THE MAGIC FLUTE
Mozart

Math: Investigating Mozart's Travels – Rate, Time, & Distance

Students Will
- Collect and analyze data to answer questions
- Select proper mathematical operations to solve equations
- Use prior knowledge to apply to real-world equations

Copies for Each Student
- "Our Composer, Wolfgang Amadeus Mozart"
- **Activity Worksheet**

For the Teacher
- "Our Composer, Wolfgang Amadeus Mozart"
- Answer Key for **Activity Sheet**

Getting Ready
Gather notebook paper, pencils and calculation devices, as needed.

Instructional Time
One 45-minute class period

Introduction
Depending on your grade level and the ability of your students, you may choose to conduct this lesson as a class, small group, individually, or as a partner activity. You may decide to assign all or a certain number of questions on the **Activity Worksheet**. Remind students to ask for clarification of any unknown words or concepts.

Have the class review the article, "Our Composer, Wolfgang Amadeus Mozart", and discuss how the students get to school in the morning and what mode of transportation they use. Continue the conversation, focusing on why they use that mode of transportation and what transportation option they would prefer.

Guided Practice
Review the chart at the top of the activity worksheet that explains the basic equations for working with rate, time, and distance with your students. Read the directions and discuss the following:
- What is the question asking?
- What information is given?
- What conversions are needed to answer the question?

Independent Practice
Assist students with completing the worksheet independently or in groups when necessary. Have the students complete the activity worksheet and review answers in class.

Evaluation

1. Did the students collect and analyze the data given in the activity sheet?
2. Were students able to select the proper mathematical operations to solve the equations?
3. Were students able to complete the **Activity Worksheet** with 80% accuracy?

TEKS: Mathematics

6th grade
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. (A, B, C, F, G)
(2) Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. (C, D)
(3) Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. (D, E)
(6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. (A, B)

7th grade
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. (A, B, C, F, G)
(3) Number and operations. The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. (A, B)
(4) Proportionality. The student applies mathematical process standards to represent and solve problems involving proportional relationships. (A, B, E)

8th grade
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. (A, B, C, F, G)
(5) Proportionality. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. (H)

9th – 12th grades - §111.32. Algebra I
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. (A, B, C, F, G)

GARDNER'S INTELLIGENCES
Verbal-Linguistic
Logical/Mathematical

BLOOM'S TAXONOMY

Knowledge	Analysis
Comprehension	Synthesis
Application	Evaluation

BIBLIOGRAPHY

Holt, Kay E., Director of Education. The Educational Series of The Dallas Opera: Don Giovanni. Dallas, Texas, 2000.

Our Librettist, Wolfgang Amadeus Mozart

Wolfgang Amadeus Mozart was a musical prodigy*. He was born January 27, 1756 in Salzburg, Austria. When his father, Leopold, a court musician, began to teach his seven year-old daughter, Maria Anna (Nannerl) to play the harpsichord, three year-old Mozart climbed upon the bench and began to play what he heard. By the time he was four, Mozart had taught himself to play the violin and by five, he had composed his first piece, Minuet and Trio.

Mozart's father quickly took advantage of the amazing talents of his son. When Mozart was only six, the family went on their first music tour. They traveled all over Europe during Mozart's childhood. Mozart, his sister Nannerl, and his father, Leopold, played concerts for kings, queens, and emperors, and for the rich and most powerful people in each country. Mozart was so young and played so well that many people at first thought they were being tricked. The Royal Society, a scientific group in London, England, published a study that called Mozart's talents "almost supernatural".

The family earned money from these tours; mostly, they were given gifts. Mozart's life was hard. They traveled in uncomfortable horse drawn carriages. Worse, there were epidemics of infectious disease to avoid. Mozart caught smallpox once and managed to live through it.

As Mozart grew older, he wrote all kinds of music. He wrote operas, symphonies, concertos, dance music, church music quartets, quintets, and minuets. He wrote music for violins, pianos, horns, and full orchestras. Mozart could memorize very difficult tunes after hearing them only once and made up songs on the spot at parties. He would also compose an entire symphony in his mind and then write it out note by note, without any mistakes. Joseph Hayden, a great composer at this time, thought Mozart was the best he had ever heard.

Mozart was a genius, but he had a hard time supporting himself as he grew older. Mozart's father had a job with the Archbishop-Prince of Salzburg. When Mozart was eighteen, he worked there as the Concert Master for three years. During his travels, he met and fell in love with a young opera singer in Vienna. He wanted to marry the young woman, but his father refused to give him permission. At his father's insistence, In 1778, Mozart and his mother took a trip to Paris, where Mozart played in many fashionable venues. Unfortunately, his mother became ill and died in Paris. His father blamed Mozart for her death.

The conflict with his father and the death of his mother seems to have changed Mozart. He began to write more serious music and moved to Vienna in 1781. There, he learned his first love had married someone else. He met her sister, Constanze, and married her even though his father did not like her either. Despite his

father's pleadings to move back to Salzburg, Mozart and Constanze stayed in Vienna. There he composed music, gave music lessons, performed and directed his music.

During the next ten years in Vienna, Mozart wrote his famous operas: The Marriage of Figaro, Don Giovanni, Cosi Fan Tutte, and The Magic Flute. The first three were written with an Italian poet, Lorenzo Da Ponte. The Marriage of Figaro and Don Giovanni were composed in the years just before the French Revolution. Both operas portrayed the struggle between the aristocracy and the peasants, the rich and the poor. Cosi Fan Tutte appeared at first like a light comedy, but Mozart's music gave it deeper meaning about the ways men and women in love treat each other.

