Correlation to the AP® Human Geography Course and Exam Description (effective Fall 2020)

Correlation to the Course Content

Unit / Period	Topic	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 1: Thinking	Impacts and Interactions (IMP): Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.				
Geographi- cally	Enduring Understanding IMP-1: Geographers use maps and data to depict relationships of time, space, and scale.				
	Topic 1.1:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Introduction to Maps	IMP-1.A—Identify types of maps, the types of information presented in maps, a kinds of spatial patterns and relationships portrayed in maps.	ind different		
		IMP-1.A.1—Types of maps include reference maps and thematic maps.	pp. 9–11		
		IMP-1.A.2—Types of spatial patterns represented on maps include absolute and relative distance and direction, clustering, dispersal, and elevation.	pp. 12–15		
		IMP-1.A.3—All maps are selective in information; map projections inevitably distort spatial relationships in shape, area, distance, and direction.	pp. 15–16		
	Topic 1.2:	IMP-1.B—Identify different methods of geographic data collection.			
	Geographic Data	IMP-1.B.1—Data may be gathered in the field by organizations or by individuals.	pp. 18, 20		
		IMP-1.B.2 —Geospatial technologies include geographic information systems (GIS), satellite navigation systems, remote sensing, and online mapping and visualization.	pp. 18–19		
		IMP-1.B.3 —Spatial information can come from written accounts in the form of field observations, media reports, travel narratives, policy documents, personal interviews, landscape analysis, and photographic interpretation.	pp. 19–20		
	Topic 1.3: The Power of Geographic Data	IMP-1.C—Explain the geographical effects of decisions made using geographical information.			
		IMP-1.C.1—Geospatial and geographical data, including census data and satellite imagery, are used at all scales for personal, business and organizational, and governmental decision-making purposes.	pp. 21–22		
Unit 1: Thinking		tial Organization (PSO): Spatial patterns and organization of human society are cal, historical, cultural, and economic factors.	arranged		
Geographi- cally	Enduring Understanding PSO-1: Define major geographic concepts that illustrate spatial relationships.				
Cally	Topic 1.4: Spatial	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Concepts	PSO-1.A —Define major Geographic concepts that illustrate spatial relationship	os		
		PSO-1.A.1 — Spatial concepts include absolute and relative location, space, place, flows, distance decay, time-space compression, and pattern.	pp. 31–33		
	Topic 1.5:	PSO-1.B—Explain how major geographic concepts illustrate spatial relationship	os.		
	Human- Environmental Interaction	PSO-1.B.1 —Concepts of nature and society include sustainability, natural resources, and land use.	pp. 35–36		
		PSO-1.B.2 —Theories regarding the interaction of the natural environment with human societies have evolved from environmental determinism to possibilism.	pp. 36–37		
	Topic 1.6: Scales	PSO-1.C—Define scales of analysis used by geographers.			
	of Analysis	PSO-1.C.1—Scales of analysis include global, regional, national, and local.	p. 38		
		PSO-1.D—Explain what scales of analysis reveal.			
		PSO-1.D.1 —Patterns and processes at different scales reveal variations in, and different interpretations of data.	pp. 39-40		

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 1: Thinking Geographi-	Spatial Process and Societal Change (SPS): A spatial perspective allows for a focus on the ways phenomena are related to one another in particular places, which in turn allows for the examination of human organization and its environmental consequences.				
cally	Enduring Underst perspective.	anding SPS-1: Geographers analyze complex issues and relationships with a dis	stinctively spatial		
	Topic 1.7:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Regional Analysis	SPS-1.A—Describe different ways that geographers define regions.			
		SPS-1.A.1—Regions are defined on the basis of one or more unifying characteristics or on patterns of activity.	pp. 43-45		
		SPS-1.A.2—Types of regions include formal, functional, and perceptual/vernacular.	pp. 43-44		
		SPS-1.A.3—Regional boundaries are transitional and often contested and overlapping.	p. 46		
		SPS-1.A.4—Geographers apply regional analysis at local, national, and global scales.	pp. 43–46		
Unit 2: Popula-		ial Organization (PSO): Spatial patterns and organization of human society are cal, historical, cultural, and economic factors.	arranged		
tion and Migration Patterns and	Understanding PS political, and econo	60-2: Understanding where and how people live is essential to understanding gloric patterns.	obal cultural,		
Processes	Topic 2.1:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Population Distribution	PSO-2.A —Identify the factors that influence the distribution of human population scales.	ns at different		
		PSO-2.A.1 —Physical factors (e.g., climate, landforms, water bodies) and human factors (e.g., culture, economics, history, politics) influence the distribution of population.	pp. 55–57		
		PSO-2.A.2 —Factors that illustrate patterns of population distribution vary according to the scale of analysis.	p. 57		
		PSO-2.B —Define methods geographers use to calculate population density.			
		PSO-2.B.1 —The three methods for calculating population density are arithmetic, physiological, and agricultural.	pp. 58-59		
		PSO-2.C —Explain the differences between and the impact of methods used to population density.	calculate		
		PSO-2.C.1 The method used to calculate population density reveals different information about the pressure the population exerts on the land.	pp. 57-60		
	Topic 2.2:	PSO-2.D —Explain how population distribution and density affect society and the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution and density affects are the explain how population distribution distri	environment.		
	Consequences of Population Distribution	PSO-2.D.1 —Population distribution and density affect political, economic, and social processes, including the provision of services such as medical care.	pp. 61–62		
		PSO-2.D.2 —Population distribution and density affect the environment and natural resources; this is known as carrying capacity.	pp. 62-63		
	Topic 2.3:	PSO-2.E—Describe elements of population composition used by geographers.			
	Population Composition	PSO-2.E.1 —Patterns of age structure and sex ratio vary across different regions and may be mapped and analyzed at different scales.	pp. 64-66		
		PSO-2.F—Explain ways that geographers depict and analyze population comp	osition.		
		PSO-2.F.1 —Population pyramids are used to assess population growth and decline and to predict markets for goods and services.	p. 65		

