

# THE KOREAN RENAISSANCE: KING SEJONG'S INVENTIONS

**GRADES:** 6-12

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**SUBJECT:** World History

**TIME REQUIRED:** One class period

## **OBJECTIVES:**

1. Students will learn how King Sejong facilitated the development of culture through literary, scientific, and political inventions and developments.
2. Students will understand the role of cause and effect in regards to the invention of Hang'ul and other developments.
3. Students will make cross-cultural comparisons between different civilizations' academic development (renaissance) across the world during the medieval time period.

## **STANDARDS:**

### **National Council of Social Studies:**

Standard 1: Culture

Standard 5: Individuals, Groups and Institutions

Standard 6: Power, Authority and Governance

### **Common Core Standards:**

SL 1 Initiate and participate effectively in a range of collaborative discussions.

SL 4 Present information, findings and supporting evidence clearly, concisely, and logically....

RH 7 Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a problem

## **MATERIALS REQUIRED:**

- Handout 1: King Sejong Simulation
- Handout 2: Smart Notebook Teacher Notes
- Handout 3: Notes Detail Slide 4
- Interactive White Board that uses Smart Notebook Software

## **BACKGROUND:**

King Sejong, a member of the Yi Dynasty of the Chosŏn Kingdom, ruled from 1412-1450. He is one of few kings to hold the epithet "the great." He is best known for leading Korea into a Golden Age because of his support of developments in science, art, literature, and politics. Most influential, was the creation of the Korean alphabet, Hang'ul. This invention facilitated the development of a unique Korean identity, separate from China, and allowed other intellectual developments to take place.

Many World History students are familiar with the cultural renaissances that took place in Europe, China, and the Middle East during the medieval time period, but are unaware of Korean contributions to the intellectual capital of the world during King Sejong's reign. This lesson plan seeks to teach students not only about the accomplishments of King Sejong, but put them in context with the larger intellectual developments happening in the world at the time period.

### **PROCEDURE:**

1. Situate students historically and introduce lesson objective while using the first slide.
2. Lead the class through the King Sejong simulation. After setting the scenario, students should be broken up into small groups to collaboratively come up with a plan. Circulate amongst students to answer questions and facilitate thinking.
3. Debrief as a class about each group's solutions. Come to a class consensus about what King Sejong should do. Note whether any of the solutions suggested by the class are similar to what Sejong actually did. If so, begin the next part of the lesson by highlighting those actions and discussing why the solution was a good and appropriate one.
4. If the students did not come up with any of the actual solutions, continue on to slide two. Explain the invention of Hang'ul and teach students about the logic used to create the alphabet. See teacher notes for more information. Explain to students how the creation of Hang'ul is critical to other inventions during King Sejong's reign.
5. Using slide three, have students use the interactive white board to connect the problems and solutions to King Sejong's other dilemmas.
6. Using slide four, emphasize the scientific achievements during his reign.
7. To conclude, ask students to make larger connections to World History. How does the Korean Renaissance compare with the Renaissances that happened in Europe, China, and the Middle East? How does King Sejong's actions as a ruler compare with other rulers we have studied this year? What role does literacy play in the development of a culture? Why do students think they are less familiar with the accomplishments of King Sejong opposed to other world rulers?

### **EVALUATION:**

Students will be assessed on their knowledge obtained from the lesson both formally and informally. Informal assessment occurs during the class discussion, debriefing, and student use of the interactive whiteboard. Formal assessment occurs in the form of objective multiple-choice questions on the unit test.

### **RESOURCES:**

<http://www.chosonkorea.org>

Eckert, Carter J. and Ki-baek Yi. *Korea, Old and New: A History*. Harvard University Press: Cambridge, MA, 1990.

"King Sejong the Great: And the Gold Age of Korea." The Asia Society.

<http://asiasociety.org/countries-history/traditions/king-sejong-great> (accessed September 5, 2010).

