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Scientists can break down, or sequence, DNA into its constituent nucleotides which can, for example, tell a person if they have a genetic disease. Common methods of DNA extraction involve the use of isopropanol or ethanol in one step of the process. However, cells contain many other molecules like proteins and lipids, and scientists naturally want to get a solution of DNA that's as pure as possible.Methods of DNA extraction typically involve several steps: the cells need to be broken open, the membrane lipids need to be removed, and the DNA needs to be separated from proteins, RNA, and other contaminants. Two typical protocols are alkaline lysis for extraction of bacterial plasmid DNA and phenol-chloroform extraction. In both methods, ethanol or isopropanol precipitation of nucleic acids is one of the final steps. Once the DNA or RNA has been precipitated (fallen out of solution), it can be resuspended in water. Both ethanol and isopropanol mix well (are miscible with) water, but they have lower dielectric constants than water, meaning that their ability to shield positive and negative charges in the solution and keep them segregated is much poorer. The dielectric constant for water, for example, is 78.5, while the constant for ethanol is 24.3. DNA is negatively charged, so it's attracted to positive ions in the solution like potassium or sodium. Ethanol has a poorer ability than water to keep the positively charged ions and the DNA apart. Ethanol also makes the DNA less soluble for another reason. Since the ethanol molecules can form interactions called hydrogen bonds with water molecules, they decrease the number of water molecules available to hydrate the DNA. Between this effect and the lower dielectric constant, the ethanol basically causes the DNA to aggregate with positive ions in the solution, forming a solid or precipitate at the bottom of the tube. Precipitating the DNA serves to make it more concentrated because other contaminants in the solution are not precipitated at the same time. The ethanol wash also serves to remove low molecular weight contaminants like salts and detergents. The salt chosen may vary depending on whether it's necessary to precipitate sodium dodecyl sulfate (SDS) detergent from an earlier step; potassium acetate in an alkaline lysis can remove the SDS before the ethanol/isopropanol is added.

Ethanol can also be used to precipitate RNA for the same reason, although precipitation of RNA will typically require more ethanol.Carleton College: DNA Extraction. Brennan, John, "What Does Ethanol Do In A DNA Extraction?". sciencing.com. 26 April 2018. APA Brennan, John (2018, April 26). What Does Ethanol Do In A DNA Extraction?. sciencing.com. Retrieved from Chicago Brennan, John. What Does Ethanol Do In A DNA Extraction? last modified August 30, 2022. When DNA concentration in the sample is heavy, the addition of ethanol will cause a white precipitate to form immediately. If the DNA concentration in the sample is low, isopropanol may work better than ethanol to precipitate the available proteins. In addition, isopropanol is often used for precipitating DNA from large volumes as less alcohol is used see protocols below. The ethanol and isopropanol can also wash away the remaining salt residue.After being washed in alcohol and subjected to a centrifuge, the precipitated DNA protein will form a pellet, which can be washed in alcohol again, dried, and re-suspended in a Tris or TE buffer. Be careful not to overdry the sample, since this can denature the DNA; just leave the washed pellet on the lab table for a few minutes.If isopropanol has been used during the extraction instead of ethanol, the sample may not adhere as tightly to the tube and may require a longer drying time. Incubate on ice for 15 minutes.However, these enzymes are temperature sensitive and cooling the solution slows down the process of degradation. Everything except the DNA will dissolve in ethanol. The ethanol pulls water from the DNA molecule so that it then collapses in on itself and precipitates.The DNA will become visible as white mucous strands that can be spooled with the wooden applicator stick. The colder the ethanol is the greater the amount of DNA that is precipitated. You could try having some of the students use room temperature ethanol and see if the amount of DNA they can spool is the same or less than that for the groups using the ice-cold ethanol.

