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Abacus improves their numerical skills where children learn through the sense of touching. Research has proved that the left hemisphere of the brain, also known as the digital brain, provides analytical information and also controls reading, writing and calculation; and the right hemisphere is also known as the analogue brain that controls the three-dimensional senses, creativity, artistic senses. The research established the fact that the continuous practice of the Abacus can help develop the right side of the brain that is usually believed to be unused, thereby contributing to the development of the whole brain. It helps the individual improve their overall academic skills, teaching them how to face and tackle the challenges. It also boosts the confidence of the student and improves their problem-solving skills. 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The abacus can be used for addition, subtraction, multiplication, and division. At Indian Abacus, students of any age between 5 to 13 years can start learning 2. What is the use of abacus? The Indian Abacus is an educational counting tool that helps children learn to do fast and accurate mental arithmetic. It enhances brain skills such as concentration, visualization, listening skills, self-confidence, speed, and accuracy by activating the right brain. The abacus can be used for addition, subtraction, multiplication, and division. It also helps students overcome the fear of mathematics and achieve academic excellence in all subjects. 3. Why abacus is important? The primary objective of the Abacus program is to enhance the brain power and upgrade the brain skills of children. It helps in removing the fear of mathematics by making arithmetic calculations easier. Abacus education not only improves mathematics skills but also overall academic skills, problem-solving capacity, and boosts confidence. It also enables spatial ability, which is applied in areas such as Science, Architecture, Engineering, etc. Abacus helps develop analytical information and controls reading, writing, calculation, logical thinking, and more. We cannot imagine counting without numbers, but there was a time when written numbers did not exist. Earlier counting devices that were used for counting are the human hands and their fingers that are capable of counting only up to ten. Toes were also used to count when they had to count more than ten. A larger quantity was counted, with the help of natural items like pebbles, seashells and twigs. Merchants who used to trade goods needed a way to keep count of the goods they bought and sold. Before the invention of Computers, calculators, or even arithmetic using paper and pencil, the Abacus was mostly used for counting numbers. 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The fact that mathematics continues to be an integral part of not just every school's curriculum but a child's overall brain development since time immemorial brings us to a very notable question…"How Can You Upgrade Your Child's Math Skills?"While there can be innumerable ways to make that happen, one of the oldest yet fruitful techniques is to introduce your child to the world of Abacus.Defining abacus – An excellent tool to make math funAbacus is an age-old mechanical device consisting of two regions separated by a center rod. The abacus has rounded beads, which are adjustable and symbolize different digits. However, there are different kinds of abacus that exist for different uses. Manipulating these counters in a specific manner solves just about any basic arithmetic operation, including addition, subtraction, multiplication, division, and even squares, cubes, and roots up to degree three. It is believed that the mathematical tool has been in use for more than 4000 years now. Back in the olden times, merchants and traders from all around the world used similar devices to track the number of goods bought or sold to count large numbers in a more comprehensive method.The wonderful advantages of using abacus for learning The initial years of a human as a child are said to be like wet clay. This is the time that can be molded to shape the rest of an individual's life. So, getting your child enrolled in an Abacus class at an early age can undoubtedly have a huge number of advantages in the long run, some of which are listed below – 1. Sharpens observational skillsAs a child handles the beads of the frame with his/her fingers and sets them up to make calculations, they develop better observational skills and can examine situations and conclude more firmly. When learning abacus, there is a predominant use of flashcards; the kids are required to look at the flashcards, remember the numbers on the card and make calculations accordingly. This greatly improves the observational skills in kids, enhancing memory retention in them.2. Makes calculations easyCalculations become easy once a kid understands the working and the operation of the abacus. This also means that with Abacus learning, big calculations become easier and much more fun. The simple explanation behind how the abacus helps overcome math phobia is making math calculations simpler for students. Moreover, with time, students would not even physically need an abacus, while performing calculations. All they would have to do is mentally imagine the abacus and perform the operations. READ :   Geometry Vs Trigonometry: ELI5 The Difference3. Boosts confidenceBetter performance at arithmetic accounts for a boost in confidence level and nurtures one's analytical and problem-solving abilities as well. A child gets