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 2: Popula-	Impacts and Interactions (IMP): Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.				
tion and Migration	IMP-2: Changes in population are due to mortality, fertility, and migration, which are influenced by the interplay of environmental, economic, cultural, and political factors.				
Patterns and Processes	Topic 2.4:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Population Dynamics	IMP-2.A —Explain factors that account for contemporary and historical trends growth and decline.	n population		
		IMP-2.A.1—Demographic factors that determine a population's growth and decline are fertility, mortality, and migration.	pp. 77–81		
		IMP-2.A.2—Geographers use the rate of natural increase and population-doubling time to explain population growth and decline.	p. 82		
		IMP-2.A.3—Social, cultural, political, and economic factors influence fertility, mortality, and migration rates.	pp. 79–81		
	Topic 2.5: The	IMP-2.B—Explain theories of population growth and decline.			
	Demographic Transition Model	IMP-2.B.1—The demographic transition model can be used to explain population change over time.	pp. 83-84		
		IMP-2.B.2—The epidemiological transition explains causes of changing death rates.	pp. 88–89		
	Topic 2.6:	IMP-2.B—Explain theories of population growth and decline.			
	Malthusian Theory	IMP-2.B.3—Malthusian theory and its critiques are used to analyze population change and its consequences.	pp. 90-91		
Unit 2: Popula-	Spatial Process and Societal Change (SPS): Spatial patterns and organization of human society are arranged according to political, historical, cultural, and economic factors.				
tion and Migration	SPS-2: Changes in population have long- and short-term effects on a place's economy, culture, and politics.				
Patterns and	Topic 2.7: Population Policies	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
Processes		SPS-2.A—Explain the intent and effects of various population and immigration population size and composition.	policies on		
		SPS-2.A.1—Types of population policies include those that promote or discourage population growth, such as pronatalist, antinatalist, and immigration policies.	pp. 94–95		
	Topic 2.8: Women and	SPS-2.B—Explain how the changing role of females had demographic consequence different parts of the world.	uences in		
	Demographic Change	SPS-2.B.1—Changing social values and access to education, employment, health care, and contraception have reduced fertility rates in most parts of the world.	pp. 96-97		
		SPS-2.B.2—Changing social, economic, and political roles for females have influenced patterns of fertility, mortality, and migration, as illustrated by Ravenstein's laws of migration.	pp. 96–97		
	Topic 2.9: Aging Populations	SPS-2.C—Explain the causes and consequences of an aging population.			
		SPS-2.C.1—Population aging is determined by birth and death rates and life expectancy.	pp. 99–100		
		SPS-2.C.2—An aging population has political, social, and economic consequences, including the dependency ratio.	pp. 100–101		

Unit / Period	Topic	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 2: Popula-	Impacts and Interactions (IMP): Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.				
tion and Migration	IMP-2: Changes in population are due to mortality, fertility, and migration, which are influenced by the interplay of environmental, economic, cultural, and political factors.				
Patterns and Processes	Topic 2.10:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Causes of Migration	IMP-2.C—Explain how different causal factors encourage migration.			
	9.2	IMP-2.C.1—Migration is commonly divided into push factors and pull factors.	p. 108		
		IMP-2.C.2—Push/pull factors and intervening opportunities/ obstacles can be cultural, demographic, economic, environmental, or political.	p. 109–111		
	Topic 2.11:	IMP-2.D—Describe types of forced and voluntary migration.			
	Forced and Voluntary Migration	IMP-2.D.1—Forced migrations include slavery and events that produce refugees, internally displaced persons, and asylum seekers.	pp. 115–117		
	Wilgration	IMP-2.D.2—Types of voluntary migrations include transnational, transhumance, internal, chain, step, guest worker, and rural-to-urban.	pp. 117–119		
	Topic 2.12:	IMP-2.E—Explain historical and contemporary geographic effects of migration.			
	Effects of Migration	IMP-2.E.1—Migration has political, economic, and cultural effects.	pp. 120–122		
Unit 3: Cultural		tial Organization (PSO): Spatial patterns and organization of human society are cal, historical, cultural, and economic factors.	arranged		
Patterns and Processes	PSO-3: Cultural pr	actices vary across geographical locations because of physical geography and ava	ailable resources.		
11000000	Topic 3.1:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Introduction to Culture	PSO-3.A —Define the characteristics, attitudes, and traits that influence geograthey study culture.	phers when		
		PSO-3.A.1 —Culture comprises the shared practices, technologies, attitudes, and behaviors transmitted by a society.	pp. 132–133		
		PSO-3.A.2 —Cultural traits include such things as food preferences, architecture, and land use.	pp. 135-136		
		PSO-3.A.3— Cultural relativism and ethnocentrism are different attitudes toward cultural difference.	p. 152		
	Topic 3.2: Cultural Landscapes	PSO-3.B—Describe the characteristics of cultural landscapes.			
		PSO-3.B.1—Cultural landscapes are combinations of physical features, agricultural and industrial practices, religious and linguistic characteristics, evidence of sequent occupancy, and other expressions of culture including traditional and postmodern architecture and land-use patterns.	pp. 138–140		
		PSO-3.C —Explain how landscape features and land and resource use reflect c and identities.	ultural beliefs		
		PSO-3.C.1 —Attitudes toward ethnicity and gender, including the role of women in the workforce; ethnic neighborhoods; and indigenous communities and lands help shape the use of space in a given society.	pp. 140–141		
	Topic 3.3:	PSO-3.D—Explain patterns and landscapes of language, religion, ethnicity, and	l gender.		
	Cultural Patterns	PSO-3.D.1—Regional patterns of language, religion, and ethnicity contribute to a sense of place, enhance placemaking, and shape the global cultural landscape.	pp. 148–150		
		PSO -3.D.2 —Language, ethnicity, and religion are factors in creating centripetal and centrifugal forces.	pp. 150-151		
Unit 3: Cultural		ractions (IMP): Complex relationships of cause and effect exist among people, the contemporary actions.	eir environments,		
Patterns and	IMP-3: The interac	ction of people contributes to the spread of cultural practices.			
Processes	Topic 3.4: Types	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	of Diffusion	IMP-3.A—Define the types of diffusion.			
		IMP-3.A.1—Relocation and expansion—including contagious, hierarchical, and stimulus expansion—are types of diffusion.	pp. 154–156		

