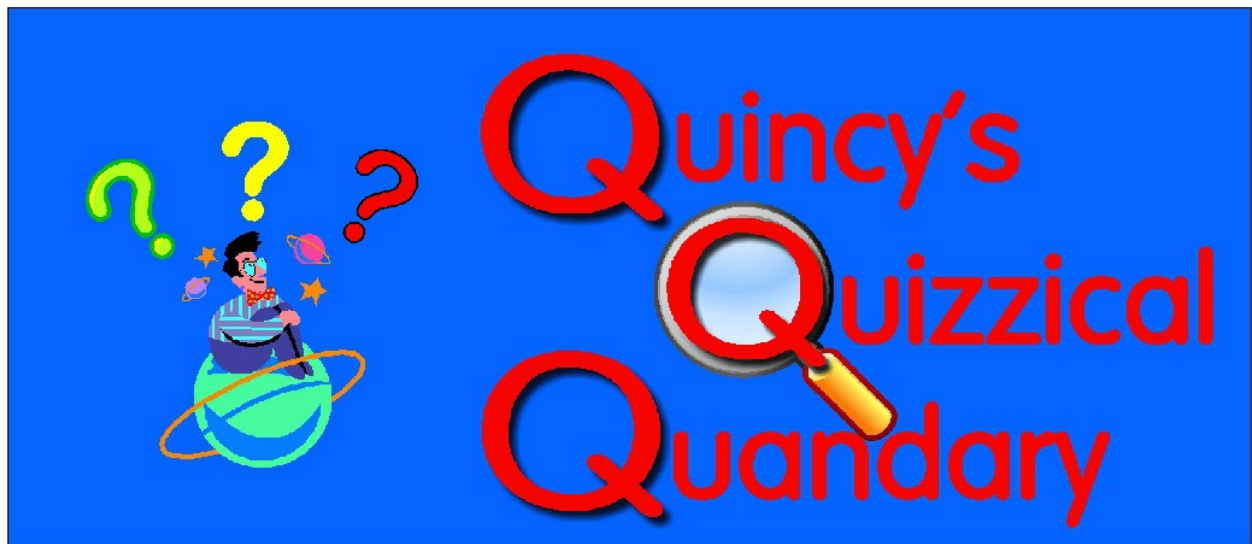




Using



in the
Classroom

www.runawaytheater.com

Thanks for downloading the lesson plan for our production **Quincy's Quizzical Quandary**.

Why are the arts important?

The arts are intrinsic to our lives, but often arts education is an after-thought or considered nonessential. However the arts are how we define ourselves and put our lives and times in context. For example, think of the 1930's, the 1950's and the 1970's. When you think of these decades, what are the first things that come to mind? The fashion? The music? The design of the automobiles? The movies? Guess what? All of these things are "the arts!" Sure, you may have thought of who was President, and maybe a few world events came to mind, but you probably first put those decades into context by the various artistic forms that were prevalent at the time.

Why puppetry?

For centuries, cultures around the world have entrusted the art of puppetry to explain their most important events, ideals, and morality. From the shadow puppets of Indonesia to the Bunraku puppets of Japan to hand puppets of Europe, puppetry is considered a medium to entertain, but more importantly, to teach young and old alike the traits and values the culture deems most essential. This is also born out in modern times. Studies continue to show that information, when presented by puppets, is often more easily taken in and retained longer than other, more traditional methods of instruction. As you yourself have probably noticed, when you have the students attention and interest, you can teach them anything. Using puppetry as a medium to teach the curriculum captures the students attention and interest quicker and more completely than almost any other art form.

Runaway Puppet Theater has taken young people's natural curiosity and penchant for asking questions and used it as a basis for our performance. Through the main character Quincy, the students are introduced to a variety of "question-askers" through history. The names of these scientists and inventors, as well as their theories and inventions, will often be reference during your students school career. This show can act as a foundation upon which scientific principles can begin to be taught.

