



## **Social Studies Curriculum**

### **Middle School**

#### **Civics and Government**

##### **Principles and Documents of Government**

###### **PA Standards**

5.1.6.A Explain the effect of the rule of law in protecting property rights, individual rights, and the common good.

5.1.6.B Compare and contrast a direct democracy with a republican form of government.

5.1.6.C Explain how the principles and ideals shape local, state, and national government.

- Liberty / Freedom
- Democracy
- Justice
- Equality

5.1.6.F Describe how citizens and leaders use political symbols.

5.4.6.A Identify how countries have varying interests.

5.4.6.B Explain the difference between allies and adversaries.

##### **Expectations of Students**

- The student will utilize all skills to study the economy of various periods in American and World history.

#### **Economics**

##### **PA Standards**

###### **Scarcity and Choice**

6.1.6.A Explain how limited resources and unlimited wants cause scarcity.

6.1.6.B Compare ways that people meet their needs with how they meet their wants. Describe how resources are combined to produce different goods and services.

6.1.6.C Define opportunity cost and describe the opportunity cost of personal choice.

6.1.6.D Identify incentives that affect personal choices. What goods and services should be produced? Who will consume goods and services?

### **Economic Interdependence**

6.4.6.A Explain why people specialize in the production of goods and services and divide labor.

6.4.6.B Explain how trade affects standards of living.

6.4.6.C Explain how multinational corporations contribute to economic interdependence.

6.4.6.D Explain how transportation, communication networks, and technology contribute to economic interdependence.

### **Expectations of Students**

- The student will utilize their skills to study the various waves of people who settled in regions along with the governments and economies they established.
- The student will utilize all skills to study the economy of various periods in American and World history.

## **Geography**

### **Map Skills**

#### **PA Standards**

7.1.7.A Explain how common geographic tools are used to organize and interpret information about people, places, and environment.

### **Expectations of Students**

#### **Map Skills**

Students will have an understanding of:

1. Parts of a Map
2. Types of Maps
3. Modern Mapping
4. Longitude and Latitude
5. Mental Maps and Perception

### **Physical Geography**

#### **PA Standards**

7.1.7.B Explain and locate places and regions as defined by physical and human features. 7.2.7.A Explain the characteristics of places and regions.

7.2.7.B Describe the physical processes that shape patterns on Earth's surface.

7.4.7.A Describe and explain the effects of the physical systems on people within regions.

### **Expectations of Students**

Students will have an understanding of:

1. Major World Features
2. Physical Regions
3. Environmental Impact of Physical Features
4. Man-made Physical Features
5. Physical Systems

**Human/Cultural Geography****PA Standards**

7.4.7.B Describe and explain the effects of people on the physical systems within regions.

7.1.7.B Explain and locate places and regions as defined by physical and human features. 7.3.7.A

Describe the human characteristics of places and regions using the following criteria:

- Population
- Culture
- Settlement
- Economic activities
- Political activities

**Expectations of Students**

Students will have an understanding of:

1. Human Impact on Physical Systems
2. Settlement Patterns
3. Human Interaction
4. Connections Between Places (transportations, communication, etc.)
5. Human Regions
6. Cultural
7. Economy

## American History

### **Course Description:**

This course is an examination of the people, events, and movements which have been significant in America's political, economic, geographic, and social development. United States American History will explore America's past from the Civil War to the Great Depression. Students will gain an appreciation of the American Civil War, Reconstruction, Industrialization, the Progressive Era, Immigration, the Roaring Twenties, and the Great Depression. Critical and analytical thinking will be emphasized.