ethanol Discussion Questions and Answers To extract DNA from cells, what must you isolate it from in the case of a plant such as strawberry? All the other parts of the cell - the cell wall, cell membrane, nuclear membrane, mitochondria, vacuoles, endoplasmic reticulum, Golgi apparatus, lysosomes, etc. First we broke apart the cell walls by physically squishing the fruit.The chemical detergent process broke down the cell walls, cell membranes and nuclear membranes. The mixture was filtered to separate out the large cell parts that are not needed. The DNA was then precipitated through chemical means the ethanol. DNA can be used for the identification of people involved in crimes, to help determine parentage of people and also of plants and animals, and to check for genetic defects. However, according to Maniatis et al.This explanation should bring you up to speed on how ethanol precipitation works. If you want to learn more about the ins and outs of ethanol precipitation and other DNA clean-up approaches, you might want to check these out.Has this helped you? Then please share with your network. Thank you very much for your great article. How can we cite your article? Scientists can break down, or sequence, DNA into its constituent nucleotides which can, for example, tell a person if they have a genetic disease. Common methods of DNA extraction involve the use of isopropanol or ethanol in one step of the process.However, cells contain many other molecules like proteins and lipids, and scientists naturally want to get a solution of DNA that's as pure as possible. Methods of DNA extraction typically involve several steps: the cells need to be broken open, the membrane lipids need to be removed, and the DNA needs to be separated from proteins, RNA, and other contaminants. Two typical protocols are alkaline lysis for extraction of bacterial plasmid DNA and phenol-chloroform extraction.In both methods, ethanol or isopropanol precipitation of nucleic acids is one of the final steps. Share copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your view. ShareAlike If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions You may apply legal terms and technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. We are independent & ad-supported. We may earn a commission for purchases made through our links. Advertiser Disclosure Our website is an independent, advertising-supported platform. We provide our content free of charge to our readers, and to keep it that way, we rely on revenue generated through advertisements and affiliate partnerships. This means that when you click on certain links on our site and make a purchase, we may earn a commission. Learn more. How We Make Money We sustain our operations through affiliate commissions and advertising. If you click on an affiliate link and make a purchase, we may receive a commission from the merchant at no additional cost to you. We also display advertisements on our website, which help generate revenue to support our work and keep our content free for readers. Our editorial team operates independently of our advertising and affiliate partnerships to ensure that our content remains unbiased and focused on providing you with the best information and recommendations based on thorough research and honest evaluations. To remain transparent, we've provided a list of our current affiliate partners here. All The Science, in your inbox Our latest articles, guides, and more, delivered daily. By Mary Elizabeth Updated Jun05,2024 By Michael Pollick Updated May21,2024 By C.H. Senn Updated May21,2024 Explore fresh perspectives Popular picks Genetic engineering is manipulation of cell DNA. Though many people question the ethics, genetic engineering is commonly used by ... Solar power is energy derived from the sun and converted into heat or electricity. Versatile and renewable, solar power

