

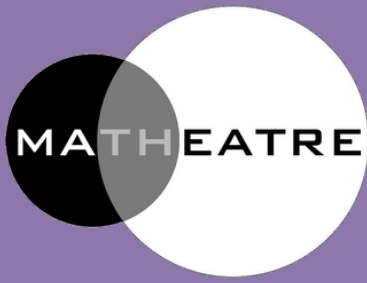
Activity and discussion guide



Nikola Tesla

History Science Theatre ON DEMAND
A production of Matheatre

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Nikola Tesla



Dear Teacher,

Thank you for bringing Matheatre's *History Science Theatre ON DEMAND* into your classroom or home learning curriculum. Matheatre's mission is to use live theatre to tell stories that inspire excitement about math and science. We hope that the personal storytelling and character interpretations in this video series will make the many faces of science relatable and alive for modern students.

In this guide you will find:

- A brief biography of the historical figure
- A summary of key concepts presented in the video story
- Suggested discussion questions
- Suggested activities
- Suggested reading

We believe that *stories* hold immense power to engage the imagination, foster empathy, encourage creative and critical thinking, and educate by way of entertainment. We hope the stories in this series inspire lively conversation, exploration, experimentation, curiosity, and perspective for each of your students as they make history in their own way.

Sadie Bowman
Co-founder, Managing Director
Matheatre

Who was Nikola Tesla?

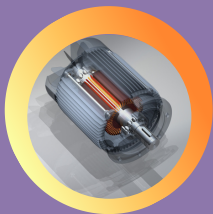
NIKOLA TESLA (1856-1943) was an inventor and electricity pioneer, best known for inventing the alternating current motor. He had ideas for global wireless electricity and communication long before it became a reality.

Tesla credited his mother Djuka as his greatest inspiration. Though she was uneducated and only worked within the home, she tinkered and experimented with domestic devices and instilled Nikola with curiosity and creativity that inspired him to become an inventor.

Tesla immigrated from Croatia to the United States in 1884 and became a citizen in 1891. He worked for Thomas Edison but the two inventors had a rivalry known as the "war of the currents." While Edison promoted direct current, or DC power, Tesla was a proponent of alternating current, or AC--the power we use today.

Many of Tesla's inventions were ahead of their time. He was relatively unknown until inventors working with modern computers learned they were infringing on Tesla's patents from the 1800s!

Key lesson concepts:



Motors



Electricity



Magnets



Generators



A photo purporting to be Nikola Tesla as a child

Suggested discussion questions

- Nikola mentions that his mother was his inspiration to be an inventor. Do you have a parent or adult who inspires you?
- Nikola was dreaming up inventions from when he was a young kid. Do you have ideas of machines or devices you would like to invent?
- Nikola moved to the United States from another country, making him an immigrant. Many families have immigrated to the US from all over the world and made important contributions to science and society. Are you or anyone in your family an immigrant?



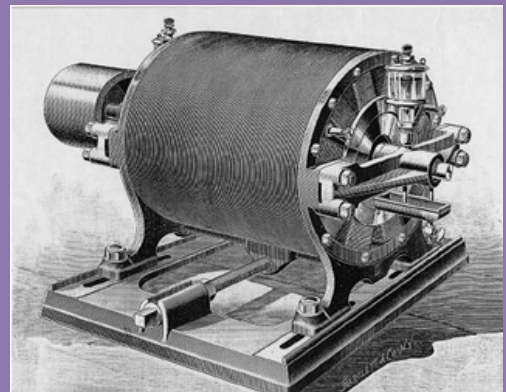
A portrait that may be Nikola's mother, but possibly his sister.

Suggested activities

- Draw a picture of a machine you'd like to invent.



- **Test and measure a magnetic field!** Take any magnet (could be off your refrigerator) and attach it to a popsicle stick (you can use tape). Now attach a metal paperclip to a string. Keeping the end of the string on the table, hold the magnet above the paperclip and it should lift the paperclip into the air. You'll have to experiment with the magnet's position. When you've got the paperclip suspended by the magnet, have a partner use a ruler to measure the space between the paperclip and the magnet. This tells you the size of your magnet's magnetic field.



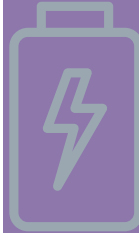
Tesla's alternating current motor spins using multiple magnetic fields!

Suggested discussion questions

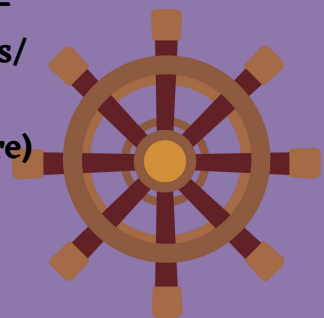
- How many objects can you name that use a motor?
- Nikola mentions that Thomas Edison made fun of him because he was an immigrant. Do you think that was fair? Has anyone made fun of you for something about your identity? How did it make you feel?
- Nikola reminds us that we should never play with electricity without the help of an adult who knows what they're doing. Why is electricity potentially dangerous?



Suggested activities



- Build your own electromagnet and see how electricity and magnetism are the same force! You'll need an iron nail, 3 feet of copper wire, a fresh D battery and some paperclips. Leave about 8 inches of wire loose at the end, and wrap the wire around the nail in a spiral. Leave another 8 inches or so of wire loose at the other end of the nail. Remove an inch of plastic coating from each end of the wire and carefully attach it to the battery (you can use tape, but be careful--it may get hot!) See if your new electromagnet will pick up the safety pins!
- Nikola Tesla used a water wheel to generate electricity from Niagara Falls. You can make your own water wheel with these instructions:
<https://www.clearwaycommunitysolar.com/blog/science-center-home-experiments-for-kids/how-to-make-a-water-wheel-experiment-for-students/> (external link, not affiliated with Matheatre)



Suggested reading

*Electrical Wizard: How
Nikola Tesla Lit Up The
World*



BY ELIZABETH
RUSCH

*Have You Thanked
an Inventor
Today?*



BY PATRICE
MCLAURIN

Electricity In Your Life



BY BO-HYUN
SEO

*Magnets Push,
Magnets Pull*



BY DAVID A.
ADLER



Modern day Nikola Teslas!

We rely on electricity in the modern world, and accessible power has enabled us to have amazing things. Inventors and creative people use the power of electricity in countless different ways.

We don't know what Nikola Tesla would be up to if he were around today, but many people are expanding on his work by innovating new uses for electricity.

Lighting designers like Bentley, pictured here, create special effects for theatre and movies. Bentley says he loves working with electricity because "*it serves as a function and for art! Electricity powers lights which allow us to see in the dark but you can also manipulate lights to create art like in theatre! Electricity allows me to convey feelings and ideas through powering different lights to tell a story onstage!*"



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