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 3: Cultural		nd Societal Change (SPS): Spatial patterns and organization of human society a cal, historical, cultural, and economic factors.	are arranged		
Patterns and Processes	SPS-3: Cultural ide	eas, practices, and innovations change or disappear over time.			
Processes	Topic 3.5:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Historical Causes of Diffusion	SPS-3.A—Explain how historical processes impact current cultural patterns.			
	of Diliusion	SPS-3.A.1—Interactions between and among cultural traits and larger global forces can lead to new forms of cultural expression; for example, creolization and lingua franca.	pp. 164–167		
		SPS-3.A.2—Colonialism, imperialism, and trade helped to shape patterns and practices of culture.	p. 164		
	Topic 3.6:	SPS-3.A—Explain how historical processes impact current cultural patterns.			
	Contemporary Causes of Diffusion	SPS-3.A.3—Cultural ideas and practices are socially constructed and change through both small-scale and large-scale processes such as urbanization and globalization. These processes come to bear on culture through media, technological change, politics, economics, and social relationships.	pp. 168–169		
		SPS-3.A.4—Communication technologies, such as the internet and the time-space convergence, are reshaping and accelerating interactions among people; changing cultural practices, as in the increasing use of English and the loss of indigenous languages; and creating cultural convergence and divergence.	pp. 169–170		
Unit 3: Cultural	Impacts and Interactions (IMP): Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.				
Patterns and Processes	IMP-3: The interaction of people contributes to the spread of cultural practices.				
110003303	Topic 3.7:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Diffusion of Religion and	IMP-3.B—Explain what factors lead to the diffusion of universalizing and ethnic	religions.		
	Language	IMP-3.B.1—Language families, languages, dialects, world religions, ethnic cultures, and gender roles diffuse from cultural hearths.	pp. 172–174		
		IMP-3.B.2—Diffusion of language families, including Indo- European, and religious patterns and distributions can be visually represented on maps, in charts and toponyms, and in other representations.	pp. 172–175		
		IMP-3.B.3 —Religions have distinct places of origin from which they diffused to other locations through different processes. Practices and belief systems impacted how widespread the religion diffused.	pp. 176–179		
		IMP-3.B.4—Universalizing religions, including Christianity, Islam, Buddhism, and Sikhism, are spread through expansion and relocation diffusion.	pp. 176–179		
		IMP-3.B.5—Ethnic religions, including Hinduism and Judaism, are generally found near the hearth, or spread through relocation diffusion.	pp. 176, 178		
Unit 3: Cultural Patterns and Processes		nd Societal Change (SPS): Spatial patterns and organization of human society a cal, historical, cultural, and economic factors.	are arranged		
	SPS-3: Cultural ide	eas, practices, and innovations change or disappear over time.			
	Topic 3.8: Effects	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	of Diffusion	SPS-3.B—Explain how the process of diffusion results in changes to the cultura	al landscape.		
		SPS-3.B.1—Acculturation, assimilation, syncretism, and multiculturalism are effects of the diffusion of culture.	pp. 182–184		

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 4: Political		tial Organization (PSO): Spatial patterns and organization of human society are cal, historical, cultural, and economic factors.	arranged		
Patterns and	PSO-4: The politic	al organization of space results from historical and current processes, events, an	nd ideas.		
Processes	Topic 4.1:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Introduction to Political	PSO-4.A—For world political maps:			
	Geography	a. Define the different types of political entities.b. Identify a contemporary example of political entities.			
		PSO-4.A.1 —Independent states are the primary building blocks of the world political map.	pp. 193–194		
		PSO-4.A.2 —Types of political entities include nations, nation- states, stateless nations, multinational states, multistate nations, and autonomous and semiautonomous regions, such as American Indian reservations.	pp. 194–197		
	Topic 4.2:	PSO-4.B—Explain the processes that have shaped contemporary political geographics.	graphy.		
	Political Processes	PSO-4.B.1 —The concepts of sovereignty, nation-states, and self-determination shape the contemporary world.	pp. 198–204		
		PSO-4.B.2 —Colonialism, imperialism, independence movements, and devolution along national lines have influenced contemporary political boundaries.	pp. 199–201		
	Topic 4.3:	PSO-4.C—Describe the concepts of political power and territoriality as used by	y geographers.		
	Political Power and Territoriality	PSO-4.C.1 —Political power is expressed geographically as control over people, land, and resources, as illustrated by neocolonialism, shatterbelts, and choke points.	pp. 207–209		
		PSO-4.C.2 —Territoriality is the connection of people, their culture, and their economic systems to the land.	pp. 206–207		
Unit 4: Political	Impacts and Interactions (IMP): Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.				
Patterns and Processes	IMP-4: Political boundaries and divisions of governance, between states and within them, reflect balances of power that have been negotiated or imposed.				
	Topic 4.4:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Defining Political Boundaries	IMP-4.A—Define types of political boundaries used by geographers.			
	Doundaries	IMP-4.A.1—Types of political boundaries include relic, superimposed, subsequent, antecedent, geometric, and consequent boundaries.	pp. 218–221		
	Topic 4.5:	IMP-4.B—Explain the nature and function of international and internal boundar	ries.		
	The Function of Political Boundaries	IMP-4.B.1—Boundaries are defined, delimited, demarcated, and administered to establish limits of sovereignty, but they are often contested.	pp. 223–224		
		IMP-4.B.2—Political boundaries often coincide with cultural, national, or economic divisions. However, some boundaries are created by demilitarized zones or policy, such as the Berlin Conference.	pp. 220–221		
		IMP-4.B.3—Land and maritime boundaries and international agreements can influence national or regional identity and encourage or discourage international or internal interactions and disputes over resources.	pp. 224–225		
		IMP-4.B.4 —The United Nations Convention on the Law of the Sea defines the rights and responsibilities of nations in the use of international waters, established territorial seas, and exclusive economic zones.	pp. 228–230		
	Topic 4.6:	IMP-4.B—Explain the nature and function of international and internal boundar	ries.		
	Internal Boundaries	IMP-4.B.5 —Voting districts, redistricting, and gerrymandering affect election results at various scales.	pp. 231–233		
	Topic 4.7: Forms	IMP-4.C—Define federal and unitary states.			
	of Governance	IMP-4.C.1—Forms of governance include unitary states and federal states.	pp. 234–235		
		IMP-4.D—Explain how federal and unitary states affect spatial organization.			
		IMP-4.D.1 —Unitary states tend to have a more top-down, centralized form of governance, while federal states have more locally based, dispersed power centers.	pp. 234–237		