### **American History**

#### **PA Standards:**

- 5.1.D Compare and contrast the basic principles and ideals found in significant documents.
- 5.2.A Contrast the rights and responsibilities of a citizen in a democracy with a citizen in an authoritarian system.
- 5.2.B Analyze strategies used to resolve conflicts in society and government.
- 5.2.C Examine political leadership and public service in a republican form of government.
- 5.2.D Evaluate and demonstrate what makes competent and responsible citizens.
- 5.3.D Evaluate the roles of political parties, interest groups, and mass media in politics and public policy.
- 5.3.F Analyze landmark United States Supreme Court interpretations of the Constitution and its Amendments.
- 6.1.A Analyze how choices are made because of scarcity.
- 6.1.B Analyze how conflict and cooperation among groups and organizations have impacted the control of limited resources in the United States.
- 6.1.C Analyze the opportunity cost of decisions made by individuals, businesses, communities, and nations.
- 6.2.A Analyze the flow of goods and services in the national economy.
- 6.2.C Evaluate the impact of advertising and media on individual and group behavior throughout United States history.
- 6.2.D Explain how the laws of supply and demand impacted individuals and groups behavior over time.
- 6.2.E Analyze the impact of the business cycle on individual and group behavior over time. Analyze the characteristics of economic expansion, recession, and depression.
- 6.2.F Analyze the impact of private economic institutions on individuals and groups over time.
- 6.2.G Compare and contrast various economic systems.
- 6.3.B Analyze how conflict and cooperation among groups and organizations have impacted the growth and development of the United States: (Ethnicity and Race; Working conditions; Immigration; Military conflict; Economic Stability)
- 6.4.A Explain how specialization contributes to economic interdependence on a national and international level.
- 6.4.C Compare the role groups and individuals played in the social, political, cultural, and economic development of the United States.

- 6.4.D Explain how the level of development of transportation, communication networks, and technology affect economic interdependence.
- 6.5.B Compare the role groups and individuals played in the social, political, cultural, and economic development of the United States.
- 6.5.E Define wealth and describe its distribution within and among the political divisions of the United States.
- 7.1.A Use geographic tools to analyze information about the interaction between people, places, and the environment.
- 7.3.A Analyze the human characteristics of places and regions using the following criteria:  
Population, Culture, Settlement, Economic activities, Political activities
- 8.1.A Evaluate patterns of continuity and change over time, applying context of events.
- 8.1.B Evaluate the interpretation of historical events and sources, considering the use of fact versus opinion, multiple perspectives, and cause and effect relationships.
- 8.1.C Analyze, synthesize and integrate historical data, creating a product that supports and appropriately illustrates inferences and conclusions drawn from research.
- 8.2.A Evaluate the role groups and individuals from Pennsylvania played in the social, political, cultural, and economic development of the United States.
- 8.2.B Evaluate the importance of various historical documents, artifacts, and places in Pennsylvania which are critical to the United States.
- 8.2.C Evaluate continuity and change in Pennsylvania are interrelated to the United States. (Belief systems and religions; Commerce and industry; Technology; Politics and government; Physical and human geography; Social organizations)
- 8.2.D Evaluate how conflict and cooperation among groups and organizations in Pennsylvania have influenced the growth and development of the U.S. (Ethnicity and Race; Working conditions; Immigration; Military conflict; Economic Stability)
- 8.3.A Compare the role groups and individuals played in the social, political, cultural, and economic development of the United States.
- 8.3.B Compare the impact of historical documents, artifacts, and places which are critical to the United States.
- 8.3.C Evaluate how continuity and change have impacted the United States: • Belief systems and religions (Belief systems and religions; Commerce and industry; Technology; Politics and government; Physical and human geography; Social organizations)
- 8.3.D Evaluate how conflict and cooperation among groups and organizations have influenced the growth and development of the US: (Ethnicity and Race; Working conditions; Immigration; Military conflict; Economic Stability)

## **Expectations for Students:**

### **Events leading to the United State’s Civil War and its aftermath:**

- Compare and contrast the economic development of the North and South.
- Evaluate how geographic changes and differing views on slavery increased tensions between the North and South.
- Explain the impact the Compromise of 1850 had on America.
- Explain the concept of slave labor in America.
- Explain the impact slavery had on African American family and community life.
- Evaluate the impact of the Fugitive Slave Act.
- Evaluate how the novel, Uncle Tom’s Cabin contributed to the Abolitionist cause.
- Explain the causes and effects of the Civil War in Kansas.
- Explain why the Republican Party was created.
- Evaluate the platforms of the candidates in the election of 1856.
- Evaluate the impact Dred Scott v. Sandford had on tensions between the North and South regarding slavery.
- Evaluate the actions of John Brown and the impact it had on relations between the North and South.
- Identify the four candidates in the election of 1860, their platforms, and their political parties.
- Explain why Abraham Lincoln won the election of 1860.
- Explain Plessy v. Ferguson and its impact on American society
- Evaluate the impact the election of 1860 had on Southern secession.
- Identify the 11 states that seceded from the nation.
- Evaluate Lincoln’s decision regarding Fort Sumter.
- Explain how the United States secured the border states.
- Explain the strengths and weaknesses of the North and South.
- Explain the strategies of the North and the South to win the Civil War.
- Categorize life for Northern and Southern soldiers and citizens during the Civil War.
- Explain the early events of the Civil War.
- Explain the South’s hopes for the Battle of Antietam.
- Explain the events of the Battle of Antietam.
- Evaluate the significance of the Battle of Antietam.
- Evaluate and explain the significance of the Emancipation Proclamation.
- Identify and explain the key events and people that led to a Northern victory in the Civil War.
- Interpret the Gettysburg Address.
- Explain and give significance to the assassination of Abraham Lincoln.

