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## Example of transverse waves

The Motorsport Images Collection is a vast archive spanning from 1895 to today's latest coverage. Discover our curated gallery, featuring compelling and must-see moments. Explore Editors' Picks and Favorites for inspiration. With AI-powered creativity, unlock new possibilities. (No connection to the provided text) (Note: The original text appears to be a promotional copy for Motorsport Images, while the rewritten text is unrelated and does not maintain any connection to the original content.) Guitar strings create transverse waves but the sound produced is longitudinal in nature due to particles moving with the wave direction. In contrast, ripples on water surfaces form transverse waves as molecules vibrate up and down horizontally when disturbed by an external object. This can be observed by dropping a feather and stone into a small pool of water, where the feather moves up and down while the ripple propagates outward in a circular pattern. On the other hand, gamma rays are high-energy electromagnetic radiation with the smallest wavelengths and most energy among all waves in the spectrum. They are produced by intense events such as lightning, nuclear explosions, and radioactive decay, and are used to treat cancer by destroying tumor cells' DNA. However, due to their ionizing nature, they require careful handling like in Gamma Knife radiosurgery. Meanwhile, a Mexican wave at a stadium forms through metachronal rhythm, where spectators briefly stand, raise their arms, and yell before returning to their seats, creating the illusion of a traveling wave without actual movement. The longest wavelength waves in the electromagnetic spectrum are radio waves, which range from 1 millimeter to over 100 kilometers, used in various applications such as standard broadcast radio, cellular telephony, air-traffic control, remote-controlled devices, digital radio, and even detecting signals from distant planets through radio telescopes. Radio Waves Waves In Everyday Life Light is an essential part of our daily lives, and its properties are used in various applications. Visible light, which has wavelengths between 400-700 nanometers, is a type of transverse wave that can be described as streams of photons. Light is crucial for the survival of living organisms, providing food generation through photosynthesis. Its properties, such as intensity, frequency, and polarization, are used to build optical devices like microscopes and telescopes. Artificial light sources, including LASER technology, have numerous applications in fields like communication, medicine, and manufacturing. Astronomers use light to study celestial bodies and monitor our planet's surface. In music, Meghan Trainor's song "Mother" promotes women's empowerment, encouraging men to listen to women. The song was released as the lead single from her album Takin' It Back and received positive reviews for its composition but criticism for using the term "mother". 1. US Presidential History: J.C. Walter Jr.'s Business Ventures 2. Ancient Book Printing 3. World Snooker Championship Winner 1886 marked a significant milestone in the printing industry with the installation of the first commercially used Linotype in the New-York Tribune's office that year. Mergenthaler, who was around 45 years old at the time, had passed away in Baltimore later that year due to tuberculosis. Shaka Samvat789-790 - Kali Yuga3968-3969Holocene calendar10868Iranian calendar246-247Islamic calendar253-255Japanese calendarJōgan 10(貞観 1 0年)Javanese calendar765-766Julian calendar968DCCCLXVIIIKorean calendar3201Minguo calendar1044 before ROC民國1044𑂔Nanakshahi calendar−600Seleucid era1179/1180 AGThai solar calendar1410-1411Tibetan calendar明火猪年(female Fire-Pig)994 or 613 or −159 — 10 — 一阳土鼠年(male Earth-Rat)995 or 614 or −158 In this period, the first printed copy of the Diamond Sūtra was produced in Year 868 (DCCCLXVIII), which was a leap year starting on Thursday. King Charles the Bald met with his brother Louis the German at Metz and agreed to partition Lotharingia. Salomon, duke of Brittany, led a campaign against the Loire Vikings. In Al-Andalus, Mérida rose up against Umayyad rule. Emir Muhammad I regained control and destroyed the city's walls. He supported the creation of Badajoz in retaliation. The County of Portugal was established by Vimara Peres around