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages
Unit 4: Political		nd Societal Change (SPS): Spatial patterns and organization of human society a cal, historical, cultural, and economic factors.	are arranged
Patterns and Processes	SPS-4: Political, ed	conomic, cultural, or technological changes can challenge state sovereignty.	
Fiocesses	Topic 4.8:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE	
	Defining Devolutionary	SPS-4.A—Define factors that lead to the devolution of states.	
	Factors	SPS-4.A.1—Factors that can lead to the devolution of states include the division of groups by physical geography, ethnic separatism, ethnic cleansing, terrorism, economic and social problems, and irredentism.	pp. 244–248
	Topic 4.9: Challenges to	SPS-4.B—Explain how political, economic, cultural, and technological changes sovereignty.	challenge state
	Sovereignty	SPS-4.B.1—Devolution occurs when states fragment into autonomous regions; subnational political territorial units, such as those within Spain, Belgium, Canada, and Nigeria; or when states disintegrate, as happened in Sudan and the former Soviet Union.	pp. 249–250
		SPS-4.B.2—Advances in communication technology have facilitated devolution, supranationalism, and democratization.	pp. 252–254
		SPS-4.B.3—Global efforts to address transnational and environmental challenges and to create economies of scale, trade agreements, and military alliances help to further supranationalism.	pp. 255–256
		SPS-4.B.4—Supranational organizations—including the United Nations (UN), North Atlantic Treaty Organization (NATO), European Union (EU), Association of Southeast Asian Nations (ASEAN), Arctic Council, and African Union—can challenge state sovereignty by limiting the economic or political actions of member states.	pp. 252–254
	Topic 4.10: Consequences of Centrifugal and Centripetal Forces	SPS-4.C—Explain how the concepts of centrifugal and centripetal forces apply a	at the state scale.
		SPS-4.C.1—Centrifugal forces may lead to failed states, uneven development, stateless nations, and ethnic nationalist movements.	pp. 258–259
		SPS-4.C.2—Centripetal forces can lead to ethnonationalism, more equitable infrastructure development, and increased cultural cohesion.	pp. 259-260
Unit 5: Agriculture		tial Organization (PSO): Spatial patterns and organization of human society are cal, historical, cultural, and economic factors.	arranged
and Rural Land-Use	PSO-5: Availability	y of resources and cultural practices influence agricultural practices and land-use	patterns.
Patterns and	Topic 5.1:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE	
Processes	Introduction to Agriculture	PSO-5.A—Explain the connection between physical geography and agricultura	l practices.
		PSO-5.A.1 —Agricultural practices are influenced by the physical environment and climatic conditions, such as the Mediterranean climate and tropical climates.	pp. 271–272, 278
		PSO-5.A.2 —Intensive farming practices include market gardening, plantation agriculture, and mixed crop/livestock systems.	pp. 273–274, 277
		PSO-5.A.3— Extensive farming practices include shifting cultivation, nomadic herding, and ranching.	pp. 274–275
	Topic 5.2:	PSO-5.B—Identify different rural settlement patterns and methods of surveying r	rural settlements.
	Settlement Patterns and	PSO-5.B.1 —Specific agricultural practices shape different rural land-use patterns.	pp. 280-281
	Survey Methods	PSO-5.B.2 —Rural settlement patterns are classified as clustered, dispersed, or linear.	p. 279
		PSO-5.B.3 —Rural survey methods include metes and bounds, township and range, and long lot.	pp. 280-281

