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# “ROCKING CHAIR BLUES”

*A world without Craftsmanship*



For information concerning IMPACT II opportunities, such as interschool visits, staff development, workshops, and Adapter and Disseminator grants, please contact:

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## Goals and Sunshine Standards

Technology and social studies courses - Students will be learning to research historical events, develop math skills, utilizing creativity and engineering skills

### PROJECT GOALS:

- 1) Demonstrate the amount of care and pride that went into our products at the turn of the century
- 2) Why creativity is an important skill to develop as a young person
- 3) What are the economic benefits of quality work

### MARKETING ESSENTIALS – CURRICULUM FRAMEWORKS

05.0 IDENTIFY ECONOMIC PRINCIPLES--The student will be able to:

- 05.01 **Explain concept of economics and economic activities.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.2.4.5
- 05.02 **Explain concept of economic goods and services.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.2.4.1
- 05.03 **Explain concept of economic resources.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.1.4.1
- 05.04 **Explain concept of utility (form, place, time, possession, information).** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.2.4.5
- 05.05 **Explain concept of "supply and demand."** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.2.4.2
- 05.06 **Explain concept of price.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.1.4.1
- 05.07 **Identify, compare, and contrast major types of economic systems.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.2.4.1, SS.D.2.4.6
- 05.08 **Explain relationship between government and business.** LA.A.1.4.3, LA.B.1.4.1, A.B.1.4.2, LA.B.1.4.3, LA.B.2.4, LA.C.3.4, SS.D.2.4.4
- 05.09 **Explain concept of private enterprise and business ownership.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.2.4.1
- 05.10 **Explain role of profit motive.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.1.4.1
- 05.11 **Explain concept of risk.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.1.4.1
- 05.12 **Explain concept of competition.** LA.A.1.4.3, LA.B.1.4, LA.B.2.4, LA.C.3.4, SS.D.1.4.1,

## **Narrative Description:**

“Rocking Chair Blues” is an innovative student driven activity which demonstrates that we as a society can easily be hypnotized by the overwhelming positives of technological advancements. Thus, our young students get easily entranced by iPods, cell phones and other electronic charms, without truly understanding what we have accomplished as a society to get through the industrial age, information age and now the electronic age. Yes, technology has made our world a better place to live in; we are more efficient, more organized and even able to communicate more effectively. However, somewhere in all that advancement we lost our way. Consequently, our “Craftsmanship” and innate creativity has fallen by the wayside. Quality and service used to be considered paramount in this country. If it wasn't just right, you were expected to do it over again until you got it right. We cared about what we produced because it was a reflection of our personal character and integrity... pride in workmanship.

How can I demonstrate the amount of care and pride that went into our products at the turn of the century (Industrial Age). Utilizing a Rocking Chair simply demonstrates how once an individual craftsman utilized their own creativity and skills over a month's time span to create a piece of iconic furniture ... a Rocking Chair. Today, a machine die cuts every single part to special specifications and then either a team of specialized warehouse workers assemble it or to save a few coins the consumers does it themselves, with far less speed and accuracy.



## **Course Outline** High School, two groups of 35

Students will accomplish specific tasks over a two-week period with a culminating classroom presentation. Students will learn to be creative, build their craftsmanship skills, calculate dimensions and mold a sense of pride in their individual work. The students will utilize their innate creativity to construct a modern Rocking Chair to scale, which can successfully rock back and forth using K'nex model building kit. The students will develop their individual craftsmanship by creating an original design of a modern Rocking Chair which demonstrates pride in workmanship.

### **TEACHER BACKGROUND TO INFUSE DURING DISCUSSIONS:**

#### **Roger B. Hill, Ph.D. - Historical Context of the Work Ethic and Craftsmanship**

One of the central themes of the work ethic was that an individual could be the master of his own fate through hard work. Within the context of the craftsmanship and agricultural society, this was true. A person could advance his position in life through manual labor and the economic benefits it would produce. Manual labor, however, began to be replaced by machine manufacture; and intensive division of labor came with the industrial age. As a result, individual control over the quantity and methods of personal production began to be removed.