Set 224 has been the Rotherhithe Club. The club has been active in the community since 1976 by topics& arts and science&Arts&Literature&Music&Science&Local leaders&Colonial governors&Religious leaders&Birth and death categories&More featured pictures&Community portal The central hub for editors, with resources, links, tasks, and announcements.Village pump Forum for discussions and activist Ngw wa Thiong'o (pictured) dies at the age of 87.In sumo, natsuo Daiki is promoted to yokozuna.In an association football, Liverpool win the Premier League title.In the Surinamese general election, the National Democratic Party wins the most seats in the National Assembly.In motor racing, lex Palou wins the Indianapolis 500.Ongoing: Gaza warM23 campaignNigerian invasion of Ukrainetimeline&Sudanese civil wartimelineRecent deaths: Harrison Ruffin TylerPhil RobertsonMary K. GaillardPeter David&Alan GryllsGerry ConnollyNominate an articleJune 1Wreckage of American Airlines Flight 14201676 Scaniaan War: The Swedish warship Kronan, one of the largest ships in the world at the time, sank at the Battle of land with the loss of around 800 men.1857 The Revolution of the Ganadhoors, the first general strike in Brazil, began in Salvador, Bahia.1974 In an informal article in a medical journal, Henry Heimlich introduced the concept of abdominal thrusts, commonly known as the Heimlich maneuver, to treat victims of choking.1988 Group representation constituencies were introduced to the parliament of Singapore.1999 On landing at Little Rock National Airport in the U.S. state of Arkansas, American Airlines Flight 1420 overran the runway and crashed (wreckage picture), resulting in 11 deaths.Kitabatake Chikafusa (d.1354)Louisa Caroline Tuthill (d.1879)Tom Holland (b.1996)Faizul Waheed (d.2021)More anniversaries: May 31June 1June 2&Archibey&mail list of days of the year&About&Drosera capensis, commonly known as the Cape sundew, is a perennial rosette-forming carnivorous plant in the family Droseraceae. It is endemic to the Western Cape and Eastern Cape provinces of South Africa. As in all sundews, the leaves are covered in sticky, mucilage-secreting glands or "tentacles" that attract, trap, and digest arthropod prey. When prey is captured, the leaves curl up around a Mediterranean fruit fly over a period of approximately six hours.Video credit: Scott SchillerRecently featured: Cumulus metulferrugineus Tones&Australian water birds&Archives&More featured pictures&Community portal The central hub for editors, with resources, links, tasks, and announcements.Village pump Forum for discussions about Wikipedia itself, including policies and technical issues.Site news Sources of news about Wikipedia and the broader Wikimedia movement.Teachouse Ask basic questions about using or editing Wikipedia.Help desk Ask questions about using or editing Wikipedia.Reference desk Ask research questions about encyclopedic topics.Content portals A unique way to navigate the encyclopedia.Wikipedia is written by volunteer editors and hosted by the Wikimedia Foundation, a non-profit organization that also hosts a range of other volunteer projects: CommonsFree media repository MediaWikiWiki software development Meta-WikiWikimedia project coordination WikibooksFree textbooks and manuals WikidataFree knowledge base WikinewsFree-content news WikiquoteCollection of quotations WikisourceFree-content library WikispeciesDirectory of species WikiversityFree learning tools WikivoyageFree travel guide WiktionaryDictionary and thesaurusThis Wikipedia is written in English. Many other Wikipeidias are available: some of the largest are listed below. 1,000,000+&articles&Deutsch&Espaol&Fransais&Italiano&Nederlands&Polski&Portugals&Svenska&Ting 250,000+&articles&Bahasa Indonesia&Bahasa Melayu&bn-vm&Catalan&it&Dansk&Eesti&Esperanto&Euskara&Magyar&Norsk bokm&lr&Roman&Simple English&Slovenian&Srpski&Srpskohrvatski&Suomi&Trke&Ozbekcha&50,000+&articles

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Unsourced material may be challenged and removed.Find sources: "1676"news newspapers books scholar [ISOR] September 2017 (1) &How and when to remove this message&October 