naturally more interested in the subject. Besides, the abacus helps students lay a strong academic foundation that fetches them positive feedback from parents and teachers. This, in a way, helps enhance confidence, especially in those kids who earlier felt a lack of self-confidence when solving even simple math equations.4. Enhances brain power & cognitionResearch[1] suggests that we humans generally use the left part of our brains, which allows us to read, write, calculate, etc. Neurologists[2] say that with Abacus training, one can stimulate the right hemisphere of his brain as well, which is responsible for creativity and other artistic capabilities. Therefore, the abacus doesn't only help with mathematics, but it enhances overall brain functioning and cognition. Not just for kids, abacus can be widely used for adults too!5. Develops lifetime skillsAbacus not only helps to inculcate mathematical proficiency into young minds but also refines skills like concentration, listening, attentiveness, creativity, speed, accuracy, imagination, memory power, comprehension, and all-around thinking abilities. In fact, it potentially brings about overall brain development. 6. Mental growth through virtual abacusWhen a child masters the Abacus tool, he can move on to solve arithmetic operations just by imagining the tool in his/her mind. Complex problems can be cracked mentally through this 'Virtual Abacus.' This might sound unrealistic but is, in fact, very much possible. Due to enhanced photographic memory[3], a child is able to do so. Initially, the child might need the abacus physically in front of them to perform the calculations; however, once the child has mastered and grasped it, the mental image of it would help the student manifolds. The lesser-known disadvantages of using abacus for learningYou must be wondering what could be the possible disadvantages of an Abacus. Well. There are a few, to be very honest. If you're a parent or a teacher, it is very important for you to note them down to prepare yourself to help your kids begin their learning journey. 1. Inability to solve advanced mathematicsWhile Abacus can brilliantly solve basic arithmetic problems, it is not possible for the poor thing to deal with complicated and advanced questions. Why is that? Abacus only deals with basic mathematical operations such as addition, subtraction, multiplication, and division. When it comes to advanced mathematics such as algebra or geometry, the abacus fails to teach students how to tackle these.2. You can't learn Abacus without a toolTo solve problems through the Abacus, you would need the tool; without it, performing mathematical operations would be impossible! If, in any case, the kid does not have an abacus or is not carrying one to the school, the possibility of using it to solve questions or problems would be next to none. However, once the child becomes trained with the abacus, they can perform the operations by visualizing a mental image of the abacus for simpler mathematical calculations. But, this would need a lot of time, practice, and consistency. 3. It can be confusingAbacus can be bewildering at first! All the beads, rows, and rods can leave the child perplexed at first. This can be a drawback as the child can be hesitant to learn to calculate through the abacus initially. However, once they get a hang and grasp of it, it not only looks like a cakewalk but even makes the mathematical operations look like a fun and easy task. Moreover, initially in school, the child is taught the various mathematical operations in the traditional way. Later, when they are introduced the same on the abacus, they might get confused as they know the traditional methods, but doing the same on the abacus might make them mix up both things. 4. Requires time and constant practiceWhile it is true that the abacus makes the calculations and operations as easy as pie for the kids, yet learning it and getting the proper hang of it might need time, and constant practice, without which, the child might not be able to master it. Once they learn it thoroughly, they can perform functions flawlessly, but the initial few days might be full of hiccups as the whole abacus system is way different from the blackboard methods. What Weighs More – The Advantages Or The Disadvantages:We can clearly discern that the benefits of Abacus learning are far more convincing and constructive in comparison to the disadvantages. The fact that mind-math through Abacus allows a child to evaluate basic arithmetic sums within a matter of seconds is impressive in itself. Apparently, the drawbacks are trivial enough when you look at the bigger picture. READ :   Abacus Or Kumon Math Program: Which One To Go For?After all, being able to solve math mentally, just with the image of an Abacus, permits children to enumerate at a great speed!Considering all of these aspects, there is a strong reason to encourage kids to participate in Abacus learning and eventually enhance their overall academic performance. Moreover, more than just learning through the abacus, thanks to the digital advent, children also indulge in many abacus apps, games, and activities to make the most of this operation. ConclusionPaul Halmos rightly said that "The only way to solve Mathematics, is to do Mathematics."And, when learning math involves a framework of colorful beads with tons of advantages, why would kids not like it? With the right guidance and teaching, school kids can certainly gain mastery over primary mathematics fundamentals through an Abacus Learning Programme. While a lot of people struggle to choose between Vedic maths and abacus; however, this