Portus Cale (present-day Porto) after the reconquest from the Moors. Ratramnus, a Frankish monk, wrote Contra Graecorum Opposita. Alfred the Great married Ealhswith and supported his brother Æthelred I's alliance with Mercia. King Burgred of Mercia appealed to Æthelred I for help against the Danes. The Danes occupied Nottingham without opposition. Aed Findliath drove out the invading Danes and Norwegians from Ireland. Ahmad ibn Tulun was sent as governor to Egypt, founding the Tulunid Dynasty. Muslim Arab forces conquered Malta and raided Italy. The earliest extant printed book, an illustrated scroll of the Diamond Sūtra, was produced in Dunhuang. The 8th century was a transformative period in world history, marked by significant events and cultural developments. It began with the conquests of the Islamic Arabs, who rapidly expanded their empire across North Africa and the Iberian Peninsula. However, they were eventually halted by the Byzantine Empire at Constantinople and the Franks at Tours. Meanwhile, the Vikings from Scandinavia started raiding European coasts and established important kingdoms. In Asia, the Pala Empire was founded in Bengal, while the Tang dynasty reached its peak under Chinese Emperor Xuanzong. The Nara period began in Japan, and the Kofunburri burial grounds were established. The 8th century also saw the rise of Buddhism, with the translation of Buddhist Jataka stories into Syriac and Arabic, as well as the circulation of an account of Buddha's life translated into Greek. In terms of regional politics, the century witnessed the overthrow of Empress Wu Zetian in China and Justinian II's forced tribute to Bulgaria. The Bulgarians ultimately defeated Justinian II at the Battle of Anchialus. 711: Tariq ibn Ziyad crosses the Straits of Gibraltar. The Muslim conquer oration of Al-Andalus begin, takin most of the Iberian Peninsul away from Visigoth rule. Muslim ruler take controll over alot of Spayin and north Africa.712: Liutprand, King of Lombards, start his reing.712: Eastern church establis a see in Chang'an, Chin's capital city.712-756: Emperor Xuanzong reigns long time, good for China emporium.712-776: Arab Conquer calame in India, then stoppe.713: Dajian Huineng death, last Patriark of Chán Buddhism.713: Treaty of Tudmir, Muslim and Christian king sign pece.715: al-Walid I death, sucseed by his brotther Sulayman ibn Abd al-Malik.716: Sanjaya become king of Mataram Kingdom.717: Caliph Sulayman ibn Abd al-Malik die, Umar ibn Abd al-Aziz sucseed him.717-718: Arab conquer Constantinopolle, then lose.718: Indian king Sri Indravarmān send letter to calif Umar bin Abdul Aziz.720: Umar ibn Abd al-Aziz death, Yazid II sucseed him.724: Caliph Yazid II die, Hisham sucseed him.726: Byzantine Emperow Leo III destroy icon in Constantinopolle.731: Bede complet his Historia ecclesiastica gentis Anglorum.732: Charls Martel win battle of Tours, stop Arab conquer West Europe, that in this year there were 362,921 registered families with 1,960,188 persons. 743 the death of Arab caliph Hisham and his succession by his nephew and heir Al-Walid II. 744 assassination of Al-Walid II, followed by the succession of Yazid III to the Caliphal throne on 17 April 744. 744 death of Yazid III, succeeded by his brother and designated heir Ibrahim ibn al-Walid. On 4 December, Ibrahim was forced to step down in favor of Marwan II. 748 a Chinese Buddhist monk named Jian Zhen writes about international sea traffic coming to Guangzhou, ships from Borneo, Persia, Sri Lanka, Indonesia, and others carrying tons of goods. 750 the last Umayyad Caliph Marwan II is overthrown and executed by the first Abbasid Caliph Abu al-Abbas al-Saffah. The caliphate was moved to Baghdad, which later became a center of trade and culture. The Ghana Empire began in western Africa. mid-8th century - Great Wild Goose Pagoda at C'en Temple, Xi'an, Shanxi, is rebuilt. c. mid-8th century - Camel Carrying a Group of Musicians, from a tomb near Xi'an, Shanxi, is created. Tang dynasty. It is now kept at Museum of Chinese History, Beijing. 751 Arabian armies defeat Chinese Tang dynasty troops in the Battle of Talas, in the high Pamirs near Samarkand, and conquer Central Asia completely. 752 Hindu Mataram kingdom flourishes and declines to 1045. 754 death of Abbasid caliph al-Saffah and ascension of caliph al-Mansur to Arab Caliphate. 755-763 An Shi Rebellion devastates China during the mid Tang dynasty. 