## HANDOUT 1: KING SEJONG SIMLUATION

### *The Korean Renaissance: King Sejong Simulation*

*The Situation:* You are King Sejong, and the year is 1419. You are 22 years old, and have just succeeded to the throne of the Chosŏn Kingdom. Being the fourth monarch in your dynasty, the kingdom you have inherited is doing ok; there are no problems, but nothing is overly prosperous. As a young upstart, you have aspirations of bringing Korea to greatness. You envision your rule leading Korea to a great Golden Age of learning and prosperity.

Before you take any immediate actions, you sit down with your advisors to survey the status of your kingdom. Your advisors report the following areas have room for improvement:

- Your land suffers from occasional droughts and floods, leaving farmers and commoners without food
- The road to improvement (in terms of social class) in Korea is through gaining a government position. In order to obtain a government position, an individual must have a strong education. This path is unappealing to many of your subjects because:
  - the cost of schooling is very expensive
  - scholars are required to follow strict religious rules of conduct—they are not allowed to drink alcohol or consort with women
- The spoken Korean language has no written alphabet. For writing, educated Koreans use Chinese characters. This is problematic because:
  - Chinese characters do not accurately represent the sounds of the Korean language
  - Chinese characters are very difficult to learn
  - Only highly educated scholars can write Chinese, limiting access to literacy
- Limited numbers of books available at the time
- Farmers need knowledge of new cultivation and production techniques to increase the size of their harvest
- Taxes are too high for the lower and middle classes
- Scientists in the court feel they lack the needed tools for advancing studies. They report needing tools to monitor the weather, the sun, celestial events, and the passing of time.
- The health of the people is deteriorating. They lack knowledge of how to remedy common ailments.
- Limited production of music

IF YOU WERE KING SEJONG, WHICH PROBLEM WOULD YOU TACKLE FIRST? DO YOU FEEL THERE IS ONE CORE ISSUE, CAUSING SEVERAL PROBLEMS, OR THAT ALL OF THE PROBLEMS SHOULD BE DEALT WITH SEPARATELY?

## HANDOUT 2: SMART NOTEBOOK TEACHER NOTES

### Smart Notebook Teacher Notes

#### Slide One: Introduction

Picture One: Door-- Situate the students historically. Click to fade to picture 2.

Picture Two: Yin, Yang—Explain main goals/objectives of the lesson. Click to fade to picture 3.

Picture Three: King Sejong—Introduce activity and act out simulation.

#### Slide Two: Solution—Hang’ul

King Sejong wanted to provide Koreans with a written means of expression other than the complicated Chinese writing system. With this objective in mind, he commissioned a group of scholars to devise a phonetic writing system that would correctly represent the sounds of spoken Korean and that could be easily learned by all people. The system was completed in 1443. (<http://asiasociety.org/countries-history/traditions/king-sejong-great>)

This invention provides solutions to many of the problems during King Sejong’s reign, and helps lead to a cultural Renaissance.

Hang’ul is a script of 24 letters, 10 of which are vowels and 14 consonants. It is an almost entirely phonetic language and is exceptionally easy to learn and write. The shapes of the consonants g/k, n, s, m and ng are graphical representations of the speech organs used to pronounce them. Other consonants were created by adding extra lines to the basic shapes. The shapes of the vowels are based on three elements: man (a vertical line), earth (a horizontal line) and heaven (a dot). In modern Hang’ul the heavenly dot has mutated into a short line. (<http://www.omniglot.com/writing/korean.htm>)

In 1994, Discovery magazine described *Hang’ul* as the most logical language writing system in the world. The simplicity of *Hang’ul* led Korea to become one of the most literate countries in the world. (<http://www.lifeinkorea.com/language/korean.cfm>)

Used today to give a alphabet to other languages that lack a written form. For more info, read article “The Hangul Alphabet Moves Beyond the Korean Peninsula” <http://languagelog.ldc.upenn.edu/nll/?p=1641>

#### Slide Three: Other Inventions

Have student come up to the board and connection the problem with its solution. All of the solutions were commissioned by King Sejong during his reign.