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages	
Unit 5: Agriculture		nd Societal Change (SPS): Spatial patterns and organization of human society a cal, historical, cultural, and economic factors.	are arranged	
and Rural Land-Use	SPS-5: Agriculture	has changed over time because of cultural diffusion and advances in technolog	y.	
Patterns and	Topic 5.3:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE		
Processes	Agricultural	SPS-5.A—Identify major centers of domestication of plants and animals.		
	Origins and Diffusions	SPS-5.A.1—Early hearths of domestication of plants and animals arose in the Fertile Crescent and several other regions of the world, including the Indus River Valley, Southeast Asia, and Central America.	рр. 284–285	
		SPS-5.B—Explain how plants and animals diffused globally.		
		SPS-5.B.1—Patterns of diffusion, such as the Columbian Exchange and the agricultural revolutions, resulted in the global spread of various plants and animals.	pp. 285–286	
	Topic 5.4:	SPS-5.C—Explain the advances and impacts of the second agricultural revolution	on.	
	The Second Agricultural Revolution	SPS-5.C.1—New technology and increased food production in the second agricultural revolution led to better diets, longer life expectancies, and more people available for work in factories.	pp. 293–295	
	Topic 5.5: The Green Revolution	SPS-5.D —Explain the consequences of the Green Revolution on food supply a environment in the developing world.	nd the	
		SPS-5.D.1— The Green Revolution was characterized in agriculture by the use of high-yield seeds, increased use of chemicals, and mechanized farming.	pp. 296–298	
		SPS-5.D.2— The Green Revolution had positive and negative consequences for both human populations and the environment.	pp. 298-301	
Unit 5: Agriculture	Patterns and Spatial Organization (PSO): Spatial patterns and organization of human society are arranged according to political, historical, cultural, and economic factors.			
and Rural Land-Use	PSO-5: Availability	of resources and cultural practices influence agricultural practices and land- us	e patterns.	
Patterns and	Topic 5.6:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE		
Processes	Agricultural	PSO-5.C—Explain how economic forces influence agricultural practices.		
	Production Regions	PSO-5.C.1 —Agricultural production regions are defined by the extent to which they reflect subsistence or commercial practices (monocropping or monoculture).	pp. 308–310	
		PSO-5.C.2 —Intensive and extensive farming practices are determined in part by land costs (bid-rent theory).	p. 308	
	Topic 5.7: Spatial	PSO-5.C—Explain how economic forces influence agricultural practices.		
	Organization of Agriculture	PSO-5.C.3 —Large-scale commercial agricultural operations are replacing small family farms.	pp. 311-312	
		PSO-5.C.4 —Complex commodity chains link production and consumption of agricultural products.	pp. 312-313	
		PSO-5.C.5 —Technology has increased economies of scale in the agricultural sector and the carrying capacity of the land.	p. 314	
	Topic 5.8: Von Thünen Model	PSO-5.D— Describe how the von Thünen model is used to explain patterns of a production at various scales.	gricultural	
		PSO-5.D.1 —Von Thünen's model helps to explain rural land use by emphasizing the importance of transportation costs associated with distance from the market; however, regions of specialty farming do not always conform to von Thünen's concentric rings.	pp. 315–320	
	Topic 5.9: The Global System of	PSO-5.E —Explain the interdependence among regions of agricultural productionsumption.	on and	
	Agriculture	PSO-5.E.1—Food and other agricultural products are part of a global supply chain.	pp. 322-323	
		PSO-5.E.2 —Some countries have become highly dependent on one or more export commodities.	pp. 322-323	
		PSO-5.E.3 —The main elements of global food distribution networks are affected by political relationships, infrastructure, and patterns of world trade.	pp. 323-325	

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages
Unit 5: Agriculture		ractions (IMP): Complex relationships of cause and effect exist among people, the historical and contemporary actions.	neir
and Rural Land-Use Patterns and		Il production and consumption patterns vary in different locations, presenting dif cial, economic, and cultural opportunities and challenges.	ferent
Processes	Topic 5.10:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE	
	Consequences of Agricultural	IMP-5.A—Explain how agricultural practices have environmental and societal of	consequences.
	Practices	IMP-5.A.1—Environmental effects of agricultural land use include pollution, land cover change, desertification, soil salinization, and conservation efforts.	pp. 334–336
		IMP-5.A.2—Agricultural practices—including slash and burn, terraces, irrigation, deforestation, draining wetlands, shifting cultivation, and pastoral nomadism—alter the landscape.	pp. 336-338
		IMP-5.A.3—Societal effects of agricultural practices include changing diets, role of women in agricultural production, and economic purpose.	pp. 340-342
	Topic 5.11: Challenges of Contemporary Agriculture	IMP-5.B —Explain challenges and debates related to the changing nature of co agriculture and food-production practices.	ntemporary
		IMP-5.B.1—Agricultural innovations such as biotechnology, genetically modified organisms, and aquaculture have been accompanied by debates over sustainability, soil and water usage, reductions in biodiversity, and extensive fertilizer and pesticide use.	pp. 343-347
		IMP-5.B.2—Patterns of food production and consumption are influenced by movements relating to individual food choice, such as urban farming, community-supported agriculture (CSA), organic farming, value-added specialty crops, fair trade, local-food movements, and dietary shifts.	pp. 347–350
		IMP-5.B.3 —Challenges of feeding a global population include lack of food access, as in cases of food insecurity and food deserts, problems with distribution systems; adverse weather; and land use lost to suburbanization.	pp. 350-353
		IMP-5.B.4—The location of food-processing facilities and markets, economies of scale, distribution systems, and government policies all have economic effects on food-production practices.	pp. 353–355
	Topic 5.12:	IMP-5.C—Explain geographic variations in female roles in food production and	consumption.
		Women in Agriculture	IMP-5.C.1 —The role of females in food production, distribution, and consumption varies in many places depending on the type of production involved.

