Test Creation Assignment: The Industrial Revolution

Course Overview: This test on the Industrial Revolution is designed for a freshman World History and Geography II course. The course covers the time period from 1500 C.E. to the present. Students take a Virginia Standards of Learning test at the end of the semester. Although it is a world history class, the information is mainly centered on European history. Geographical terms and concepts are interspersed throughout the course. History is treated not simply as a set of facts and dates to be memorized but as an interconnected series of significant events and topics.

Major Course Goals/Aims: Because this is an SOL course, the primary goal is for students to pass the SOL exam. With that said, the aim is to have students achieve beyond the SOL exam, which functions as minimum standards for students. Students are encouraged to develop higher order thinking skills and improve their reading and writing abilities.

Specific Unit: This test serves as the summative assessment for a five day unit on the Industrial Revolution. It falls between units on the 17th and 18th century revolutions in Europe and imperialism, respectively. The unit begins with the major scientific, technological, and industrial developments and their impacts on society and the environment. Students will also learn about the characteristics, similarities, and differences among capitalism, socialism, and communism. Students will explore the characteristics of life in the Industrial Age. Lastly, students will learn about how industrialization influenced imperialism and nationalism.

Intended Learning Outcomes: As the primary goal of the course is to have the students pass the SOL exam, the intended learning outcomes for this unit are the SOLs. The content for the unit was described in the above section. The intended learning outcomes have been unpacked in the table below. All but one of the outcomes deal with the knowledge and comprehension levels. These outcomes are assessed on the end of unit test. However, the standard that requires students reach the evaluation level will be assessed in another way, in this case a mock trial. Students will conduct a mock trial in which they will try the Europeans for their crimes against the colonized countries. Students will assume roles such as judge, jury, prosecutor, and defender. These two assessments will give a complete picture of student learning.

Standards of Learning/Intended Learning Outcomes:

WHII.9 The student will demonstrate knowledge of the effects of the Industrial Revolution during the nineteenth century by
   a) citing scientific, technological, and industrial developments and explaining how they brought about urbanization and social and environmental changes;
   b) explaining the emergence of capitalism as a dominant economic pattern, and the subsequent development of socialism and communism;
   c) describing the evolution of the nature of work and the labor force, including its effects on families, the status of women and children, the slave trade, and the labor union movement;
d) explaining the rise of industrial economies and their link to imperialism and nationalism;
e) assessing the impact of European economic and military power on Asia and Africa, with emphasis on the competition for resources and the responses of colonized peoples.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Content</th>
<th>Verbs Used to Indicate Level of Cognitive Demand</th>
<th>Bloom’s Classification</th>
</tr>
</thead>
</table>
| 9A       | - Scientific, technological, and industrial developments  
            - Urbanization  
            - Social and environmental changes | Citing  
Expanding | Knowledge  
Comprehension |
| 9B       | - Capitalism  
            - Economic patterns  
            - Socialism and communism | Explaining | Knowledge  
Comprehension |
| 9C       | - Nature of work and the labor force  
            - Families  
            - Women and children  
            - Slave trade  
            - Labor union movement | Describing  
Describing (effects) | Knowledge  
Comprehension |
| 9D       | - Industrial economies  
            - Imperialism and nationalism | Explaining | Comprehension |
| 9E       | - European economic and military power  
            - Asia and Africa  
            - Competition for resources  
            - Responses of colonized peoples | Assessing | Evaluation |

Table of Specifications for Test:

<table>
<thead>
<tr>
<th>Content</th>
<th>Level of Cognitive Demand</th>
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<tbody>
<tr>
<td></td>
<td>Knowledge</td>
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<tr>
<td>Industrial developments: scientific, technological, and industrial</td>
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<td>Impact on urbanization and social and environmental change</td>
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<tr>
<td>Capitalism, socialism, and communism</td>
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<tr>
<td>nature of work and the labor force</td>
<td>Essay</td>
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<td>Effects on families, the status of women and children, the slave trade, and the labor union movement</td>
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<tr>
<td>Rise of industrial economies and their link to imperialism and nationalism</td>
<td>11, 12, 13, 15</td>
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<tr>
<td>Impact of European economic and military power on Asia and Africa</td>
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<tr>
<td>Competition for resources</td>
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<tr>
<td>Responses of colonized peoples</td>
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**Table of Specifications for Unit Assessment:**

<table>
<thead>
<tr>
<th>Content</th>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Application</th>
<th>Analysis</th>
<th>Synthesis</th>
<th>Evaluation</th>
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<td>and the labor force Effects on families, the status of women and children, the slave trade, and the labor union movement</td>
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<td>Unit Test</td>
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<td>Unit Test</td>
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<table>
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<th>Impact of European economic and military power on Asia and Africa Competition for resources Responses of colonized peoples</th>
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**Mock Trial**

**School/Classroom Setting:** Jamestown High School is a suburban, middle class school with approximately a quarter to a third minority students. The school is based upon the concepts of scholasticism, sportsmanship, and volunteerism. In terms of the classroom itself, it is approximately a third African American. There are no ESL or special education students in the class. Lastly, the achievement level ranges from extremely high achieving to extremely low achieving students with the majority of students in the B to C range. Thus, assessments have to address a wide range of achievement levels. The goal in designing the test was to provide opportunities for low to moderate achieving students to stand a fair chance of succeeding while also scaffolding for higher achieving students. The essay questions target the higher achieving students while the select response questions target the lower to moderate achieving students.
**Purpose:** The purpose of this test is to provide a formative and summative assessment of student learning concerning the Industrial Revolution. The test results will be used to inform future instruction and to evaluate the current level of student achievement. Students take a cumulative nine weeks exam two weeks after this test in addition to an SOL at the end of the semester. The teacher can use these test results to see what topics need to be reviewed.