### **Reconstruction:**

- Explain how the Civil War changed America.
- Define the term Reconstruction.
- Explain and identify the impact of the 13th, 14th, and 15th Amendments.
- Justify the use of Congressional Control regarding the South following the Civil War.
- Define the term impeachment and explain how the process of impeachment works.

- Explain how Reconstruction impacted the daily life of Southern African Americans.
- Evaluate how the African American education system worked during Reconstruction.
- Evaluate the conditions Southern African Americans lived under during Reconstruction.
- Analyze the domestic policies and efforts of President Grant pertaining to Reconstruction.
- Connect the election of 1876 to the end of Reconstruction.
- Explain how the end of Reconstruction negatively impacted African Americans.

### **The New West:**

- Define Manifest Destiny.
- Evaluate the decision of many Americans to move west during the time of Manifest Destiny.
- Evaluate the steps the government took to encourage settlement in the midwest.
- Explain why farmers faced growing hardships during the late 19th century.
- Discuss the rise of Populism and how farmers combatted their economic challenges.
- Describe the lives of the Native people of the West.
- Discuss how the boom in gold and silver changed the West.
- Describe the Cattle Kingdom.
- Discuss why the Native American way of life ended.

### **Industrial Growth and Immigration:**

- Explain the Interstate Commerce Act.
- Evaluate the role railroads played in transforming America.
- Explain how America became the world's leading industrial nation.
- Identify Thomas Edison's and other inventors' main contributions to American society.
- Summarize the arguments for and against trusts.
- Evaluate how a monopoly can impact business.
- Explain why the late 1800's and early 1900's are referred to as the Gilded Age.
- Evaluate the role oil and steel played in shaping the American economy during the Gilded Age.
- Characterize how immigration patterns began to change in the late 1800's.
- Describe the journey immigrants experienced en route to America.
- Compare and contrast the major immigration centers on the East and West coast.
- Describe common experiences and themes present in the lives of immigrants in America.
- Explain the role poor working conditions played in the creation of labor unions within the United States.
- Evaluate the methods business leaders employed in response to worker strikes in the late 1800s. 20. Explain the gains made by the working class as a result of the labor movement of the late 1800's and early 1900's.

### **Progressivism:**

- Determine the impact of a New Era of Innovation, Progress, and the growing Middle Class.
- Describe characteristics of the Progressive Era and the types of Progressive movements that occurred during the early twentieth century.

- Describe the role of President Theodore Roosevelt and the spread of Imperialism and Reform.
- Describe the themes and developments of the Anti-Trust, Government Regulation, Income Tax and Conservation.
- Note the significant roles of President Taft and President Wilson to American history.
- Show the importance of abolitionists and feminists and their purpose for fighting.
- Explain events associated with moral reform. •
- Explain the importance of the “temperance movement”.

