The Paramount Theatre was built 104 years ago in 1915. Back then, Congress Avenue was a dirt road and the automobile was a new invention. As one of the first examples of early theatre architecture, the Paramount has been bringing Austin families together for generations. When you visit the theatre, you enter a place that feels exciting and welcoming. From your seat, you can almost reach out and touch the performers on stage! Many famous people have performed at the Paramount. From magician Harry Houdini to the premier of the original Batman movie, the Paramount and its audiences have seen it all over the past 100 years...here's to the next century!

PARAMOUNT EDUCATION
We inspire the intellect and imagination of young people by providing opportunities to experience, perform, and learn through the arts. We can't wait to see you again at our theatre or in our school programs! Paramount Education programs are made possible through generous donations from our community. If you are interested in finding out more or want to make a contribution, please reach out to Natalie Seeboth at nseeboth@austintheatre.org or 512.233.0121. Thank you!

Learn more about our education and family programs: www.austintheatre.org/education

@ParamountEduATX

THANK YOU TO OUR 2019-2020 EDUCATION PARTNERS
Alice Kleberg Reynolds Foundation
Cielo Azul Foundation
ECG Foundation
ED Foundation
Georgia B. Lucas Foundation Fund of The Austin Community Foundation
The Powell Foundation
The Reese Foundation
Sear Family Foundation
The Speedwell Foundation
Stark Martin Charitable Trust
Summer Learning Investment Hub
SXSW Community Fund
Wayne and Joann Moore Charitable Foundation
The Wright Family Foundation

THANK YOU TO OUR 2019-2020 SEASON PARTNERS
This project is supported in part by the Cultural Arts Division of the City of Austin Economic Development Department

TAMARA & MATTHEW KETTERMAN
JUDY & PATRICK CANTILO

Make unforgettable memories at the Paramount Theatre with your whole family. Tickets and subscriptions are available now! Visit: austintheatre.org/discovery

DOWN

1. The process of using electricity to split water into hydrogen and oxygen.
2. Another name for the water cycling from the ocean to the atmosphere to the land.
3. Energy sources that replenish continually or annually.
4. The science of heat, temperature and energy.
5. A cause and effect chain.
6. The removal of salts and minerals from a substance.
7. Results in elevated ocean levels, more flooding, more droughts, and distorted snowmelt patterns.
8. Electricity made by generators that are pushed by movement of water.

ACROSS

1. Thirst for Power: Energy, Water, and Human Survival by Michael E. Webber
2. Power Trip: The Story of Energy which was published in 2019 and is being developed as a 6-part series for PBS.
3. Dr. Michel E. Webber is an internationally recognized professor, author, and energy expert. He trains the next generation of energy leaders at the University of Texas at Austin, where he is the Josey Centennial Professor in Energy Resources and a professor of Mechanical Engineering. He also serves as the Chief Science and Technology Officer at ENGIE, a global energy & infrastructure services company in France.
4. Mat Hames is an Emmy winning director, writer and producer. In addition to the documentary, Thirst for Power, adapted from Dr. Webber's book, Mat is known for his two PBS Independent Lens documentaries What Was Ours (Amazon Prime Video, 2017) and When I Rise (2010). His films have screened at SXSW, HotDocs, and SundanceTV.

WHO IS DR. MICHAEL E. WEBBER?

BEHIND THE DOCUMENTARY, DIRECTOR MAT HAMES

THIRST FOR POWER VOCABULARY CROSSWORD

DR. MICHAEL E. WEBBER
EXECUTIVE PRODUCER JUAN GARCIA EXECUTIVE PRODUCER BETH HAMES PRODUCED BY AUDREY LONG
BASED ON THE BOOK THIRST FOR POWER: ENERGY, WATER AND HUMAN SURVIVAL BY MICHAEL E. WEBBER PUBLISHED BY YALE UNIVERSITY PRESS
CINEMATOGRAPHY BY BRIAN NELLI Gan EDITED BY GINNY PATRICK POST PRODUCTION BY MELINDA BONIFAY
PRODUCED AND DIRECTED BY MAT HAMES

MADE POSSIBLE BY Itron

TAMPA BAY THEATRE
OCTOBER 8–9, 2019
WHO IS DR. MICHAEL E. WEBBER?

