Finding Value in the Renaissance

Class: *Math*
Theme(s): *Arts and Architecture*

BACKGROUND

Artists earned a living during the Renaissance by receiving commissions for works of art. Whether working as sculptors, painters, architects or weavers, most artists did not make art in the Renaissance unless a patron ordered a work of art made and was willing to pay for it. This is very different from artists involved in the current art world. Today, many artists make art without knowing if anyone will be interested in buying it, place it in galleries and wait for a buyer to come along.

The amount of money a Renaissance artist received for making a work of art varied widely. An artist of great reputation could expect to receive more money for a commission than a young artist just starting out. The materials that a patron ordered also determined the price of a work of art. For example, a payment for a stone statue might see the artist through a year of living expenses, while the same statue in bronze would cost ten times that amount. Casting a bronze statue took considerably more technology than carving stone, and the ability to create bronze sculpture was considered a modern triumph during the Renaissance. While a statue of a saint carved from stone would look very similar to a statue of the same saint by the same artist cast in bronze, bronze was the more impressive medium, and many patrons were willing to pay for it.

Lorenzo Lotto, who painted this picture in 1515, signed a contract in 1513 to create an altarpiece for the largest amount paid to an artist in Venice, 500 ducats (Venetian dollars)

Lorenzo Lotto
Saint Jerome Penitent
1515
Oil on panel

ZOOM IN

Artists didn't always receive payment in coins. Records left behind by both artists and patrons show that some Renaissance artists received payments of wheat, wine and cloth. If travel was required, a patron might provide an artist with a place to live while he or she worked on a commission.

An artist was often required to pay other crafts people from the payments collected for a work of art. For example, an altarpiece had to be constructed by a carpenter and a wood carver might decorate the framing. If gold leaf was to be applied, it was common for a gilder to do that work. An artist also might be expected to purchase certain kinds of colors for a painting. Ultramarine blue was very rare and expensive but many patrons insisted on it since it was the only blue considered appropriate for the robes of Mary, the mother of Jesus.

Of course the value of an item cannot always be summed up by how much the item costs. If your family has a pet -- a dog or cat or goldfish -- it probably didn't cost as much as other items your family owns, like a car or television. But in an emergency, like a fire, your family would almost certainly try to save the family pet before they thought of the car or television. A car or television may cost more but they are easier to replace than a family pet.

Works of art created during the Renaissance are expensive because of their rarity and their great contribution to the history of art. We also highly value the art of the Renaissance today because it represents a period in European history that contributed so much to the modern world we live in.

FINDING VALUE IN THE RENAISSANCE: BACKGROUND (continued)

RESOURCES

Kemp, Martin. *Behind the Picture: Art and Evidence in the Italian Renaissance*, New Haven: Yale University Press. 1997.

FINDING VALUE IN THE RENAISSANCE (continued)

CLASSROOM TIME
One 40 minute period

OBJECTIVES
Students will:
- Solve word problems representing life and art in the Renaissance, using multiple strategies.
- Solve problems with whole numbers, decimals, fractions, percents and ratios.
- Create and extrapolate information from a multiple-bar graph.

PENNSYLVANIA ACADEMIC STANDARDS

Arts and Humanities
9.4.8 C. Describe how the attributes of the audience's environment influence aesthetic responses.

9.2.8 A. Explain the historical, cultural and social context of an individual work in the arts.

Mathematics
2.2.8 B. Add, subtract, multiply and divide different kinds and forms of rational numbers including integers, decimal fractions, percents, and proper and improper fractions.

2.3.8 A. Develop formulas and procedures for determining measurements (e.g. area, volume, distance).

2.3.8 F. Use scale measurements to interpret maps or drawings.

MATERIALS
- The "Background" section of this lesson, reproduced as a student handout.
- Calculators
- Pencils

MATH LESSON

1. Setting the Stage
(Note: The background section of this lesson might serve as a handout to help students in this activity.)

Discuss the history of modern mathematics to students:
Fibonacci was a medieval mathematician (born around 1170 and died around 1250), who studied Indian and Arabian mathematical systems. He introduced Europe to the Arabic symbols 1, 2, 3, 4, 5, 6, 7, 8, 9 with, most importantly, a symbol for zero 0. Before Fibonacci, Europeans used Roman numerals to calculate figures. With Roman numbers, 2003 could be written as MMIII or, just as clearly, it could be written as IIIMM -- the order does not matter since the values of the letters are added to make the number. In the system Fibonacci brought to Europe, the *order* does matter since 23 is quite a different number than 32. Also, since the *position* of each digit is important, there may be a zero needed to get the digits into their correct places (2003 for example).

2. The Renaissance Connection
All of the story problems that follow are taken from historic documents of Renaissance Italy, and represent real-life amounts, currencies and formulas. As students work the problems, they will learn more about everyday life for artists in the Renaissance.

1. Alberto the Painter received 250 ducats (gold coins used as currency in Venice) to create a painting for a wealthy family in Venice. Because the family expects the painting to be delivered ready to hang, Alberto will spend 20% of his payment to have a frame made for the painting. After purchasing the frame, how many

FINDING VALUE IN THE RENAISSANCE: MATH LESSON (continued)

ducats would Alberto have left?

2. Cosimo has completed a large oil painting but before he delivers it to the patron who ordered it, he must apply a varnish to the painting. The formula he uses to make the varnish is 25% oil copal varnish, 25% poppy oil, and 50% spike oil. If he has 12 ounces of poppy oil, how much spike oil will he need to complete the formula? How much oil copal will he need?

3. Between the years 1434 and 1471, the Medici family spent 663,755 florins (coins used as currency in Florence) on buildings, charities and taxes. If the Medici family spent 340,576 on buildings and 189,450 on charities, how much did they spend on taxes?

4. Antonia painted a portrait of a duke standing next to a bookcase. In life, the duke stood six feet tall. When the painting was completed the image of the duke measured 36 inches and the bookcase measured 48 inches. What was the actual height of the bookcase?

5. Lorenzo was commissioned to create an altarpiece for a church in his town. The altarpiece is a triptych; it has a large panel in the center and two smaller panels on either side. The central panel measures 3 feet tall by 2.5 feet wide. The two smaller panels each measure 3 feet tall by 1.5 feet wide. What is the total area of the altarpiece?

6. Raphael bought a palazzo for 1365 florins. The palazzo has five shops on the lower level. Raphael rented out each of the five shops for 3 florins a month. How many years would it take for Raphael to earn the purchase price of the palazzo?

7. In 1470, the standard rate of payment for a painter of frescos in Venice was 10 bolognini (currency used in Renaissance Italy) per foot. Ten bolognini is equal to 1/10 of a ducat. How many ducats would a painter earn for painting a fresco 10 feet long?

8. Inventories of the wealthy patron family of de Medicis recorded art, weapons, clothes, and antiques. Values of each item were recorded in florins (currency of Renaissance Florence). According to the chart, which item was the most valuable? Which was the least valuable? What is the average value of the items on the chart, rounded to the nearest whole number?