

chicago  
children's  
theatre



# MESMERIZED

A Ben Franklin  
Science & History Mystery



## STUDY GUIDE

A WORLD PREMIERE PRODUCTION ADAPTED FOR THE STAGE BY  
SUZANNE MAYNARD MILLER

BASED ON THE BOOK *MESMERIZED: HOW BEN FRANKLIN SOLVED A  
MYSTERY THAT BAFFLED FRANCE* BY MARA ROCKWELL

DIRECTED BY TOMMY RAPLEY

# WELCOME TO MESMERIZED



Thank you for bringing your children to see Chicago Children's Theatre's world premiere play MESMERIZED.

This study guide includes games and activities to encourage further exploration of the history, science, and themes that are central to the play.

We've also included suggested reading material and resources from outside organizations to help young audiences learn even more. Enjoy!



**“The noblest question in the world  
is: What good may I do in it?”**

**-Benjamin Franklin**





# Who Was Ben Franklin?

**Inventor. Diplomat. Scientist. Entrepreneur. Catalyst.**

Benjamin Franklin was quite a busy man. In his 84 years, he invented, discovered, and improved many things that people rely on today. Here's a look:



## He Invented:

- Swim fins
- The Franklin stove
- The Lightning rod
- The 24-hour, three-wheel clock (much simpler than other designs of that time)
- The Glass Armonica
- Bifocal glasses
- The Long arm (an extension arm to reach high books)

## He Discovered:

- That electricity existed in storm clouds in the form of lightning
- Ways to keep streets cleaner and deal with waste management

## He Founded and Co-founded:

- America's first circulating library (The Library Company of Philadelphia)
- America's first volunteer fire department (Union Fire Company)
- America's first public hospital
- The University of Pennsylvania

## He Suggested:

- Colonies join together in a federation (The Albany Plan, 1754)
- Daylight Savings Time

## He was First to:

- Use the words "positive" and "negative" to describe electricity
- Create a political cartoon in America
- Chart the gulf stream during transatlantic trips to London
- Serve as Ambassador to the United States

## His Views Changed About:

- Slavery. Like many other American founders, Benjamin Franklin was an active participant in the slave trade. However, during time in London, Franklin's views changed significantly. By the 1780s, he was a vocal abolitionist and wrote a famous public address condemning slavery.

# Who Was Franz Mesmer?

Physician. Amateur Astronomer.



Franz Mesmer was born in Germany in 1734 and later lived in Austria. He loved the arts and was friends with famous composers of his time, including Wolfgang Amadeus Mozart and Joseph Haydn.

The word “mesmerize” comes from his last name. He believed that all people and objects are pulled together by a strong magnetic force. He called it animal magnetism.

Sadly, what Dr. Mesmer did not know is that when this treatment worked, it worked because of the power of suggestion. This power was later recognized as hypnosis, or mesmerism.

# Who Was King Louis XVI?

**Ruler. Supporter of the American Revolution. Convicted Traitor.**



King Louis XVI is also known as “Louie the Last” because he was the last king to rule over France before the French Revolution made the country a republic in 1792.

His reign lasted from 1774-1792. During this time, he offered support to the American Revolution with money, arms, and military assistance. Ideas from America about liberty and equality helped inspire the revolution in France. King Louis was convicted of treason and executed in 1793.

# Who Was Marie Antoinette?

Queen. Fancy Pants. Misunderstood Monarch.



Marie Antionette was an Austrian princess who married King Louis XVI when she was just 14 years old and eventually became the queen of France.

She was a teen idol who was very popular at first, but she later became known for her expensive taste and extravagant spending when many people in France were struggling. Some people say she callously said, “Let them eat cake!” when told that French peasants were starving and had no bread to eat, though there is no evidence this is true.

It is less well-known that Marie Antoinette did a lot of charity work, adopted several children, and sold royal flatware to raise money for the poor.