**Construct Validity:** Construct validity or face validity measures how accurately an assessment measures the intended learning outcomes. Test items should only address the pre-intended learning outcomes at the targeted taxonomy level. This Industrial Revolution test has strong construct validity because all the items are aligned with the intended learning outcomes. The numbers in the table of specifications for the test refer to the question numbers on the test. None of the questions lie outside the marked boxes.

**Content Validity:** Content validity or sampling validity measures the degree to which the test samples the intended learning outcomes. Outcomes that were focused on more during instruction should have higher representation on the test. This test has strong content validity. For example, scientific, technological, and industrial developments will be focused on the most during class and thus receives the most attention on the test. Life in the industrial age is also emphasized and thus receives its own essay.

**Test Item Types:** Test item types should be appropriate for measuring the intended learning outcomes. Select response items such as multiple choice, true/false, and matching questions are limited to assessing mainly the knowledge, comprehension, and sometimes application taxonomic levels while supply response items such as short answers and essays can assess all six levels. Because the outcomes for this unit deal with knowledge and comprehension, the majority of the questions are select response items.

**Reliability:** No tests are perfectly reliable. There is always going to be some systematic or random error. With that said, various measures were taken to cut down on the threats to reliability. In terms of systematic error, the questions were constructed to align with the rules for item construction discussed in the book *Teacher-Made Assessments: How to Connect Curriculum, Instruction, and Student Learning.* For example, the matching set was designed so that it was short, representative of one theme, organized in a logical order, and contained an uneven amount of answers. The true/false questions were designed so that they were one hundred percent true or false, stated in a positive tone, and contained only one idea. And, the multiple choice items were designed so that the item stem or answer choices did not give the correct answer away, all answers were plausible, words like *except* or *best* were italicized, etc.

It will be more difficult to account for threats to reliability during test administration as test conditions and students can be affected by random error. The teacher should make sure that the test environment is quiet and free of distractions, students have the proper materials to complete the test, and that students have sufficient time. Threats to the reliability of item
analysis are not a significant issue since most of the questions are select response. The essay question is accompanied by a rubric so that the grading is more consistent. In an attempt to reduce designer bias, a colleague was asked to read over the test and make suggestions.

**Predictive Validity:** Predictive validity refers to the degree to which one assessment can predict future performance on a different assessment concerning the same topic. This particular test has moderate potential for predictive validity. For assessments that assess only knowledge and comprehension levels, this test has strong predictive validity. However, a person would not want to use it to predict how a student would do on an assessment that reached above the knowledge and comprehension levels.

**Scoring and Grading Procedures:** The scoring for the test is out of 53 points. The student’s raw points total will be divided by 53 to get the percentage grade. The multiple choice questions are worth 2 points each, the true/false and matching questions 1 point each, and the essay 12 points. The goal was to have the essay account for slightly less than 25 percent of the total grade because it was assessing most of one of the four intended learning outcomes. The essay rubric aims to create an objective grading scale.

**Essay Rubric:**

<table>
<thead>
<tr>
<th>Changes in the Nature of Work and the Labor Force</th>
<th>Four</th>
<th>Three</th>
<th>Two</th>
<th>One</th>
<th>Zero</th>
</tr>
</thead>
<tbody>
<tr>
<td>The essay addresses all the major changes in the nature of work and the labor force.</td>
<td>The essay addresses most of the major changes in the nature of work and the labor force.</td>
<td>The essay addresses some of the major changes in the nature of work and the labor force.</td>
<td>The essay addresses little of the major changes in the nature of work and the labor force.</td>
<td>The essay addresses none of the major changes in the nature of work and the labor force.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effects on Society</th>
<th>Four</th>
<th>Three</th>
<th>Two</th>
<th>One</th>
<th>Zero</th>
</tr>
</thead>
<tbody>
<tr>
<td>The essay addresses all four of the affected groups listed in the question.</td>
<td>The essay addresses three of the affected groups listed in the question.</td>
<td>The essay addresses two of the affected groups listed in the question.</td>
<td>The essay addresses one of the affected groups listed in the question.</td>
<td>The essay addresses none of the affected groups listed in the question.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Comprehension of Content</th>
<th>Four</th>
<th>Three</th>
<th>Two</th>
<th>One</th>
<th>Zero</th>
</tr>
</thead>
<tbody>
<tr>
<td>The essay demonstrates a cogent understanding of the changes to the nature of work and the labor force and their effects on society.</td>
<td>The essay demonstrates a considerable understanding of the changes to the nature of work and the labor force and their effects on society.</td>
<td>The essay demonstrates a moderate understanding of the changes to the nature of work and the labor force and their effects on society.</td>
<td>The essay demonstrates a superficial understanding of the changes to the nature of work and the labor force and their effects on society.</td>
<td>The essay demonstrates no understanding of the changes to the nature of work and the labor force and their effects on society.</td>
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</tbody>
</table>

