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Journey across time chapter 18 pdf

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1. 654–655 Buddy Mays/CORBIS Enlightenment and Revolution A statue of Louis XIV on horseback outside the palace of Versailles in France 1500 1600 1700 1800 1492 1543 1690 1776 Columbus Copernicus soup- John Locke Declaration reaches the port of idea of the sun- write about the American Independence centered government of the universe signed 2. Chapter Preview Chapter Overview Jat.glencoe.com preview At the end of the Renaissance, Europe and the rest of Chapter 18.the world is entering a time of rapid change. Read this chapter to find out how voyage exploration and scientific discovery-ies affect people in different parts of the world. Check out chapter 18's video in The History of the World: A Journey Across the Time Video Program. In the 1400s, Europeans began exploring abroad and building empires. Trade is increasing and goods, technology, and ideas are exchanged around the world. The Scientific Revolution Of Ideas and scientific discoveries gave Europeans a new way to understand the universe. Enlightenment During the 1700s, many Europeans believed that the reason could be used to make governments and societies better. The British and French American Revolutions established colonies in North America. The British American colony eventually rebelled against the British and formed a new country, the United States. Summarize Information Make this foldable to help you organize and summarize information about the Enlightenment and the revolutionary era. Step 1 Mark Step 2 Fold the Middle Point of Reading and Writing side paper in half As you read the chapter, edge one more sheet of writing information under the paper. Then side to side. each corresponding tab. Fold the outside sure to summarize the edges to touch the information you find at the midpoint. Step 4 Labels only write the main idea as shown. Scienti and supporting details. fi Revolu c Enlighten- Step 3 Open the ment tion paper and cut cut along the deep fold line at Age can fold the lines to form both sides. Explore Ameri at the ti n Revolu ratio of four tabs. 655 3. Monitor and Adjust The Strength of Your Reading Different people read differently. Some people read and understand something quickly, while others may need to read something several times to understand it fully. It is import-tant to identify your own strengths and weaknesses as a reader. Read the following paragraph describing the story of how Newton found gravity: According to tradition, Newton sat in his garden a when he watched the apple fall to the ground. Apples fall down he for the idea of gravity, or the pull of the earth and other bodies on objects on or near their surface. —from pages 675–676 of what depen ding up ing, you you read ow down d to sl • Can you visualize this scene in your mind, maybe nee p. W your chicken is almost like a movie? u or speed re slow y. study, read mo • Are there words you don't know? for you to read W hen y can read • What questions do you have about this section? pleasu re, you • What scene does this make you think based on ickly. more qu about what you've read, seen, or experienced before? • Do you need to read it again? 656 Title Unit 656 4. (f) Hermitage, St. Petersburg, Russia/Bridgeman Art Library, (b)Michael Holford Improves Your Reading to Write Select one explorer, Paragraph below appears in Part 3. Read the philosopher, or the scientist section and answer the following questions. that you intro- induced for in this chapter. Write a list of questions that moderns talk about - During the 1600s and 1700s, many hosts might ask if he interviewed European thinkers who liked the limits on this person. government power. However, kings and queens ruled much of Europe. The system is known as Catherine the Great Absolutism. In this system, the monarchy holds absolute, or total, power. They claim to rule by divine right, or by god's sake. This means that rulers answer not their people, but to God alone. —from page 686 • What words or sentences make you slow down as you read? • Do you have to reread any parts? • What questions do you still have after reading this section? Peter the Great As you read the chapter, identify one paragraph in each of the cult-diffi sections to understand. Discuss each para-chart with a partner to improve your understanding. 