We hope your students enjoyed the show, and we hope that you can use the enjoyment of the show to create interest in your curriculum. Often theatrical performances are used to enhance language arts, reading, social studies, and other "humanities." However, since **Quincy's Quizzical Quandary** features several scientists and inventors from history, it's also possible to use events and characters from the show to teach math and science as well. To illustrate this, we have included ideas on using the characters in the show as a springboard for introducing concepts of science as well as language arts and humanities.

Lesson Plan/Content Outline

Quincy is a kid that has questions. Lots and lots of questions. He wants to know how people found out lightning is electricity, how fire was discovered, and who invented flying machines. But he has very few answers. Quincy is in a quandary until his mom takes him to the library where he finds all kinds of books that answer his questions!

**Interesting fact:* Careful listeners may have caught that all of Quincy's lines at the beginning of the show are questions! In fact, Quincy's lines don't stop being questions until after he has read the books he borrowed from the library!

Quincy first learns about an Italian scientist and astronomer named **Galileo Galilei**, considered to be the father of modern science. Galileo was one of the most influential scientists of the Renaissance making major contributions to the fields of physics, astronomy, cosmology, mathematics and philosophy. Galileo used a new invention of his time, the telescope, to observe the moon and other objects in the sky.

**Interesting fact:* Galileo is often given credit for inventing the telescope. But he didn't! The telescope was invented by Hans Lippershey, a German-Dutch spectacle maker. Galileo just used the telescope to make his observations of heavenly bodies.

Lesson: Physical science/Universe science

What did Galileo discover with his telescope? The moon's rough surface. The planets Mercury and Venus had "phases" like the moon. Jupiter had moons that revolved around it. He even saw Saturn's rings! What did his discovery of "phases" of Mercury and Venus mean?

Vocabulary:

Heliocentric	Astronomy	Telescope
Moon	Io	Geocentrism
Sunspots	Tides	Kinematics
Renaissance	Physicist	Galilean moons

Next Quincy learns about one of the most influential figures from American History, **Benjamin Franklin**. Benjamin Franklin could be considered a "Renaissance man." He was a printer, a political activist, a statesman, an ambassador, scientist and inventor. He was especially interested in electricity, how it worked, why it behaved as it did, and what it could be used for. He wrote several letters about electricity to scientist friends in London which were eventually published in a book Experiments and Observations on Electricity. Although there is some debate over how he conducted his experiment with lightning, his theories did allow him to develop the lightning rod, making houses and ships safer from lightning strikes.

**Interesting fact:* Believe it or not, Franklin really did host an "Electric Barbeque" where he planned to kill a turkey with electricity! However, due to a mishap Franklin took the shock instead. The turkey ran off unharmed while Franklin was numb the rest of the evening! That part of our show actually came from history!

Lesson: Physical science/Forces in Nature

In Runaway Puppet Theater's performance, Benjamin Franklin holds up two wires saying, "You never want to hold the two of these at the same time." By holding both of the wires, Franklin completed a circuit and received an electric shock. How is a simple circuit completed? What is required to create a

simple loop to allow electrical current to flow? How did completing a simple circuit give Franklin a shock?

Vocabulary:

Lightning rod	Leyden jar	Almanac
Charge	Positive	Battery
Conductor	Discharge	Circuit
Spark	Electrical fluid	Negative

Quincy also learns of two other inventors who contributed to our understanding and use of electricity, Thomas Edison and Nikola Tesla. Both Edison and Tesla created and improved upon inventions that we take for granted today. They were also huge rivals, waging a "War of Currents" in the 1880's over who's electrical system would power the world

**Interesting fact:* The inventions that each character mentions in the show are actual inventions by Edison and Tesla. Edison did create phonographs and movies! Tesla did create the remote control and neon signs! Tesla is also given credit for creating a "death ray!"

Lesson: Physical Science/Forces of nature; History

What currents did Edison and Tesla champion as the best to power people's homes? What are the benefits and drawbacks of each? Who eventually won the "War of Currents?"