1676&Millennium2&millennium2&Century17&Century17&Century18&Century18&Decades165&165&166&166&167&167&168&168&169&169&Years167&167&168&168&169&169&170&170&171&171&172&172&173&173&174&174&175&175&176&176&177&177&178&178&179&179&180&180&181&181&182&182&183&183&184&184&185&185&186&186&187&187&188&188&189&189&190&190&191&191&192&192&193&193&194&194&195&195&196&196&197&197&198&198&199&199&200&200&201&201&202&202&203&203&204&204&205&205&206&206&207&207&208&208&209&209&210&210&211&211&212&212&213&213&214&214&215&215&216&216&217&217&218&218&219&219&220&220&221&221&222&222&223&223&224&224&225&225&226&226&227&227&228&228&229&229&230&230&231&231&232&232&233&233&234&234&235&235&236&236&237&237&238&238&239&239&240&240&241&241&242&242&243&243&244&244&245&245&246&246&247&247&248&248&249&249&250&250&251&251&252&252&253&253&254&254&255&255&256&256&257&257&258&258&259&259&260&260&261&261&262&262&263&263&264&264&265&265&266&266&267&267&268&268&269&269&270&270&271&271&272&272&273&273&274&274&275&275&276&276&277&277&278&278&279&279&280&280&281&281&282&282&283&283&284&284&285&285&286&286&287&287&288&288&289&289&290&290&291&291&292&292&293&293&294&294&295&295&296&296&297&297&298&298&299&299&300&300&301&301&302&302&303&303&304&304&305&305&306&306&307&307&308&308&309&309&310&310&311&311&312&312&313&313&314&314&315&315&316&316&317&317&318&318&319&319&320&320&321&321&322&322&323&323&324&324&325&325&326&326&327&327&328&328&329&329&330&330&331&331&332&332&333&333&334&334&335&335&336&336&337&337&338&338&339&339&340&340&341&341&342&342&343&343&344&344&345&345&346&346&347&347&348&348&349&349&350&350&351&351&352&352&353&353&354&354&355&355&356&356&357&357&358&358&359&359&360&360&361&361&362&362&363&363&364&364&365&365&366&366&367&367&368&368&369&369&370&370&371&371&372&372&373&373&374&374&375&375&376&376&377&377&378&378&379&379&380&380&381&381&382&382&383&383&384&384&385&385&386&386&387&387&388&388&389&389&390&390&391&391&392&392&393&393&394&394&395&395&396&396&397&397&398&398&399&399&400&400&401&401&402&402&403&403&404&404&405&405&406&406&407&407&408&408&409&409&410&410&411&411&412&412&413&413&414&414&415&415&416&416&417&417&418&418&419&419&420&420&421&421&422&422&423&423&424&424&425&425&426&426&427&427&428&428&429&429&430&430&431&431&432&432&433&433&434&434&435&435&436&436&437&437&438&438&439&439&440&440&441&441&442&442&443&443&444&444&445&445&446&446&447&447&448&448&449&449&450&450&451&451&452&452&453&453&454&454&455&455&456&456&457&457&458&458&459&459&460&460&461&461&462&462&463&463&464&464&465&465&466&466&467&467&468&468&469&469&470&470&471&471&472&472&473&473&474&474&475&475&476&476&477&477&478&478&479&479&480&480&481&481&482&482&483&483&484&484&485&485&486&486&487&487&488&488&489&489&490&490&491&491&492&492&493&493&494&494&495&495&496&496&497&497&498&498&499&499&500&500&501&501&502&502&503&503&504&504&505&505&506&506&507&507&508&508&509&509&510&510&511&511&512&512&513&513&514&514&515&515&516&516&517&517&518&518&519&519&520&520&521&521&522&522&523&523&524&524&525&525&526&526&527&527&528&528&529&529&530&530&531&531&532&532&533&533&534&534&535&535&536&536&537&537&538&538&539&539&540&540&541&541&542&542&543&543&544&544&545&545&546&546&547&547&548&548&549&549&550&550&551&551&552&552&553&553&554&554&555&555&556&556&557&557&558&558&559&559&560&560&561&561&562&562&563&563&564&564&565&565&566&566&567&567&568&568&569&569&570&570&571&571&572&572&573&573&574&574&575&575&576&576&577&577&578&578&579&579&580&580&581&581&582&582&583&583&584&584&585&585&586&586&587&587&588&588&589&589&590&590&591&591&592&592&593&593&594&594&595&595&596&596&597&597&598&598&599&599&600&600&601&601&602&602&603&603&604&604&605&605&606&606&607&607&608&608&609&609&610&610&611&611&612&612&613&613&614&614&615&615&616&616&617&617&618&618&619&619&620&620&621&621&622&622&623&623&624&624&625&625&626&626&627&627&628&628&629&629&630&630&631&631&632&632&633&633&634&634&635&635&636&636&637&637&638&638&639&639&640&640&641&641&642&642&643&643&644&644&645&645&646&646&647&647&648&648&649&649&650&650&651&651&652&652&653&653&654&654&655&655&656&656&657&657&658&658&659&659&660&660&661&661&662&662&663&663&664&664&665&665&666&666&667&667&668&668&669&669&670&670&671&671&672&672&673&673&674&674&675&675&676&676&677&677&678&678&679&679&680&680&681&681&682&682&683&683&684&684&685&685&686&686&687&687&688&688&689&689&690&690&691&691&692&692&693&693&694&694&695&695&696&696&697&697&698&698&699&699&700&700&701&701&702&702&703&703&704&704&705&705&706&706&707&707&708&708&709&709&710&710&711&711&712&712&713&713&714&714&715&715&716&716&717&717&718&718&719&719&720&720&721&721&722&722&723&723&724&724&725&725&726&726&727&727&728&728&729&729&730&730&731&731&732&732&733&733&734&734&735&735&736&736&737&737&738&738&739&739&740&740&741&741&742&742&743&743&744&744&745&745&746&746&747&747&748&748&749&749&750&750&751&751&752&752&753&753&754&754&755&755&756&756&757&757&758&758&759&759&760&760&761&761&762&762&763&763&764&764&765&765&766&766&767&767&768&768&769&769&770&770&771&771&772&772&773&773&774&774&775&775&776&776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colonization