657 5. What Does the Age of Exploration Have to Do? Meet the People you have learned how the Italian cities of Vasco da Gama grew rich from the trade. In the 1400s, Christopher Columbus of other European countries began exploring the Magellanic (muh • JEH • luhn) world in search of wealth. John Cabot (KA • buht) Focuses on Jacques Cartier • In the 1400s, trade, technology, and (ZHAHK kahr • TYAY) the rise of a powerful empire led to a new era of exploration. (page 659) Build your Vocabulary mercantilism • While the Portuguese explore Africa, (MUHR • kuhn • TUH • LIH • zuhm) Exports of Spain, England, and France (EHK • SPOHRT) explore america. (page 661) imports (IHM • POHRT) • To increase trade, European colonies (KAH • luh • nee) established colonies and created joint-commerce stock companies (KAH • muhrs). (page 666) investing (ihn •VEHST) • Exploration and led to the exchange of products around the world, those Reading Strategies, and ideas. (page 668) Causes and Effects Of Completing diagrams like the one below showing Where the Europeans started Magellanic Strait (muh • JEH • luhn) Netherlands (NEH • thuhr • luhnz) Maluku (muh • LUH • kuhz) 1400 1500 1600 1420 14 92 1492 11520 1588 NORTHERN EUROPE Portugal started Columbus Magellan UKAMERICA CHINA INDIA mapping Africa achieved a sailing crew beating the coast of AFRICA America's worldwide South American Fleet658 CHAPTER 18 Enlightenment and Revolution 6. Europe Prepares to Explore in the 1400s, trade, technology, and the early Compass revival of a powerful kingdom led to a new era of exploitation. Focus Reading Do you like to travel to places you've never done? Read on to see why WesternEuropeans set out to explore the world. In the 1400s and 1500s, countries in Western Europe began exploring the world. They soon gained control of the Americas and parts of India and Southeast Asia also swelled. Why did they start exploring in the 1400s? Many events come together to create the right conditions for exploration. Trading With Asia As you've read, in the Middle Ages, Europeans started buying vastamounts of spices, silk, and other goods european explorers and traders started from Asia. However, in the 1400s, he became using smaller, faster rebukes to obtain such items. Ships called caravels First of all, the Mongol Empire had a col- in the 1400s. Whatlapsed. The Mongols have maintained the silk road advantage of doing the tri-run smoothly. When they're empire col- the corner sail offers the ship? Astrolabelapsed, the local authority along the Silk Roadimposed a new tax on traders. These artificial Asian goods are more expensive. New Technology Despite the Next Euro, ottoman Turks conquered peas wanting to go exploring, they could not byzantine Empire and blocked Italy from doing so without the right technology. Themerchants from entering the Black Sea. The Atlantic Ocean is too dangerous and diffi-Italians have a trading post on the cult coast to navigate.from the Black Sea where they bought goods in the 1400s, they have technology from Asia. Now, they can no longer need them. From the Arabs, Europe reached out to them. They had to trade with the learned about astrolabe and com-Turks instead, and this pushed up the price even past. Astrolabe was an ancient Greek, device that can be used to find latitude. Europeans still want spices and compasses, found by China. east Asian silk. Anyone who can find navigators who help find magnetic north,how to get them cheap will make a lot Even with these new tools, europeans out of money. Traders are starting to look for better vessels that are needed. In the 1400s, they began to East passes through the Middle East using a triangular screen developed by TheEast. If they can't get there by land, Arabs. These sails let the ship zigzag into themaybe they can get there by sea. Wind. CHAPTER 18 Enlightenment and Revolution 659 (f)Essex Peabody Museum, Salem, MA. (c)SuperStock, (b)Michael Holford 7. The revival of the city and and help make government stronger. Kings and queens can impose trade taxes on their kingdoms and then use the money to build armies and marines. By using their new powers, they are able to build a strong central government. By the late 1400s, four powerful kingdoms—Portugal, Spain, France, and England—had flourished in Europe. They have a port in the Atlantic Ocean and want to find a sea route to Asia. The question is where to go. Does Maps Encourage Exploration? In the 1400s, most educated people in Europe knew the world was round, but they only had maps of Europe and the Mediterranean. However, when the Renaissance began, peo-ple began studying ancient maps as well as books written by Arab scholars. Twelve hundred years earlier, a Greek-educated Egyptian geographer named Claudius Ptolemy had drawn a school map of Prince Henry to navigate helping the world. His book Geography was discovered enabling the discovery of new water by Europeans in 1406 and printed in 1475. routes and new lands. Here, Prince Henry is with the invention of printing shown overseeing the return of his ships. Press. books like Ptolemy's could be what kind of professionals that Prince Henry prints and sells all over Europe, invited to his research center? Ptolemy's ideas about cartography, or the science