

# Theme Eight: Technology



## Theme in Life

We all use tools, materials, and processes every day.

## Theme in Art

Art changes as technology changes.

## Introduction to the Theme

Some have said that the thing that makes people different from other animals is our ability to make and use tools. Technology means tools, materials, and the processes in which they are used. Early people learned to use tools and natural materials to make fire, to hunt, and to make shelters. As people learned how to work with metals they developed more and more complex technologies. As technology developed people were able to make plows, bridges, ships, carriages, printing presses, and many other useful devices. In the last two hundred years inventors have developed the camera, train, telephone, automobile, airplane, radio, synthetic plastics, television, nuclear power, and many other technologies which make modern living possible. The computer is a machine for thousands of uses and computer technology is transforming life today.

Early people made artworks with materials found in nature, such as stone, bark, sand, leather, wood, or shells. Some cultures developed other materials to use in art making, such as fresco pigments, oil paint, mosaic tiles, bronze, beads, and cement. Art makers have used many kinds of tools through time across the globe, including brushes, knives, chisels, needles, looms, glass cutters, and all the many tools used to make buildings, such as shovels, ladders, hammers, levers, and pulleys.

Some art makers work with new “high tech” processes using complex scientific inventions only available in recent years, such as digital cameras, computers, and lasers. Other art makers continue to work with traditional “lower tech” processes using materials and tools that have been around for centuries or even millennia.

## Key Inquiry Questions

### Questions About Artworks

LINE:

What lines do I see in the artwork?

TECHNICAL FEATURES:

What tools, materials, and processes did the art maker use?

### Question about Artworks in Context:

STYLE:

How does the artwork look like other artworks?


## Key Cultures

18<sup>th</sup> and 19<sup>th</sup> Century Japanese



Late 19<sup>th</sup> Century French





# Ellorna's Puzzling Case




Even when she was little, Ellorna loved a puzzle. The sailors at the docks showed her complex rope knots. She studied each knot and made a little one from string. When she helped her mother bake a cake, Ellorna would ask her to wait, while she tried to guess the next ingredient or the next step in the process. Broken toys were just another kind of puzzle to Ellorna. Her friends brought her their dolls with missing legs and their smashed toy carriages. She figured out how to put them back in working order and made them look like new.




Ellorna's father worked for years in the fields of a great landowner saving all the money he could. He met Ellorna's mother as she sold flowers at the city gates. When he had enough money to buy a cottage and a little land of his own, he and the flower seller were married. The next year, Ellorna was born. Her father still went away each day to work in the fields of the great landowner. Her mother was very busy taking care of the new baby, keeping house, and growing fruits and vegetables on their little plot of land. She loved living in the country. She managed to find time to grow flowers and to keep a flock of birds. Ellorna could hardly remember a day when her mother did not bring in several bouquets to brighten the rooms of the cottage.





Ellorna's father was much older than her mother. The heavy field work had become exhausting, especially in the hot summer sun. One sad day, while he worked to bring in the fall harvest, his heart gave out and he died, leaving Ellorna and her mother to fend for themselves.




As soon as Ellorna was old enough, she carried a basket of flowers to the city gates and sold them to travelers as they came and went. Sometimes she carried eggs in her basket to sell at the market. Other times she carried fresh fruits and vegetables to her neighbors in the country and around the many neighborhoods of the city. Flowers, eggs, and fresh produce were all delicate to carry: flowers could be crushed; eggs, broken; and produce, bruised. Ellorna had to learn how to pack and carry each in a special way so that her wares were not damaged before she could find a buyer.



Ellorna tried to vary her route so that she could watch different people at work throughout the city and countryside. As the years went by, Ellorna built two collections: a collection of discarded tools and materials of all sorts, which she stored in a box under her bed; and a collection of knowledge and skills about how to make things, which she stored in her hands and in her head. After she sold her wares she liked to stand and observe, noticing the materials and tools each worker used, watching how the workers used their tools, and figuring out the sequence of steps each worker went through to complete a task. She watched sail makers, embroiderers, carpenters, potters, basket makers, cooks, wheelwrights, metal smiths, seamstresses, bookbinders, and harness makers.