that would last over three hundred years.1665: Spanish navigator Andres de Urdaneta discovers the maritime route from Asia to the Americas across the Pacific Ocean, also known as the tornaviento.1565: Royal Exchange is founded by Thomas Gresham.1566: Suleiman the Magnificent, ruler of the Ottoman Empire, dies on September 7, during the battle of Szigetvár.Siege of Valenciennes during the Dutch War of Independence in 156715661648: Eighty Years' War between Spain and the Netherlands.1566: Da le Baile Contrade d'Oriente, composed by Cipriano de Rore.1567: After 45 years' reign, Jiajing Emperor died in the Forhidden City, Longqing Emperor ascended the throne of Ming dynasty.1567: Mary, Queen of Scots, is imprisoned by Elizabeth I.1568: The Transylvanian Diet, under the patronage of the prince John Sigismund Zpolya, the former king of Hungary, inspired by the teachings of Ferenc Dvid, the founder of the Unitarian Church of Transylvania, promulgates the Edict of Torda, the first law of freedom of religion and of conscience in the World.15681571: Morisco Revolt in Spain.15681600: The Azuchi-Momoyama period in Japan.1568: Hadiwijaya sent his adopted son and son in-law Sutawijaya, who would later become the first ruler of the Mataram dynasty of Indonesia, to kill Arya Penangsang.1569: Rising of the North in England.1569: Mercator 1569 world map published by Gerardus Mercator.1569: The PolishLithuanian Commonwealth is created with the Union of Lublin which lasts until 1795.1569: Peace treaty signed by Sultan Hairun of Ternate and Governor Lopez De Mesquita of Portugal.The Battle of Lepanto1570: Ivan the Terrible, tsar of Russia, orders the massacre of inhabitants of Novgorod.1570: Pope Pius V issues Regnans in Excelsis, a papal bull excommunicating all who obeyed Elizabeth I and calling on all Catholics to rebel against her.1570: Sultan Hairun of Ternate (in present-day Indonesia) is killed by the Portuguese.[12] Babullah becomes the next Sultan.1570: 20,000 inhabitants of Nicosia in Cyprus were massacred and every church, public building, and palace was looted. Cyprus fell to the Ottoman Turks the following year.1571: Pope Pius V completes the Holy League as a united front against the Ottoman Turks, responding to the fall of Cyprus to the Ottomans.1571: The Spanish-led Holy League navy destroys the Ottoman Empire navy at the Battle of Lepanto.1571: Crimean Tatars attack and sack Moscow, burning everything but the Kremlin.1571: American Indians kill Spanish missionaries in what would later be Jamestown, Virginia.1571: Spanish conquistador Miguel Lpez de Legazpi establishes Manila, Philippines as the capital of the Spanish East Indies.1572: Brielle is taken from Habsburg Spain by Protestant Watergeuzen in the Capture of Brielle, in the Eighty Years' War.1572: Spanish conquistadores apprehend the last Inca leader Tupak Amaru at Vilcabamba, Peru, and execute him in Cuzco.1572: Jeanne d'Albret dies aged 43 and is succeeded by Henry of Navarre.1572: Catherine de' Medici instigates the St. Bartholomew's Day massacre which takes the lives of Protestant leader Gaspard de Coligny and thousands of Huguenots. The violence spreads from Paris to other cities and the countryside.1572: First edition of the epic The Lusiards of Lus Vaz de Cames, three years after the author returned from the East.[14]1572: The 9 years old Taizi, Zhu Yijun ascended the throne of Ming dynasty, known as Wanli Emperor.1573: After heavy losses on both sides the siege of Haarlem ends in a Spanish victory.St. Bartholomew's Day massacre of French Protestants1574: in the Eighty Years' War the capital of Zeeland, Middelburg declares for the Protestants.1574: After a siege of 4 months the siege of Leiden ends in a comprehensive Dutch rebel victory.1575: Oda Nobunaga finally captures Nagashima fortress.1575: Following a five-year war, the Ternateans under Sultan Babullah defeated the Portuguese.1576: Tahmasp I, Safavid shah, dies.1576: The Battle of Haldighati is fought between the ruler of Mewar, Maharana Pratap and the Mughal Empire's forces under Emperor Akbar led by Raja Man Singh.1576: Sack of Antwerp by badly paid Spanish soldiers.15771580: Francis Drake circles the world.1577: Ki Ageng Pemanahan built his palace in Pasargede or Kotagede.1578: King Sebastian of Portugal is killed at the Battle of Alcazarquivir.1578: The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[12]1578: Sonam Gyatso is conferred the title of Dalai Lama by Tumed Mongol ruler, Altan Khan. Recognised as the reincarnation of two previous Lamas, Sonam Gyatso becomes the third Dalai Lama in the lineage.