of map-making, were very affecting - They also started building ships with lots of tials. The basic system of longitude and lat-mast and smaller sails to make their ship go titude is still in use today, faster. A new type of steering wheel makes european cartographer steering also begin. In the 1400s, these discoveries came to read a book written by al-Idrisi, an Arabtogether on a Portuguese ship called a car-geographer. Al-Idrisi has published a bookavel. With ships like the caravel, the Europeans in 1154 showed parts of the world began to explore the world. known to Muslims. By studying the works of al-Idrisi and Ptolemy, Europeans learned the Rise of the Powerful Nations Even with east African geography and New Indian technology, exploration was still oceanic. If they can find a way around cheap and dangerous. For most of Africa, they could get to Asia.Medieval, European kingdoms summarized what was amazing and unable to explore. This is the main reason Europeans began to explore the changing situation in the 1400s. the world in the 1400s?660 CHAPTER 18 Enlightenment and RevolutionBettmann / CORBIS 8. In 1420 Portugal began mapping the World African coastline and trading with Africa while the Portuguese explored Africa, the kingdom. It also captured the Azores (AY • England, and France explore America. ZOHRZ), Madeira (muh • DIHR • eh), and CapeReading Focus Have you ever done something hold verde islands. Soon after, the Portuguese tried something new not knowing how it would change found found will grow outside? Read on to learn how European explorers took advantage of the islands and went to places no European had ever seen before. Sugar is very valuable in Europe. To work their sugar cane fields, in the early 1400s, the Europeans began to bring enslavedready to explore. The British and French are Africans to the islands. It was an early-still battle with each other, however, and Spain ning off the slave trade that would eventually still struggle against Muslims. This gives millions of enslaved people a chance to explore first. America too. In 1488 portuguese explorerWho Was Henry the Navigator? In 1419 Bartolomeu Dias reached the southern tip of Prince Henry of Portugal, known as Henry of Africa. Nine years later, Vasco da Gamathe Navigator, founded a research center (VAS • koh dah GA • muh) rounding out the ujingin of southern Portugal. He invited sailors, Africans, racing across the Indian Ocean, cartographers, and shipmakers to come and land off the coast of India. Route his water and help him explore the world. to East Asia was finally discovered. Santa MariaThe Santa Maria, columbus's mainstay, is the Nestlarger Crow and slower than the other two crow nests that serve ships on the voyage. What island might be a platform for scouts. Columbus has explored on its first trip to America? The Captain's CabinThis room serves the Upper Deck as Columbus Sailors sleep and the dining room, cooking their meal bedrooms, and on the upper deck. Study. Resistant Food, fresh water, and supplies for the cruise fill the handle of the ship. 9. European Exploration of the World 0° 2,000 mi. 60°E 120°E 0 Greenland 0 2,000 km KEY Mercator projection Dutch English French Cab Hudson 160 Portuguese Hudson Hu ot60°N ds o 9 n 1610 Bay EUROPE Spanish 14 ASIA 97 Carti NETHERLANDS er 1 ENGLAND 53 4 FRANCE NORTH PACIFIC AMERICA PORTUGAL OCEAN no 1524 Verra za JAPAN SPAIN CHINA MEXICO BAHAMAS INDIA Cuba Tenochtitlan Hispaniola s 1492 Goa lumbu Philippines Death (Mexico City) Cortes 1519 Caribbean Sea Co 00 AFRICA a Calicut Magellan Gam 15 3 1 -1 5 3 15

Melaka P iza r r o 2 da April 1521 ral da KhatuLISTIWA Ga 0° da Cab ma Spice Islands PACIFIC 0 Cabin Atlantik Gamral (Maluku) Magellan Dias 14 STRAIT FIVE OCEAN PERU OCEAN Malacca n) 152 2 SOUTH 87 agella for M Elcan da G a m Elcano (AUSTRALIA AMERICA o M a 1 4 97 N ag ell a 51 9 INDIAN 15 n1 2 ella OCEAN W E ag M S Magellan Strait 60°S 120°W 60°W For more than 100 years, Europeans conducted 180° cruise exploration in search of new trade and trade routes. 1. Based on this map, which continents are not visited by European explorers? 