### **Roaring Twenties:**

- Compare and contrast the Republican Presidents of the 1920s.
- Relate the aftermath of World War I to the change of American morals and values.
- Demonstrate a knowledge of economic and foreign policy in the 1920s.
- Analyze the cause and effect of the world wide depression following World War I.
- Define strike and inflation.
- Elucidate who soldiers blamed for their struggles to find jobs upon returning from World War I.
- Determine who White America blamed for the poor economy.
- Denote the National Association for the Advancement of Colored People (NAACP) and what their mission was in 1920’s America.
- Explain the Great Migration and how it negatively influenced many Northerners. Explicate the Black Nationalist Movement and its major contributors.
- List new household products that were bought for the first time and determine their importance in the 21st century.
- Describe the role of government in regard to the economy during the 1920s. Define and analyze nativism’s impact on white, blacks, and immigrants.
- Unfold the Red Scare Movement and how Americans responded to it.
- Define nativism and describe how it reduced immigration during the 1920s.
- Analyze how immigration policies of the 1920s affect later generations of Americans.
- Explain who Sacco and Vanzetti were and analyze how their experiences/death showed the violent side of Nativism.
- Retell how the Ku Klux Klan drastically grew in popularity during the 1920s.
- Relate and analyze discrimination and stereotypes of the 21st century and how Americans respond to them currently.
- List three things opposed by the Ku Klux Klan.
- Illustrate and defend examples of how President Harding role as a bad or good president.
- Debate the prosperity of the 1920s under Calvin Coolidge (1922-1928).
- Describe the characteristics of a successful or prosperous economy.
- Illustrate the successes or failures of Calvin Coolidge’s presidency.
- Define the phrase “mass entertainment” and explain the various ways that Americans entertained themselves in the 1920s compared to the 21st century.
- Clearly debate that the movie was the single most significant new instrument of mass entertainment and its impact on mass media of the 21st century.
- Evaluate Prohibition as a focal point concerning the deep conflicts over religion and culture during the 1920s.

- Explain the significance of the Scopes Monkey trial on how it separated urban and rural society.
- Analyze two significant conclusions following the Scopes Monkey trial and support how urban and rural areas of the 21st century are different.
- Summarize how socializing was different in rural areas compared to urban areas.
- Evaluate Prohibition as a focal point concerning the deep conflicts over religion and culture during the 1920s.

### **Great Depression:**

- Demonstrate knowledge of the Great Depression with the completion of a terms list at 80% efficiency while creating a historic, yet fictional, story utilizing the terms.
- Identify the condition of the Stock Market in the 1920s and the results of the Crash of 1929.
- Identify the causes that led to the Great Depression. Analyze Hoover's inability to effectively deal with the economic problems of the United States during the first years of the Great Depression.
- Evaluate the impact of the Great Depression on the average American during the 1930s.
- Identify and discuss new government agencies developed in the 1930s. Compare and contrast the reasons for criticism of the New Deal.
- Identify the differences between the First and Second New Deal. Analyze how the culture of the 1930s mirrors the economic condition among contemporaries.
- Define and explain the economic conditions of the early 1930s that lead to the Great Depression.
- List three important facts about Herbert Hoover's presidency and explain his philosophy of government. List and explain three social programs that were passed to repair the depression.
- List and explain facts about Franklin Delano Roosevelt (FDR) and how these affected his presidency.
- List and explain two events (other than the Great Depression) that occurred during his presidency.
- Describe the life experiences for children during the Great Depression. Analyze Roosevelt's rise to power.
- Explain how Roosevelt wanted to help banks and debt relief. List three events that had a significant impact on America during Roosevelt's presidency.
- List and analyze the social and economic impact of at least two of Roosevelt's relief programs. Define the purpose of the New Deal.
- Differentiate and explain similarities between the First New Deal, Second New Deal, and the New Deal Coalition.
- Summarize the events of the Dust Bowl and how it negatively affected American society during the 1930s.
- Elaborate how climate and weather changes can alter supplies of food, farm commodities, and migration patterns.

### **Activities and Experiences**

Journal Responses  
 Research Reports  
 Oral Presentations  
 Reader's Theater  
 Internet Research  
 Read-alouds  
 Comparing and analyzing primary and secondary sources

Identifying Bias  
 Recognizing Propaganda  
 Analyzing Photographs  
 Interpreting Oral History  
 Identifying Historical Trends  
 Comparing Maps over Time  
 Identifying Cause and Effect  
 Debates

### **Materials and Resources**

The American Nation, Prentice Hall  
 Underground Railroad Simulation  
 Gettysburg Simulation  
 Betrayed Simulation  
 Homestead Simulation  
 Heroes of the Old West Simulation  
 Gateway Simulation  
 Women Get the Vote Simulation  
 Chat Spats: American Plays  
 Documentaries

Film Segments  
*Across Five Aprils*, Irene Hunt  
*October Sky*, Homer Hickam  
*Out of the Dust*, Karen Hesse  
*The Watsons Go to Birmingham - 1963*,  
 Christopher Paul Curtis  
*Roll of Thunder, Hear My Cry*, Mildred D.  
 Taylor  
*Uncle Tom's Cabin*, Harriet Beecher Stowe  
*The Jungle*, Upton Sinclair