**Multiple Choice:** Select the best answer for each question and mark it on your scantron sheet.

1. The Industrial Revolution began in:
2. During the Industrial Revolution, farming improvements led to the privatizing and fencing off of land in England. This movement was known as the:

A. Abolitionist movement
B. Enclosure movement
C. Labor movement
D. Suffrage movement

3. The steam engine was a significant invention of the Industrial Revolution *mainly* because it:

A. Created new jobs.
B. Had to be near a stream or river.
C. Provided a power source free from pollution.
D. Provided a stronger, more reliable and efficient power source.

4. Which of these statements about the factory system is correct?

A. It replaced cottage industries.
B. It required more skilled labor.
C. It provided a safe working environment.
D. Products took longer to make.

5. How did the cotton gin affect slave labor?

A. It decreased the demand for slave labor.
B. It increased the demand for slave labor.
C. It had no effect on the demand for slave labor.
D. It was invented after the outlawing of slavery.
6. Adam Smith wrote:
   A. The Communist Manifesto
   B. The Jungle
   C. The Origin of Species
   D. The Wealth of Nations

7. Capitalism resulted in:
   A. Government control of industries.
   B. Less economic competition.
   C. The growth of the middle class.
   D. The restriction of trade.

8. Which of the following best explains why European industrial nations engaged in imperialism?
   A. Their countries were overpopulated and disease filled.
   B. They wanted adventure and to learn about the world.
   C. They wanted to spread Christianity and convert the world.
   D. They needed natural resources and markets to sell their goods.

9. All of the following were impacts of the Industrial Revolution except:
   A. Environmental Pollution
   B. Greater economic equality.
   C. Population Increase
   D. Urbanization

10. Under socialism, who owns the factors of production?
    A. The factory owner
    B. The individual
    C. The invisible hand
11. All of the following are forms of imperialism *except*:
   A. Colonies
   B. Counties
   C. Protectorates
   D. Spheres of Influence

12. During the Industrial Revolution, Imperialistic European nations *primarily* colonized:
   A. Africa and Asia
   B. Africa and South America
   C. Asia and Australia
   D. North and South America

13. The British ______________ Company dominated the Indian states during the Industrial Revolution.
   A. Central India
   B. East India
   C. North India
   D. South India

14. Which of the following factors motivated European nations to compete for colonies?
   A. Communism
   B. Nationalism
   C. Socialism
   D. Urbanism

15. The Suez Canal connects which two bodies of water?
   A. Mediterranean Sea and the Aral Sea
   B. Mediterranean Sea and the Atlantic Ocean
C. Mediterranean Sea and the Black Sea

D. Mediterranean Sea and the Red Sea

**True/False:** Determine if the statement is true or false and mark it on your answer sheet. Fill in “A” for true and “B” for false.

16. The social inequalities produced by capitalism sparked the development of socialism and communism.

17. Factory owners encouraged the formation of unions.

18. Capitalists believe in the redistribution of wealth.

19. Karl Marx wrote the *Communist Manifesto*.

20. In terms of economics, Laissez-faire means no government involvement.

**Matching:** Match the invention or discovery with its inventor or discoverer and mark it on your scantron sheet. Each answer will only be used once.

- 21. Cotton gin
- 22. Discovery of bacteria
- 23. Process of making steel
- 24. Smallpox vaccine
- 25. Spinning jenny
- 26. Steam engine

A. Henry Bessemer
B. James Hargreaves
C. Henry Ford
D. Edward Jenner
E. Louis Pasteur

AB. James Watt
AC. Eli Whitney

27. **Essay Question:** The Industrial Revolution changed the nature of work and the labor force, which in turn profoundly affected society. Describe the change in the nature of work and the labor force and explain how this change affected society. Focus on its effects on families, the status of women and children, the slave trade, and the labor movement.

**Answer Key:**

1. A
2. B
3. D
4. A
5. B
6. D
7. C
8. D
9. B
10. D
11. B
12. A
13. B
14. B
15. D
16. True
17. False
18. False
19. True
20. True
21. AC
22. E
23. A
24. D
25. B
26. AB
27. Essay:
   I. Changes in nature of work and the labor force
      A. Factory system replaced cottage industries
      B. Employment of women and children
      C. Dangerous working conditions
      D. Strict factory bosses
   II. Families
      A. Separated families
      B. Lived in tenement housing
      C. Extreme poverty
   III. Status of women and children
      A. Women and children seen as cheap labor
   IV. Slavery and the slave trade
      A. Cotton gin required more slaves to pick the cotton
      B. Outlawing of the slave trade
   V. Labor movement
      A. Formation of labor unions
      B. Worker organized strikes
      C. Lobbied for protective laws
      D. Collective bargaining