#### Slide Four: Spotlight—Scientific Inventions

See table in file “Notes Detail for Slide 4”



Unlocking Korean History:  
**The Korean Renaissance**



King Sejong  
Simulation



## HANDOUT 3: NOTES DETAIL SLIDE 4



### Soganui (Small Armillary Sphere)

This armillary sphere is an astronomical instrument used to observe the location of the sphere. Records say that three astronomers, Yi Cheon, Jeong Cho and Jeong In-ji made two small armillary spheres in 1434, the 16<sup>th</sup> year of the King Sejong's reign, and installed at Cheonchujeon Hall and Seoungwan Office in Gyeongbokgung Palace. Smaller in size than Ganui, the small armillary sphere was more portable than the latter, and marked by a simpler structure consisting of three rings, an alidade and a stand. It was a multi-functional instrument that could also be used as an equatorial coordinate system and a horizontal coordinate system for the calculation of the location, height and direction of the sun, moon, planets and other stars. It is known as the world's only instrument of its kind, and the item exhibited here is a reproduction made according to the record in Sejong Sillok (Annals of King Sejong).



### Ilseongjeongsiui (Sun-Star Armillary Clock)

The Sun-Star Armillary Clock was made in 1437, the 19<sup>th</sup> year of the King Sejong's reign, by a group of astronomers led by Yi Cheon and Jang Yeong-sil as part of the effort to calculate time via combining the functions of sundial and star clocks used until then. It was a chronograph used for calculating both solar time and sidereal time by exploiting the principles of sundial and star clock. The instrument consists of four rings and a metal axis which were made according to the latitude of Seoul calculated at the time. There were originally four clocks were made during the reign of King Sejong, but historians believe that they were burnt down along with Gyeongbokgung Palace during the Japanese Invasions (1592-1598) and the Manchu Invasions (1636-1637). The Sun-Star Armillary Clock displayed here is its first reproduction made according to the record in Sejong Sillok (Annals of King Sejong).



### Cheonpyeongilgu (Equilibrium Sundial)

Cheonpyeong Ilgu, literally "equilibrium sundial", is one of several sundials made in 1437, the 19<sup>th</sup> year of the King Sejong's reign. In the instrument, a cord is fastened to link the "dragon pillar" with a nail in the south, perpendicularly crossing the middle of the dial installed to correspond to the equatorial plane of the sphere. You can read time with the cord's shadow fallen on the dial via the sunlight. The dial is calibrated with notchmarks representing 12 hours of daytime and divided into two faces with the front used in summer and the back in winter. The sundial's structure features a dial, "dragon pillar" (yongju), a cord linking south with north, stand, and two nails at the north and the south of the dial. This item shown here is a reproduction made 7 times larger than its original size.



### Hyeonjullgu (Dangling-Bead Sundial)

A sundial made in 1437, the 19<sup>th</sup> year of the King Sejong's reign, Hyeonju Ilgu is designed to measure time via the mark on the dial indicated by the shadow of a cord tightly fastened in the direction of the earth's rotation axis. This sundial features calibration marks on both faces of the dial, and the shadow of the cord appears on the upper face in summer and the lower face in winter. Accordingly, the calibration marks of the upper face were used from the spring equinox to the autumnal equinox whereas those of the lower face from the autumnal equinox to the spring equinox. The original sundials of this type made during the reign of King Sejong were fairly small as they were used as a portable instrument. The item shown here, however, a reproduction made seven times larger than the original.



### Angbuilgu (Cauldron Sundial)

Angbu Ilgu, literally “upturned cauldron sundial,” had been the most widely used sundial in Korea since the invention in 1437, the 19<sup>th</sup> year of the King Sejong’s rule. The name of the sundial came from that it features a form of an upturned cauldron. It is also called “concave sundial” (omok haesigye) because it has a concave calibrated dial. The gnomon is designed to indicate 24 solar terms from the winter solstice to the summer solstice and time. This particular item is copied from the original (Treasure No. 845) displayed in the National Palace Museum of Korea according to the today’s time system.