2. What common areas does English explore? Find NGS online map resources @Christopher While Port- www.nationalgeographic.com/mapsuguese explore Africa, an Italian navigatorname Christopher Columbus came boldly to get to Asia. He's going to Columbus thinking he's in Asia. Hesail crosses the Atlantic Ocean. did three more voyages to the Columbus area in need of money to make but never realized he had arrived in the field. Rulers of Portugal, England, and America. Finally, the Europeans realized Francis had all rejected him. Finally by 1492 they had reached two great continents. Ferdinand and Isabella from Spain said yes. Earlier that year, they finally rode Who Was Magellan? Many SpanishMuslims are out of Spain. They could now explore America in the 1500s, butafford to pay for exploration. only Ferdinand Magellan (muh • JEH • luhn) Columbus was equipped with three ships: trying to complete what ColumbusSanta María, Niña, and Pinta had set. In 1492 to do. In 1520 he left Spain and headed west, leaving Spain and heading west. As it sailed around America and then all weeks passed, the crew grew desperate, to Asia.Eventually they saw the land, perhaps Magellan sailed south along the Southisland of San Salvador. Columbus claims America. Eventually, he found his way around the land to Spain and then explored the continent. The parts he found were the islands of Cuba and Hispaniola. Magellanic Strait (muh • JEH • luhn).662 CHAPTER 18 Enlightenment and Revolution 10. KEY KEY MI NORTH ssis Spanish exploration Exploration France N Sn AMERICA s ak Netherlands exploration ippi e R. Mi R. E do o R. W R. ss o n ra 1540– 42 Arka uri R Ohi o do 0 500 mi. 534–42. De Soto r1 Co l Corona as S tie s 1538–42 Car R. Santa Fe ATLANTIC 0 500 km NORTH a de Vaca 15 Mercator projection Ch Cabez OCEAN am AMERICA Cab 8–36 p la 2 30° N Ri o G St. Augustine Marquette at N a ' a ez 1 5 2 8 rill ra P and Joliet Quebec 16 0 M 3–15 o nd in Montreal iss 1673 15 e ce 42 is 1519 D 9 sip n 160 –4 e L e'o test ' Hu d so pi n 15 3 C or 13 R. Tenochtit'an Plymouth Mi (Mexico City) Caribbean Sea sou s ri R ATLANTIC . io R. N Oh Ar ka Jamestown 0 1,000 miles. Balboa nsa s OCEAN. R W E 1513 La Salle V e r a za 0 1,000 km no 1524 1679–82 0° Mercator projection S SOUTH 30°N PACIFIC OCEAN AMERICA60°W Gulf of Mexico 60°W 120°W 90°W Important European Explorer Christopher Vasco Ferdinand Jacques Henry Columbus da Gama Magellan Cartier Hudson Voyages: 1492, 1493, Voyage: 1497–1499 Voyage: 1519–1522 Voyage : 1534. Voyages: 1607, 1608, 1498, 1502 1535, 1541 1609, 1610 Europe The First European To Lead the First Europeans To sail around expeditions to sail The West exploring the south of Africa entirely around the Lawrence Hudson River and water routes to Asia and reach India's hudson bay world After passing through the storm, its people are known to circle (suh• r • kuhm • ships enter the sea Spacious. It was very peaceful, or NA • vuh • GAYT), or sailing around, the world. pacific, that he named after pacific ocean. Magellan's first British and French explorers then headed west. His sailors When word spread about Columbus being almost starving and having to eat skin, see-travel, the British decided to look for dust, and rats. Finally, they sent Jacques Cartier (ZHAKH They raided the Spanish treasure ship thatkahr • TYAY). Cartier sailed through Newfoundland, bringing gold back from America and into the St. Lawrence River. The British attack frustrated Philip II, TheHoping he had found his way to Asia, king of Spain. In 1588 he sent a large fleet ofCartier on two more trips to map St. known as the Spanish Armada to attack the River Lawrence. After this trip, English. In July 1588, the Fleet explored. In the mid-1500s, to the English Channel — the narrow body of the Protestant and Catholicfrench was the water between England and Europe. Civil war fights. Sana Sana no more large Spanish ships and have a lot of exploration until it is completed. Weapons, but they're hard to steer. The smaller British ships moved far more Britons against the British after Columbus, quickly. Their attack forced the Spanish Fleet to continue to build a vast empire in retreat to the north. There's a big storm coming up and America. They forced the enslaved natives to break up the American Fleet to grow sugar cane and mine the gold the Defeat of the Spanish Fleet was and silver. Then they brought enslaved important events. Spaniards still travel to the region to work on their farms. powerful, but the British now have the power for the Spanish nobility the so-called conquerors stood up for them. This prompted the traveled to America in the hope of becom- The British and Dutch to begin exploring both rich. Hernán Cortés conquered North America and Asia.Aztecs, and Francisco Pizarro conquered the first Identification of Who Was Inca. Immediately after their victory, a vast Europe to sail to India? Whose crew first touamonts gold and silver began flowing to sail around the world?664 CHAPTER 18 Enlightenment and RevolutionNational Maritime Museum, London 12. ELIZABETH I –160 1533 r Ruler of England— Elizabeth I was one of the most inhabitants of England than she was loved by the people of young life was a more charged father, King Henry VIII. Elizabeth n for Henry VIII and with change and sadness. He drilled g annoyed when his second wife, Anne Boleyn. The relative was Ted's son to inherit Elizabeth was born, because he wanted her the throne. reeling when Elizabeth became queen, she surr y transformed England with intelligent advisers. With