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 6: Cities and Urban		rial Organization (PSO): Spatial patterns and organization of human society are cal, historical, cultural, and economic factors.	arranged		
Land-Use Patterns and Processes	PSO-6: The preser and resources.	PSO-6: The presence and growth of cities vary across geographical locations because of physical geography and resources.			
	Topic 6.1: The	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Origin and Influences of	PSO-6.A—Explain the processes that initiate and drive urbanization and subur	banization.		
	Urbanization	PSO-6.A.1 —Site and situation influence the origin, function, and growth of cities.	pp. 368–369		
		PSO-6.A.2 —Changes in transportation and communication, population growth, migration, economic development, and government policies influence urbanization.	pp. 371–374		
	Topic 6.2: Cities	PSO-6.A— Explain the processes that initiate and drive urbanization and subur	banization.		
	Across the World	PSO-6.A.3 —Megacities and metacities are distinct spatial outcomes of urbanization increasingly located in countries of the periphery and semiperiphery.	pp. 377–379		
		PSO-6.A.4 —Processes of suburbanization, sprawl, and decentralization have created new land-use forms—including edge cities, exurbs, and boomburbs—and new challenges.	pp. 375-377		
	Topic 6.3: Cities and Globalization	PSO-6.B—Explain how cities embody processes of globalization.			
		PSO-6.B.1— World cities function at the top of the world's urban hierarchy and drive globalization.	pp. 380-381		
		PSO-6.B.2 —Cities are connected globally by networks and linkages and mediate global processes.	pp. 380–381		
	Topic 6.4: The Size and Distribution of Cities	PSO-6.C —Identify the different urban concepts such as hierarchy, interdepend size, and spacing that are useful for explaining the distribution, size, and interactions.			
		PSO-6.C.1 —Principles that are useful for explaining the distribution and size of cities include rank-size rule, the primate city, gravity, and Christaller's central place theory.	pp. 382–386		
	Topic 6.5: The	PSO-6.D—Explain the internal structure of cities using various models and the	ories.		
	Internal Structure of Cities	PSO-6.D.1—Models and theories that are useful for explaining internal structures of cities include the Burgess concentric- zone model, the Hoyt sector model, the Harris and Ullman multiple-nuclei model, the galactic city model, bid-rent theory, and urban models drawn from Latin America, Southeast Asia, and Africa.	pp. 395–401		

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 6: Cities and Urban	Impacts and Interactions (IMP): Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.				
Land-Use Patterns and Processes	MP-6: The attitude in the built landsca	s and values of a population, as well as the balance of power within that population.	on, are reflected		
liocesses	Topic 6.6:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	Density and Land Use	IMP-6.A—Explain how low-, medium-, and high-density housing characteristics different patterns of residential land use.	s represent		
		IMP-6.A.1—Residential buildings and patterns of land use reflect and shape the city's culture, technological capabilities, cycles of development, and infilling.	pp. 403–405		
	Topic 6.7:	IMP-6.B—Explain how a city's infrastructure relates to local politics, society, and the environment			
	Infrastructure	IMP-6.B.1— The location and quality of a city's infrastructure directly affects its spatial patterns of economic and social development.	pp. 406–409		
	Topic 6.8: Urban	IMP-6.C—Identify the different urban design initiatives and practices.			
	Sustainability	IMP-6.C.1 —Sustainable design initiatives and zoning practices include mixed land use, walkability, transportation-oriented development, and smart-growth policies, including New Urbanism, greenbelts, and slow-growth cities.	pp. 417–420		
		IMP-6.D—Explain the effects of different urban design initiatives and practices.			
		IMP-6.D.1—Praise for urban design initiatives includes the reduction of sprawl, improved walkability, and transportation, improved and diverse housing options, improved livability and promotion of sustainable options. Criticisms include increased housing costs, possible de facto segregation, and the potential loss of historical or place character.	pp. 417–418		
	Topic 6.9: Urban Data	IMP-6.E—Explain how qualitative and quantitative data are used to show the careffects of geographic change within urban areas.	auses and		
		IMP-6.E.1— Quantitative data from census and survey data provide information about changes in population composition and size in urban areas.	pp. 422–423		
		IMP-6.E.2—Qualitative data from field studies and narratives provide information about individual attitudes toward urban change.	pp. 423–424		

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages
Unit 6: Cities and Urban		nd Societal Change (SPS): Spatial patterns and organization of human society a cal, historical, cultural, and economic factors.	are arranged
Land-Use Patterns and	SPS-6: Urban area	as face unique economic, political, cultural, and environmental challenges.	
Processes	Topic 6.10:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE	
	Challenges of	SPS-6.A—Explain causes and effects of geographic change within urban areas	5.
	Urban Changes	SPS-6.A.1—As urban populations move within a city, economic and social challenges result, including: issues related to housing and housing discrimination such as redlining, blockbusting, and affordability; access to services; rising crime; environmental injustice; and the growth of disamenity zones or zones of abandonment.	pp. 425–427
		SPS-6.A.2—Squatter settlements and conflicts over land tenure within large cities have increased.	pp. 429–430
		SPS-6.A.3—Responses to economic and social challenges in urban areas can include inclusionary zoning and local food movements.	pp. 427, 431
		SPS-6.A.4—Urban renewal and gentrification have both positive and negative consequences.	pp. 428–430
		SPS-6.A.5—Functional and geographic fragmentation of governments—the way government agencies and institutions are dispersed between state, county, city, and neighborhood levels—presents challenges in addressing urban issues.	pp. 431–432
	Topic 6.11: Challenges of Urban Sustainability	SPS-6.B—Describe the effectiveness of different attempts to address urban such allenges.	stainability
		SPS-6.B.1—Challenges to urban sustainability include suburban sprawl, sanitation, climate change, air and water quality, the large ecological footprint of cities, and energy use.	pp. 431–435
		SPS-6.B.2—Responses to urban sustainability challenges can include regional planning efforts, remediation and redevelopment of brownfields, establishment of urban growth boundaries, and farmland protection policies.	pp. 435–436