### Ilgudae (Sundial Pedestal)

As its name suggests, Ilgudae (“sundial pedestal”) is a pedestal or a base made to put a sundial (ilgu) on. Records say that King Sejong of the Joseon dynasty ordered to install sundials on a stone pedestal at Hyejeonggyo Bridge and Jongmyo Shrine in Seoul as an effort to help his people know time. The hour markers of the sundials were marked by the twelve zodiacal animals so that his people, who were largely illiterate, could easily tell time. The pedestal is highly regarded as a relic connected to the Korea’s first public clock and one that shows the King Sejong’s compassion over his people. The original pedestal is currently stored in the National Museum of Korea, and the pedestal shown here is a reproduction.



### Jeongnamilgu (Self-Striking Water Clock)

This Wind Flag Pedestal sundial made in 1437, the 19<sup>th</sup> year of the King Sejong’s rule is marked by that it is designed to measure time by deciding due south even without a magnetic needle. The axis of Sayuhwan (“ring of four displacements”) linking south and north posts is made to correspond to the sphere’s north pole and have the sundial level off with a weight appended to the end of the axis. The Jipyeonghwan (“horizontal ring”) is marked with calibrations representing 24 directions and 24 solar terms while the Sayuhwan has notchmarks designed to help measure the meridian altitude of the sun at noon. There are Jikgeoe inside the Sayuhwan and Gyuhyeong (“alidade”) that moves from south to north, helping measure the 24 solar terms and time of the day from the sunrise to sunset. You can read time from a sundial marked with lines representing times and solar terms through a square hole when a sunray reaches on the dial through the alidade’s southern hole as you move the Sayuhwan and the alidade from side to side and from south to north respectively. No sundials made by King Sejong’s engineers are remaining today, and the item displayed here is a reproduction made three times larger than the original as it is recorded in Sejong Sillok (Annals of King Sejong).



### Honcheonui (Celestial Globe)

Also called Honui (“armillary sphere”) or Seongi Okhyeong (“jade balance for the Ursa Major”), this celestial globe is an astronomical instrument used to measure the locations of the Sun, Moon and Five Planets. It had been used since long ago although a record in Sejong Sillok (Annals of King Sejong) says that it was made by a group of court astronomers including Jeong Cho, Park Yeon and Kim Jin. The instrument then continued to be improved finally to be combined with clockwork, a system called Honcheon Sigye. The mechanism, however, burnt down during the Japanese Invasions (1592-1598) and the Manchu Invasions (1636-1637). It was later rebuilt by Yi Min-cheol and Song I-yeong and installed at Gyeonghuigung Palace only to be vanished by fire again. The item displayed here is a reproduction enlarged by 2.5 times from the Honcheon Sigye (National Treasure No. 230) made in 1669, the 10<sup>th</sup> year of the King Heonjong’s reign, and currently stored in the Korea University Museum. It consists of four calibrated rings and a stand.



### Jeokdoui (Equatorial Telescope)

This astronomical instrument was made by a late Joseon astronomer named Nam Byeong-cheol who combined only observation devices from Ganui and Honcheonui, two of the dynasty's greatest astronomical instruments. The instrument has been regarded as the easiest to use and the most efficient instrument made from thorough and comprehensive researches on the two instruments that had continued to evolve since the King Sejong's period. Unfortunately, no originals are remaining today, and the item exhibited here is a reproduction made according to the record and illustration contained in "Stars on Mirror" (Seonggyeong), a book by Nam Byeong-gil. To observe the sphere with this instrument, one needs to decide the direction of his or her target by arranging the Sayuhwan ("ring of four displacements"), and read the related marks through the two holes of Gyuhyeong ("alidade").



### Gyupyo (Gnomon)

Joseon in the era of the King Sejong's reign is marked by an extensive astronomical observation using a variety of astronomical equipments. One of the equipment was gyupyo, a kind of gnomon designed to calculate the days of a year (i.e., 365 and a quarter days) and the 24 solar terms. Consisting of an erected rod called pyo and a calibrated ruler horizontally laid down (called gyu), the instrument helped to know both winter and summer solstices, the spring and autumn equinoxes and 20 solar terms arranged by a gap of 15 days between each term. The equipment also shows that the indicator's shortest shadow represents the noon and gyu is installed in south to north direction. The gyupyo shown here is a reproduction (reduced by 1/10) of the original made in 1437, the 19<sup>th</sup> year of the King Sejong's reign.