The impact of industrialization and the speed with which it spread during the second half of the nineteenth century was notable. In addition, late in 1850's most American manufacturing was still being done in homes and workshops. This pattern was not confined to rural areas, but was found in cities also where all varieties of craftsmen plied their trades. Some division of labor was utilized, but most work was performed using time-honored hand methods. A certain measure of independence and creativity could be taken for granted in the workplace. No one directly supervised home workers or farmers; and in the small shops and mills, supervision was mostly unstructured.

In the factories, skill and craftsmanship were replaced by discipline and anonymity. A host of carefully preserved hand trades--tailoring, barrel making, glass blowing, felt-hat making, pottery making and shoe making--disappeared as they were replaced by new inventions and specialization of labor (Rodgers, 1978). Although new skills were needed in some factories, the trend was toward a semi-skilled labor force, typically operating one machine to perform one small piece of a manufacturing process.

## **Phase I: Background – Front Loading**

### **Part 1**

**Teacher will review background content with students: “A Place Without Craftsmen”**

Teacher shall provide students with content sheet and Jig-Saw the content, students will complete Q & A handout, then participate in a class discussion, whereby students provide examples of where they have seen a reduction in craftsmanship.

## A Place Without Craftsmen

"Craftsmanship" results when highly trained, skilled, and knowledgeable workers use tools and machinery to perform their work, or trade, with the highest levels of quality and appeal. But this "craftsmanship" and pride in workmanship is nothing new. Artisans were the predominant producer of goods in the era before the late 18th century Industrial Revolution and were the predecessors of the "craftsman." Artisans, and later craftsmen, were revered in their knowledge and abilities to build, create or construct their products with high degrees of excellence. Centuries ago, craftsmen were admired and highly sought after. Today, unfortunately, "maintenance" is not a trade or craft in the traditional sense of the word ... but it should be if we expect high performing, reliable, cost competitive equipment and facilities. Our nation, its business and industry, its infrastructure will continue to be at risk if we do nothing to change the perceptions the development, and the retention of the highly skilled employees who tend to our equipment and facilities, assuring that they are reliable and cost effective. Let's look at the historical development of a "craftsman" as a lesson for our future.

### **Craftsman & Tradesman**

Skilled manual workers in a specific trade or craft were called craftsmen or tradesmen (PC today: craftworker or tradesperson). Their status was considered between a laborer and a highly trained and educated "professional." Most had high degrees of both practical and theoretical knowledge of their trade.

Since the 14th century, a journeyman wishing to become "master craftsman" would produce a "masterpiece" that would be judged by the craft guild members (professional associations). Successful candidates would then be elected as "masters" in their craft and were generally obligated to take on young apprentices in order to pass on their skills and knowledge. A shortage of skilled trade workers or craftsmen grew rapidly in societies where educated professionals were highly prized. This led to lucrative niche markets in the trades. (History is repeating itself!)

### **Journeyman**

A craftsman or tradesman typically begins as an apprentice, working for and learning from a master craftsman, and after four to seven years is released from his master's service as a journeyman. Craft and trade training in European cultures has been a formal tradition since the late Middle Ages. The word "journeyman" comes from the French word *journée*, meaning the period of one day and referred to his right to charge a fee for each work day. In England, the journeyman would typically work as an employee for daily pay. In Germany, the journeyman would often "journey" from workshop to workshop learning from many different masters while being paid for his daily work. The term *jack* is sometimes used as an informal name for journeyman. A "*jack of all trades...*" is a common term for someone who possesses a degree of skill in more than one trade but has not made a continuous career of any one to become a master tradesman or master craftsman ("*and master of none*").

### **Apprenticeship**

The formal system of training a new generation of skilled craft or trade practitioners, which is still popular in some countries, is called an apprenticeship. Apprentices build their careers through structured, formal apprenticeship training. Most of their training is done on the job, balanced with classroom studies, while working for an employer who helps the apprentices learn their trade. The system of apprenticeship was developed in the later Middle Ages (14th and 15th centuries) and came to be supervised by craft guilds and town governments. A master craftsman was entitled to employ young people in his workshop as an inexpensive form of labor in exchange for providing formal training in the craft. Apprentices were usually about 14 to 21 years old, unmarried and would live with the master craftsman's family. Most apprentices aspired to becoming master craftsmen themselves upon completion of their contract (usually seven years). Upon completion of the apprenticeship, they would work as a journeyman but a significant number would never achieve the status of master craftsman or acquire their own workshop.