Vocabulary:

AC	DC	Current
Phonograph	Tesla Coil	Theramin
Filament	Kinetograph	Remote control
Laser	Incandescent	Automatic telegraph

In his reading, Quincy discovers that before people used science to explain the world around them, they told stories. Many of the heroic tales, myths, and folk stories from around the world and throughout time were created to explain the natural world. One of the stories Quincy finds is a story from the Lenni-Lenape tribe of Native Americans about the **Rainbow Crow** who brought fire to the world.

**Interesting fact:* Because fire had to be created and controlled by people (it wasn't as prevalent or as easily accessible as water, earth, or air), it was often considered to have divine significance. Although Rainbow Crow is given fire by the Great Spirit in our story, many myths about fire involve someone or something stealing fire to bring to people on the Earth.

Lesson: Social Studies/English Language Arts

Find other stories about how fire was brought to the world. What countries/cultures do they come from. Find other stories that explain natural phenomenon (sun rise, change of seasons, lightning and storms, earthquakes, etc.) Write an original story explaining a natural phenomenon.

Vocabulary:

Folklore	Myth	Promemtheus
Agni	Symbol	Trickster
Loki	Quest	Element

Taboo	Lenni-Lenape	Raven
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Quincy also finds books about the original "Renaissance Man," **Leonardo daVinci**. Leonardo daVinci was filled with an insatiable curiosity that led him to excel at both science and art. Not only did he create some of the most famous paintings in the Western world (the Mona Lisa and the Last Supper), but he invented machines that were before their time, such as tanks, diving suits and even a clorkwork car! One area that fascinated Leonardo was flight. He studied birds and their methods of flight intently. He used this as inspiration to design machines that would allow people to fly as well! Around 1505 he published his findings and ideas in a book called Codex on the Flight of Birds.

**Interesting fact:* The inventions shown in the Leonardo portion of our show are actual inventions by Leonardo daVinci! He did create a giant crossbow, mechanical men, and devices that would explode. In fact, he created many, more fantastic inventions that we didn't have time to feature in our show!

**Interesting fact #2:* In our show, young Leonardo's neighbor, Mr. Vitruvian, helps him try out his various flying inventions. Mr. Vitruvian is based on a famous Leonardo daVinci sketch The Vitruvian Man which shows the "ideal" proportions of a human male figure. Leonardo based his drawing on the correlations of ideal human proportions described by the ancient Roman architect Vitruvius

Lesson: Science/Engineering

Many of Leonardo's flying machines have been built in modern times. Which have worked and which have not worked? What are the reasons some have not worked? How has the application of the technology of flight effected our lives and world today?

Vocabulary:

Ornithopter	Aerial screw	Comparative anatomy
Parachute	Mona Lisa	Clockwork
Anemometer	33-Barreled Organ	Renaissance man
Palette	Terminal velocity	Pulley

In our day, the mention of flying machines instantly brings the names of **Orville and Wilbur Wright** to mind. The Wright Brothers are given credit for inventing airplanes, but that's not really true. Airplanes had been built and flown before the Wright Brothers flew in 1903. However, the Wright brothers were the first to invent aircraft controls that made fixed-wing powered flight possible.

**Interesting fact:* Because other folks who had experimented with flight before the Wright Brothers had been seriously injured or killed, the brother's father asked them not to fly together.

Lesson: Science/Engineering/Aerodynamics

Which three directions can an aircraft move? What other mechanisms use the Wright Brothers' control system? How does an airplane fly? What did the Wright Brothers add to their glider that allowed them to control their flight?

Vocabulary:

Roll	Pitch	Yaw
Three-axis control	Glider	Aerodynamics
Sustained controlled flight	Rudder	Elevator
Aviation	Collaboration	Altitude

Thanks again for downloading the study guide for **Quincy's Quizzical Quandary**.

If you have any questions about our show, how to use our show in your classroom, or methods of using puppetry to teach any aspect of your curriculum, please contact us!

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We love fan mail! For an extra writing assignment, have the students write us letters or emails telling us what they enjoyed and something new they learned from **Quincy's Quizzical Quandary!**