One day, a seamstress showed Ellorna her new set of needles and gave Ellorna her old set. The sailmakers were pleased when Ellorna picked up scraps of canvas to take home in her market basket. Over the years, workers throughout the city and countryside came to know her. Most looked up to smile as she eased quietly nearer to watch them at their work. A few took the time to explain what they were doing, to demonstrate a new tool, or to point out qualities that made some materials better than others. If she had time, Ellorna was always willing to help. She would run to fetch a cup of sugar, sweep away sawdust, hold a piece in place while glue dried, help restring a loom, or return tools to their storage places.



As she grew older, Ellorna was strong enough to carry a heavy load of items to sell, but she could never figure out how to pack different items in one basket without damaging any as she walked through the crowded city streets. What kind of case did she need if she wanted to carry her various wares safely together at one time? She tried attaching leather straps to a wooden box, which she had rigged with dividers to protect different items, but the box was too heavy to carry around when it was filled. Next she tried putting a covered basket of eggs in the bottom of a large sack. She made small drawstring bags to hold produce, placing them carefully around the egg basket, and laying flowers on top, but the items shifted around in the sack as she walked. No matter how she packed the sack, something was always damaged before she could sell all her wares.

Ellorna needed to make a whole new carrying case. It had to be rigid enough to protect her delicate wares, but light enough to carry for long periods of time. Next time she went to the city, Ellorna watched the palace builders setting up a scaffolding upon which to stand as they repaired the high walls and towers. She visited the royal seamstresses as they constructed complex billowing gowns for the ladies of the court. Finally, she went to the docks to watch the sailors as they set sail from the harbor. She studied how they used ropes, wooden masts, and beams to brace their sails.

Each night, Ellorna made another sketch for her new case. During the days, she came home through the meadows bringing back different grasses. She experimented weaving small baskets to see which grasses were flexible enough to form into various shapes and sizes, and at the same time strong enough not to require extra layers for support. She planned and constructed a set of lidded baskets. She made the baskets so that different ones could be arranged together in a compact space and so that each could hold and protect a different shaped item.

The case in which to pack the interlocking baskets was the most difficult of all. Finally it was finished, a canvas case held rigid with bamboo. Cords could be fastened to loops sewn inside the case to divide the space. Ellorna could make different arrangements of her new lidded baskets held in place by the dividing cords inside the carrying case. For the next few days, Ellorna tried carrying different combinations of wares in her new case. She learned that a somewhat narrower and longer case would hold more. She also fashioned a slender hooked tool that she could use to ease the baskets into the case and to lift lids without disturbing the neighboring baskets.

When, at last, Ellorna built her new case and walked with it through the city, people came to her, not just to buy her wares, but to admire her carrying case. People began to ask her to make cases for them. One lady wanted a small case with compartments to hold her jewelry. Another woman wanted a case and a flexible carrier so that she could hold her baby as well as other things on her hip as she worked in her garden. Eventually, Ellorna and her mother arranged to have a shop built onto the back of their cottage where Ellorna could work to fill her orders. Even though some people wanted carrying cases like ones she had already made, Ellorna enjoyed the new challenges most of all. She enjoyed figuring out how to construct a new kind of case for some special function, or from some new material, or with a new construction method.

Times had been hard for Ellorna and her mother when Ellorna's father died. Because of Ellorna's curiosity and inventiveness, she and her mother could now look forward to a bright future. Ellorna was older now, but she still loved puzzles.



# Activities

## Unit Orientation



Introduce students to the Theme Title, the Theme in Life, the Theme in Art, and the Key Inquiry Questions to help focus their attention as you (or they) read the story.

## Story



### Present the Story:

- Read or ask students to read *Ellorna's Puzzling Case*.

## Discussion on Theme and Key Questions



### Discussion of the Story's Theme:

Discuss how the story relates to the theme.

- What tools did Ellorna learn to use? What tool did she invent?
- What materials did Ellorna use to make carrying cases?
- What construction processes did Ellorna combine to make carrying cases?

### Students' Experience with the Theme:

Help students identify how the theme relates to their own lives.

- Choose one of the following areas and list tools, materials, and processes used by people working in that area: office workers, restaurant workers, farmers, carpenters, medical workers, gardeners, clothing manufacturers, scientists, etc.
- How many art tools can you list?
- How many art materials can you list?
- How many art making processes can you list?