centuries-old tool might have evolved into different forms over the years. But, it is till-date as efficient as before. So, if you're thinking of investing your time and energy into this, it is definitely a big YES from our side!References:[1] The left brain knows what the right hand is doing: Michael Price (2009, January)[2] The Effects of Long-term Abacus Training on Topological Properties of Brain Functional Networks: Weng J. (2017, August)[3] Effectiveness of innovative technique on the working of brain and creativity and performance in mathematics of fifth class students: M.G.N. College of Education, Jalandhar, Punjab, India. (Kauts D.) (2014, December)An engineer, Maths expert, Online Tutor and animal rights activist. In more than 5+ years of my online teaching experience, I closely worked with many students struggling with dyscalculia and dyslexia. With the years passing, I learned that not much effort being put into the awareness of this learning disorder. Students with dyscalculia often misunderstood for having just a simple math fear. This is still an underresearched and understudied subject. I am also the founder of Smartynote -'The notepad app for dyslexia', Additional Information about Class 5 for Primary 5 Preparation Importance of Class 5 Primary 5: Understanding Class 5 is crucial for Primary 5 exam success. Knowing its pattern, syllabus, and question paper analysis can significantly boost preparation. Practice papers and mock tests help improve performance. Best books and study materials, along with coaching and toppers' notes, are valuable resources. Stay updated with the official website for exam dates and results. Videos offer helpful explanations of complex concepts. Class 5 is a vital topic within [Subject], and mastering it ensures a solid foundation. Get Class 5 notes for the Primary 5 exam in a convenient PDF format at EduRev. Access free study material, syllabus, preparation tips, question papers, and mock tests. Enhance your exam preparation with subject-wise study material, best books, and sample papers. Stay updated with the latest exam pattern, date, and result announcements. Ace your Primary 5 exam with Toppers' notes, language practice papers, and paper analysis. All resources available at EduRev, the official website for comprehensive and reliable study material. Important Questions for Class 5 in Primary 5. Ace your Primary 5 exam with these crucial questions focused on Class 5. Get familiar with the exam pattern, syllabus, and preparation tips relevant to Class 5. Enhance your skills with practice papers tailored for Class 5, question paper analysis, and language proficiency. Access the best books, sample papers, and study material specifically designed for Class 5 to ensure effective preparation. Stay informed about the Primary 5 exam date and official website updates. Prepare smartly with EduRev, your ultimate resource for mastering Class 5 in Primary 5. Get ready to ace your Primary 5 exam with Class 5 Practice Questions! This comprehensive collection of practice papers and question papers is designed to help you master the exam. Boost your preparation with paper analysis and best books recommended by toppers. Access study material, notes, and sample papers for thorough revision. Stay updated with the exam date and official website for important announcements. Practice with mock tests and videos to enhance your understanding. Achieve success in Primary 5 with this reliable study resource, brought to you exclusively by EduRev. Calculating tool "Abaci" redirects here. For the Turkish Surname, see Abacı. For the medieval book, see Liber Abaci. For other uses, see Abacus (disambiguation). Bi-quinary coded decimal-like abacus representing 1,352,964,708 An abacus (pl. abaci or abacuses), also called a counting frame, is a hand-operated calculating tool which was used from ancient times in the ancient Near East, Europe, China, and Russia, until the adoption of the Hindu–Arabic numeral system.[1] An abacus consists of a two-dimensional array of slidable beads (or similar objects). In their earliest designs, the beads could be loose on a flat surface or sliding in grooves. Later the beads were made to slide on rods and built into a frame, allowing faster manipulation. Each rod typically represents one digit of a multi-digit number laid out using a positional numeral system such as base ten (though some cultures used different numerical bases). Roman and East Asian abacuses use a system resembling bi-quinary coded decimal, with a top deck (containing one or two beads) representing fives and a bottom deck (containing four or five beads) representing ones. Natural numbers are normally used, but some allow simple fractional components (e.g. 1⁄2, 1⁄4, and 1⁄12 in Roman abacus), and a decimal point can be imagined for fixed-point arithmetic. Any particular abacus design supports multiple methods to perform calculations, including addition, subtraction, multiplication, division, and square and cube roots. The beads are first arranged to represent a number, then are manipulated to perform a mathematical operation with another number, and their final position can be read as the result (or can be used as the starting number for subsequent operations). In the ancient world, abacuses were a practical calculating tool. It was widely used in Europe as late as the 17th century, but fell out of use with the rise of decimal notation[2] and algorismic methods. Although calculators and computers are commonly used today instead of abacuses, abacuses remain in everyday use in some countries. The abacus has an advantage of not requiring a writing implement and paper (needed for algorism) or an electric power source. Merchants, traders, and clerks in some parts of Eastern Europe, Russia, China, and Africa use abacuses. The abacus remains in common use as a scoring system in non-electronic table games. Others may use an abacus due to visual impairment that prevents the use of a calculator.