Queen Elizabeth I became a strong and prosperous country. Elizabeth supported Europe. He Protestantism in England and in the rest sent aid to huguenots and French Protestants in Scotland I have a heart and I am with Parliament but the belly of a king and and the Dutch. He worked wel is a skilled writer who called several sessions during his reign. He and the speaker and won the love and soup of the English port of an English king, the people. Also, unusual at the time. Elizabeth never married, that is —Elizabeth I, her Fleet Speech, but she changed the man Ma ny interested in marrying abeth may still drop their proposal. One of eliz's reasons for the time when most rulers were men. single is to ma intain government control in ted to the UK. Many prominent men wan He also uses his status for the advantage of getting him to marry someone's enemy in order to ma rry him, and he sometimes threatens to do what he wants. ng, The British people. He loves Ridi Elizabeth's horse also influenced on the new t art of producing dance, parties, and drama that flourished. English literature and music are his suppor th. Elizabe was so popular at the time of her death that the date she became an unhappy queen was as a citizen though Queen Elizabeth I have had one of the holidays for 200 years. As a child, he overcame it to become britain's most popular leader. The situation today. Queen Elizabeth II has also faced a miserable AY Research of her life and wrote a short esse abeth I. comparing her life to the life of Eliz 665 National Portrait Gallery, London/SuperStock 13. Commercial Revolution To increase trade, Europeans established upcolonies and created joint stock companies. Focus Reading Do you know anyone who works at home? Read on to learn how traders in the 1600s gave people jobs at home and changed the world trading system. While Spain built its empire in the Americas, Portugal began building a trading empire in Asia. In 1500, shortly after Vasco daGama's journey, the Portuguese sent 13 ships back to India. Led by Pedro Alvares Cabral (PAY • throo AHL • vahr • kuhnya • BRAHL), ThePortuguese fought against these ships sailing for Dutch East Muslim Indian merchants in the Indian Ocean. Companies, which trade in Asia. After defeating the Arab fleet, which European country did the Netherlands replace in the spice trade? Portugal build's trading posts in India, China, Japan, the Persian Gulf, and on the way, the country of origin does not needMoluccas (muh • LUH • kuhz), or the Spice Islands importing those goods from other countries.from Southeast Asia. From these bases, they controlled most of the South Asian Sea Trading Empire in the Asia Mercantilismtrade. encourage Europeans to establish trading posts and colonies in Asia and NorthWhat is Mercantilism? As a European American. By the late 1500s, Spain had watched Spain and Portugal grow rich establish colonies in the Philippines. From their kingdom, they tried to figure out spain sent silver to the Philippineshow they had become rich. They came from America and then used it to buy Asiawith the idea of mercantilism (MUHR • kuh• n • spices and silk for sale in Europe.TUH • LH • zuhm). Mercantilism was the idea that in the 1600s, the British and French mer-a-states gained power by building his singing to land in India and began trading in gold and silver. Mercantilists with the people there. In 1619 Dutchbelieve the best way to do this was to export the building of fortresses on the island of Java, in what is (EHK • SPOHRT), or sell to other countries, more now Indonesia. They slowly encourage thegoods rather than the one you import (IHM • POHRT), or buy Portuguese from the spice trade. If you export more than youimport, more gold and silver flows from What the Company Together? Trade abroad is very expensive. Mercantilists also think of countries of the 1600s, however, a new way to do so should be to establish colonies. Colonies (KAH • luh • business developed in Europe. Historiansnee) is a settlement of people living in this new commercial commercial call controlled by their country of origin. Trade (KAH • muhrs) is a purchase and Colonists are supposed to produce goods that sell goods in large quantities in countries they do not own at home. It's a long distance.666 CHAPTER 18 Enlightenment and RevolutionReunion des Musees Nationaux/Arts Resource, NY 14. To trade goods remotely, traders to buy goods at low prices so that they can need a lot of money. They have to buy money by selling it at a higher price a lot of goods, storing it in warehouses, and elsewhere. Their ships are on land and sea. They had to in the 1600s, traders had become frus- knowing what people in distant lands wanted created by craftsmen and guilds. They are charged to buy and what price is like there. too much and can't make this new business fast stuff