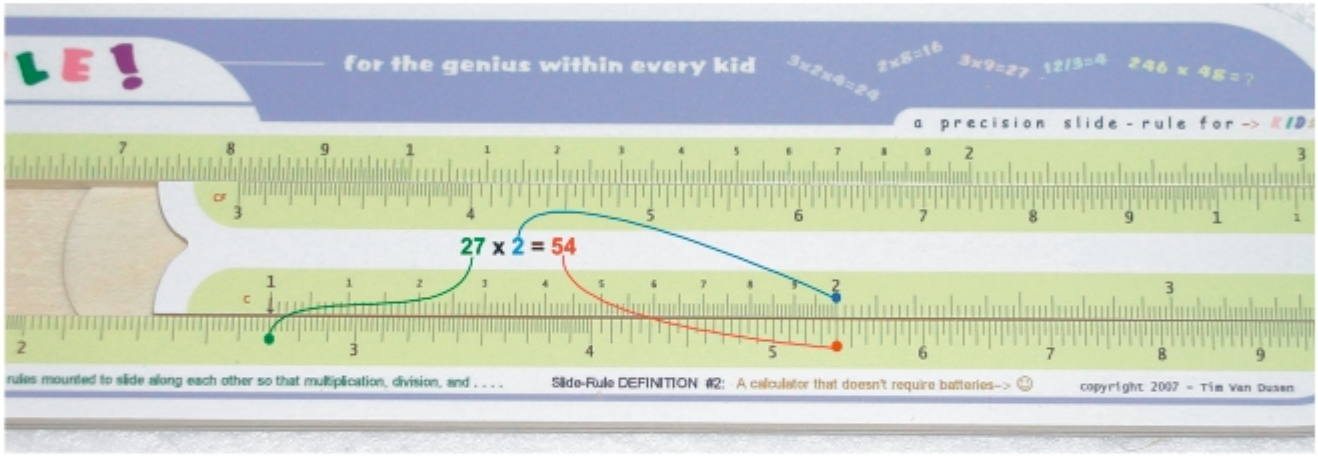
Reminder - the numbers on SR_Slide are the numbers we can multiply by, and the numbers on SR_Top and SR_Bottom are results of the mutiplication.

Sometimes, when the arrow is over a number on **"SR_Bottom"**, the number you want to multiply by may be too far to the right as is the **6** in the picture to the right. When that happens, just look for the **6** on the top scale on the slider. The answer to the problem will be above that. In this example, the answer is **12**.



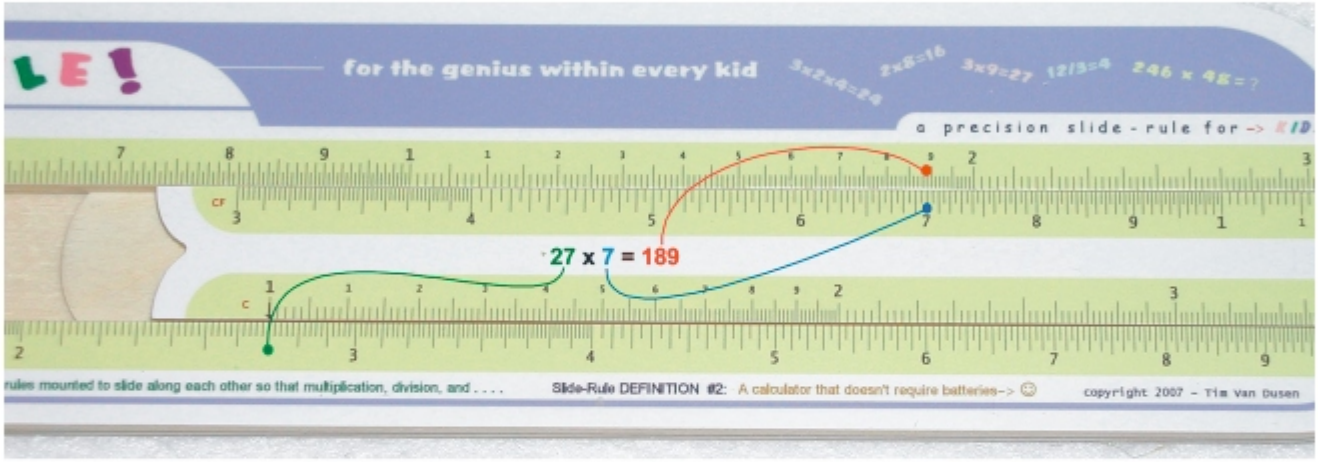
Did you know?