[1] The abacus is still used to teach the fundamentals of mathematics to children in many countries such as Japan[3] and China.[4] The word abacus dates to at least 1387 AD when a Middle English work borrowed the word from Latin that described a sandboard abacus. The Latin word is derived from ancient Greek ἄβαξ (abax) which means something without a base, and colloquially, any piece of rectangular material.[5][6][7] Alternatively, without reference to ancient texts on etymology, it has been suggested that it means "a square tablet strewn with dust",[8] or "drawing-board covered with dust (for the use of mathematics)"[9] (the exact shape of the Latin perhaps reflects the genitive form of the Greek word, ἄβακος (abakos)). While the table strewn with dust definition is popular, some argue evidence is insufficient for that conclusion.[10][nb 1] Greek ἄβαξ probably borrowed from a Northwest Semitic language like Phoenician, evidenced by a cognate with the Hebrew word ʾābāq (אבק), or "dust" (in the post-Biblical sense "sand used as a writing surface").[11] Both abacuses[12] and abaci[12] are used as plurals. The user of an abacus is called an abacist.[13] The Sumerian abacus appeared between 2700 and 2300 BC. It held a table of successive columns which delimited the successive orders of magnitude of their sexagesimal (base 60) number system.[14] Some scholars point to a character in Babylonian cuneiform that may have been derived from a representation of the abacus.[15] It is the belief of Old Babylonian[16] scholars, such as Ettore Carruccio, that Old Babylonians "seem to have used the abacus for the operations of addition and subtraction; however, this primitive device proved difficult to use for more complex calculations".[17] Greek historian Herodotus mentioned the abacus in Ancient Egypt. He wrote that the Egyptians manipulated the pebbles from right to left, opposite in direction to the Greek left-to-right method. Archaeologists have found ancient disks of various sizes that are thought to have been used as counters. However, there are no known illustrations of this device.[18] At around 600 BC, Persians first began to use the abacus, during the Achaemenid Empire.[19] Under the Parthian, Sassanian, and Iranian empires, scholars concentrated on exchanging knowledge and inventions with the countries around them – India, China, and the Roman Empire – which is how the abacus may have been exported to other countries. An early photograph of the Salamis Tablet, 1899. The original is marble and is held by the National Museum of Epigraphy, in Athens. The earliest archaeological evidence for the use of the Greek abacus dates to the 5th century BC.[20] Demosthenes (384–322 BC) complained that the need to use pebbles for calculations was too difficult.[21][22] A play by Alexis from the 4th century BC mentions an abacus and pebbles for accounting, and both Diogenes and Polybius use the abacus as a metaphor for human behavior, stating "that men that sometimes stood for more and sometimes for less" like the pebbles on an abacus.[22] The Greek abacus was a table of wood or marble, pre-set with small counters in wood or metal for mathematical calculations.[23] This Greek abacus was used in Achaemenid Persia, the Etruscan civilization, Ancient Rome, and the Western Christian world until the French Revolution. The Salamis Tablet, found on the Greek island Salamis in 1846 AD, dates to 300 BC, making it the oldest counting board discovered so far. It is a slab of white marble 149 cm (59 in) in length, 75 cm (30 in) wide, and 4.5 cm (2 in) thick, on which are 5 groups of markings. In the tablet's center is a set of 5 parallel lines equally divided by a vertical line, capped with a semicircle at the intersection of the bottom-most horizontal line and the single vertical line. Below these lines is a wide space with a horizontal crack dividing it. Below this crack is another group of eleven parallel lines, again divided into two sections by a line perpendicular to them, but with the semicircle at the top of the intersection; the third, sixth and ninth of these lines are marked with a cross where they intersect with the vertical line.[24] Also from this time frame, the Darius Vase was unearthed in 1851. It was covered with pictures, including a "treasurer" holding a wax tablet in one hand while manipulating counters on a table with the other.[21] Main article: Roman abacus Copy of a Roman abacus The normal method of calculation in ancient Rome, as in Greece, was by moving counters on a smooth table. Originally pebbles (Latin: calculi) were used. Marked lines indicated units, fives, tens, etc. as in the Roman numeral system. Writing in the 1st century BC, Horace refers to the wax abacus, a board covered with a thin layer of black wax on which columns and figures were inscribed using a stylus.[25] One example of archaeological evidence of the Roman abacus, shown nearby in reconstruction, dates to the 1st century AD. It has eight long grooves containing up to five beads in each and eight shorter grooves having either one or no beads in each. The groove marked I indicates units, X tens, and so on up to millions. The beads in the shorter grooves denote fives (five units, five tens, etc.) resembling a bi-quinary coded decimal system related to the Roman numerals. The short grooves on the right may have been used for marking Roman "ounces" (i.e. fractions). The Roman system of 'counter casting' was used widely in medieval Europe, and persisted in limited use into the nineteenth century.