Like her husband, Marie Antoinette was convicted of treason after the French Revolution and executed in 1793.

# Mesmerized Word Search

F	S	C	S	C	I	E	N	C	E	H	X
R	C	O	N	C	L	U	S	I	O	N	N
A	M	E	S	M	E	R	Z	L	A	C	P
N	I	I	P	L	A	C	E	B	O	U	A
K	H	Y	P	O	T	H	E	S	I	S	R
L	B	L	I	N	D	T	E	S	T	M	I
I	R	E	V	O	L	U	T	I	O	N	S
N	K	I	N	G	L	O	U	I	S	M	N

Find the following words in the puzzle. Words are hidden ➡ and ↓.

**BLIND TEST**  
**CONCLUSION**  
**FRANKLIN**  
**HYPOTHESIS**

**KING LOUIS**  
**MESMER**  
**PARIS**  
**PLACEBO**

**REVOLUTION**  
**SCIENCE**



# Find Ben's Inventions!

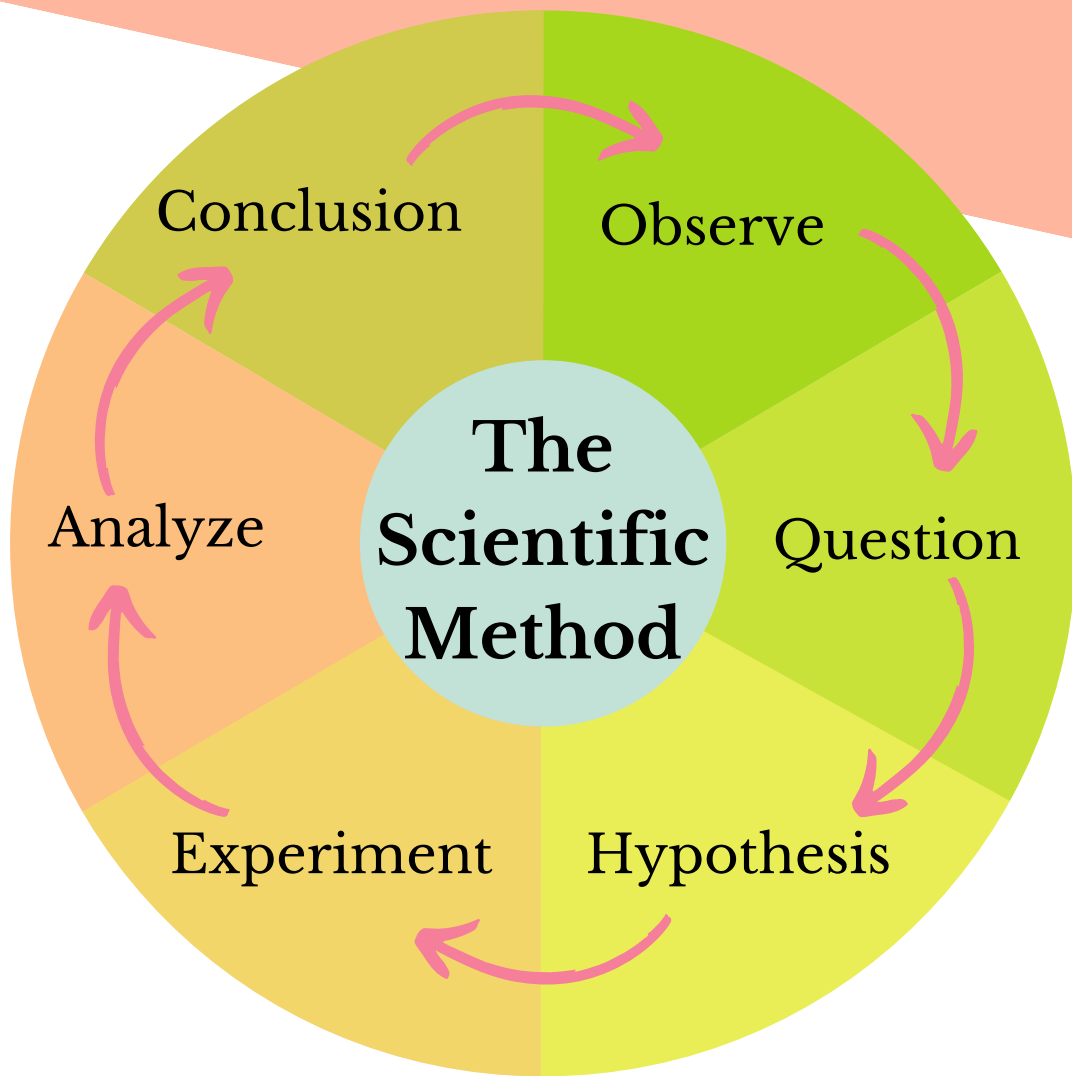
Find 6 things that Ben Franklin invented, founded, or helped create in his lifetime!