In about 1622 William Oughtred, an Anglican minister, places two sliding scales together and recognizes the mathematical relationship btween the two - he has been recognized as the inventor of the slide rule.



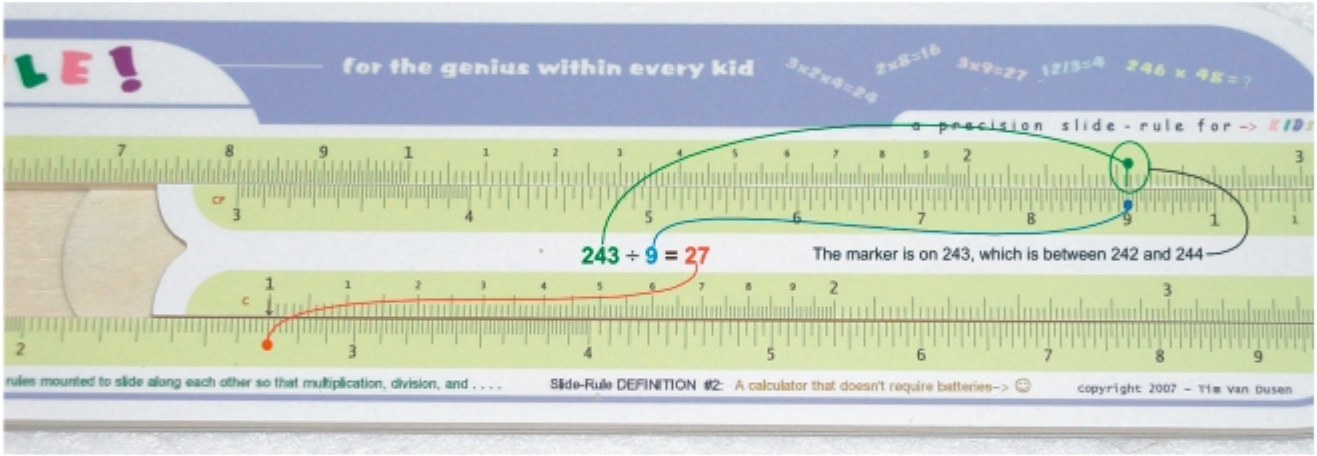
Did you know?

Folded scales CF and DF, like those on this slide rule, were put on slide rules about 1900 to reduce the amount of movement and resetting of the slide.



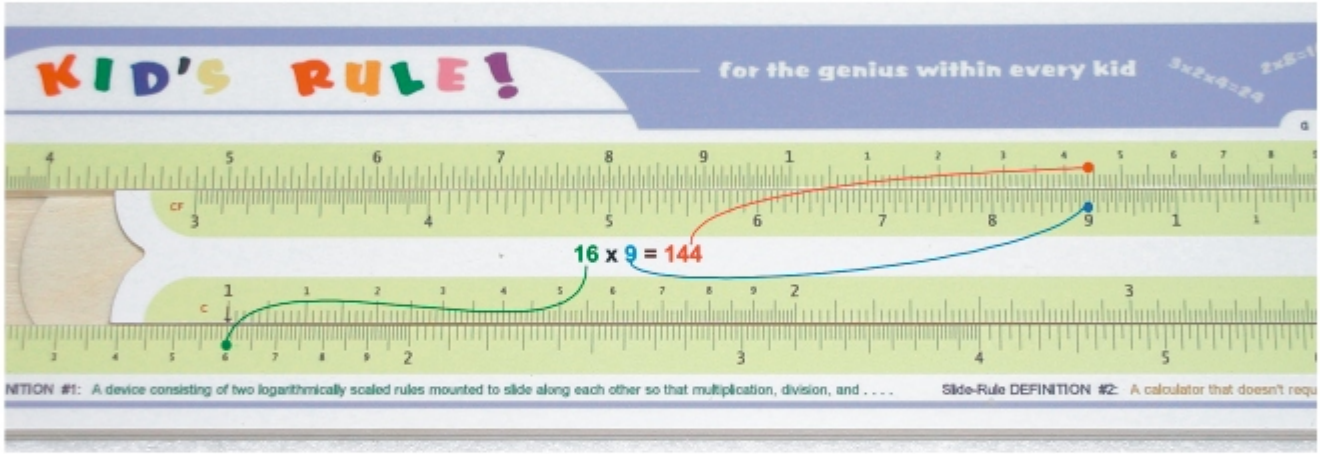
Did you know?