create enough new types. So traders started asking so-called peasant entrepreneurs. to make goods for them. In particular, those Entrepreneurs invest (Ihn • VEHST), or put asking farmers to make wool fabric. money into a project. Their goal is to make the farmers happy to make extra more money when the project is completed. money and happy to find work they can do Many projects are so big that a in their home. A group of entrepreneurs should come this system called put out together and form a joint stock company. A system. Traders will buy wool and put the company's shares together is a peo business - it's down to farmers. The system can also invest by buying part of what is sometimes called the cottage industry, the company. These stocks are called stocks, because the small houses where farmers live are called huts. What is cottage industry? To trade remotely, traders need an Explanation of How traders supply large goods - They've also raised money for foreign trade? European trade in Asia c. 1700 80°E N 100°E 120°E 0 1,000 mi 0 1,000 km W E CHINA N 20° Two Point Equidistant projection S Ganges R. Me kon g Macau Daman Calcutta Philippines V IE R. INDIA Bombay N T Bay of AM Manila THAILAND PACIFIC Goa Bengal South OCEAN Madras China 0° Cambodia Sea Spice TO R Calicut UA Pondicherry Islands EQ Cochin Malay (Moluccas) Ceylon Peninsula 140°E Colombo (Sri Lanka) Melaka Borneo SumatraUsing their advanced weapons and ships, Europeans established trade Batavia (Jakarta) KEYposts in India and Southeast Asia BAB 18JavaEnlightenment and Revolution by: Port City controlled 6671. Which countries have traded Portugal's British outposts along the Indian coast? FRENCH INDIAN OCEAN Spanish Dutch2. Which country controls the most ports? CHAPTER 18 Enlightenment Revolution 667 15. grow potatoes instead of grains, about empAtA Global Exchange times because many people can live from the same exploration and trade lead to a large amount of land-wide exchange of products, people, and ideas. Other foods, such as pumpkins, focus. Focus Reading Have you heard of insects from nuts, and tomatoes, also making countries wayother those that hurt American crops? Read on to study in Europe. Tomatoes greatly changed the cook-how the movement of goods and people between ing in Italy, where ketchup becameAmerica and the rest of the world caused a big change, very popular. Chocolate is a popular food from Central America. By mixing it with After the Age of Exploration, milk and sugar. Europeans created European, African, Asian, and still popular sweets today. America is changing. When Europe traded with some American food, such as chiltine water, a global exchange of people, peppers and peanuts, it took togoods, technology, ideas, and even European diseases, but they also made their way into it. We call these farmers Columbian Asia and Africa where they became popu-Exchange, after Christopher Columbus. Lar. Both Europeans and Asians also started two important foods — corn and pota- smoking tobacco, an American factory toes — brought to Europe from many European grains and North Asia, such as America. Corn is used to feed animals, as wheat, wheat, rye, and rice, wereLarger, healthier animals resulted in more planting in America. Coffee and meat trophies, leather, and wool. The potatoes are also kal fruits, such as bananas, brought toimportan. Europeans find that if they're American too. Finally, coffee and The Columbian Exchange 0°NORTH Cassava Cocovaa Corn Disease Beans American Peanuts Peppers Pineapples EUROPE Beans, ASIA, AND AFRICA EUROPE Avocado S FOR RICA Sweet Potato E Potato Tobacco Tomato Honeybees Kina Squash Turkey Vanilla Pumpkin Atlantic Cattle - Livestock Potatoes OCEAN - Lamb Sugarcane Peaches &• Banana Pork Radish Olive Onions - Horse Pear Ear A S 30°N O AM Orange AFRICA EUROPE , AFRICA, AND ASIA Fruits W E Grains S Grains Grape Disease - Wheat 0 1,000 mi. - Rice - Wheat - Wheat 0 1,000 km Mercator projection 60°W 30°W Many foods are exchanged between America and Europe, Africa, and Asia. 1. Which grains are heading to America from Europe? 2. What, other than food, is part of the Columbian Exchange?668 CHAPTER 18 Enlightenment and Revolution 16. Banana farms employ thousands of Indian princes. Throughout Asia, European workers in Central and South America. force local rulers to let them establish a trade of new animals such as pigs, sheep, cattle, outposts. In a short time, East Indiachickens, and the horses also brought to the Company of England have built an EmpireAmerica. Chickens changed diet in India, and dutch East Indians in Central and South America, the Company has built an empire in Indonesia,while horses the lives of indigenous European settlers in japanAmericans in the Great Plains. Pro-horse horses are also changing that society. It. weapons and divide faster ways