Unit / Period	Торіс	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 7: Industrial and Economic Development Patterns and Processes	Spatial Process and Societal Change (SPS): Spatial patterns and organization of human society are arranged according to political, historical, cultural, and economic factors.				
	SPS-7: Industrialization, past and present, has facilitated improvements in standards of living, but it has also contributed to geographically uneven development.				
	Topic 7.1: The Industrial Revolution	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
		SPS-7.A —Explain how the Industrial Revolution facilitated the growth and diffusion of industrialization.			
		SPS-7.A.1—Industrialization began as a result of new technologies and was facilitated by the availability of natural resources.	p. 447		
		SPS-7.A.2—As industrialization spread it caused food supplies to increase and populations to grow; it allowed workers to seek new industrial jobs in the cities and changed class structures.	pp. 448–449		
		SPS-7.A.3—Investors in industry sought out more raw materials and new markets, a factor that contributed to the rise of colonialism and imperialism.	p. 450		
	Topic 7.2:	SPS-7.B—Explain the spatial patterns of industrial production and development.			
	Economic Sectors and Patterns	SPS-7.B.1—The different economic sectors—including primary, secondary, tertiary, quaternary, and quinary—are characterized by distinct development patterns.	pp. 452–454		
		SPS-7.B.2—Labor, transportation (including shipping containers), the break-of-bulk point, least cost theory, markets, and resources influence the location of manufacturing such as core, semiperiphery, and periphery locations.	pp. 455–458		
	Topic 7.3: Measures of Development	SPS-7.C—Describe social and economic measures of development.			
		SPS-7.C.1—Measures of social and economic development include Gross Domestic Product (GDP); Gross National Product (GNP); and Gross National Income (GNI) per capita; sectoral structure of an economy, both formal and informal; income distribution; fertility rates; infant mortality rates; access to health care; use of fossil fuels and renewable energy; and literacy rates.	pp. 462-466		
		SPS-7.C.2—Measures of gender inequality, such as the Gender Inequality Index (GII), include reproductive health, indices of empowerment, and labor-market participation.	pp. 468–469		
		SPS-7.C.3—The Human Development Index (HDI) is a composite measure used to show spatial variation among states in levels of development.	pp. 469–470		
	Topic 7.4: Women and Economic Development	SPS-7.D —Explain how and to what extent changes in economic development have contributed to gender parity.			
		SPS-7.D.1—The roles of women change as countries develop economically.	pp. 471–472		
		SPS-7.D.2—Although there are more women in the workforce, they do not have equity in wages or employment opportunities.	pp. 471–472		
		SPS-7.D.3—Microloans have provided opportunities for women to create small local businesses, which have improved standards of living.	p. 472		
	Topic 7.5: Theories of Development	SPS-7.E—Explain different theories of economic and social development.			
		SPS-7.E.1—Different theories, such as Rostow's Stages of Economic Growth, Wallerstein's World System Theory, dependency theory, and commodity dependence, help explain spatial variations in development.	pp. 479–484		

Unit / Period	Topic	Big Ideas, Enduring Understandings, Learning Objectives, and Essential Knowledge	Text Pages		
Unit 7: Industrial and Economic Development Patterns and Processes	Patterns and Spatial Organization (PSO): Spatial patterns and organization of human society are arranged according to political, historical, cultural, and economic factors.				
	PSO-7: Economic and social development happen at different times and rates in different places.				
	Topic 7.6: Trade	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
	and the World Economy	PSO-7.A —Explain causes and geographic consequences of recent economic changes such as the increase in international trade, deindustrialization, and growing interdependence in the world economy.			
		PSO-7.A.1 —Complementarity and comparative advantage establish the basis for trade.	pp. 485–486		
		PSO-7.A.2 —Neoliberal policies, including free trade agreements, have created new organizations, spatial connections, and trade relationships, such as the EU, World Trade Organization (WTO), Mercosur, and OPEC, that foster greater globalization.	pp. 486-487		
		PSO-7.A.3—Government initiatives at all scales may affect economic development, including tariffs.	pp. 486–488		
		PSO-7.A.4 —Global financial crises (e.g., debt crises), international lending agencies (e.g., the International Monetary Fund), and strategies of development (e.g., microlending) demonstrate how different economies have become more closely connected, even interdependent.	p. 489		
	Topic 7.7: Changes as a result of the World Economy	PSO-7.A —Explain causes and geographic consequences of recent economic changes such as the increase in international trade, deindustrialization, and growing interdependence in the world economy.			
		PSO-7.A.5 —Outsourcing and economic restructuring have ledto a decline in jobs in core regions and an increase in jobs in newly industrialized countries.	pp. 496–498		
		PSO-7.A.6 —In countries outside the core, the growth of industry has resulted in the creation of new manufacturing zones—including special economic zones, free-trade zones, and export processing zones—and the emergence of an international division of labor in which developing countries have lower-paying jobs.	pp. 497–498		
		PSO-7.A.7 —The contemporary economic landscape has been transformed by post-Fordist methods of production, multiplier effects, economies of scale, agglomeration, just-in-time delivery, the emergence of service sectors, high technology industries, and growth poles.	pp. 501–503		
Unit 7: Industrial	Impacts and Interactions (IMP): Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.				
and Economic Development	IMP-7: Environmental problems stemming from industrialization may be remedied through sustainable development strategies.				
Patterns and	Topic 7.8:	LEARNING OBJECTIVES AND ESSENTIAL KNOWLEDGE			
Processes	Sustainable Development	IMP-7.A—Explain how sustainability principles relate to and impact industrialization and spatial development.			
		IMP-7.A.1 —Sustainable development policies attempt to remedy problems stemming from natural resource depletion, mass consumption, the effects of pollution, and the impact of climate change.	pp. 505–507		
		IMP-7.A.2—Ecotourism is tourism based in natural environments— often environments that are threatened by looming industrialization or development—that frequently helps to protect the environment in question while also providing jobs for the local population.	p. 508		
		IMP-7.A.3—The UN's Sustainable Development Goals help measure progress in development, such as small-scale finance and public transportation projects.	pp. 508-510		