**“Do not squander time for that is the stuff life is made of.”**

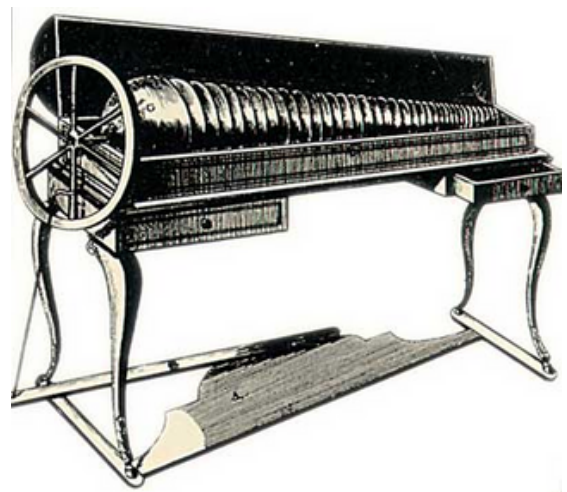
**-Ben Franklin**





## The Glass Armonica

Created by Benjamin Franklin, the glass armonica is a musical instrument made with glass bowls of different sizes that uses friction to produce sounds.



Listen to a glass armonica here: [youtube.com/watch?v=eEKlRUvk9zc](https://youtube.com/watch?v=eEKlRUvk9zc)

# American Revolution Word Scramble

1. ORUTVIONLE . . . . \_\_\_\_\_
2. TXASE . . . . . \_\_\_\_\_
3. SOTTIRAP . . . . . \_\_\_\_\_
4. BEN RNIFKNAL . . . \_\_\_\_\_
5. EANNLGD . . . . . \_\_\_\_\_
6. OUTTNNOCTSII . . . \_\_\_\_\_
7. ODLG . . . . . \_\_\_\_\_
8. GKNI FO AERFCN . . \_\_\_\_\_
9. DUNTEI TSTAES . . . \_\_\_\_\_
10. IDOGNUFN FHAERT \_\_\_\_\_

# What is Gender Equality?

Gender equality is when all people regardless of gender have the same rights, resources, opportunities, and protections.

In Mesmerized, Sarah didn't have the same opportunity as her brothers to go to school because she was a girl. Today girls in most countries can go to school, but there are still some ideas about differences between girls and boys that don't add up to equality.



SARAH

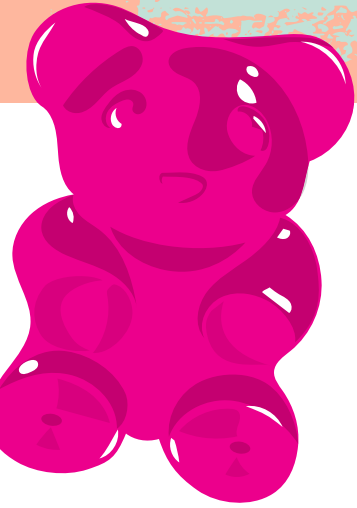


AS VALET



# TRY THIS AT HOME!

## The Gummy Bear/Placebo Effect Experiment



Imagine you've just been handed a gummy bear- not just any gummy bear, but a gummy bear of incredibly fast running powers. Scientists around the world applaud its superhuman capabilities! If you ate it, do you think you'd be able to run faster?

