

MATH: Currency Conversion

Students will

- Use mathematical operation to solve real world situations.
- Utilize charts and analyze data to answer questions.
- Use conversions to express mathematical expressions.

Copies for Each Student: “Our Composer, Vincenzo Bellini”, Activity Worksheet

For the Teacher: “Our Composer, Vincenzo Bellini”, **Answer Key**

Getting Ready:

Decide which section(s) of the lesson you wish your group to complete.

Gather materials:

- Notebook paper
- Pencils
- Calculators (if allowed)

Instructional Time: One 45-minute class period

Introduction

Have the students read “Our Composer, Vincenzo Bellini”. After reading, have the students discuss Bellini’s life. Be sure the students consider what it was like being born into a family of musicians and growing up to work in the music field. It is important to stress to the students that being commissioned to compose operas is a form of work or a profession (a.k.a. “a job”) for which one should receive payment.

Guided Practice/Independent Practice

Tell Students: “During Bellini’s lifetime, the currency used in Italy was the “scudo” (plural “scudi”). Therefore, Bellini would have earned his living (or at least a portion of it) as a professional composer and would have been paid in scudi. However, in the 21st century, the form of currency used in Italy is the euro. If Bellini were composing in Italy today, that is the currency with which he would be paid as a professional composer and musician.”

Next, have students discuss the types of professions in which they are interested in working. Some examples may include teaching, music, visual arts, construction, the medical field, and countless others. Have students continue the discussion by considering the types of living expenses they would have and the salaries earned for their professions.

Present the Activity Worksheet to the students. Read through the instructions with the students and answer any questions they may have. In Part I, students will be working on a budget chart using the conversion information (exchange rate)* and the current average income of a professional living in Italy in 2016: 44,000 euro per year. In Part II, they will answer the questions using the information from the budget chart.

Depending on your grade level, the ability of your students, and time constraints, you may choose to have students work as a whole class, in small groups, with a partner, or individually.

Please note that the conversion information given may have changed since the writing of this lesson due to the fluctuating nature of exchange rates.

For Further Study

The teacher may want to have students further research Vincenzo Bellini or other related topics online or in their school library.

Evaluation

- Were the students able to convert the US & Italian currencies in order to complete the Activity Worksheet chart?
- Were the students able to complete the Activity Worksheet by answering the questions in Part II with 80% accuracy?

TEKS – Mathematics

6th Grade

111.26 b. 1 Mathematical process standards.

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

111.26 b. 2 Number and operations.

The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to: (A) classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers; (B) identify a number, its opposite, and its absolute value; (C) locate, compare, and order integers and rational numbers using a number line; (D) order a set of rational numbers arising from mathematical and real-world contexts.

111.26 b. 3 Number and operations.

The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. The student is expected to: (A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values; (C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms; (D) add, subtract, multiply, and divide integers fluently; and (E) multiply and divide positive rational numbers fluently.

111.26 b. 4 Proportionality.

The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to: (D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients; (E) represent ratios and percents with concrete models, fractions, and decimals; (F) represent benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers; (G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and (H) convert units within a measurement system, including the use of proportions and unit rates.

111.26 b. 5 Proportionality.

The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to: (A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions; (B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and (C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.

111.26 b. 6 Expressions, equations, and relationships.

The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to: (A) identify independent and dependent quantities from tables and graphs; (B) write an equation that represents the relationship between independent and dependent quantities from a table; and

111.26 b. 7 Expressions, equations, and relationships.

The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to: (B) distinguish between expressions and equations verbally, numerically, and algebraically; (C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations.

7th Grade

111.27 b. 1 Mathematical process standards.

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

111.27 b. 2 Number and operations.

The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers.

111.27 b. 3 Number and operations.

The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. The student is expected to: (A) add, subtract, multiply, and divide rational numbers fluently; and (B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.

111.27 b. 4 Proportionality.

The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to: (B) calculate unit rates from rates in mathematical and real-world problems; (D) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; and (E) convert between measurement systems, including the use of proportions and the use of unit rates.

111.27 b. 6 Proportionality.

The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. The student is expected to: (G) solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents;

8th Grade

111.28 b. 1 Mathematical process standards.

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

111.28 b. 2 Number and operations.

The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to: (A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers; (D) order a set of real numbers arising from mathematical and real-world contexts.

Algebra I

111.39 c. 1 Mathematical process standards.

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Algebra II

111.40 c. 1 Mathematical process standards.

The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: (A) apply mathematics to problems arising in everyday life, society, and the workplace; (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution; (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems; (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate; (E) create and use representations to organize, record, and communicate mathematical ideas; (F) analyze mathematical relationships to connect and communicate mathematical ideas; and (G) display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Gardner's Intelligences: Linguistic, Logical-Mathematical

Bloom's Taxonomy: Understand, Analyze, Apply, Evaluate

Sources:

<http://www.xe.com/currencyconverter/convert/?From=EUR&To=USD>

<http://www.emolument.com/salary-reports/locations/milan/7283>

Norma

Our Composer, Vincenzo Bellini

Vincenzo Bellini, (born November 3, 1801, Catania, Sicily [Italy]—died September 23, 1835, Puteaux, near Paris, France), Italian operatic composer with a gift for creating vocal melody at once pure in style and sensuous in expression. His influence is reflected not only in later operatic compositions, including the early works of Richard Wagner, but also in the instrumental music of Chopin and Liszt.