[23] Wealthy abacists used decorative minted counters, called jetons. Due to Pope Sylvester II's reintroduction of the abacus with modifications, it became widely used in Europe again during the 11th century[26][27] It used beads on wires, unlike the traditional Roman counting boards, which meant the abacus could be used much faster and was more easily moved.[28] Main article: Suanpan A Chinese abacus (suanpan) (the number represented in the picture is 6,302,715,408) AbacusTraditional Chinese算盤Simplified Chinese算盘Literal meaning"calculating tray"TranscriptionsStandard MandarinHanyu PinyinsuànpánIPA[swân.pʰǎn]Yue: CantoneseYale Romanizationsyun-pùhnJyutpingsyun3-pun4IPA[syːn˧pʰuːn˩]Southern MinHokkien POJsǹg-pôaⁿTâi-lôsǹg-puânn The earliest known written documentation of the Chinese abacus dates to the 2nd century BC.[29] The Chinese abacus, also known as the suanpan (算盤/算盘, lit. "calculating tray"), comes in various lengths and widths, depending on the operator. It usually has more than seven rods. There are two beads on each rod in the upper deck and five beads each in the bottom one, to represent numbers in a bi-quinary coded decimal-like system. The beads are usually rounded and made of hardwood. The beads are counted by moving them up or down towards the beam; beads moved toward the beam are counted, while those moved away from it are not.[30] One of the top beads is 5, while one of the bottom beads is 1. Each rod has a number under it, showing the place value. The suanpan can be reset to the starting position instantly by a quick movement along the horizontal axis to spin all the beads away from the horizontal beam at the center. The prototype of the Chinese abacus appeared during the Han dynasty, and the beads are oval. The Song dynasty and earlier used the 1:4 type or four-beads abacus similar to the modern abacus including the shape of the beads commonly known as Japanese-style abacus.[31] In the early Ming dynasty, the abacus began to appear in a 1:5 ratio. The upper deck had one bead and the bottom had five beads.[32] In the late Ming dynasty, the abacus styles appeared in a 2:5 ratio.[32] The upper deck had two beads, and the bottom had five. Various calculation techniques were devised for Suanpan enabling efficient calculations. Some schools teach students how to use it. In the long scroll Along the River During the Qingming Festival painted by Zhang Zeduan during the Song dynasty (960–1297), a suanpan is clearly visible beside an account book and doctor's prescriptions on the counter of an apothecary's (Feibao). The similarity of the Roman abacus to the Chinese one suggests that one could have inspired the other, given evidence of a trade relationship between the Roman Empire and China. However, no direct connection has been demonstrated, and the similarity of the abacuses may be coincidental, both ultimately arising from counting with five fingers per hand. Where the Roman model (like most modern Korean and Japanese) has 4 plus 1 bead per decimal place, the standard suanpan has 5 plus 2. Incidentally, this ancient Chinese calculation system 市用制 (Shì yòng zhì) allows use with a hexadecimal numeral system (or any base up to 18) which is used for traditional Chinese measures of weight [(jīn (斤) and liǎng (兩)]. (Instead of running on wires as in the Chinese, Korean, and Japanese models, the Roman model used grooves, presumably making arithmetic calculations much slower). Another possible source of the suanpan is Chinese counting rods, which operated with a decimal system but lacked the concept of zero as a placeholder.[citation needed] The zero was probably introduced to the Chinese in the Tang dynasty (618–907) when travel in the Indian Ocean and the Middle East would have provided direct contact with India, allowing them to acquire the concept of zero and the decimal point from Indian merchants and mathematicians.[citation needed] The Abhidharmakośabhāṣya of Vasubandhu (316–396), a Sanskrit work on Buddhist philosophy, says that the second-century CE philosopher Vasumitra said that "placing a wick (Sanskrit vartikā) on the number one (ekāṅka) means it is a one while placing the wick on the number hundred means it is called a hundred, and on the number one thousand means it is a thousand". It is unclear exactly what this arrangement may have been. Around the 5th century, Indian clerks were already finding new ways of recording the contents of the abacus.[33] Hindu texts used the term śūnya (zero) to indicate the empty column on the abacus.[34] Main article: Soroban Japanese soroban In Japan, the abacus is called soroban (算盤, そろばん, lit. "counting tray"). It was imported from China in the 14th century.[35] It was probably in use by the working class a century or more before the ruling class adopted it, as the class structure obstructed such changes.