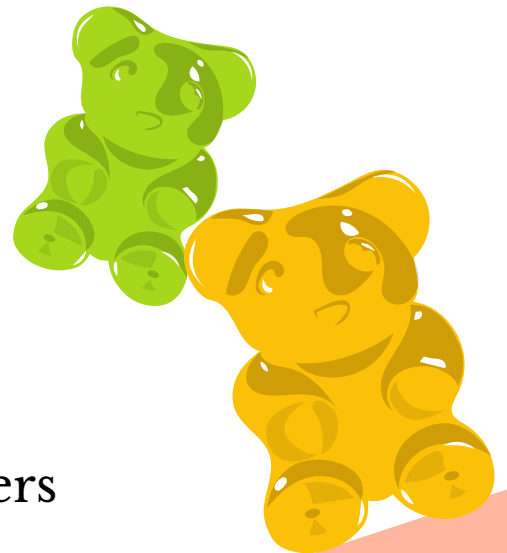
Here's the thing: Gummy bears of incredibly fast running powers don't really exist. You knew that. After all, it's kind of a silly idea. The funny part is that sometimes when you just think something might work, it does. This strange occurrence is called the placebo effect. Test your friends to find out if you can replicate the placebo effect's incredible results.

## The Problem

Will the placebo effect make your friends run faster?

## Materials

- 10 cups
- Water
- Food coloring
- Sugar
- Spoon
- Timer
- Tablespoon
- Notebook
- Pencil
- 10 kid volunteers



# Procedure



1. Find a park or a running track where you'll have lots of room to test your friends' running speeds.
2. Spend an afternoon timing your friends, one by one, as they run a short distance. If it's on a standard track, don't try anything longer than one lap, or a quarter mile.
3. Don't have any of your volunteers run at the same time- this is not a race.
4. Carefully record each time in your notebook.
5. Tell your friends that the experiment will continue tomorrow. They'll be timed running the exact same distance, but only after drinking a new energy drink for athletes.
6. The next day, prepare your "energy drink for athletes." In reality, this will be nothing more than water with a few drops of food coloring and some sugar. First, fill your 10 cups with water.
7. Split the cups into two separate groups of five cups each: the "energy drink" group and the control group, or the group that will just be plain water.
8. Pour one teaspoon of sugar and a couple of drops of food coloring into each of the cups in the "energy drink" group.
9. Mix the sugar, water and food coloring with a spoon.
10. Think about the experiment that you're about to conduct. Five of your volunteers will think that the fake energy drink you made might actually make them run faster. Do you think this will influence their times? What about the people who know they're drinking plain water?
11. Write down your guess, also called a hypothesis, in your notebook.
12. Divide your volunteers into two groups of five. Explain to the first group that they will be the control group. Good science experiments require a control group so that scientists can test the results of a new product, in this case the fake energy drink, against the results of something normal, like water.
13. Have this first group drink a cup of plain water before running.
14. Time each of them, one by one, before recording it in your notebook.
15. Explain to the second group that they will be trying an exciting new energy drink, made especially for athletes.
16. Have each of them drink all of their "energy drink" before running.
17. Record their times.
18. Take a look at your results. Did any of your friends' times stay the same? Did any of the times improve?



## Results

Volunteers who drank the fake energy drink should have run faster than they did the day before. On the other hand, you probably didn't see much of a change in the volunteers who just drank water.