During the 20th century, the apprenticeship process has changed in many ways. A craftworker or tradesperson still begins as an apprentice, but the apprenticeship is carried out partly through working with a qualified journeyman and partly through an accredited trade school for a definite period of time (usually around four years), after which they are a fully qualified journeyman. Very few trades still make a distinction between a qualified tradesman, journeyman or a master. Governmental regulations, bureaucratic rules and the licensing of vocational-technical

schools formalized the details of apprenticeship programs. In 1937, the U.S. Congress passed the National Apprenticeship Act, also known as the Fitzgerald Act, which established a national advisory committee whose task was to research and draft regulations to establish minimum standards for apprenticeship programs. The Act was later amended to permit the U.S. Department of Labor to issue regulations protecting the health, safety and general welfare of apprentices, and to encourage the use of contracts in the hiring and employment of them.

### **A Place Without Craftsmen**

Where do we stand as a nation? Are our maintenance and reliability technicians, mechanics, and electricians true journeymen or better yet masters? Have we perpetuated the centuries old apprenticeship processes of passing on skills and knowledge to the younger generations?

Unfortunately not. Most small and mid-sized businesses and industries have not trained and developed the skills and knowledge of their maintenance workforce. Many have assumed that the "craft" of maintenance can be picked up along life's way. When they get in a bind, these business and industry managers typically resort to training for a short time.

I have said it before, and I will say it again: Most maintenance people in small to mid-sized plants today have not been formally trained and qualified to do the tasks we ask them to do each day at work. Sure, most maintenance people are good, in fact excellent at figuring things out. We love puzzles. We love challenges. But what about our business competitiveness today and on into the future? While I believe in structured apprenticeship training programs, I also know that many resource-constrained businesses quite frankly do not have the time or money to devote to such structured training processes. So, how do we proceed in securing the future of our highly mechanized, automated, techno-logic wired businesses and industries? We need "craftsmanship" now more than ever before!

### **21st Century Apprenticeships**

We need to establish company-based, apprenticeship-type programs to develop the skills and knowledge base required to competitively operate and maintain our infrastructure, facilities and equipment... but not the "old apprenticeship-style" programs. We can learn from the mentoring process by which early apprentices learned to master new skills and knowledge. We can recognize that not every journeyman is a master craftsman; only the best achieve that status when recognized by their peers. We can accept the fact that quality workmanship (right the first time, safe, cost effective, timely) is a result of formal, structured learning processes. Briefly, here is what **21<sup>st</sup>**

#### **Century Apprenticeships could be:**

- Formal assessment and selection processes to identify the best and the brightest apprentices, those with high prospects of success.
- Organized training-learning processes from the prerequisite basics (reading, math, writing, safety, tools...) to core skills and knowledge (pumps, motors, gearboxes, drives...) to equipment and task specifics (Press #44, Allen-Bradley PLC, Line 8...). Don't stop with the core skills and knowledge assuming that they can "figure out" the specific equipment applications.
- Apprentice learners assigned to work with the top qualified employees as their mentors for specific skill sets. Mentors trained and held accountable for effective on-job coaching skills.
- Apprentice learners formally "qualified" through progressively more and more challenging task demonstration of on-job skills and knowledge.
- Apprentice learners pay advancement linked to progressively higher and higher demonstrated qualifications (pay-for-applied skills). Employees periodically re-qualified on job-critical tasks.

### **21st Century Reliability Technicians**

Many, but not all of our maintenance mechanics of the future, must be proficient in "reliability methods." Higher-level reliability skills and knowledge is the natural progression for those who are the highly successful products of the 21st century apprenticeships. The more our reliability technicians know about equipment and the fundamentals of good maintenance, the more efficient and effective they will be. Reliability "tools" alone will not make a reliability technician. Reliability methods help us look into the future, into equipment conditions, using tools and processes to identify and correct emerging problems before they negatively impact the business.