[36] The 1:4 abacus, which removes the seldom-used second and fifth bead, became popular in the 1940s. Today's Japanese abacus is a 1:4 type, four-bead abacus, introduced from China in the Muromachi era. It adopts the form of the upper deck one bead and the bottom four beads. The top bead on the upper deck was equal to five and the bottom one is similar to the Chinese or Korean abacus, and the decimal number can be expressed, so the abacus is designed as a 1:4 device. The beads are always in the shape of a diamond. The quotient division is generally used instead of the division method; at the same time, in order to make the multiplication and division digits consistently use the division multiplication. Later, Japan had a 3:5 abacus called 天三算盤, which is now in the Ize Rongji collection of Shansi Village in Yamagata City. Japan also used a 2:5 type abacus. The four-bead abacus spread, and became common around the world. Improvements to the Japanese abacus arose in various places. In China, an abacus with an aluminium frame and plastic beads has been used. The file is next to the four beads, and pressing the "clearing" button puts the upper bead in the upper position, and the lower bead in the lower position. The abacus is still manufactured in Japan, despite the proliferation, practicality, and affordability of pocket electronic calculators. The use of the soroban is still taught in Japanese primary schools as part of mathematics, primarily as an aid to faster mental calculation. Using visual imagery, one can complete a calculation as quickly as with a physical instrument.[37] The Chinese abacus migrated from China to Korea around 1400 AD.[21][38][39] Koreans call it jupan (), supan () or jusan ().[40] The four-beads abacus (1:4) was introduced during the Goryeo Dynasty. The 5:1 abacus was introduced to Korea from China during the Ming Dynasty. Representation of an Inca quipu A yupana as used by the Incas Some sources mention the use of an abacus called a nepohualtzintzin in ancient Aztec culture.[41] This Mesoamerican abacus used a 5-digit base-20 system.[42] The word Nepōhualtzintzin Nahuatl pronunciation: [nepoːwaɬˈt͡sint͡sin] comes from Nahuatl, formed by the roots; Ne – personal -; pōhual or pōhualli Nahuatl pronunciation: [ˈpoːwalːi] – the account -; and tzintzin Nahuatl pronunciation: [ˈt͡sint͡sin] – small similar elements. Its complete meaning was taken as: counting with small similar elements. Its use was taught in the Calmecac to the temalpouhqueh Nahuatl pronunciation: [temaɬˈpoʍkeʔ], who were students dedicated to taking the accounts of skies, from childhood. The Nepōhualtzintzin was divided into two main parts separated by a bar or intermediate cord. In the left part were four beads. Beads in the first row have unitary values (1, 2, 3, and 4), and on the right side, three beads had values of 5, 10, and 15, respectively. In order to know the value of the respective beads of the upper rows, it is enough to multiply by 20 (by each row), the value of the corresponding count in the first row. The device featured 13 rows with 7 beads, 91 in total. This was a basic number for this culture. It had a close relation to natural phenomena, the underworld, and the cycles of the heavens. One Nepōhualtzintzin (91) represented the number of days that a season of the year lasts, two Nepōhualtzitzin (182) is the number of days of the corn's cycle, from its sowing to its harvest, three Nepōhualtzintzin (273) is the number of days of a baby's gestation, and four Nepōhualtzintzin (364) completed a cycle and approximated one year. When translated into modern computer arithmetic, the Nepōhualtzintzin amounted to the rank from 10 to 18 in floating point, which precisely calculated large and small amounts, although round off was not allowed. The rediscovery of the Nepōhualtzintzin was due to the Mexican engineer David Esparza Hidalgo,[43] who in his travels throughout Mexico found diverse engravings and paintings of this instrument and reconstructed several of them in gold, jade, encrustations of shell, etc.[44] Very old Nepōhualtzintzin are attributed to the Olmec culture, and some bracelets of Mayan origin, as well as a diversity of forms and materials in other cultures. Sanchez wrote in Arithmetic in Maya that another base 5, base 4 abacus had been found in the Yucatán Peninsula that also computed calendar data. This was a finger abacus, on one hand, 0, 1, 2, 3, and 4 were used; and on the other hand 0, 1, 2, and 3 were used. Note the use of zero at the beginning and end of the two cycles. The quipu of the Incas was a system of colored knotted cords used to record numerical data,[45] like advanced tally sticks – but not used to perform calculations. Calculations were carried out using a yupana (Quechua for "counting tool"; see figure) which was still in use after the conquest of Peru. The working principle of a yupana is unknown, but in 2001 Italian mathematician De Pasquale proposed an explanation. By comparing the form of several yupanas, researchers found that calculations were based using the Fibonacci sequence 1, 1, 2, 3, 5 and powers of 10, 20, and 40 as place values for the different fields in the instrument. Using the Fibonacci sequence would keep the number of grains within any one field at a minimum.[46] Russian schoty The Russian abacus, the schoty (Russian: счёты, plural from Russian: счёт, counting), usually has a single slanted deck, with ten beads on each wire (except one wire with four beads for quarter-ruble fractions). 4-bead wire was introduced for quarter-kopeks, which were minted until 1916.[47] The Russian abacus is used vertically, with each wire running horizontally. The wires are usually bowed upward in the center, to keep the beads pinned to either side. It is cleared when all the beads are moved to the right. During manipulation, beads are moved to the left. For easy viewing, the middle 2 beads on each wire (the 5th and 6th bead) usually are of a different color from the other eight. Likewise, the left bead of the thousands wire (and the million wire, if present) may have a different color. The Russian abacus was in use in shops and markets throughout the former Soviet Union, and its usage was taught in most schools until the 1990s.