

# INDUSTRIAL AND ECONOMIC DEVELOPMENT MODULE OVERVIEW

## SKILL FOCUS

### **Spatial Relationships, Data Analysis, and Source Analysis**

**Spatial Relationships:** Describe spatial patterns and networks, and explain a likely outcome in a geographic scenario using geographic concepts, processes, models, or theories.

**Data Analysis:** Explain patterns and trends in maps and in quantitative and geospatial data to draw conclusions.

**Source Analysis:** Analyze and interpret qualitative geographic information represented in maps, images (e.g., satellite, photographs, cartoons), and landscapes.

## CONTENT

### **Enduring Understanding 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

**Topic 7.2.** Economic Sectors and Patterns

**Topic 7.3.** Measures of Development

## What are economic sectors and the factors that affect their development?

DAY 1

### CLASS ACTIVITY

#### **Understanding and Identifying Economic Sectors**

Students will work collaboratively to identify and learn the five different economic sectors. Students will then use their new understanding of economic sectors and examine maps and data sets to predict the locations of different economic sectors within South Korea.

### AP SKILL ALIGNMENT

**Skill Category 2.B.** Explain spatial relationships in a specified context or region of the world, using geographic concepts, processes, models, or theories.

**Skill Category 2.C.** Explain a likely outcome in a geographic scenario using geographic concepts, processes, models, or theories.

**Skill Category 4.D.** Compare patterns and trends in visual sources to draw conclusions.

## What are the key measures of development in a country?

DAY 2

### CLASS ACTIVITY

#### **Understanding and Identifying Measures of Development**

Students will work collaboratively to define and learn a variety of measures of development. Students will then analyze data sets to identify changes in several measures of development in South Korea over the past 70 years and speculate as to the reasons for those changes.

### AP SKILL ALIGNMENT

**Skill Category 3.F.** Explain possible limitations of the data provided.

**Skill Category 4.D.** Compare patterns and trends in visual sources to draw conclusions.

**Skill Category 4.E.** Explain how maps, images, and landscapes illustrate or relate to geographic principles, processes, and outcomes.

## Assessment

DAY 3

### CLASS ACTIVITY

#### **Concept Mapping and AP-Aligned Assessment**

Students will connect vocabulary and concepts via a concept-mapping activity and then demonstrate understanding as they answer five Multiple Choice Questions (MCQs) and one Free Response Question (FRQ) with two stimuli.

### AP-ALIGNED ASSESSMENT

#### **Multiple Choice Questions (MCQs) and Free-Response Question (FRQ)**

# INDUSTRIAL AND ECONOMIC DEVELOPMENT MODULE SOURCES

DAY 1	Stimulus Type	Description	Page
	Map	The Global Spread of Industrialization	127
	Map	Outline Map of South Korea	130
	Image 1	Photo of a Tractor on a Farm	133
	Image 2	Photo of Textile Manufacturing Equipment	133
	Image 3	Photo of a Barbershop	133
	Image 4	Photo of a Scientific Researcher	133
	Image 5	Photo of Business Leaders	133
	Image 6	Photo of an Open Mine Site	134
	Image 7	Photo of a Manufacturing Plant	134
	Image 8	Photo of New York Storefronts	134
	Image 9	Photo of a University Research Facility	134
	Image 10	Photo of the New York Stock Exchange	134
	Map	The Population Distribution of South Korea, 2010	135
	Map	Road and Highway Systems in South Korea	136
	Map	Food and Beverage Services in South Korea, 2013	137
Map	Full-time Farm Households as a Percentage of Households in South Korea, 2010	138	
Map	Value Added per Employee in Manufacturing in South Korea, 2012	139	
Map	Distribution of Colleges and Universities in South Korea, 2015	140	
Map	Distribution of Hospitals and Hospital Beds in South Korea, 2012	141	

DAY 2	Stimulus Type	Description	Page
	Graph	Data Set #1: GDP for South Korea, 1960–2018	159
	Graph	South Korea's GDP Growth (Annual Percentage) and Annual Change, 1960-2018	160
	Article	"South Korea's GDP Surges 31,000-fold since 1953"	160
	Graph	Data Set #2: South Korea's Oil Consumption, 1969–2015	161
	Article	"South Korea Relies on Imports to Meet about 98% of its Fossil Fuel Consumption"	161
	Graph	South Korean Usage of Renewable Energies, 1990–2015	162
	Graph	Data Set #3: Trends in South Korea's HDI Component Indices, 1980–2014	163
	Data Chart	South Korea's Human Development Index (HDI) Value and Rank	163
	Map	South Korean Regions by Human Development Index in 2017	164

DAY 3	Stimulus Type	Description	Page
	Data Chart	Rise in South Korea's Greenhouse Gas Emissions	172
	Image	Photo of a Scientific Researcher	172
	Image	Photo of a Worker in a Rice Field	173
Image	Photo of an Auto Factory	173	

# DAY 2

Based on a 60-minute class

## What are the key measures of development in a country?

### AP CURRICULUM FRAMEWORK REFERENCE

#### Enduring Understanding

SPS-7. Industrialization, past and present, has facilitated improvements in standards of living, but it has also contributed to geographically uneven development.

Topic 7.3. Measures of Development

### HUMAN GEOGRAPHY SKILLS

#### Data Analysis: Explain patterns and trends in maps and in quantitative and geospatial data to draw conclusions.

Skill Category 3.F. Explain possible limitations of the data provided.