## Why?



The mind is often stronger than the body. It sets your limits, moods, and feelings. The placebo effect isn't a trick- it's very real. If you can convince someone's mind of something, it will often affect their body. Scientists have also proven the placebo effect in medicine. People who receive a placebo, instead of actual medication, often report relieved symptoms. They thought they were receiving medicine, so they convinced themselves they were feeling better.

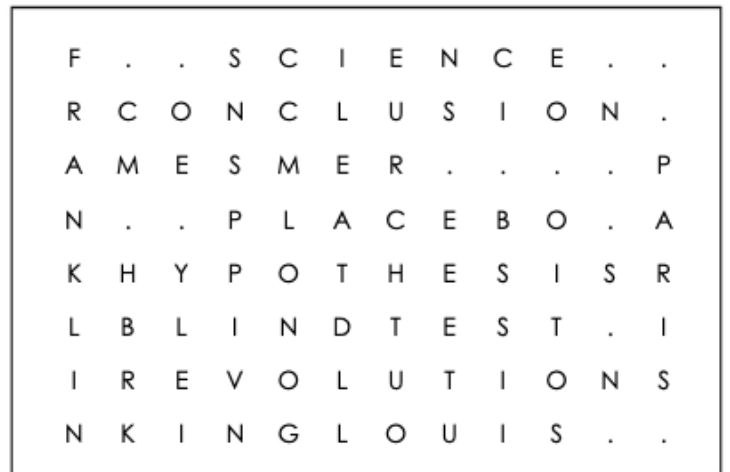
Do you think it made a difference that your experiment used kids? What would happen if you conducted the same test on adults? Keep testing and experimenting to find out what else there is to discover about the mysterious placebo effect!



# ANSWER KEY



- bifocal glasses
- glass armonica
- lightning rod
- swim fins
- University of Pennsylvania
- Declaration of Independence



Word directions and start points are formatted: (Direction, X, Y)

BLIND TEST (E,2,6)	KING LOUIS (E,2,8)	REVOLUTION (E,2,7)
CONCLUSION (E,2,2)	MESMER (E,2,3)	SCIENCE (E,4,1)
FRANKLIN (S,1,1)	PARIS (S,12,3)	
HYPOTHESIS (E,2,5)	PLACEBO (E,4,4)	

## Answer Key:

- |                 |                     |
|-----------------|---------------------|
| 1. revolution   | 6. constitution     |
| 2. taxes        | 7. gold             |
| 3. patriots     | 8. King of France   |
| 4. Ben Franklin | 9. United States    |
| 5. England      | 10. founding father |

# RESOURCES FOR TEACHERS AND FAMILIES

## Books:

*Mesmerized: How Ben Franklin Solved a Mystery that Baffled All of France*

By Mara Rockliff (Candlewick, 2015)

*Now & Ben: The Modern Inventions of Ben Franklin*

By Gene Barretta (Macmillan, 2008)

*Who Was Ben Franklin?*

By Dennis Brindell Fradin (Penguin, 2005)

*A Ben of All Trades: The Most Inventive Boyhood of Benjamin Franklin*

By Michael J. Rosen (Candlewick, 2020)

*Who Was Marie Antoinette?*

By Dana Meachen Rau (Penguin, 2015)

*George vs. George: The American Revolution As Seen From Both Sides*

By Rosalyn Schanzer (National Geographic Kids, 2007)

*Liberty!: How the Revolutionary War Began* (Landmark Books)

by Lucille Recht Penner (Random House, 2002)

## Videos/TV series:

“Great Inventions: Benjamin Franklin” By Adventure Academy

<https://www.youtube.com/watch?v=YN9hFfC0lz0>

Vox: “The Phony Health Craze That Inspired Hypnotism”

<https://www.youtube.com/watch?v=KQyAnKjD6W4>

“Liberty’s Kids” – PBS Kids (Amazon Prime)

## Movies:

“Marie Antoinette” (2006; PG-13)



## **Special Thanks**

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