[48][49] Even the 1874 invention of mechanical calculator, Odhner arithmometer, had not replaced them in Russia. According to Yakov Perelman, some businessmen attempting to import calculators into the Russian Empire were known to leave in despair after watching a skilled abacus operator.[50] Likewise, the mass production of Felix arithmometers since 1924 did not significantly reduce abacus use in the Soviet Union.[51] The Russian abacus began to lose popularity only after the mass production of domestic microcalculators in 1974.[52] The Russian abacus was brought to France around 1820 by mathematician Jean-Victor Poncelet, who had served in Napoleon's army and had been a prisoner of war in Russia.[53] To Poncelet's French contemporaries, it was something new. Poncelet used it, not for any applied purpose, but as a teaching and demonstration aid.[54] The Turks and the Armenian people used abacuses similar to the Russian schoty. It was named a coulba by the Turks and a choreb by the Armenians.[55] Early 20th century abacus used in Danish elementary school A twenty bead rekenrek Around the world, abacuses have been used in pre-schools and elementary schools as an aid in teaching the numeral system and arithmetic. In Western countries, a bead frame similar to the Russian abacus but with straight wires and a vertical frame is common (see image). Each bead represents one unit (e.g. 74 can be represented by shifting all beads on 7 wires and 4 beads on the 8th wire, so numbers up to 100 may be represented). In the bead frame shown, the gap between the 5th and 6th wire, corresponding to the color change between the 5th and the 6th bead on each wire, suggests the latter use. Teaching multiplication, e.g. 6 times 7, may be represented by shifting 7 beads on 6 wires. The red-and-white abacus is used in contemporary primary schools for a wide range of number-related lessons. The twenty bead version, referred to by its Dutch name rekenrek ("calculating frame"), is often used, either on a string of beads or on a rigid framework.[56] Learning how to calculate with the abacus may improve capacity for mental calculation. Abacus-based mental calculation (AMC), which was derived from the abacus, is the act of performing calculations, including addition, subtraction, multiplication, and division, in the mind by manipulating an imagined abacus. It is a high-level cognitive skill that runs calculations with an effective algorithm. People doing long-term AMC training show higher numerical memory capacity and experience more effectively connected neural pathways.[57][58] They are able to retrieve memory to deal with complex processes.[59] AMC involves both visuospatial and visuomotor processing that generate the visual abacus and move the imaginary beads.[60] Since it only requires that the final position of beads be remembered, it takes less memory and less computation time.[60] Two binary abacuses constructed by Robert C. Good Jr., made from two Chinese abacuses The binary abacus is used to explain how computers manipulate numbers.[61] The abacus shows how numbers, letters, and signs can be stored in a binary system on a computer, or via ASCII. The device consists of beads on parallel wires arranged in three rows; each bead represents a switch which can be either "on" or "off". An adapted abacus, invented by Tim Cranmer, and called a Cranmer abacus is commonly used by visually impaired users. A piece of soft fabric or rubber is placed behind the beads, keeping them in place while the users manipulate them. The device is then used to perform the mathematical functions of multiplication, division, addition, subtraction, square root, and cube root.[62] Although blind students have benefited from talking calculators, the abacus is often taught to these students in early grades.[63] Blind students can also complete mathematical assignments using a braille-writer and Nemeth code (a type of braille code for mathematics) but large multiplication and long division problems are tedious. The abacus gives these students a tool to compute mathematical problems that equals the speed and mathematical knowledge required by their sighted peers using pencil and paper. Many blind people find this number machine a useful tool throughout life.[62] Chinese Zhusuan Chisanbop Logical abacus Napier's bones Sand table Slide rule ^ Both C. J. Gadd, a keeper of the Egyptian and Assyrian Antiquities at the British Museum, and Jacob Levy, a Jewish historian who wrote Neuhebräisches und chaldäisches wörterbuch über die Talmudim und Midraschim [Neuhebräisches and Chaldean dictionary on the Talmuds and Midrashi], disagree with the "dust table" theory.[10] ^ a b Boyer & Merzbach 1991, pp. 252–253 ^ "Abacus | Definition, History, Origin, & Facts". Encyclopædia Britannica. January 17, 2025. Retrieved January 30, 2025. ^ "The Japan Society - Soroban: The Japanese Abacus". www.japansociety.org.uk. Retrieved January 17, 2025. ^ Gueudet, Ghislaine; Poisard, Caroline (January 1, 2019). "Design and use of curriculum resources for teachers and teacher educators: Example of the Chinese abacus at primary school". International Journal of Educational Research. 93: 68–78. doi:10.1016/j.ijer.2018.10.007. 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Look up abacus in Wiktionary, the free dictionary. Wikimedia Commons has media related to Abacus. Texts on Wikisource: "Abacus", from A Dictionary of Greek and Roman Antiquities, 3rd ed., 1890. "Abacus" . Encyclopædia Britannica. Vol. I (9th ed.). 1878. p. 4. "Abacus". Encyclopædia Britannica (11th ed.). 