#### Source Analysis: Analyze and interpret qualitative geographic information represented in maps, images (e.g., satellite, photographs, cartoons), and landscapes.

Skill Category 4.D. Compare patterns and trends in visual sources to draw conclusions.

Skill Category 4.E. Explain how maps, images, and landscapes illustrate or relate to geographic principles, processes, and outcomes.

### OVERVIEW

Students will identify and understand measures of development and draw conclusions about how and why these measures have changed over time in South Korea through structured source analysis of selected images, short readings, data charts, and maps of population locations in South Korea. Students will use their understanding of the measures of development to explain the changes in social and economic development in South Korea since the Korean War. Further, students will predict reasons for these changes based on their data analysis. Finally, students will evaluate the data sets and their limitations.

### MATERIALS NEEDED:

- ▶ Butcher Block Paper or Large Poster Paper
- ▶ Day 2 Handouts
  - ▷ Day 2 Preparation Homework Activity (1 per student, pp. 151–152)
  - ▷ Day 2 Student Handout (1 per student, pp. 153–143)
  - ▷ Key Measures of Development Term Cards (these will need to be cut out in advance; 1 per team, p. 157)
  - ▷ Key Measures of Development Data Sets #1–3 (each team receives the three Data Sets; p. 159)
- ▶ Teacher Answer Key: Measures of Development Terms (p. 158)

# SEQUENCE OF INSTRUCTION

## HOMework OVERVIEW

### HOMEWORK/CLASS PREPARATION (30 MINUTES)

Note: This homework is only necessary if the teacher has not yet discussed the Key Measures of Development, including Gross Domestic Product (GDP), Gross National Income (GNI) per capita, formal and informal sectoral structures of an economy, income distribution, fertility rates, infant mortality rates, access to health care, use of fossil fuels and renewable energy, literacy rates, the Gender Inequality Index (GII), and the Human Development Index (HDI).

Students complete the Day 2 Preparation Homework Activity sheet (pp. 151–152), working with important terms related to key measures of development. Students will write down what they believe is the definition of the term. Then, students will research the correct definition and record it. Next, students draw a visual representation of the term to solidify their understanding. Finally, students will explain how this term relates to Human Geography.

The purpose of this homework is to:

- a. Ensure that students have a basic knowledge and understanding of the Key Measures of Development.
- b. Prepare students to use data related to these measures of development to identify changes that have taken place in South Korea since the end of the Korean War.

### TEACHER NOTES

Students will need to have a basic understanding of these key measures of development to complete the activities on Day 2. Teachers should advise students that they will need to research these terms as they relate to Human Geography. A basic Internet search for the definition may not provide the proper description in human geographical terms, so warn students to read the definitions they find carefully to ensure that they connect to the concepts of human geography.

## CLASS ACTIVITY 1 OF 4: WARM UP / INTRODUCTION

### WARM UP/INTRODUCTION (10-15 MINUTES): ACTIVITY ON WHAT MAKES A COUNTRY “SUCCESSFUL”

#### ACTIVITY 1

Students will brainstorm factors that make a country “successful” in our modern world. This activity is designed to activate thinking about how we measure the development of a country and a country’s overall success.

#### ACTIVITY PROCEDURE

- ▶ Group students into teams of three or four.
- ▶ Using the Brainstorming Space on their Day 2 Student Handout (p. 153), students individually brainstorm different factors that make a country “successful” (2 minutes).
  - ▷ Explain to students that the goal is to come up with measurable factors that would allow people to judge the “success” of a country. Encourage students to use factors that would have measurable data (like GDP and other AP Human Geography concepts).
- ▶ Teams share and discuss the list of factors that each person in the team created. As a group, they decide on the top five most important factors, explain why those factors were selected, and record them in the Brainstorming Space on the Day 2 Student Handout (4 minutes).
- ▶ Groups share their lists of the top five most important factors. Invite students to critique other groups’ lists and challenge their reasoning.
- ▶ Create a combined “Class Top Five List.”

## TEACHER NOTES

The teacher should listen to the group discussions and redirect teams that may focus on subjective measures as opposed to measurable data. Asking teams if there is a way to measure a factor can be a good cue to help students to avoid vague generalizations.



### TEACHING TIP

Consider using a timer or a stopwatch so that each activity does not run too long. Offer time cues to keep students focused and working to complete the task.

## CLASS ACTIVITY 2 OF 4: IDENTIFYING AND EXPLAINING THE KEY MEASURES OF DEVELOPMENT

CLASS ACTIVITY (25 MINUTES): IDENTIFICATION AND REVIEW OF KEY MEASURES OF DEVELOPMENT

### ACTIVITY 2

Based on Activity 1, students will review key measures of development. Students examine definitions of these key measures, and further analyze which factors are associated with “successful” countries.