A world without “craftsmen” will be disastrous. Today’s maintenance and reliability craftsman must look considerably different from the model that is predominating in our culture today. Our nation, its business and industry, its infrastructure will continue to be at risk if we do nothing to change the perceptions, the development and the retention of the highly skilled employees who tend to our equipment and facilities, assuring that they are reliable and cost effective. We must find new ways to tap and expand the talents in our present and future workforce, to formally develop their skills and knowledge, to maximize the proven technologies that exist today. A college education is not the only answer for successful and rewarding careers. Imagine what our future could be if we had formal mentor-based development and progression processes from high school co-op students, to work study students, to employed helpers, to apprentices, to journeymen, to masters or reliability technicians. Imagine where we would be today in the globally competitive marketplace if we had a highly trained workforce thinking and acting “reliability” versus “repairs” maximizing the proven reliability tools and methods we have today. Imagine if we revived the essence of old-world apprenticeships combined with proven skills development methods from World War II and the most modern equipment and technologies in the world. Imagine! Imagine. Then, imagine our world without “craftsmen.” Imagine...

NAME: \_\_\_\_\_ PERIOD: \_\_\_\_\_ DATE: \_\_\_\_\_

## **A Place Without Craftsmen**

1. What is the Author's purpose?
2. What are the differences between Craftsmanship and 21<sup>st</sup> Century Apprenticeships?
3. Why did the Author inform you about 21<sup>st</sup> Century Reliability Technicians?
4. If we revived the essence of old-world apprenticeships, what methods are given?
5. How would you consider life to be without "craftsmen"?

## **Part 2**

**Teacher will review background content with students: “The Industrial Revolution”**

Teacher shall provide students with content sheet and Jig-Saw the content, students will complete Q & A handout, then participate in a class discussion, whereby students provide examples of where they have seen a reduction in craftsmanship.

## **The Industrial Revolution**

American quality practices evolved in the 1800s as they were shaped by changes in predominant production methods:

- Craftsmanship
- The factory system
- The Taylor system

### **Craftsmanship**

In the early 19th century, manufacturing in the United States tended to follow the craftsmanship model used in the European countries. In this model, young boys learned a skilled trade while serving as an apprentice to a master, often for many years.

Since most craftsmen sold their goods locally, each had a tremendous personal stake in meeting customers' needs for quality. If quality needs weren't met, the craftsman ran the risk of losing customers not easily replaced. Therefore, masters maintained a form of quality control by inspecting goods before sale.

#### **Death of the Craftsman:**

With the advent of new and better machines and the introduction of water and steam power, many small shops and craftsmen persisting in the old laborious ways of doing things could no longer keep pace with the larger volume and lower cost of competing products and industries. Yet, new and better jobs were plentiful and open to those who wanted them, as well as the increased efficiencies of the new technologies which could be applied in their own endeavors. It is instructive that when unemployment was as widespread as it was in pre-industrial England, with hundreds of thousands of potential workers available who had never before earned a steady income, the problem of the factory employers was to find enough willing workers.

Jobs are always plentiful for people who are dependable, conscientious, skilled and willing to work - although the work available may not always be that preferred by the individual. Among those who had been employed in textiles and other major crafts using the older methods, an understandable sense of pride in workmanship may have reduced any desire to work in a factory. The consequence of the old laborious manual methods were a limited amount of available goods, well-made but costly.

Many such craftsmen felt that their skills, acquired over a lifetime of patient toil, should not be sacrificed to the machines, especially when in some cases, a cut in wages would have been unavoidable. Again, understandable, and many such craftsmen continued to provide for specialty markets, catering to the very wealthy who could afford the higher costs of meticulously hand-made products.

Of course, many of them became active agitators against the new technologies that was progressively offering greater and greater quantities at lower and lower prices. Admittedly (at least at first), such products were produced at a relatively lower grade of quality and workmanship - but they were produced, and made available for purchase by more people than ever before.