1911. Heffelfinger, Totton & Gary Flom, Abacus: Mystery of the Bead - an Abacus Manual Min Multimedia Stephenson, Stephen Kent (2009), How to use a Counting Board Abacus Esaulov, Vladimir (2019), History of Abacus and Ancient Computing The Abacus: a Brief History Schreiber, Michael (2007), Abacus, The Wolfram Demonstrations Project Abacus in Various Number Systems at cut-the-knot Java applet of Chinese, Japanese and Russian abaci An atomic-scale abacus Examples of Abaci Aztex Abacus Indian Abacus Abacus Course Retrieved from " Abacus classes offer a unique approach to learning mathematics by using the abacus tool. These classes are designed to enhance mental math skills and improve overall cognitive abilities. Whether your child is struggling with arithmetic or simply wants to excel in mathematics, abacus training can provide them with the necessary skills and confidence to succeed. In this guide, we will discuss the different types of abacus classes available, the course structure and content, as well as the benefits of learning abacus. We will also provide valuable tips on how to choose the right class for your child. So let’s dive in and discover the world of abacus! Abacus classes Local abacus centres often conduct in-person classes, allowing for direct interaction with instructors. These classes are ideal for hands-on learning and immediate feedback. Weekend classes are commonly offered, making it convenient for both students and parents. Course Structure and Content Abacus courses typically follow a structured curriculum that covers various aspects of abacus learning. Here are the key components you can expect to find in a beginner-level abacus course: 1. Basic Techniques: Students start by learning how to hold the abacus, read numbers, and manipulate beads. This foundational knowledge is essential for mastering more complex calculations. 2. Arithmetic Operations: Once the basic techniques are grasped, students move on to learning addition, subtraction, multiplication, and division using the abacus. The tactile nature of the abacus helps students visualize mathematical concepts and reinforces their understanding of arithmetic operations. 3. Mental Math Skills: As students progress through the course, they gradually transition from using the physical abacus to performing mental calculations. This step enhances their cognitive abilities, including concentration, memory, and problem-solving skills. 4. Practice Exercises: Regular practice is essential for mastering any skill, and abacus classes emphasize this through exercises designed to reinforce learning. Students are encouraged to practice regularly to solidify their understanding and improve their speed and accuracy. 5. Levels of Learning: Most abacus programs are divided into levels, with each level building upon the skills learned in the previous one. For example, Mastermind Abacus offers eight levels, each lasting three months. Each level focuses on progressively complex calculations and helps students develop a strong foundation in mental math. Benefits of Learning Abacus The benefits of learning abacus go beyond simply improving mathematical skills. Here are some key advantages: 1. Improved Mathematical Skills: Abacus training helps students become proficient in arithmetic, which can lead to better performance in school. The ability to perform mental calculations quickly and accurately gives them a competitive edge. 2. Enhanced Cognitive Abilities: Studies have shown that abacus training is linked to improved concentration, memory, and problem-solving skills. The mental stimulation involved in using the abacus strengthens neural connections and enhances overall cognitive abilities. 3. Increased Confidence: Mastering calculations using the abacus boosts students’ confidence in their math abilities. This newfound confidence encourages a positive attitude towards learning and helps them tackle more challenging mathematical concepts with ease. How to Choose the Right Class When selecting an abacus class for your child, it is essential to consider several factors: 1. Age Appropriateness: Ensure that the class is suitable for your child’s age group. Different programs cater to different age ranges, so choose one that aligns with your child’s developmental stage. 2. Course Reviews: Look for feedback from previous students and parents to gauge the effectiveness of the program. Positive reviews and testimonials can provide insight into the quality of instruction and the impact it has had on students. 3. Instructor Qualifications: Check the experience and teaching style of the instructors. Qualified and experienced instructors can make a significant difference in how effectively your child learns and progresses in their abacus journey. Abacus classes offer a valuable opportunity for beginners to enhance their mathematical skills through engaging and structured learning. By choosing the right class for your child, you can unlock their mathematical potential and set them on a path towards success. Remember to consider age appropriateness, learning styles, course reviews, and instructor qualifications when making your decision. With the right guidance and practice, your child can excel in mathematics and develop essential cognitive abilities. SIP Abacus classes provide a solid foundation for beginners to develop strong mathematical skills. These classes not only improve arithmetic abilities but also enhance concentration, memory, and problem-solving skills. By choosing the right class for your child, you can unlock their mathematical potential and boost their confidence. With the right program and regular practice, your child can excel in mathematics and gain a competitive edge.