#### ACTIVITY PROCEDURE

- ▶ Each team will receive one of the nine Key Measures of Development Term Cards (p. 157) to examine in greater depth. Depending on class size, teachers can select the most important terms based on their previous knowledge.
- ▶ Each team will write their assigned term and how they would define the term on a large piece of paper without using other resources, including their homework. Tell students to save space as they will still need to add to the paper (4 minutes).
- ▶ Teams will rotate multiple times.
  - ▷ Team Rotation 1:
    - Teams evaluate the definition and make any necessary changes or corrections. Encourage teams to be critical of the definitions and to work toward creating the best definition possible (2 minutes).
  - ▷ Team Rotation 2:
    - Teams create a visual representation of the term using the two definitions. Students will attempt to draw a picture or series of pictures that represent each term. Think of this like the game Pictionary, but with vocabulary words. For example, for GDP a student may draw the United States and put a box to symbolize goods with an equals sign followed by a dollar sign to show products and their worth. A picture representing energy use may show someone flipping on a light switch or a lightbulb that is illuminated (5 minutes).
      - » *Students may struggle with this task and some may state that they are not artists, but reassure them by explaining you are not judging their artistic ability, but instead their understanding of the term and creativity in depicting it on the resulting poster (5 minutes).*
  - ▷ Team Rotation 3:
    - Teams create a 30-second presentation of the poster and visual, having checked for accuracy and making any necessary corrections (5-10 minutes).

- » *Since the poster they are presenting is not their own creation, teams will need to process the information to determine how to present it best. Remind teams that their presentations will need to be accurate and succinct.*
  - » *Teachers should check posters and make corrections to information as needed prior to the presentations.*
- ▶ Teams present their posters (5 minutes). The teacher should introduce students to any of the nine Measures of Development whose cards were not distributed to any of the teams.
    - ▷ After hearing all of the presentations, students will identify the two measures of development they believe to be most important in determining the “success” of a country in the “Measures of Development” section of the Day 2 Student Handout (p. 154).
  - ▶ Students return to their list of factors that “make a country successful” and circle the factors which can be measured with data.
  - ▶ Students categorize each factor as either economic or social using the letters E or S.
    - ▷ Have students consider whether they identified more economic or social factors.
    - ▷ Students decide whether economic or social measures are more important in determining a country’s “success” and list them in the “Economic and Social Measures of Development” section of the Day 2 Student Handout (p. 154).



#### **TEACHING TIP**

When teams rotate during activities, have students stand up and move around the classroom. This movement keeps students active and more alert, as they do not become too comfortable in any one location.

## **CLASS ACTIVITY 3 OF 4: EXAMINING HOW MEASURES OF DEVELOPMENT HAVE CHANGED IN SOUTH KOREA**

CLASS ACTIVITY (20 MINUTES): EXAMINING DATA TO CHART SOUTH KOREA’S CHANGES IN DEVELOPMENT

### **ACTIVITY 3**

Students will use their knowledge of measures of development from Activity 2 to help them analyze South Korea’s growth in several different social and economic areas since the end of the Korean War.

#### **ACTIVITY PROCEDURE**

- ▶ Remaining in their teams, students are given sets of data containing different types of information related to the Measures of Development. (See the three Data Sets beginning on p. 159.) The first Data Set on pp. 159–160 deals with Gross Domestic Product (GDP), the second with Energy Use (pp. 161–162), and the third with the Human Development Index (HDI, pp. 163–164). Each team will receive the three Data Sets.
- ▶ Teams examine the data charts and determine how South Korea’s economy has changed in relation to Gross Domestic Product (GDP), Energy Use, and the Human Development Index (HDI). They fill out the Measures of Development Chart on the Day 2 Student Handout (p. 155) Students should note any changes or features that stand out during the time periods on the chart (15-20 minutes).
- ▶ Students record their conclusions in the “Conclusions on Measures of Development” section on the Day 2 Student Handout (p. 156), considering the unique characteristics and development of South Korea that might impact the data over time.

### **TEACHER NOTES**

The data sets are designed to include a variety of different types of materials for students to analyze and interpret. Multiple methods of conveying the same information have been selected to require students to interpret and make connections across a variety of sources.

## CLASS ACTIVITY 4 OF 4: CHECK FOR UNDERSTANDING

CLASS ACTIVITY (5-10 MINUTES): ANALYSIS OF SOUTH KOREA'S CHANGES IN DEVELOPMENT SINCE THE KOREAN WAR

### EXIT TICKET

Students will use the information gathered from their data chart analysis to draw conclusions about South Korea's development since the end of the Korean War. They will also develop an argument about whether South Korea has achieved "success" as a country, citing specific measures of development as evidence.

### ACTIVITY PROCEDURE

- ▶ Have each student answer the following questions:
  - ▷ Has South Korea achieved "success" as a country? Why or why not?
    - Which Measures of Development would best indicate your conclusions about South Korea? Provide specific examples to support your argument.
    - Which factor is most important to determine the success of South Korea? Why? Explain.
    - What are the potential limitations of the data examined?
    - What other Measures of Development were not included in the data charts that may have been useful?
  - ▷ Considering this case study of South Korea, create your own Measure of Development that can be applied to measure "success" across countries.
- ▶ Collect these paragraphs or short answers as an exit ticket as students leave the class.

# DAY 2 PREPARATION HOMEWORK ACTIVITY

Name: \_\_\_\_\_ Period: \_\_\_\_\_

## KEY MEASURES OF DEVELOPMENT

Complete the chart below by providing your guess at the definition, the actual definition you researched, a visual representation of the definition, and an explanation of how this term relates to our study of Human Geography.