Born into a family of musicians, Bellini produced his first works while still a student at the Naples Conservatory, where he had been sent by his father, an organist. Bellini gained the patronage of an important impresario, who commissioned *Bianca e Fernando* for the Naples opera. The success of this early work led to other commissions. *Il pirata* (1827), written for La Scala, the opera house at Milan, earned him an international reputation. Bellini was fortunate in having as librettist the best Italian theatre poet of the day, Felice Romani, with whom he collaborated in his next six operas. The most important of these were *I Capuleti e i Montecchi* (1830), based on Shakespeare's *Romeo and Juliet*; *La sonnambula* (1831; *The Sleepwalker*); and *Norma* (1831). *La sonnambula*, an opera semiseria (serious but with a happy ending), became very popular, even in England, where an English version appeared. Bellini's masterpiece, *Norma*, a tragedy set in ancient Gaul, achieved lasting success despite an initial failure.

Bellini lived briefly in London in 1833 and then went to Paris. There, composer Gioachino Rossini's influence secured for him a commission to write an opera for the Théâtre-Italien. The result was *I puritani* (1835), the last of Bellini's nine operas; although handicapped by an inept libretto, it is in many ways his most ambitious and beautiful work.

Bellini's fame was closely bound up with the bel canto style of the great singers of his day. He was not a reformer; his ideals were those of Haydn and Mozart, and he strove for clarity, elegance of form and melody, and a close union of words and music. Yet with perseverance, he corrected some of the grosser abuses of opera then current. While he subordinated the orchestra accompaniment to the singers and placed upon their voices the responsibility for dramatic expression, his harmony was more enterprising than that of his contemporary, Gaetano Donizetti, and his handling of the orchestra in introductions and interludes was far from perfunctory. It is, however, for the individual charm and elegance of his luminous vocal melody that Bellini is remembered.

Name: _____

Date: _____

Norma
Activity Worksheet

Part I

Instructions: Review the **Budget Analysis Chart** below and convert the income and expense items from Euros to US dollars. After completing the analysis chart, answer the questions in Part II using the information in the chart.

The current average income for professionals in Italy is €44,000. You will use the conversion information below to complete the budget analysis chart to understand how earned income and expenses in the United States are converted to the Euro in Italy. All calculations given are per month and should be rounded to the nearest hundredth.

Budget Analysis Chart

Conversion Information (exchange rate): \$1.00 USD = €0.89 euro

	January		February	
	US Dollars	Euro	US Dollars	Euro
<u>Income</u>				
Salary per Month (after taxes)	\$3666.67		\$3666.67	
Investment Incomes	\$378.91		\$426.25	
<u>Fixed Expenses</u>				
Housing	\$1025.02		\$1025.02	
Groceries	\$260.00		\$189.75	
Vehicle Fuel	\$123.80		\$147.05	
Health Insurance	\$239.67		\$239.67	
Gas bill (house)	\$49.56		\$51.50	
Electricity Bill	\$109.64		\$91.20	
Cell Phone	\$98.12		\$98.12	
<u>Miscellaneous</u>				
Toiletry Needs	\$179.00		\$212.54	
Entertainment	\$394.52		\$156.78	
<u>Saving (Per Month)</u>				
Retirement	\$150.00		\$150.00	
Emergency	\$75.00		\$100.00	
Other	\$129.49		\$156.00	
AMOUNT REMAINING	\$1211.76		\$1475.29	

Part II

Norma

Activity Worksheet

Instructions: Please answer the following questions in Euros using your answers from the **Budget Analysis Chart** in Part I.

1. How much did you spend on toiletry needs for both months?

2. How much money were you able to put in your emergency account in January?

3. How much was spent on fixed expenses in February?

4. How much were you able to put in your retirement account after two months?

5. How much more was spent on groceries and gasoline in January than in February?

6. Using the formula below, how much money did you have left from both months?
(*Income – Fixed Expenses – Miscellaneous – Saving = ?*)

7. What would you consider using the money in the “other” account for and why?

Budget Analysis Chart

Conversion Information (exchange rate): \$1.00 USD = €0.89 euro

<u>Income</u>	January		February	
	US Dollars	Euro	US Dollars	Euro
Salary per Month (after taxes)	\$3666.67	3,263.34	\$3666.67	3,263.34
Investment Income	\$378.91	337.23	\$426.25	379.36
Fixed Expenses				
Housing	\$1025.02	912.27	\$1025.02	912.27
Groceries	\$260.00	231.40	\$189.75	168.88
Vehicle Fuel	\$123.80	110.18	\$147.05	130.87
Health Insurance	\$239.67	213.31	\$239.67	213.31
Gas bill (house)	\$49.56	44.11	\$51.50	45.84
Electricity Bill	\$109.64	97.58	\$91.20	81.17
Cell Phone	\$98.12	87.33	\$98.12	87.33
Miscellaneous Expenses				
Toiletry Needs	\$179.00	159.31	\$212.54	189.16
Entertainment	\$394.52	351.12	\$156.78	139.53
Savings (Per Month)				
Retirement	\$150.00	133.50	\$150.00	133.50
Emergency	\$75.00	66.75	\$100.00	89.00
Other	\$129.49	115.25	\$156.00	138.84
AMOUNT REMAINING	\$1211.76	1,078.47	\$1475.29	1,313.01

- How much did you spend on toiletry needs for both months?
€348.47
- How much money were you able to put in your emergency account in January?
€66.75
- How much was spent on fixed expenses in February?
€1,639.67
- How much were you able to put in your retirement account after two months?
€267.00
- How much more was spent on groceries and gasoline in January than in February?
€60.80
- Using the formula below, how much money did you have left?
(Income – Fixed Expenses – Miscellaneous – Saving =?)
€2,391.47
- What would you consider using the money in the “other” account for and why?
Answers will vary.