Dr. Michel E. Webber is an internationally recognized professor, author, and energy expert. He trains the next generation of energy leaders at the University of Texas at Austin, where he is the Josey Centennial Professor in Energy Resources and a professor of Mechanical Engineering. He also serves as the Chief Science and Technology Officer at ENGIE, a global energy & infrastructure services company in France. In addition to Thirst for Power: Energy, Water, and Human Survival, he is the author of Power Trip: The Story of Energy which was published in 2019 and is being developed as a 6-part series for PBS.

BEHIND THE DOCUMENTARY, DIRECTOR MAT HAMES

Mat Hames is an Emmy winning director, writer and producer. In addition to the documentary, Thirst for Power, adapted from Dr. Webber’s book, Mat is known for his two PBS Independent Lens documentaries What Was Ours (Amazon Prime Video, 2017) and When I Rise (2010). His films have screened at SXSW, HotDocs, and SundanceTV.

THIRST FOR POWER VOCABULARY CROSSWORD

DOWN
1. The process of using electricity to split water into hydrogen and oxygen.
2. Another name for the water cycling from the ocean to the atmosphere to the land.
3. Energy sources that replenish continually or annually.
5. A cause and effect chain.
6. The removal of salts and minerals from a substance.

ACROSS
4. The science of heat, temperature and energy.
7. Results in elevated ocean levels, more flooding, more droughts, and distorted snowmelt patterns.
8. Electricity made by generators that are pushed by movement of water.

WORD BANK

THERMODYNAMICS
HYDROELECTRICITY
ELECTROLYSIS
DESALINATION
RENEWABLE ENERGY
CLIMATE CHANGE
HYDROLOGIC CYCLE
FEEDBACK LOOPS
**WATER IS LIFE**

Ancient civilizations recognized that their survival was dependent on water. They built their cities where water was abundant. They learned to transport water using **aqueducts**. They knew that water was power, and controlling rivers meant ensuring their survival.

**AQUEDUCT**: an artificial channel used to carry water from a source to a distribution point far away

---

**WATER AND CIVILIZATION GO HAND-IN-HAND**

Just as many ancient civilizations thrived by using and controlling water, their collapse was often the result of water scarcity. Drought contributed to the collapse of the Roman Empire and several Chinese dynasties. Even the Maya Empire saw drastic population decreases as the result of climate change, drought, and the failure of a water transportation system.

from Disco Learning Media’s Resourcefulness Curriculum
http://smartenergyeducation.com

---

**PONT DU GARD** is an ancient Roman aqueduct in southern France that was built in the first century AD to carry water over 31 miles to the Roman colony now known as Nîmes, supplying the city with 8 million gallons of water daily. It crosses the Gardon River and is the highest of all Roman aqueduct bridges, and one of the best preserved. The water was carried on the top tier of the bridge, using an interior water conduit, or large pipe.

---

**DESIGN YOUR OWN ROMAN AQUEDUCT**

**MATERIALS:**

- empty 2-liter soda bottle and cap
- bucket
- clear vinyl 3/8" tubing
- 2–3 surfaces of varying levels (tables, chairs, blocks or books)
- 2 liters water
- electric drill or screwdriver

**INSTRUCTIONS:**

Water must flow through the plastic tubing from the bottle at point A (the "spring") through point B (the "valley") to point C ("Rome"). Water is precious, so any that escapes the system represents a costly mistake in engineering, construction, and/or operation.

How will you accomplish this task using the materials and diagram provided?

---

**WATER IS POWER**

Ancient and modern societies learned to harness water to create power. The first examples of water wheels dates back to 4000 B.C. By the 2nd century B.C. vertical watermills were used in Syria and Asia Minor, later spreading to ancient Greece and the Roman Empire. These watermills used hydropower. The water was used to drive a mechanical process such as grinding, rolling, or hammering.
WHERE WATER IS USED

Today we are just as dependent on water for energy as ever before. Nearly every type of power plant utilizes significant amounts of water.

WATER USE BY POWER PLANT*

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Water (Gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>0 Gal</td>
</tr>
<tr>
<td>Solar Thermal</td>
<td>26 Gallons</td>
</tr>
<tr>
<td>Solar Photovoltaic</td>
<td>26 Gallons</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>198 Gallons</td>
</tr>
<tr>
<td>Nuclear</td>
<td>672 Gallons</td>
</tr>
<tr>
<td>Coal</td>
<td>687 Gallons</td>
</tr>
</tbody>
</table>

*Water consumed to produce one megawatt-hour of electricity, which is enough to power 1,000 homes for an hour.