Albert Einstein favors the Nestler brand of slide rule in his work.



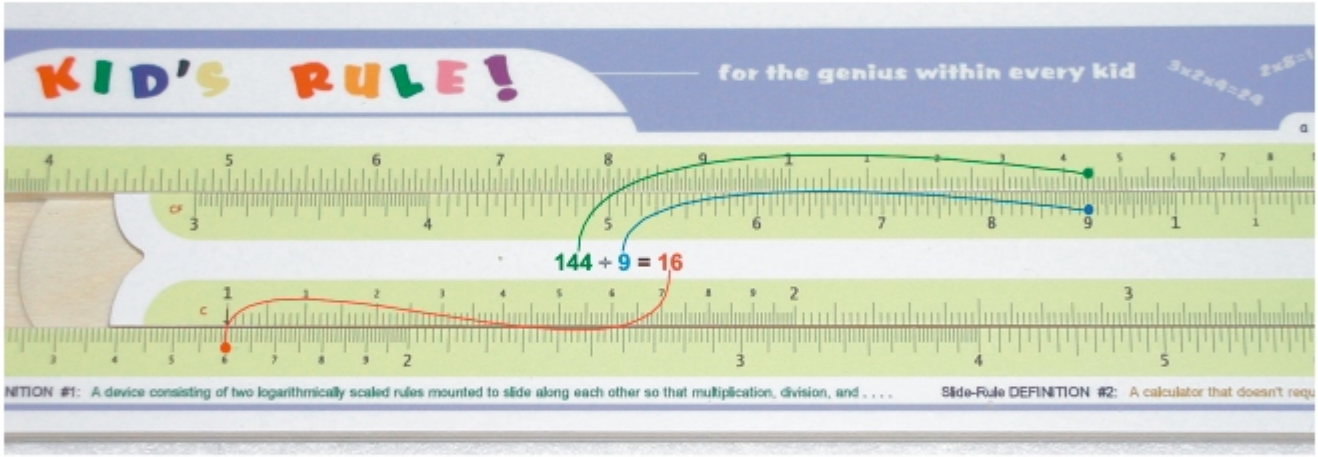
Did you know?

The slide rule was used to perform design calculations for virtually all the major structures built on earth from the time of it's conception, into the 20th century.



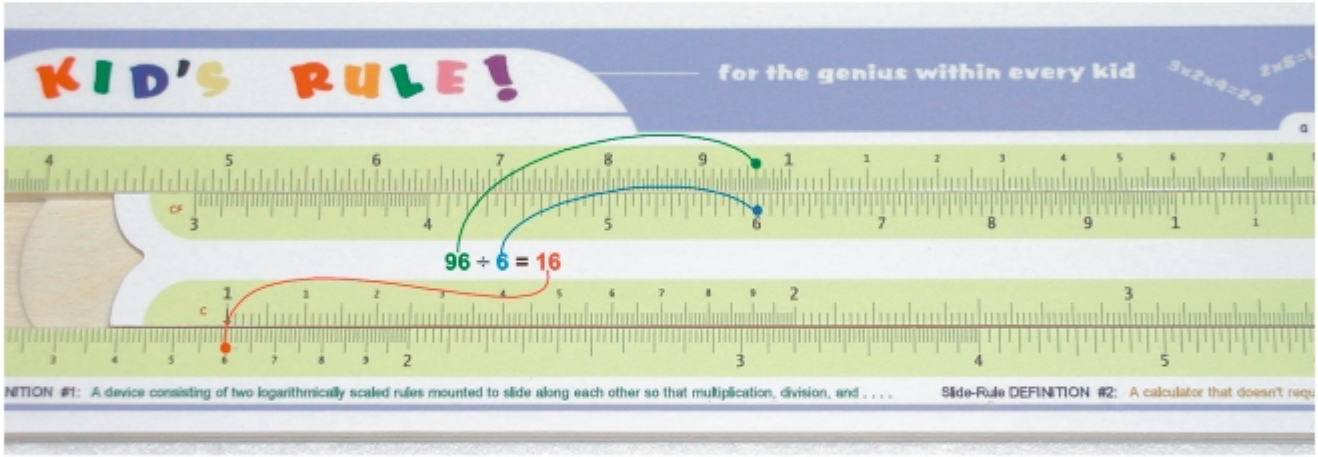
Did you know?