Term	My Guess at the Definition	The Actual Definition	My Visual Representation of the Term	How the Term Connects to Human Geography
Gross Domestic Product (GDP)				
Gross National Income (GNI)				
Income Distribution				
Fertility Rates				



<b>Term</b>	<b>My Guess at the Definition</b>	<b>The Actual Definition</b>	<b>My Visual Representation of the Term</b>	<b>How the Term Connects to Human Geography</b>
<b>Infant Mortality Rates</b>				
<b>Access to Health Care</b>				
<b>Human Development Index (HDI)</b>				
<b>Literacy Rates</b>				
<b>Gender Inequality Index (GII)</b>				

# DAY 2 STUDENT HANDOUT

Name: \_\_\_\_\_ Period: \_\_\_\_\_

## BRAINSTORMING SPACE

<b>ON MY OWN</b> <b>What factors make a country "successful?"</b> <b>(Remember, factors must be measurable)</b>	<b>TEAM'S TOP FIVE</b> <b>What factors make a country "successful?"</b> <b>(Remember, factors must be measurable)</b>
	1. _____ Reason:
	2. _____ Reason:
	3. _____ Reason:
	4. _____ Reason:
	5. _____ Reason:

## MEASURES OF DEVELOPMENT

After hearing each team present their assigned term, determine which two of these would be the best indicators in determining a "successful" country. List them below and explain why.

1. Measure of Development: \_\_\_\_\_

Explanation:

2. Measure of Development: \_\_\_\_\_

Explanation:



## ECONOMIC AND SOCIAL MEASURES OF DEVELOPMENT

Look at your original list of factors at the start of this handout. Circle all of the factors that you believe can be measured in some way that will provide you with data. For factors that you believe cannot be measured, draw a line through that factor. Next, label Economic factors with an **E** and Social factors with an **S** to indicate which of your circled factors are *economic* measures of development and which are *social* measures of development.

	ECONOMIC	SOCIAL
<b>Number of your Factors Related to this Type of Measure of Development</b>		
<b>Are economic or social measures of development more important in determining a country's "success?" Explain, citing specific evidence.</b>		

## MEASURES OF DEVELOPMENT CHART

Working with your teammates, note important characteristics and changes that you see reflected in the data sets provided for each of the following different Measures of Development.


Measure of Development	1953–1970s	1980–1990s	2000–Present
Gross Domestic Product (GDP)			
Energy Use	 (renewable energy usage was not measured until 1990)		
Human Development Index (HDI)	 (this was not measured until 1980)		

## CONCLUSIONS ON MEASURES OF DEVELOPMENT

Based on your findings from the data sets on the changes over time in the Measures of Development listed in your chart above, draw some conclusions about what may have occurred historically in South Korea during each of the time periods listed above. Finally, based on the information you have been provided in your data sets, speculate what will happen to each of these Measures of Development in the future.

<b>Conclusions for 1953–1970s:</b>	
<b>Conclusions for 1980–1990s:</b>	
<b>Conclusions for 2000–Present:</b>	
<b>Predictions for the Future:</b>	<ul style="list-style-type: none"><li>▷ Gross Domestic Product (GDP)</li> <li>▷ Energy Use</li> <li>▷ Human Development Index (HDI)</li></ul>

## KEY MEASURES OF DEVELOPMENT TERM CARDS

Gross Domestic Product (GDP)	Gross National Income (GNI)
Income Distribution	Fertility Rates
Infant Mortality Rates	Access to Health Care
Human Development Index (HDI)	Literacy Rates
Gender Inequality Index (GII)	

## TEACHER KEY: MEASURES OF DEVELOPMENT TERMS

Term	Definition
<b>Gross Domestic Product (GDP)</b>	The value of the total number of goods and services produced within a country's boundaries in a given period (normally one year). GDP does not consider goods and services produced by citizens who are outside the country, and does include what is produced within the countries by foreigners. Typically measured on a per capita basis.
<b>Gross National Income (GNI)</b>	The value of goods and services produced by citizens of the country regardless of where they are located (within the country's boundaries or abroad). Typically measured on a per capita basis.
<b>Income Distribution</b>	Income distribution looks at how much different socioeconomic groups in a country earn. In other words, income distribution refers to the equality or smoothness with which people's incomes are distributed. Often it is reflected in how a nation's total GDP is distributed amongst its population. The specific measure used for income distribution is often the Gini coefficient.
<b>Fertility Rates</b>	The average number of children that a woman will have in her lifetime.
<b>Infant Mortality Rates</b>	The number of deaths under one year of age occurring among the live births in a given country during a given year per 1,000 live births.
<b>Access to Health Care</b>	Access to health care means having the timely use of personal health services to achieve the best health outcomes. Access to health care consists of four components: coverage, services, timeliness, and workforce. Measurable aspects include statistics such as the number of physicians per 1,000 people.
<b>Human Development Index (HDI)</b>	This index measures three basic dimensions of human development: long and healthy life, knowledge, and a decent standard of living. Four indicators are used to calculate the index: life expectancy at birth, mean years of schooling, expected years of schooling, and gross national income per capita.
<b>Literacy Rates</b>	The percentage of a country's people who can read and write. This can be expressed as an overall measure, and also as a measure of different male and female literacy rates.
<b>Gender Inequality Index (GII)</b>	An index for measurement of gender disparity that was introduced in 2010 by the United Nations Development Programme (UNDP). According to the UNDP, this index is a composite measure to quantify the loss of achievement within a country due to gender inequality. It uses three dimensions to measure opportunity cost: reproductive health, empowerment, and labor market participation.