Likely some of the more horrific accounts of the horrors of the new Industrial Age were the self-interested accusations of some of these old-school craftsmen. As factory jobs became more available, these craftsmen could readily have obtained a shift of employment, either at the new factories or by taking advantage of the new technologies or vocations to support them - and ultimately, many of them eventually did.

Those who did not either retired, or spent their remaining days providing their expensive, high-quality, hand-made goods to a shrinking market. Even today, there are individual craftsmen who manufacture buggy whips by hand, for those who want them and who are willing to pay the higher price for them.

## **The Factory System**

The factory system, a product of the Industrial Revolution in Europe, began to divide the craftsmen's trades into specialized tasks. This forced craftsmen to become factory workers and forced shop owners to become production supervisors, and marked an initial decline in employees' sense of empowerment and autonomy in the workplace.

Quality in the factory system was ensured through the skill of laborers supplemented by audits and/or inspections. Defective products were either reworked or scrapped.

## **The Taylor System**

Late in the 19th century the United States broke further from European tradition and adopted a new management approach developed by Frederick W. Taylor. Taylor's goal was to increase productivity without increasing the number of skilled craftsmen. He achieved this by assigning factory planning to specialized engineers and by using craftsmen and supervisors, who had been displaced by the growth of factories, as inspectors and managers who executed the engineers' plans.

Taylor's approach led to remarkable rises in productivity, but it had significant drawbacks: Workers were once again stripped of their dwindling power, and the new emphasis on productivity had a negative effect on quality.

To remedy the quality decline, factory managers created inspection departments to keep defective products from reaching customers. If defective product did reach the customer, it was more common for upper managers to ask the inspector, "Why did we let this get out?" than to ask the production manager, "Why did we make it this way to begin with?"

NAME: \_\_\_\_\_ PERIOD: \_\_\_\_\_ DATE: \_\_\_\_\_

## The Industrial Revolution

- 1) What will occur if quality in our needs are not met?
  
- 2) List three things that you believe that jobs are always plentiful for?
  
- 3) How did manual labor manufacturing effect the availability of goods during this time?
  
- 4) What still goes on today, based on the content?
  
- 5) What was Taylor's main goals, and how did he achieve them?
  
- 6) What happened to defective products?
  
- 7) How many systems are there, name them and describe each in a sentence or two?

## Phase II: Tactile Development

### **PART 1:**

**Teacher will review background content with students: “History of the Rocking Chair”**

Teacher shall provide students with content sheet and Jig-Saw the content, then participate in a class discussion, whereby students provide examples of where they have seen someone using a rocking chair.

### **History of the Rocking Chair**

A **rocking chair** or **rocker** is a type of chair with two curved bands of wood (also known as rockers) attached to the bottom of the legs (one on the left two legs and one on the right two legs). The chair contacts with the floor at only two points, giving the occupant the ability to rock back and forth by shifting his/her weight or pushing lightly with his/her feet.

A rocking chair is also known as *rocker*, *easy chair*, *Boston rocker*, *swing rocker* or *platform rocker*.

Many find rocking chairs soothing because of the gentle motion. Rocking chairs are also comfortable because, when a user sits in one without rocking, the chair automatically rocks backwards until the sitter's center of gravity is met, thus granting an ergonomic benefit with the occupant kept at a very unstressed position and angle. Varieties of rockers include those mounted on a spring base (or platform) called "platform rockers" and those with swinging braces commonly known as gliders.

Though Benjamin Franklin is thought to be the inventor of the rocking chair, there is no historical evidence of this. Historians can only trace the rocking chair's origins to North America during the early 18th century. It was in 1725 that early rocking chairs first appeared in England. The production of wicker rocking chairs reached its peak in America during the middle of the 18th century. These wicker rockers, as they were popularly known, were famous for their craftsmanship and creative designs.

Michael Thonet, a German craftsman, created the first bentwood rocking chair in 1860. This design is distinguished by its graceful shape and its light weight. These rocking chairs were influenced by Greek and Roman designs as well as Renaissance and colonial era artistry. During the 1920s, however, folding rocking chairs became more popular in the US and in Europe. They were handy for outdoor activities and travel purposes. By the 1950s, rocking chairs built by Sam Maloof, a US craftsman, became famous for their durability and deluxe appearance. Maloof's rocking chairs are distinguished by their ski-shaped rockers.