Correlation to the Course Skills

Code	Category	Text Pages		
1	Concepts and Processes: Analyze geographic theories, approaches and applied contexts.	c, concepts, processes, or models in theoretical		
1.A	Describe geographic concepts, processes, models, and theories.	pp. 27, #3; 50, #5; 72, #5; 127, #7; 160, #2; 161, #5; 213, #1; 264, #1; 266, #6; 289, #1, #2, #3; 305, #6, 362, #3; 390, #2; 480, #4		
1.B	Explain geographic concepts, processes, models, and theories.	pp. 27, #4; 49, #2, #3; 105, #4; 126, #4; 126, #6; 187, #1, #2; 189, #7; 188, #5, #6; 215, #7; 265, #3, #4, #5; 304, #2, #4; 305, #7; 330, #3; 362, #4; 390, #4; 413, #2; 475, #2, #3; 480, #5; 514, #2, #4		
1.C	Compare geographic concepts, processes, models, and theories.	pp. 105, #5; 125, #2		
1.D	Describe a relevant geographic concept, process, model, or theory in a specified context.	pp. 161, #4; 161, #6; 187, #3; 239, #2; 241, #5, #6, #7; 266, #7; 290, #5, #7; 362, #6, 390, #3; 390, #5; 440, #4, #6; 480, #6; 492, #1; 493, #6; 493, #6; 514, #5, #7		
1.E	Explain the strengths, weaknesses, and limitations of different geographic models and theories in a specified context.	p. 304, #1		
2	Spatial Relationships: Analyze geographic patterns, relationships, and outcomes in applied contexts.			
2.A	Describe spatial patterns, networks, and relationships.	pp. 49, #3; 161, #7; 329, #1, 362, #5		
2.B	Explain spatial relationships in a specified context or region of the world, using geographic concepts, processes, models, or theories.	pp. 289, #4; 304, #3; 331, #5, #6, #7; 413, #3, #4; 492, #3; 493, #4, #5		
2.C	Explain a likely outcome in a geographic scenario using geographic concepts, processes, models, or theories.	pp. 126, #3; 439, #2; 440, #3, #5; 480, #7		
2.D	Explain the significance of geographic similarities and differences among different locations and/or at different times.	p. 413, #5		
2.E	Explain the degree to which a geographic concept, process, model, or theory effectively explains geographic effects in different contexts and regions of the world.	p. 414, #7		
3	Data Analysis: Analyze and interpret quantitative geographic data represented in maps, tables, charts, graphs, satellite images, and infographics.			
3.A	A Identify the different types of data presented in maps and in quantitative and geospatial data.	pp. 27, #5; 214, #2; #4; 240, #3; 391, #6; 493, #7		
3.B	Describe spatial patterns presented in maps and in quantitative and geospatial data.	pp. 71, #2; 104, #1; 105, #6; 514, #3		
3.C	Explain patterns and trends in maps and in quantitative and geospatial data to draw conclusions.	pp. 73, #7; 214, #3; 305, #5; 389, #1; 391, #7; 441, #7; 514, #6		
3.D	Compare patterns and trends in maps and in quantitative and geospatial data to draw conclusions.	pp. 72, #3, #4; 104, #2; 106, #7; 439, #1; 475, #1		
3.E	Explain what maps or data imply or illustrate about geographic principles, processes, and outcomes.	pp. 26, #1; 28, #6, #7; 51, #6; 71, #1; 73, #6; 105, #3; 188, #4; 513, #1		
3.F	Explain possible limitations of the data provided.	p. 26, #2		
4	Source Analysis: Analyze and interpret qualitative geographic inform photographs, cartoons), and landscapes.	nation represented in maps, images (e.g., satellite,		
4.A	Identify the different types of information presented in visual sources.	pp. 50, #4; 160, #3; 215, #5, #6; 239, #1; 290, #6; 361, #1; 412, #1		
4.B	Describe the spatial patterns presented in visual sources.	pp. 329, #2; 414, #6		
4.C	Explain patterns and trends in visual sources to draw conclusions.	pp. 264, #1; 363, #7		
4.D	Compare patterns and trends in sources to draw conclusions.	pp. 240, #4; 330, #4		
4.E	Explain how maps, images, and landscapes illustrate or relate to geographic principles, processes, and outcomes.	pp. 125, #1; 126 #5; 126, #5; 159, #1; 361, #2		
	Explain possible limitations of visual sources provided.			

Code	Category	Text Pages	
5	Scale Analysis: Analyze geographic theories, approaches, concepts, processes, and models across geographic scales to explain spatial relationships.		
5.A	A Identify the scales of analysis presented by maps, quantitative and geospatial data, images, and landscapes.	p. 51, #7	
5.B	Explain spatial relationships across various geographic scales using geographic concepts, processes, models, or theories.	pp. 312, #7; 523, #12	
5.C	Compare geographic characteristics and processes at various scales.	p. 529, #28	
5.D	Explain the degree to which a geographic concept, process, model, or theory effectively explains geographic effects across various geographic scales.		

Correlation to the Big Ideas

Big Ideas	Text Pages			
BIG IDEA 1: PATTERNS AND SPATIAL ORGANIZATION (PSO)				
Spatial patterns and organization of human society are arranged according to political, historical, cultural, and economic factors.	pp. 31–40; 77–84; 88–91; 108–111; 115–122; 165–156; 172–179; 218–221; 223–225; 228–237; 334–338; 340–358; 403–409; 417–420; 422–424; 505–510			
BIG IDEA 2: IMPACTS AND INTERACTIONS (IMP)				
Complex relationships of cause and effect exist among people, their environments, and historical and contemporary actions.	pp. 9-16; 18-22; 55-66; 132-133; 135-136; 138-141; 148-152; 193-204; 207-209; 271-275; 227-281; 285-286; 308-320; 322-325; 368-386; 395-401; 427-436; 486-489; 496-498; 501-503			
BIG IDEA 3: SPATIAL PROCESS AND SOCIETAL CHANGE (SPS)				
A spatial perspective allows for a focus on the ways phenomena are related to one another in particular places, which in turn allows for the examination of human organization and its environmental consequences.	pp. 43–46; 94–97; 99–101; 164–170; 182–184; 244–250; 252–256; 250–260; 284–286; 293–301; 352–353; 425–432; 447–450; 455–458; 462–466; 468–472; 479–484			