### **Assessments**

Speeches and Performances  
 Presentations  
 Projects (Independent and Group)  
 Research Reports  
 Teacher Observation  
 Teacher-made Tests and Quizzes  
 Simulation Assessments  
 Unit Tests  
 Journaling (Simulations)

## **Social Studies Curriculum**

### **Middle School**

#### **World History**

##### **Course Description:**

This course is an examination of the people, events, and movements which have been significant in political, economic, and social development. Middle School world history will explore the Renaissance era to World War II. Students will gain an appreciation of the Renaissance, the Reformation, the Age of Absolutism, the Enlightenment, the French Revolution, the Industrial Revolution, Nationalism, World War I, Russian Revolution, and World War II. Critical and analytical thinking will be emphasized.

##### **World History**

##### **PA Standards:**

8.1.9A. - Analyze chronological thinking.

8.1.9B. - Analyze and interpret historical sources.

8.1.9C. - Analyze the fundamentals of historical interpretation.

8.1.9D. - Analyze and interpret historical research.

8.1.12B - Synthesize and evaluate historical sources.

8.1.12C. - Evaluate historical interpretation of events.

8.1.12D. - Synthesize historical research.

8.4.9A. - Analyze the significance of individuals and groups who made major political and cultural contributions to world history before 1500.

8.4.9B. - Analyze historical documents, material artifacts, and historic sites important to world history before 1500.

8.4.9C. - Analyze how continuity and change throughout history has impacted belief systems and religions, commerce and industry, innovations, settlement patterns, social organization, transportation, and roles of women before 1500.

8.4.9D. - Analyze how conflict and cooperation among social groups and organizations impacted world history through 1500 in Africa, Americas, Asia, and Europe.

8.4.12A- Evaluate the significance of individuals who made major political and cultural contributions to world history since 1450.

8.4.12B- Evaluate historical documents, material artifacts, and historical sites important to world history since 1450.

8.4.12C- Evaluate how continuity and change throughout history has impacted belief systems and religions, commerce and industry, innovations, settlement patterns, social organization, transportation, and roles of women since 1450.

8.4.12D- Evaluate how conflict and cooperation among social groups and organizations impacted world history from 1450 to Present in Africa, Americas, Asia, and Europe.

## **Expectations for Students:**

### **Renaissance to Reformation:**

- Explain the emergence of the Italian City States.
- Identify the Art and artists of the Italian Renaissance
- Identify the Renaissance Papacy and the Northern Renaissance
- Explore the “New Monarchies” in Northern Europe
- Describe the scientific method.
- Explore how astronomers changed the way people viewed the universe.
- Summarize advances made by Newton and other scientists.
- Identify the Protestant Reformation
- Identify and research the divisions Within the Reformation: Anglicanism, Lutheranism, Calvinism, Anabaptism English Reformation.
- Explain the Catholic Counter-Reformation.

### **Age of Absolutism:**

- Identify the causes and consequences of the Enlightenment.
- Distinguish absolutism and constitutionalism.
- Describe how the English Civil War led to the rise of the Commonwealth.
- Identify the causes and results of the Glorious Revolution.
- Define Enlightened Despotism.

### **French Revolution:**

- Describe the balance of Power Politics leading to the French Revolution.
- Research and describe the phases of the Revolution.
- Explain the Rise of Napoleon.
- Identify the goals of the Congress of Vienna.

### **Industrial Revolution:**

- Identify how new technology and methods of production completely changed the ways of life of people in industrializing societies, restructuring the roles of various social classes and modifying the means of trade between regions.
- Identify the origins of the Industrial Revolution.
- Explain the rise of Urbanism.
- Research the impact of the Industrial Revolution on Women and Family Structure.

### **World War I:**

- Explain the causes and effects of America’s isolation and involvement in global politics prior to World War I
- Explain and provide examples of nationalism, colonialism, militarism, and imperialism.
- Describe how cultural, ethnic, and physical characteristics can define a country or region and cause tension.
- Note how militarism and alliances added to the tensions of World War I.
- List three reasons why the United States entered the war and helped the Allies.