## **PART 2:**

Students will view a full-size, antique Rocking Chair located in the classroom (purchased from a local furniture store. This will include; sitting in it, viewing it from all sides, photographing it and measuring it.

Students shall use 12' tape measures and rulers to measure the full-size Rocking Chair:



### **Introduction to Rulers**

Explain the history of measuring tools.

Let the students know that a foot is based on the size of a man's foot, so that when there were no measuring tools available, a man could walk toe to toe across an area to get a measurement.

A yard is based on the space between the average man's normal footsteps. Display this with the ruler and the yardstick.

Of course, the measurements may not be exact, but it gives your students a good visual concept.

As a point of interest, let them know that horses still today are measured in hands.



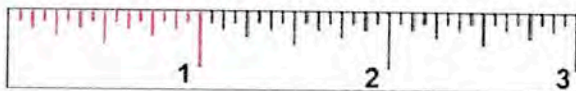


# How to Read a Ruler

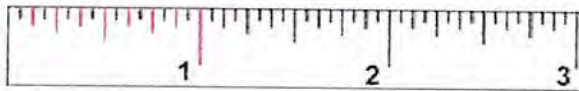
**Start with an English ruler.** There should be a total of 12 inches on the ruler. Between each inch mark, there should be 15 smaller marks.



**Learn the "1/16 of an inch" marks.** This means that 16 of these marks exist between each inch mark and 192 of them exist on the ruler as a whole.



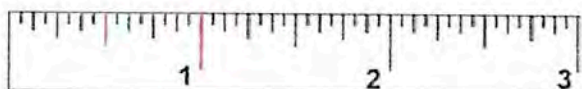
**Learn the "1/8 of an inch" marks.** In total, 96 of these marks exist on a ruler.



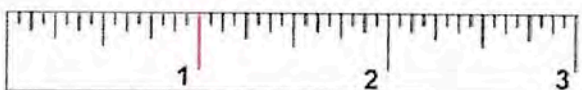
**Learn the "1/4 of an inch" marks.** In total, 48 of these marks exist on a ruler.



**Learn the "1/2 inch" marks.** In total, 24 of these marks exist on a ruler.



**Learn the "inch" marks.** A ruler is made up of 12 of these marks. These are the numbered marks.



### **Phase III: Construction**

Students will continue to work in pairs and will be provided with a scale version of the Rocking Chair. Paired students will utilize their activities and research, classroom discussion notes and their own creativity and craftsmanship to create a scaled version of the Rocking Chair. Students will use provided K'nex model building kit to construct their chairs.

**Each Pairing will be issued a supply box:**



**Each box will be filled with K'nex plastic parts:**



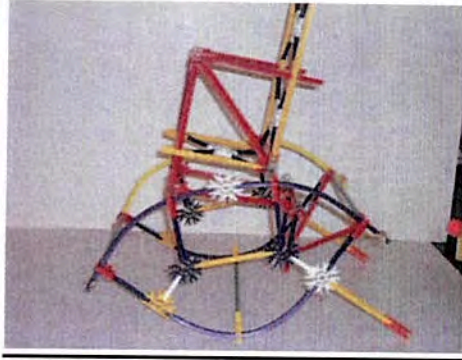
**Each Pairing will separate the parts by size, type and flexibility:**

**Teacher will demonstrate to the students how plastic parts interlock.**

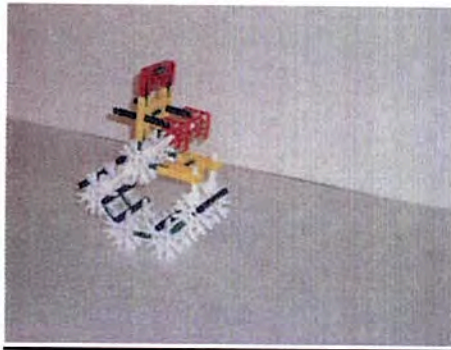
**Students will then work together to create a modern looking rocking chair:**