Mozart's last opera, The Magic Flute, was written with an actor and theater owner named Emanuel Schikaneder. This was a change for Mozart. He wrote The Magic Flute for the common people and not for the emperor or any of the royalty. It is a tale full of monsters, witches, and strange special effects. It premiered September 1, 1791 in Vienna with Mozart conducting the orchestra and Schikaneder performing as Papageno. The audiences loved The Magic Flute.

Sadly, Mozart became ill and died in less than three months following the premiere on December 5, 1791. He was survived by his wife, Constanze, and their two sons. In spite of his fame, Mozart died a poor man with many debts. He was buried in a mass pauper's grave without even a headstone. He was only thirty-five years old. Today Mozart is remembered as a musical genius. His work lives on in his music, the symphonies and operas that are performed around the world.

Glossary:

musical prodigy (mu-zee-kul praw-duh-jee) – a child who shows great talent for playing, reading, and composing music

Name: _____ Date: _____

The Magic Flute Activity Worksheet: Rate, Time, & Distance

The basic equation to solve road trip problems is **rate x time = distance** or **(r) x (t) = (d)**
rate = how fast you go **time =** how long the trip takes **distance =** how far you travel
Use these equations to find the distance, or the time, or the rate:
If you know the **rate** and **time,** solve for **distance** by multiplying**: (r) x (t) = (d)**
If you know the **distance** and **rate,** solve for the **time** by dividing**: (d) ÷ (r) = (t)**
If you know the **distance** and **time,** solve for the **rate** by dividing: (**d) ÷ (t) = (r)**

Directions: Complete each chart by reading the paragraphs to find the known information. Use the chart above to select the mathematical operation that will provide the unknown information. Solve each equation.

Mozart traveled with his family on a tour of Europe when he was only six years old. They journeyed from Salzburg to Vienna, the capital of the Holy Roman Empire (now the country of Austria). They traveled in a horse drawn carriage. The carriage could move at a speed of about 7 miles per hour. Over a period of 3 days, the Mozart family traveled for 26 hours before they reached Vienna.

1. How many miles did they travel?

Equation: _____

Rate:	**Time:**	**Distance:**

2. If you traveled today from Salzburg to Vienna traveling at 60 miles per hour, how long would it take you to make the trip? (Distance can be found in the solution to #1.)

Equation: _____

Rate:	**Time:**	**Distance:**

On this first tour the Mozart family also traveled to Paris, France and then on to London, England. In London, they stayed for 15 months. Leopold and the children performed for King George III. This was the king that the American colonists rebelled against in the American Revolution. When the family left Paris on April 10, 1764, they traveled overland by carriage. Then they traveled by boat across the English Channel, and finally by carriage again into London. This took two weeks. The distance from Paris to London, by a good land and sea route today is about 250 miles.

3. How many miles per day did the Mozart family travel from Paris to London?

Equation: _____

Rate:	**Time:**	**Distance:**

4. If you wanted to travel from Paris to London today, you could fly on Air France airlines. The flight takes about 1 hour and 15 minutes (1.25 hours). The direct, straight-line distance for this flight is about 190 miles. How fast does the airplane travel?

Equation: _____

Rate:	**Time:**	**Distance:**

Answer Key

The Magic Flute Activity Worksheet: Rate, Time, & Distance

The basic equation to solve road trip problems is **rate x time = distance** or **(r) x (t) = (d)**
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Use these equations to find the distance, or the time, or the rate:
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Directions: Complete each chart by reading the paragraphs to find the known information. Use the chart above to select the mathematical operation that will provide the unknown information. Solve each equation.

Mozart traveled with his family on a tour of Europe when he was only six years old. They journeyed from Salzburg to Vienna, the capital of the Holy Roman Empire (now the country of Austria). They traveled in a horse drawn carriage. The carriage could move at a speed of about 7 miles per hour. Over a period of 3 days, the Mozart family traveled for 26 hours before they reached Vienna.

1. How many miles did they travel?

Equation: **(r) x (t) = (d)** **7 miles x 26 hours = 182 miles**

Rate: 7 miles per hour	Time: 26 hours	Distance: 182 miles

2. If you traveled today from Salzburg to Vienna traveling at 60 miles per hour, how long would it take you to make the trip? (Distance can be found in the solution to #1.)

Equation: **(d) ÷ (r) = (t)** **182 miles ÷ 60 miles = 3.03 hours**

Rate: 60 miles per hour	Time: 3.03 hours	Distance: 182 miles

On this first tour the Mozart family also traveled to Paris, France and then on to London, England. In London, they stayed for 15 months. Leopold and the children performed for King George III. This was the king that the American colonists rebelled against in the American Revolution. When the family left Paris on April 10, 1764, they traveled overland by carriage. Then they traveled by boat across the English Channel, and finally by carriage again into London. This took two weeks. The distance from Paris to London, by a good land and sea route today is about 250 miles.

3. How many miles per day did the Mozart family travel from Paris to London?

Equation: **(d) ÷ (t) = (r)** **250 miles ÷ 14 days = 17.8 miles per day**

Rate: 17.8 miles per day	Time: 2 weeks – 14 days	Distance: 250 miles

4. If you wanted to travel from Paris to London today, you could fly on Air France airlines. The flight takes about 1 hour and 15 minutes (1.25 hours). The direct, straight-line distance for this flight is about 190 miles. How fast does the airplane travel?

Equation: **(d) ÷ (t) = (r)** **190 miles ÷ 1.25 hours = 152 miles per hour**

Rate: 152 miles	Time: 1.25 hours	Distance: 190 miles