Early in the 19th century the first slide rules come into use in the United States.



Did you know?

Log log scales in three sections appear about 1901, enabling very accurate calculation of powers and roots to any number or fraction.



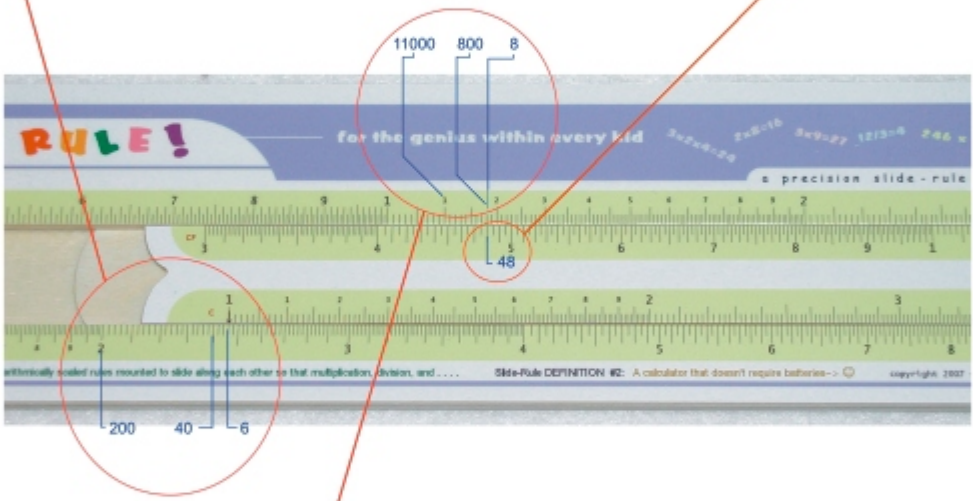
Did you know?

Slide rule researchers have estimated that possibly 40 million slide rules were produced in the world in the 20th century alone.

Tough Math - but not as tough as it looks

246 x 48 = 11808 -> WOW!

Since we are working with the number **200** in this example, the large numbers on the lower scale represent **100**'s, making the **2** equal to **200**. The longest lines between each big number represent **10**'s, making the **4**th large mark after the **200**, the number **40**. Each of the small lines are thought of as an even number, making the first small line after the **40** the number **2**, followed by **4**, and finally **6** - this is the last digit in the number we are going to multiply.. If we add our first number **200**, with the **40**, and finally the **6**, we have the number **246** that we are going to multiply. In this example, the **4** is **40**, making this **48**.



Remember that the small numbers between the large **1** and **2** represent numbers like **11**, **110**, **1100**, and even **11000**. We know, by the location of the **48** that the number we are "building" begins with **11** and we can guess that it will be around **11000** rather than **1100** because of the size of the numbers being multiplied.

We get the **800** because the **11000** is in the thousands, the lines between the **1** (**11000**) and the **2** (which represents **20000** in this problem) are thought of as "number x **100**" each. Since there are a total of 8 lines, we know that portion of the answer is **800**.

Figuring out the **8** requires a little bit of "preliminary math" which you may be able to do in your head, but you can calculate it using the slide rule prior to multiplying the entire number - I'll explain how. With a problem such as **246x48** an easy way to always get the last digit of the answer is to multiply the last two digits of the problem (the two digits in this example are **6** and **8**) which in this problem produces the answer **48** (6x8=48). We take only the last digit of that answer and use it. That last digit, from the **48** is **8**, which tells us that the line that we can't even see on the slide rule is **8**.

Finally, when we combine the **11000+800+8**, we get our answer of **11808**.

Resources

The history used within these pages has been my interpretation of the slide rule history as presented in various locations on the internet, as well as books which I have purchased on the subject. Below are some of the internet websites that I visited.

1. http://en.wikipedia.org/wiki/Slide_rule
   much slide rule history, basic operation, and scale explanation

2. http://www.sliderulemuseum.com
   museum of slide rules of many makes and models

3. http://www.sphere.bc.ca/test/sruniverse.html
   slide rules for sale, slide rule operation, make your own slide rule.

4. http://www.sliderule.ca/resource.htm
   lots of slide rule links

5. http://www.ebay.com/
   lots of slide rules and slide rule related items for auction

contact me -
Web: http://www.2timv.com/KidsRule
email: timvandusen@yahoo.com