### SOURCES FOR MEASURES OF DEVELOPMENT TERMS:

<https://quizlet.com/69484895/ap-human-geography-chapter-9-flash-cards/>

<https://stats.oecd.org/glossary/detail.asp?ID=1347>

[https://en.wikipedia.org/wiki/Income\\_distribution](https://en.wikipedia.org/wiki/Income_distribution)

[https://en.wikipedia.org/wiki/Gender\\_Inequality\\_Index](https://en.wikipedia.org/wiki/Gender_Inequality_Index)

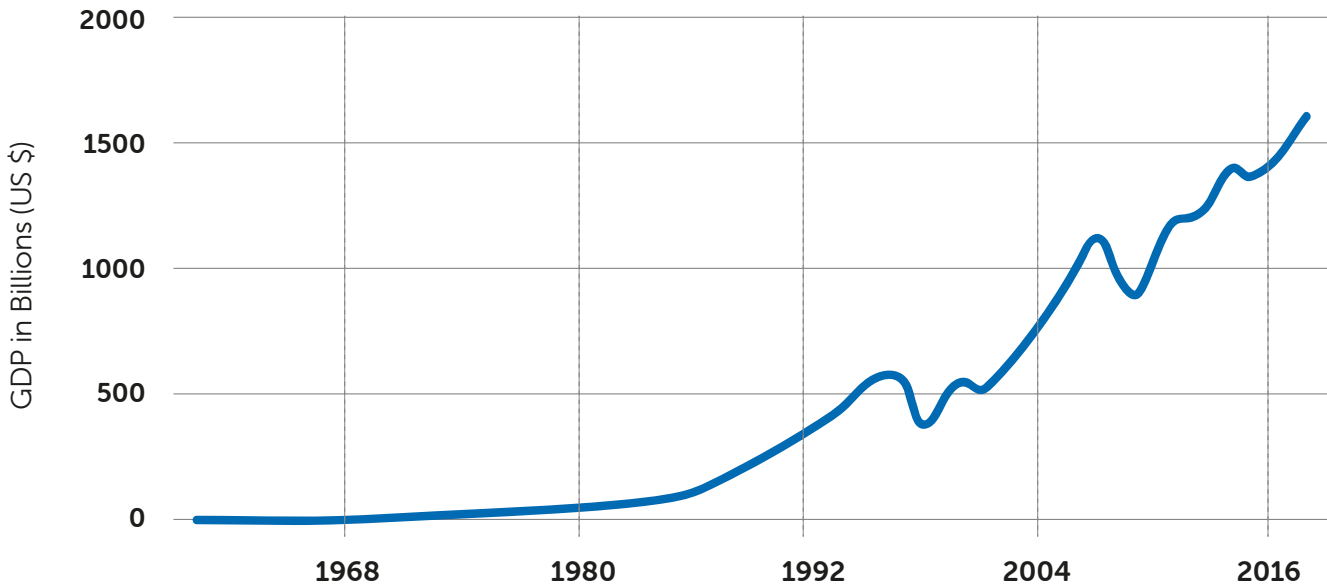
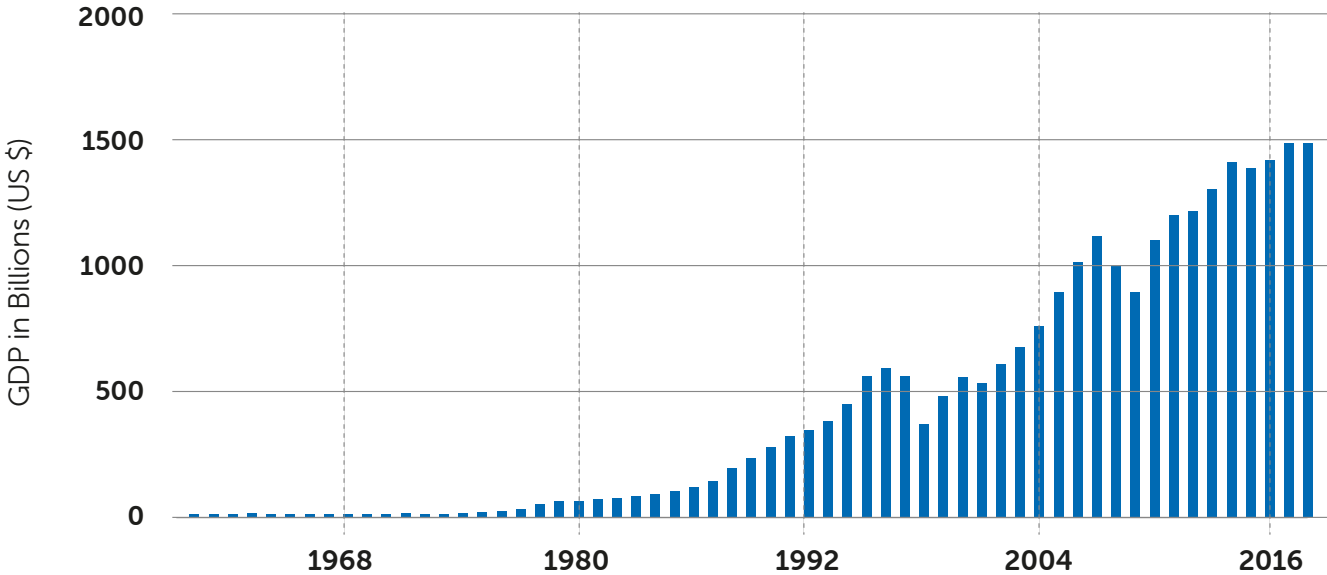
<https://www.ahrq.gov/research/findings/nhqrdr/chartbooks/access/elements.html>