to move from one place to a cannon imported from Europe, a new place. As a result, Native Americans began to be able to defeat feudal buffalo as their main food source. rulers, daimyōs, and reunited Japan. A great movement of people also took not everything swapped between places after europeans acquired good European and American sugar cane. When those from Asia and starting to grow up in Europe arrived in america, they wereCaribbean. To grow and harvest germs that carry sugar that could kill Nativacean, they enslaved millions of African Americans. Many diseases, including mirrors– and move them to America. smallpox, measles, and malaria, sweeping across Europe are also changing Asian communities. America killed millions of people. With powerful weapons and ships, Describe theEuropeans easily defeated the Arab feet and the Columbian Exchange. Learn Centra!TM Need help with the materials in this section? Visit jat.gencoe.com What Do You Learn? Summary Read 1. What is karavel, and why does it matter? 4. Briefly Describe the development of AfricanRevolution 2. Explain the achievements of the slave trade. • Rising prices of Asian goods, strong central government, and Ferdinand Magellan's new screen. 5. Understanding the technology Cause and ing causes the Critical Thinking Effect of Europe Why traders explore the world. create a combined stock company of 3. Set Up Information Images and use the cottage industry?• Portugal finds routes to India chart as below. Use while Spain, England, and France are for the name of the explorer dis- 6. Analysis How food explores America. scolding this part, imported from the American country where they sail, and benefiting Europe? Identify some Europeans using the shared stock of the food. to build colonies and trad- places they explore, ing posts in Asia follow 7. Monitor and Explorer Country Area Adjust Write 10 questions about mercantilism. Sailing for multiple-choice Tests explored to help• European exploration and commerce, you review the important global exchange information in this section. goods, technology, and diseases. Exchange test with classmates. CHAPTER 18 Enlightenment and Revolution 669 17. What Does the Scientific Revolution Have to Do With It? Meeting One Person the result of the Ptolemy Renaissance (TAH • luh • me) is a new interest in science. During the Copernicus (koh • PUHR • nih • kuh)s of the 1600s, people began observing, kepler experiments (KEH • pluhrs), and reasons to discover the knowledge of galileo (GA • luh • LEE • oh) new. Newton (NOO • tuhn) Descartes (day • KAHRT) Focuses on • Ancient world thinkers developed early forms of science Building your Vocabulary and passing on this knowledge theory (THEE • eh • ree) civilization later. (page 671) 671) (RASH • noah • LIH • zuhm) scientific methods • European interest in astronomy led to new discoveries and ideas about hypotheses (hy • PAH • tuh • suhs) of the universe and earth's place in it. (page 673) Compare reading and contrast strategy use • Scientific Revolution led to new diagrams like the one below to show discoveries in physics, medicine, similarities and differences in and chemistry. (page 675) view of Ptolemy and Copernicus. • Using scientific methods, Europeans of the 1600s and 1700s Ptolemy Copernicus developed new ideas about society based on reason. (page 678) 1500 1600 1700London 1543 1632 1687 Paris Copernicus supports Galileo publishing Isaac Newton's sun-centered work supporting the state law on florence copernicus solar system idea of motion and gravity Rome670 CHAPTER 18 Enlightenment and Revolution 18. Scientific Revolution The thinkers of the ancient world built early forms of science and passed thisknowledge on to later civilizations. Reading Focus Have you ever taught skills or passed ideas to a younger brother or sister? Read in thischapter how early thinkers' scientific ideas were given to the next generation. From the early days, people have been unpretentious about the world around them. Thousands of years ago, people started using numbers, studying stars and planets, and watching the growth of plants and ani - This model shows the universe according to the ideas of Polish astronomer Nicolausmals. These activities were the beginning of Copernicus, with the sun in the universe'sof science. Science is every organized study center. What is ptolemy geocentric natural world and how it works. theory state? The early scientists of early Civilization devel - it gathered and classified, or organized different types of science to solve prac - they became groups, based on their similar problems. Among the bonds and differences in science first,are mathematics, astronomy, and medi- The Greeks make a lot of important things. Mathematics is used for continuous record-scientific advances, but their approach is toing and building