### Inquiry into the Story:

Use the key questions to further analyze the story.

- What materials did Ellorna use that would look like lines in her carrying case (grasses, bamboo, and cords)?
- What different kinds of lines do you think could be made with each of these materials?
- Imagine that you are a stranger walking around the city. Again and again you see people with fascinating carrying cases the likes of which you've never seen before. Though no two are alike, several qualities appear again and again. You begin to recognize Ellorna's style. Next imagine that you are at a market place with many items for sale including boxes, baskets, trunks, purses, and other carrying cases. You want to purchase a carrying case made by Ellorna. What will you look for?

### Inquiry into Students' Experience:

Use the key questions to help students make connections to their own experiences.

- Find edges in your classroom that can be seen as lines.
- Describe different kinds of lines you see in the classroom (curved, angular, jagged, dotted, etc.).
- We know that very long thin art materials (such as thread, cord, reeds, or yarn) look like lines. You can also make lines with marking tools. List as many mark-making tools as you can.
- We can discover that a group of things are in the same style, even though no two of them are exactly alike and even though there may be no one quality they all share. Many things can be grouped by style, for example houses, shoes, clothing, food, hairdos, music, dance, and cars. Name characteristics you expect to find in one of these styles (cowboy boots, muscle cars, rap music, marching band music, Italian food, Victorian houses, or ballroom dancing).

## Transfer to Diverse Cultures



The following instructions are written for students who are able to work independently. If you teach younger students, the instructions offer helpful guidelines as you gather and present information in order to optimize transfer potential for your students. Depending on the grade level of your students and their access to appropriate library and Internet sources, you can choose to build transfer across cultures either 1) through student investigation or 2) through your own investigations and presentations to students.

### Inquiry about Artworks:

- Assign a team of students to locate reproductions of French Impressionist paintings focusing on lines or mark-making. Ask them to note the types of subject matter typically selected by Impressionists and their common color choices. Have them display the reproductions for their classmates and describe the French Impressionist style of painting. Assign other teams to similarly investigate eighteenth and nineteenth century Japanese woodcuts.

### Inquiry about Artworks in Context:

- Assign a team of students to research inventions of the last half-century of the nineteenth century, including paint in tubes, and new chemical-based (not mineral-based) pigments. Assign other teams to similarly investigate the printing processes, which made multicolor and gradual color changes possible in Japanese woodcuts.

## Transfer to Studio




Review the unit themes and key questions to help students transfer what they have learned to ideas for their own art making.

### Thematic artwork:

- Challenge students to relate the theme to their own experience or an imaginary experience to develop an idea for their own artwork. For example, ask students to investigate an unfamiliar art making process. Assign them





to small groups and ask students to experiment with tools, materials, and processes to make as many visual qualities as they can. Ask them to work with each tool and each material separately and then experiment with combinations. Finally, have them make an artwork that shows off the qualities they have discovered.

Story Illustration:

- Since *Ellorna's Puzzling Case* is not illustrated, you might consider asking students to use their imaginations to make their own illustrations, focusing on Ellorna's case, Ellorna and her mother's modest country home and garden, or Ellorna at the market.

Exhibition:

- Display student artwork with Unit Information (Theme Title, Theme in Life, Theme in Art, and Key Questions), sample student reports, and reproductions of artworks from diverse cultures. If your students make story illustrations, display a copy of *Ellorna's Puzzling Case*.

## Interdisciplinary Transfer



Engineering:

- Building and bridge construction, water systems, and aeronautical inventions

Science:

- The experimental method; control and manipulation of variables

Mathematics:

- Linear equations

Economics:

- Marketing; fashion design; selling new styles

Language Arts:

- Literary styles (Shakespearean, Romantic, etc.)

The Arts:

- Style in music (Medieval, Renaissance, Baroque, Romantic, Modern, Atonal, etc.); Style in film, theater, dance

History:

- The impact of inventions on society (printing press, steam engine, cotton gin, automobile, electricity, radio, radar, TV, the Internet)

Geography:

- Sources of raw materials, processing locations, and ultimate consumption (oil, food stuffs, diamonds, lumber, etc.)