**Students results:**

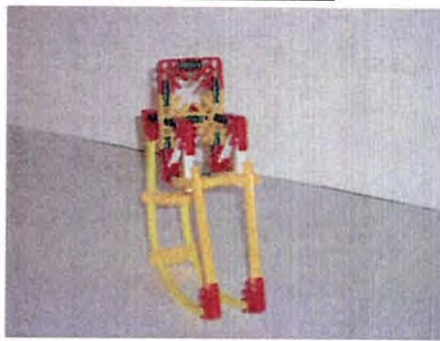
**First Place:**



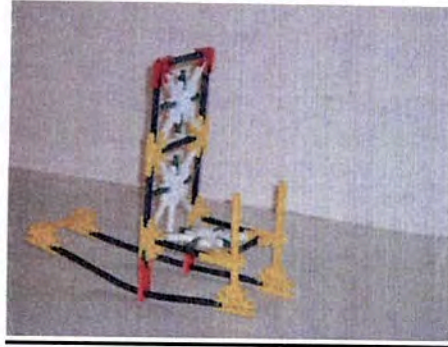
**Second Place:**



**Third Place:**



**Fourth Place:**



**Fifth Place:**



# Lesson Plan: Rocking Chair Blues

**Time:** Two Weeks

**Topic:** Craftsmanship

**Materials:** Background Content – Handouts – K'nex - Dictionary



## **Content Standards:**

Students will accomplish specific tasks over a two-week period with a culminating classroom presentation. Students will learn to be creative, build their craftsmanship skills, calculate dimensions and mold a sense of pride in their individual work. The students will utilize their innate creativity to construct a modern Rocking Chair to scale, which can successfully rock back and forth using K'nex model building kit. The students will develop their individual craftsmanship by creating an original design a modern Rocking Chair which demonstrates pride in workmanship.

## **Purpose Setting:**

The teacher has selected two excerpts of high order content: "A Place Without Craftsman" and "The Industrial Revolution." Both these items touch on related concepts used in class and culminating project. Students will be provided with the two articles to read (during different times.) The instructor will provide an overview of the article, read the first few paragraphs, then have the student jigsaw the remaining content. Then students will continue reading and complete provided handout.

## **Essential Question:**

Have we as a society lost the true meaning of craftsmanship in our product production?

## **Assessment:**

Performance tasks: The students will complete the handouts and participate in classroom discussions



## **Phase I: Background**

**Part 1** - Teacher will review background content with students: “A Place Without Craftsmen”

Teacher shall provide students with content sheet and Jig-Saw the content, students will complete Q & A handout, then participate in a class discussion, whereby students provide examples of where they have seen a reduction in craftsmanship.

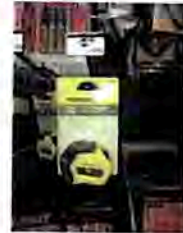
**Part 2** - Teacher will review background content with students: “The Industrial Revolution” Teacher shall provide students with content sheet and Jig-Saw the content, students will complete Q & A handout, then participate in a class discussion, whereby students provide examples of where they have seen a reduction in craftsmanship.

## **Phase II: Tactile Development**

**PART 1** - Teacher will review background content with students: “History of the Rocking Chair” Teacher shall provide students with content sheet and Jig-Saw the content, then participate in a class discussion, whereby students provide examples of where they have seen someone using a rocking chair.

**PART 2** - Students will view a full-size, antique Rocking Chair located in the classroom (purchased from a local furniture store). This will include; sitting in it, viewing it from all sides, photographing it and measuring it.

Students shall use 12' tape measures and rulers to measure the full size Rocking Chair:



### **Introduction to Rulers**

Explain the history of measuring tools. Let the students know that a foot is based on the size of a man's foot, so that when there were no measuring tools available, a man could walk toe to toe across an area to get a measurement. A yard is based on the space between the average man's normal footsteps. Display this with the ruler and the yardstick. Of course, the measurements may not be exact, but it gives your students a good visual concept. As a point of interest, let them know that horses still today are measured in hands.