projects. Astronomy has some problems. For example, helping people keep time and find out they're not experimenting with, or testing, new ideas when planting and harvesting crops. Early civ- to see if they're right. Many of their counter-izations also develop medical practices, false clusions because they are based as surgery, acupuncture, and use on common sense instead of experiments,herbs, to treat diseases. For example, in the 100s, the ancient Greeks abandoned a great Egyptian-born astronomer Ptolemy (TAH • the amount of scientific knowledge. They luh • me) declare that the sun and believe that reason is the only way to move around the earth in a circular path. When they learn after all, it looks like the earth is the world, they develop the theory. A center of the theory of the universe. Astronomers at (THEE • eh • ree) is an explanation of how or Europe accepts ptolemy geocentrics, or something happens. A theory based on earth-centered, theory for more than 1,400on of what you can observe about something. Years. This may not be true, but it seems to correspond to thefacts. Science During the Middle Ages Under Ancient Greece, philoso-Roman Greek rule, most thinkers continued aristotle topher observing nature and col - receiving scientific knowledge of a large amount of information about Greece. After the fall of Rome, during the thesis and animals. He then took the facts of the Middle Ages, most people over CHAPTER 18 Enlightenment and Revolution 671 Scala / Art Resources, NY 19. interested in theology, the study of God, mathematics, astronomy, and medicine. Louvre, Paris/Bridgeman Art Libraryrathan in nature studies. However, for science, despite these achievements, knowledge, they rely on the Greek language and scientists in the Islamic world do not write And see no need to examine experiments or develop their instrumentstheir facts or to make their own observations - necessary to advance their science. Many of these ancient works, how-knowledge,ever, are either lost or poorly preserved. During the 1100s, European thinkers in the surviving writings, mistakes became interested in science again as aaded as copies were made. from their contact with Islam Meanwhile, the Arabs and Jews of the world. The main Islamic scientific works were the Islamic Empire preserving most of the sci- brought to Europe and translated into Greek and Roman. They care- Latinos. The Hindu-Arabic system of num-fully copied many Greek and Roman bers works also spread to Europe, where it eventu-into Arabic. They also came allies in place of Roman numeral. Christianinto's contacts with Persian thinkers, such as Thomas Aquinas, tried it and the Indian mathematical system. to show that Christianity and reason could be Arab and Jewish scientists made to go together. During the 1100s, Europeans had themselves in such areas starting to build new universities. TheirA New View of the Ptolemaic Universe Universe Remains The Inaugural Star of Saturn Jupiter Mars Sun Venus Mercury Earth Moon Ptolemy astronomical theory (left) puts Earth at the center of the universe (above). His theory was accepted for more than a thousand years. According to the diagram, how many planets other than Earth were known at the time of Ptolemy? 20. will play an important role in the growth of science. Revolution in Astronomy Began in the 1400s, the voyage of European interest in astronomy led to the exploitation of increasingly new European inventions and ideas knowledge of the danefanic universe. Better graphs, maps, and Places of The Earth in Instruments help voyagers Reading Focus What would people on Earth think if it reached different parts of the world. Through life found on another planet? Read on to see how exploration, ocean size and conti- Europe are reacting to new discoveries about the universe.nents are becoming better known. Scientists gath-ered and classified new knowledge about during the 1500s, European thinkers, animals, and diseases in various began to break with old scientific ideas.parts of the world. They increasingly understand that progress As scientific knowledge grows, the stage in science can only come through math-set for a new understanding of matics and experimentation. It is this new natural world that will shake Europe to think of causing a revolution, or sweeping the foundations. change, in the way Europeans understood Describe scien- science and the search for knowledge during the Middle Ages. Astronomy was the first science influenced by the Copernican Universe Fixed Stars Saturn Moon Jupiter Mars Earth Sun Venus MercuryNicolaus Copernicus (right), a Polish expert, believes that the sun is at the center of the universe. Its model (above) puts Earth and other planets in orbit around the sun. Why were Europeans re-interested in the 1100s? 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