THE FOOD-WATER-ENERGY NEXUS

Food, water and energy are elements that are linked with each other. Impact on one will affect all three. To provide sustainable solutions on a global scale, all three have to be considered.

HOW BIG IS YOUR WATER FOOTPRINT?

How much water do you think it takes to produce only one serving of the foods you eat? Which food takes the least water and which one takes the most? Fill in the containers below with your guesses. See the answers according to the Water Footprint Network upside-down at the bottom of the page.

HOW BIG IS YOUR WATER FOOTPRINT ANSWER KEY:

- Almonds (1 oz) = 120 gallons
- Rice (6 oz) = 15 gallons
- Orange (1) = 23 gallons
- Beef (4 oz) = 461 gallons
- Chicken (4 oz) = 115 gallons
- Chocolate (2 oz) = 227 gallons

GALLONS OF WATER

0 50 100 150 200 250 300
CONSERVATION

Understanding the relationship between water, energy, and food will also help you understand the need to make changes in your own life. Conservation is the first and most important tool we have in our tool kit. What can you do to reduce your use of power or water?

- Turn off the faucet when brushing your teeth.
- Take shorter showers. Make it a game!
- Turn off the lights when you leave a room.
- Use the sun to dry your wet clothes.
- Don't leave the door open when your AC is on.
- Replace incandescent light bulbs with LEDs

What are some more ideas on how you can conserve power/water?

_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________
_________________________________________________________________________________________

SUSTAINABLE ENERGY

Spread knowledge! Advocate for forms of energy that don’t require water consumption (wind and solar power). Learn more at: http://smartenergyeducation.com

WATER RECLAIMING

**GREY WATER** is the relatively clean wastewater from baths, sinks, washing machines, and other appliances. Using your water twice can make a big impact on your water footprint! Grey water can be used for mopping, flushing the toilet, watering landscapes, and more! It reduces the amount of household freshwater used, and reduces the amount of wastewater entering sewer or septic systems.

**RAINWATER HARVESTING** is the process of collecting rainwater and storing it for a future purpose. The easiest way to collect rain at your house is through a rain barrel (make your own from a large trash can or an old drum) linked to a pipe fitted to collect rainwater from the rooftop. The rainwater can then be used to water plants, wash cars, and more! It can also reduce flooding and stormwater pollution around your house.

Choose grey water or rainwater harvesting and draw a diagram below showing how it works.

**DIAGRAM NAME:** _____________________________
THE PARAMOUNT THEATRE was built 104 years ago in 1915. Back then, Congress Avenue was a dirt road and the automobile was a new invention. As one of the first examples of early theatre architecture, the Paramount has been bringing Austin families together for generations. When you visit the theatre, you enter a place that feels exciting and welcoming. From your seat, you can almost reach out and touch the performers on stage! Many famous people have performed at the Paramount. From magician Harry Houdini to the premier of the original Batman movie, the Paramount and its audiences have seen it all over the past 100 years...here’s to the next century!

PARAMOUNT EDUCATION

We inspire the intellect and imagination of young people by providing opportunities to experience, perform, and learn through the arts. We can’t wait to see you again at our theatre or in our school programs! Paramount Education programs are made possible through generous donations from our community. If you are interested in finding out more or want to make a contribution, please reach out to Natalie Seeboth at nseeboth@austintheatre.org or 512.233.0121. Thank you!

THANK YOU TO OUR 2019-2020 EDUCATION PARTNERS

Alice Kleberg Reynolds Foundation
Cielo Azul Foundation
EEG Foundation
ED Foundation
Georgia B. Lucas Foundation Fund of The Austin Community Foundation
The Powell Foundation
The Reese Foundation
Sear Family Foundation
The Speedwell Foundation
Stark Martin Charitable Trust
Summer Learning Investment Hub
SKSW Community Fund
Wayne and Joann Moore Charitable Foundation
The Wright Family Foundation

THANK YOU TO OUR 2019-2020 SEASON PARTNERS

Learn more about our education and family programs:
www.austintheatre.org/education

@ParamountEduATX