[15]1578: Governor-General Francisco de Sande officially declared war against Brunei in 1578, starting the Castilian War of 1578.1579: The Union of Utrecht unifies the northern Netherlands, a foundation for the later Dutch Republic.1579: The Union of Arras unifies the southern Netherlands, a foundation for the later states of the Spanish Netherlands, the Austrian Netherlands and Belgium.The Irish Gaelic chieftain's feast, from The Image of Ireland1579: The British navigator Sir Francis Drake passes through Maluku and transit in Ternate on his circumnavigation of the world. The Portuguese establish a fort on Tidore but the main centre for Portuguese activities in Maluku becomes Ambon.[16]The fall of Spanish Armada1580: Drake's royal reception after his attacks on Spanish possessions influences Philip II of Spain to build up the Spanish Armada. English ships in Spanish harbours are impounded.1580: Spain unifies with Portugal under Philip II. The struggle for the throne of Portugal ends the Portuguese Empire. The Spanish and Portuguese crowns are united for 60 years, i.e. until 1640.15801587: Nagasaki comes under control of the Jesuits.1581: Dutch Act of Abjuration, declaring abjuring allegiance to Philip II of Spain.1581: Bayinnaung dies at the age of 65.1582: Oda Nobunaga commits seppuku during the Honn-ji Incident coup by his general, Akechi Mitsuhide.1582: Pope Gregory XIII issues the Gregorian calendar. The last day of the Julian calendar was Thursday, 4 October 1582 and this was followed by the first day of the Gregorian calendar, Friday, 15 October 15821582: Yermak Timofeyevich conquers the Siberia Khanate on behalf of the Stroganovs.1583: Denmark builds the world's first theme park, Bakken.1583: Death of Sultan Babullah of Ternate.15841585: After the siege of Antwerp, many of its merchants flee to Amsterdam. According to Luc-Normand Tellier, "At its peak, between 1510 and 1557, Antwerp concentrated about 40% of the world trade...It is estimated that the port of Antwerp was earning the Spanish crown seven times more revenues than the Americas."[17]1584: Ki Ageng Pemanahan died. Sultan Pajang raised Sutawijaya, son of Ki Ageng Pemanahan as the new ruler in Mataram, titled "Loring Ngabehi Market" (because of his home in the north of the market).1585: Akbar annexes Kashmir and adds it to the Kabul SubahPortuguese fusta in India from a book by Jan Huygen van Linschoten1585: Colony at Roanoke founded in North America.15851604: The Anglo-Spanish War is fought on both sides of the Atlantic.1587: Mary, Queen of Scots is executed by Elizabeth I.1587: The reign of Abbas I marks the zenith of the Safavid dynasty.1587: Troops that would invade Pajang Mataram Sultanate storm ravaged the eruption of Mount Merapi. Sutawijaya and his men survived.1588: Mataram into the kingdom with Sutawijaya as Sultan, titled "Senapati Ingalaga Sayidin Panatagama" means the warlord and cleric Manager Religious Life.1588: England repulses the Spanish Armada.1589: Spain repulses the English Armada.1589: Catherine de' Medici dies at aged 69 Abu'l-Fazl ibn Mubarak presenting Akbarnama to Mughal Azam Akbar, Mughal miniature1590: Siege of Odawara: the Go-Hojo clan surrender to Toyotomi Hideyoshi, and Japan is unified.1591: Gazi Giray leads a huge Tatar expedition against Moscow.1591: In Mali, Moroccan forces of the Sultan Ahmad al-Mansur led by Judar Pasha defeat the Songhai Empire at the Battle of Tondibi.15921593: John Stow reports 10,675 plague deaths in London, a city of approximately 200,000 people.15921598: Korea, with the help of Ming dynasty China, repels two Japanese invasions.15931606: The Long War between the Habsburg monarchy and the Ottoman Turks.1594: St. Paul's College, Macau, founded by Alessandro Valignano.1595: First Dutche expedition to Indonesia sets sail for the East Indies with two hundred and forty-nine men and sixty-four cannons led by Cornelis de Houtman.