[https://www.theglobaleconomy.com/South-Korea/human\\_development/](https://www.theglobaleconomy.com/South-Korea/human_development/)

# STUDENT HANDOUT: KEY MEASURES OF DEVELOPMENT DATA SETS

## Data Set #1: GDP for South Korea, 1960–2018

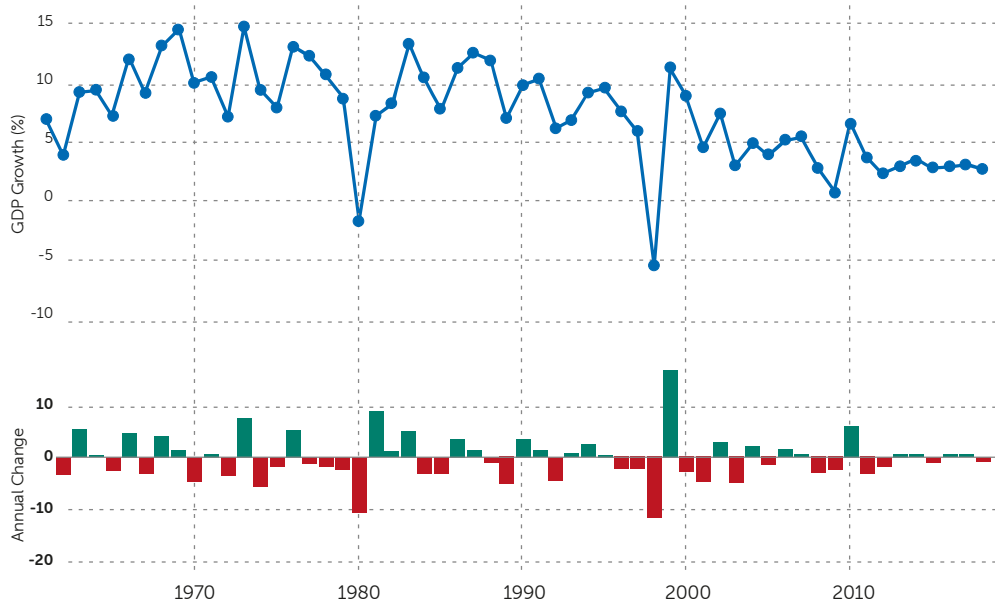
Source: Tradingeconomics.com/World Bank, <https://tradingeconomics.com/south-korea/gdp>





## DATA SET #1

### South Korea's GDP Growth (Annual Percentage) and Annual Change, 1960-2018



#### "South Korea's GDP Surges 31,000-fold since 1953"

SOURCE: The Korea Herald, August 10, 2015, [http://www.koreaherald.com/search/list\\_name.php?byline=KH%EB%94%94%EC%A7%80%ED%84%B82](http://www.koreaherald.com/search/list_name.php?byline=KH%EB%94%94%EC%A7%80%ED%84%B82)

South Korea's gross domestic product has surged 31,000-fold since 1953, fueled by exports and competitiveness in heavy industries and consumer electronics, government data showed Monday.

According to the data by Statistics Korea, the country's nominal gross domestic product shot up from a mere 47.7 billion won (\$40.9 million) in 1953, soaring to 1,485 trillion won (\$1.27 trillion) last year. The data highlights the achievements made by Asia's fourth-largest economy 70 years after being liberated from Japanese colonial rule (1910-1945).

"During the last year of the Korean War, the country was one of the poorest in the world and barely made ends meet by relying on assistance from others, but as of last year it trailed Australia and edged past Spain in terms of economic size," the statistical agency said.

In 2014, there were only 15 countries in the world with an annual GDP exceeding \$1 trillion, it said.

According to the data, exports were almost non-existent in 1953, but the country shipped out \$572.7 billion last year, making it the world's sixth-largest exporting nation.

South Korea has become globally competitive in cars, ships, steel, and more recently, consumer electronics, which has helped fuel growth.

The country has also maintained a current account surplus since 1998 after being in the red before. In 2014, the surplus reached \$89.2 billion, accounting for 6.33 percent of the GDP.

The gross national income per capita skyrocketed to \$28,180 last year from \$67 in 1953, with the per capita GDP numbers adjusted for purchasing power parity hitting \$34,356.