## **Phase III: Construction**

Students will continue to work in pairs and will be provided with a scale version of the Rocking Chair. Paired students will utilize their activities and research, classroom discussion notes and their own creativity and craftsmanship to create a scaled version of the Rocking Chair. Students will use provided K'nex model building kit to construct their chairs.

Each Pairing will be issued a supply box.

Each box will be filled with K'nex plastic parts.

Each Pairing will separate the parts by size, type and flexibility.

Teacher will demonstrate to the students how plastic parts interlock.

Student will then work together to create a modern looking rocking chair.



## **Evaluation and Student Assessments:**

Students will be evaluated over the course of this project on their ability to complete the two handouts and their participation in the classroom discussions. In addition, students will be assessed on their ability to work in pairs and the results of their final rocking chair construction. Due to varying levels of students in class, students will be judged on their ability to follow directions and not the physical result of their item created. As displayed in the project five rocking chairs were selected as the best, meeting the criteria.

All students received certificates for their participation and a reward snack. The teacher kept the five rocking chairs photographed as samples for future project implementation.

**All students completed a reflection activity, see enclosed handout.**

# Project Rubric

<b>CATEGORY</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Contributions</b>	Routinely provides useful ideas when participating in the group and in classroom discussion. A definite leader who contributes a lot of effort.	Usually provides useful ideas when participating in the group and in classroom discussion. A strong group member who tries hard!	Sometimes provides useful ideas when participating in the group and in classroom discussion. A satisfactory group member who does what is required.	Rarely provides useful ideas when participating in the group and in classroom discussion. May refuse to participate.
<b>Quality of Work</b>	Provides work of the highest quality.	Provides high quality work.	Provides work that occasionally needs to be checked/redone by other group members to ensure quality.	Provides work that usually needs to be checked/redone by others to ensure quality.
<b>Time-management</b>	Routinely uses time well throughout the project to ensure things get done on time. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Usually uses time well throughout the project, but may have procrastinated on one thing. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Tends to procrastinate, but always gets things done by the deadlines. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.	Rarely gets things done by the deadlines AND group has to adjust deadlines or work responsibilities because of this person's inadequate time management.
<b>Problem-solving</b>	Actively looks for and suggests solutions to problems.	Refines solutions suggested by others.	Does not suggest or refine solutions, but is willing to try out solutions suggested by others.	Does not try to solve problems or help others solve problems. Lets others do the work.
<b>Attitude</b>	Never is publicly critical of the project or the work of others. Always has a positive attitude about the task(s).	Rarely is publicly critical of the project or the work of others. Often has a positive attitude about the task(s).	Occasionally is publicly critical of the project or the work of other members of the group. Usually has a positive attitude about the task(s).	Often is publicly critical of the project or the work of other members of the group. Often has a negative attitude about the task(s).
<b>Focus on the task</b>	Consistently stays focused on the task and what needs to be done. Very self-directed.	Focuses on the task and what needs to be done most of the time. Other group members can count on this person.	Focuses on the task and what needs to be done some of the time. Other group members must sometimes nag, prod and remind to keep this person on-task.	Rarely focuses on the task and what needs to be done. Let others do the work.
<b>Preparedness</b>	Brings needed materials to class and is always ready to work.	Almost always brings needed materials to class and is ready to work.	Almost always brings needed materials but sometimes needs to settle down and get to work	Often forgets needed materials or is rarely ready to get to work.



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

## Reflection Activity

Please answer the below questions,

*Note: One word or one sentence answers will not be accepted!!*

1. What did you find to be **most troubling** and difficult with your project?
2. What did you find to be most **beneficial** with your project?
3. Did you make any **major mistakes** or bad decisions? If so, what were they?
4. What are the two most **important lessons** you have learned from this project?
5. What other comments or advice do you have which can assist the **next group of students** who will be accomplishing this project?

**BUDGET:**

**HOME DEPOT:**

Rocking Chair \$105

Tape Measures \$30

Plastic Bins \$40

**OFFICE DEPOT:**

Toner, Paper and File Folders \$49

Classroom Supplies \$25

Plastic Rulers \$20

**PUBLIX:**

Snack Rewards \$50

**TOYS R US:**

K'Nex Construction Parts \$61