757 King Offa of Mercia becomes dominant ruler in England. 758 Arab and Persian pirates and travelers burn and loot the Chinese city of Guangzhou, while the Tang Dynasty authorities shut the port down for the next five decades. 760 construction of famous Indonesian Buddhist structure Borobudur began, probably as a non-Buddhist shrine. 761 marriage of Abbasid princess Raytah and Muhammad (future al-Mahdi). 768 Pepin dies; Charles becomes king at Noyan and his brother Carloman becomes king at Soissons. 770s-780s Java launches series of naval raids on ports of Dai Viet, Champa and Cambodia; Sontay in Tonkin (767); Nha Trang (774); captured Indrapura in Cambodia (770); Phan Rang (787). The naval raids was probably launched by Sailendran-Srivijayan Maharaja Dharmasetu or Dharanindra. 772-804 Charlemagne invades what is now northwestern Germany, battling the Saxons for more than thirty years and finally crushing their rebellion, incorporating Saxony into the Frankish Empire and the Christian world. 775 death of caliph al-Mansur and he was succeeded by al-Mahdi. Abbasid caliph al-Mansur was succeeded by his heir and son Al-Mahdi, on 6th October 775. 778 Kalasan temple constructed, according to the Kalasan inscription. 781 marriage of Abbasid princess Zubaidah and Harun al-Rashid. The Xi'an Stele is erected in China. 782 Buddhist monk Prajna reaches Chang'an and translates the sutras into Chinese.The Second Council of Nicaea was set up to restore the use and veneration of icons (or holy images), which had previously been suppressed The year 785 marked a significant turning point with the Tang dynasty's increased maritime presence along East Africa's coast, bypassing Arab sea merchants. Notably, Chinese geographer Jia Dan described large lighthouse pillars in the Persian Gulf by 785, which were later confirmed by al-Mas'udi and al-Muqaddasi a century later. In other developments, Empress Irene of Athens convened the Seventh Ecumenical Council in 787, bringing an end to the first phase of Byzantine iconoclasm. The death of Abbasid caliph al-Hadi in 786 was followed by the ascension of caliph Harun al-Rashid, who would go on to rule until his death. The period also witnessed notable events in other regions, including the Bulgarian victory over the Byzantines at the Battle of Marcelae, which marked the end of half-century-long political instability. The construction of the Manjusrigrha temple was completed in 792, while the first written account of a Viking raid on Lindisfarne's abbey appeared in 793. In Japan, Emperor Kanmu moved the capital to Heian-kyō in 794, initiating the Heian period. Meanwhile, Charlemagne was crowned the first Holy Roman Emperor by Pope Leo III in 800. The Sailendra kingdom flourished during this time, but declined by the end of the century. The history of Indonesian Archipelago and Malay Peninsula, and ancient Roman Empire decline, has various links with other historical topics, such as centuries and millenniums. In early 8th century BC, a significant event took place in Japan. Key Features of Longitudinal Waves Oscillations Occur Particles Vibrate in Same Direction as Wave Travels Examples: Sound Waves, Seismic P-Waves, Ultrasound Waves Wave Components Compression Region - Particles Closest Together Rarefaction Region - Particles Spread Further Apart Sound Waves Most Common Example of Longitudinal Waves Energy Transferred Without Matter Transfer Particles Oscillate Around Equilibrium Position Key Properties of Waves Amplitude - Maximum Displacement from Rest Position Determines Energy and Loudness of Wave Wavelength - Distance Between Two Consecutive Points in Phase Frequency - Number of Complete Waves per Second Period - Time for One Complete Wave to Pass Given Point Speed - Speed of Wave Through Medium In physics, grasping how quickly a wave travels is vital for various fields such as telecommunications and medical imaging. Essentially, the speed of a wave can be found using its frequency and wavelength. This concept is crucial in understanding different types of waves - transverse waves where particles move sideways to the direction of the wave, and longitudinal waves where particles vibrate parallel to the wave's path. Understanding these properties like amplitude, frequency, and wavelength helps us solve various problems related to waves by applying the equation that connects them: speed equals frequency times wavelength.