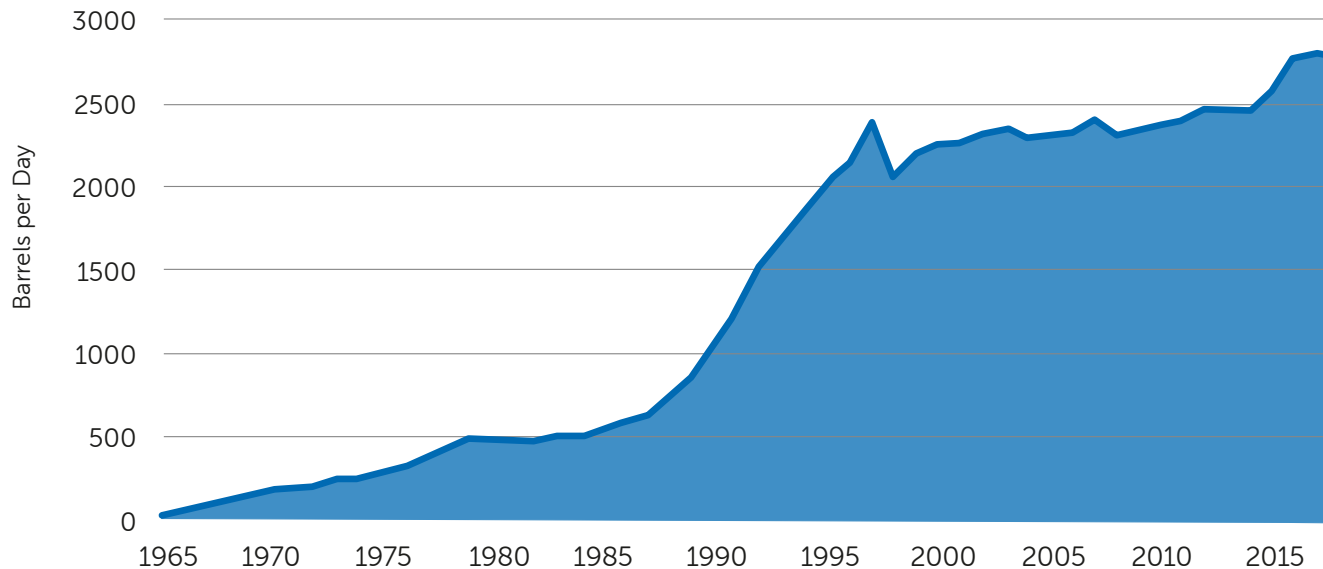
As of last year, the country's foreign currency reserves stood at \$363.6 billion, 18 times more than the \$20.4 billion it held just before the 1997 Asian financial crisis.

The agency said it did not have reliable data right after liberation or during the Korean War (1950-1953) period.

## DATA SET #2

### South Korea's Oil Consumption, 1965–2015

Source: BP PLC, <http://www.ceicdata.com>



### “South Korea Relies on Imports to Meet about 98% of its Fossil Fuel Consumption”

Source: U.S. Energy Information Administration, July 16, 2018, <https://www.eia.gov/international/analysis/country/KOR>

South Korea relies on imports to meet about 98% of its fossil fuel consumption as a result of insufficient domestic resources. The country is one of the world's leading energy importers.

South Korea ranks among the world's top five importers of liquefied natural gas (LNG), coal, crude oil, and refined products. South Korea has no international oil or natural gas pipelines and relies exclusively on tanker shipments of LNG and crude oil.

Despite its lack of domestic energy resources, South Korea is home to some of the largest and most advanced oil refineries in the world. In an effort to improve the nation's energy security, oil and natural gas companies are aggressively seeking overseas exploration and production opportunities.

South Korea was the world's eighth-largest energy consumer in 2017, according to estimates from the BP Statistical Review of World Energy, 2018. South Korea's highly developed economy drives its energy consumption, and economic growth is fueled by exports, most notably exports of electronics, semiconductors, and petrochemicals. The country is also home to one of the world's top shipbuilding industries. Real gross domestic product (GDP) edged up between 2015 and 2017 by 3.1% as demand for the country's exports strengthened.

South Korea's economy is heavily dependent on export markets, particularly within Asia. Exports in the region have increased over the past two years, which has boosted South Korea's energy use. The country's aging population is expected to dampen domestic energy demand and the overall economic landscape over the long term.

Although petroleum and other liquids, including biofuels, accounted for the largest portion (44%) of South Korea's primary energy consumption in 2017, its share has been declining since the mid-1990s, when it reached a peak of 66%. This trend is attributed to the steady increase in natural gas, coal, and nuclear energy consumption, which has reduced oil use in the power sector and the industrial sector. Higher vehicle efficiencies have also reduced oil consumption.

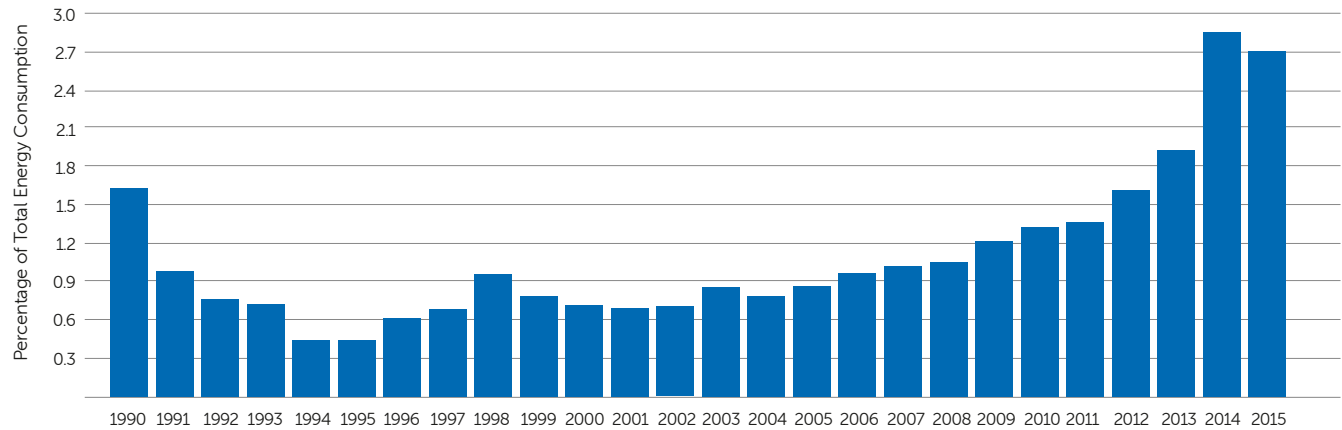
## DATA SET #2 (CONTINUED)