[18]1596: Birth of Ren Descartes.1596: June, de Houtman's expedition reaches Banten the main pepper port of West Java where they clash with both the Portuguese and Indonesians. It then sails east along the north coast of Java losing twelve crew to a Javanese attack at Sidayu and killing a local ruler in Madura.[18]1597: Romeo and Juliet is published.1597: Cornelis de Houtman's expedition returns to the Netherlands with enough spices to make a considerable profit.[18]1598: The Edict of Nantes ends the French Wars of Religion.1598: Abbas I moves Safavids capital from Qazvin to Isfahan in 1598.15981613: Russia descends into anarchy during the Time of Troubles.1598: The Portuguese require an armada of 90 ships to put down a Solorese uprising.[12] (to 1599)1598: More Dutch fleets leave for Indonesia and most are profitable.[18]Edo period screen depicting the Battle of Sekigahara1598: The province of Santa Fe de Nuevo Mxico is established in Northern New Spain. The region would later become a territory of Mexico, the New Mexico Territory in the United States, and the US State of New Mexico.1598: Death of Toyotomi Hideyoshi, known as the unifier of Japan.1599: The Mall Empire is defeated at the Battle of Jenn.1599: The van Neck expedition returns to Europe. The expedition makes a 400 per cent profit.[18] (to 1600)1599: March, Leaving Europe the previous year, a fleet of eight ships under Jacob van Neck with the first Dutch fleet to reach the Spice Islands of Maluku.[18]1600: Giordano Bruno is burned at the stake for heresy in Rome.Siege of Fialkovo castle during the Long Turkish War1600: Battle of Sekigahara in Japan. End of the Warring States period and beginning of the Edo period.1600: The Portuguese win a major naval battle in the bay of Ambon.[19] Later in the year, the Dutch join forces with the local Hituense in an anti-Portuguese alliance, in return for which the Dutch would have the sole right to purchase spices from Hitu.[19]1600: Elizabeth I grants a charter to the British East India Company beginning the English advance in Asia.1600: Michael the Brave unifies the three principalities: Wallachia, Moldavia and Transylvania after the Battle of elimbr from 1599.For later events, see Timeline of the 17th century.Polybius' The Histories translated into Italian, English, German and French.[20]Mississippian culture disappears.Medaillon rug, variant Star Ushak style, Anatolia (modern Turkey), is made. It is now kept at the Saint Louis Art Museum.Hernan Cortes (14851547)Henry VIII, (14911547) King of England and IrelandDon Fernando lvarez de Toledo (15071582)Suleiman the Magnificent, Sultan of the Ottoman Empire (15201566)Ivan IV the Terrible (15301584)Oda Nobunaga (15341582)Sir Francis Drake (c. 1540 1596)Alberico Gentili, (15521608) the Father of international lawPhilip II of Spain, King of Spain (15561598)Akbar the Great, Mughal emperor (15561605)Related article: List of 16th century inventions.The Columbian Exchange introduces many plants, animals and diseases to the Old and New Worlds.Introduction of the spinning wheel revolutionizes textile production in Europe.The letter J is introduced into the English alphabet.1500: First portable watch is created by Peter Henlein of Germany.The Iberian Union in 1598, under Philip II, King of Spain and Portugal1513: Juan Ponce de Len sights Florida and Vasco Nez de Balboa sights the eastern edge of the Pacific Ocean.15191522: Ferdinand Magellan and Juan Sebastin Elcano lead the first circumnavigation of the world.15191540: In America, Hernando de Soto expeditions map the Gulf of Mexico coastline and bays.1525: Modern square root symbol ()1540: Francisco Vsquez de Coronado sights the Grand Canyon.154142: Francisco de Orellana sails the length of the Amazon River.154243: Firearms are introduced into Japan by the Portuguese.1543: Copernicus publishes his theory that the Earth and the other planets revolve around the Sun1545: Theory of complex numbers is first developed by Gerolamo Cardano of Italy.1558: Camera obscura is first used in Europe by Giambattista della Porta of Italy.15591562: Spanish settlements in Alabama/Florida and Georgia confirm dangers of hurricanes and local native warring tribes.1565: Spanish settlers outside New Spain (Mexico) colonize Florida's coastline at St. Augustine.1565: Invention of the graphite pencil (in a wooden holder) by Conrad Gesner. Modernized in 1812.1568: Gerardus Mercator creates the first Mercator projection map.1572: Supernova SN 1572 is observed by Tycho Brahe in the Milky Way.1582: Gregorian calendar is introduced in Europe by Pope Gregory XIII and adopted by Catholic countries.c. 1583: Galileo Galilei of Pisa, Italy identifies the constant swing of a pendulum, leading to development of reliable timekeepers.1585: earliest known reference to the 'sailing carriage' in China.1589: William Lee invents the stocking frame.1591: First flush toilet is introduced by Sir John Harrington of England, the design published under the title 'The Metamorphosis of Ajax'.1593: Galileo Galilei invents a thermometer.1596: William Barents discovers Spitsbergen.1597: Opera in Florence by Jacopo Peri.Entertainment in the 16th century^ a b Modern reference works on the period tend to follow the introduction of the Gregorian calendar for the sake of clarity; thus NASA's lunar eclipse catalogue states "The Gregorian calendar is used for all dates from 1582 Oct 15 onwards. Before that date, the Julian calendar is used." For dates after 15 October 1582, care must be taken to avoid confusion of the two styles.^ de Vries, Jan (14 September 2009). "The limits of globalization in the early modern world". The Economic History Review. 63 (3): 710733. CiteSeerX10.1.1.186.2862. doi:10.1111/j.1468-0289.2009.00497.x. JSTOR40929823. SZCID119969360. SSRN1635517. ^ Singh, Sarina; Lindsay Brown; Paul Clammer. Rodney Cocks; John Mock (2008). Pakistan & the Karakoram Highway. Vol.7, illustrated. Lonely Planet. p.137. ISBN978-1-74104-542-0. Retrieved 23 August 2010. ^ Babur (2006). Babur Nama. Penguin Books. p.vii. ISBN978-0-14-400149-1. ^ "16th Century Timeline (1501 to 1600)". fsmtha.com. Archived from the original on February 3, 2009. ^ "History of Smallpox Smallpox Through the Ages" Archived 2019-09-24 at the Wayback Machine. Texas Department of State Health Services. ^ Ricklefs (1991), p.23^ "A LIST OF NATIONAL EPIDEMICS OF PLAGUE IN ENGLAND 13481665". 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ISBN2-7605-1588-5 ^ a b c d e f Ricklefs (1991), page 27 ^ a b Ricklefs (1991), page 28^ Polybius: The Rise Of The Roman Empire, Page 36, Penguin, 1979.Langer, William. An Encyclopedia of World History (5th ed. 1973); highly detailed outline of events online free Media related to 16th century at Wikimedia CommonsTimelines of 16th century events, science, culture and personsRetrieved from " 4The following pages link to 16th century External tools(link counttransclusion countsorted list) See help page for transcluding these entriesShowing 50 items.View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)Bagpipes (links | edit)List of decades, centuries, and millennia (links | edit)Fashion (links | edit)Giovanni Boccaccio (links | edit)History of Mali (links | edit)History of Mauritius (links | edit)Post office (links | edit)Snare drum (links | edit)Republican Party (United States) (links | edit)20th century (links | edit)15th century (links | edit)17th century (links | edit)18th century (links | edit)1624 (links | edit)1626 (links | edit)1642 (links | edit)1661 (links | edit)1608 (links | edit)1492 (links | edit)14th century (links | edit)13th century (links | edit)12th century (links | edit)11th century (links | edit)1564 (links | edit)1648 (links | edit)1572 (links | edit)1623 (links | edit)1662 (links | edit)1490s (links | edit)1640s (links | edit)1597 (links | edit)1690 (links | edit)1688 (links | edit)7th century (links | edit)10th century (links | edit)9th century (links | edit)8th century (links | edit)6th century (links | edit)5th century (links | edit)3rd century (links | edit)2nd century (links | edit)1573 (links | edit)1570s (links | edit)1574 (links | edit)1436 (links | edit)1476 (links | edit)1542 (links | edit)1540s (links | edit)View (previous 50 | next 50) (20 | 50 | 100 | 250 | 500)Retrieved from " WhatLinksHere/16th_century"

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