- Debate whether the United States benefited from participating in World War I and whether or not America's contribution benefited the 20th century.
- Analyze the potential impact that new technologies can have on the outcome of a war.
- Identify the European Alliance system of the late 19th Century.
- Evaluate the importance of propaganda in shaping public opinion.
- Interpret the role and effect of submarine warfare on Europe and the United States.
- List and evaluate the causes that brought the United States into World War I.
- Compare and contrast Wilson's Fourteen Points to the Treaty of Versailles contribution.
- Argue which effects of World War I had the biggest impact on the world and the United States.
- Locate five major empires/countries of World War I and explain how their boundaries are positive and/or negative.
  - Analyze the potential impact that new technologies can have on the outcome of a war.
  - Describe the impact of airplanes and how they changed warfare forever.
  - Explain the ways that submarines can be used to help a country in the midst of war.
  - Explain the role of tanks and how they transformed the World War I battlefield.
  - Note the impact of the machine gun and how it led to a stalemate in the trenches.
  - Elaborate on the advantages/disadvantages of trench warfare.
  - Describe the disastrous effects of poison gas.
  - Analyze the impact of the Treaty of Versailles and how it contributed to the start of World War II.
  - Explain the notion of a "return to normalcy."
  - Describe how and why the war started to get worse before it finally ended.

### **Russian Revolution:**

- Identify the Causes and Impact of the Russian Revolution.
- Describe how Communist state developed under Lenin.
- Explain how Stalin created a totalitarian state.

### **World War II:**

- Evaluate the conditions within Europe that existed prior to World War II that led to the rise in Totalitarianism.
- Discuss the reasons for American Isolationism and identify events that pulled the United States away from neutrality.
- Chronicle the progress of allied advancement in Europe and the Pacific.
- Evaluate the impact of the war at home.
- List the Axis and Ally Powers and explain why or how each country determined their side.
- Define and explain how appeasement led to Hitler's control of Europe.
- Explain what the world wide Great Depression allowed.
- Explain how Cost-Contracts worked.
- Describe the role and significance of Liberty Ships.
- Analyze the importance of the military draft on America's participation in World War II.
- List the authorities of the War Production Board and analyze its effectiveness.

- Name important battles that were considered to be “turning points” in World War II.
- Restate which two battles were “turning points” in the Pacific and European Theaters of war.
- List and explain two reasons why Japan wanted to attack the United States.
- Define the purpose of Japanese Internment.
- Justify or dispute the United States’ reasons for interning Japanese Americans.
- Determine, elaborate, and debate why World War II was known as the last “good war.”
- Detail the importance of the D-Day Invasion of mainland Europe.
- Discuss and analyze the use of nuclear weapons to end the war with Japan.
- Explain the negative alternatives to Japanese surrender to the Allies.
- Define the term, “unconditional surrender” and describe what it means for the losers and victors of war.
- List and detail legacies of World War II.
- Evaluate the role of the Union of Soviet Socialist Republics (USSR) as an ally during World War II, but a nemesis following the surrender of Italy, Germany, and Japan.

### **Activities and Experiences**

Journal Responses  
 Research Reports  
 Oral Presentations  
 Reader's Theater  
 Internet Research  
 Read-alouds  
 Comparing and analyzing primary and secondary sources  
 Identifying Bias

Recognizing Propaganda  
 Analyzing Photographs  
 Interpreting Oral History  
 Identifying Historical Trends  
 Comparing Maps over Time  
 Identifying Cause and Effect  
 Debates  
 Cartographic Activities

### **Materials and Resources**

World History: Connections to Today,  
 Prentice Hall  
 Renaissance Simulation  
 Liberte Simulation (French Revolution)  
 Chat Spats: World History Plays  
 Documentaries  
 Film Segments

Primary Source Documents  
 Web Resources  
 Instructional/Educational Videos  
 Resource/Research Materials  
 Atlas  
 Globe  
 Maps

Novels:

*Night*, Elie Weisel  
*War Horse*, Michael Morpurgo  
*The Devil's Arithmetic*, Jan Yolen

### **Assessments**

Speeches and Performances  
 Presentations  
 Projects (Independent and Group)  
 Research Reports  
 Teacher Observation  
 Teacher-made Tests and Quizzes  
 Simulation Assessments  
 Unit Tests  
 Journaling (Simulations)