### South Korean Usage of Renewable Energies, 1990–2015

Source: WorldData.info at <https://www.worlddata.info/asia/south-korea/energy-consumption.php>

Renewable energies include wind, solar, biomass and geothermal energy sources. The term “renewable energies” means all energy sources that renew themselves within a short time or are permanently available. Energy from hydropower is only partly a renewable energy. This is certainly the case with river or tidal power plants. Otherwise, numerous dams or reservoirs also produce mixed forms, e.g., by pumping water into their reservoirs at night and recovering energy from them during the day when there is an increased demand for electricity.

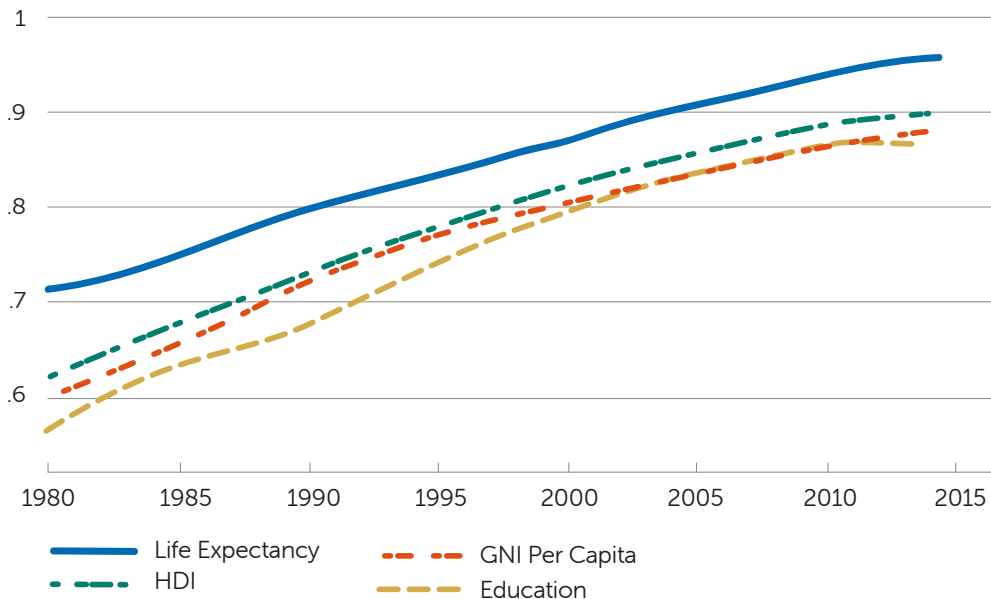
In 2015, renewable energies accounted for around 2.7 percent of actual total consumption in South Korea. The following chart shows the percentage share from 1990 to 2015:



## DATA SET #3

### Trends in South Korea's HDI Component Indices, 1980–2014

Source: United Nations Development Programme Human Development Report 2019: Inequalities in Human Development in the 21st Century. [http://hdr.undp.org/sites/all/themes/hdr\\_theme/country-notes/KOR.pdf](http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/KOR.pdf)



### South Korea's Human Development Index (HDI) Value and Rank

The table below shows South Korea's HDI increase in each of the indicators between 1990 and 2017. With an overall increase of 24% (.728 to .903), the Republic of Korea was ranked 22 out of 189 countries in human development as of 2017, as life expectancy, expected years of schooling, and mean years of schooling all had significant increases within the 27-year period.

Table A: South Korea's HDI trends based on consistent time series data and new goalposts

	Life Expectancy at Birth	Expected Years of Schooling	Mean Years of Schooling	GNI Per Capita (2011 PPP\$)	HDI Value
1990	71.7	13.6	8.9	11,614	0.728
1995	73.9	14.5	10.0	16,483	0.778
2000	76.0	15.6	10.6	20,601	0.817
2005	78.4	16.3	11.4	25,315	0.855
2010	80.5	16.8	11.8	30,387	0.884
2015	81.9	16.5	12.1	43,276	0.898
2016	82.2	16.5	12.1	35,122	0.900
2017	82.4	16.5	12.1	35,945	0.903

# DATA SET #3 (CONTINUED)

## South Korean Regions by Human Development Index in 2017

Source: Wikimedia Commons, Map of the South Korean regions by Human Development Index in 2017, Creative Commons Attribution-Share Alike 4.0 International license, [https://commons.wikimedia.org/wiki/File:Regions\\_of\\_South\\_Korea\\_by\\_HDI\\_\(2017\).svg](https://commons.wikimedia.org/wiki/File:Regions_of_South_Korea_by_HDI_(2017).svg)

