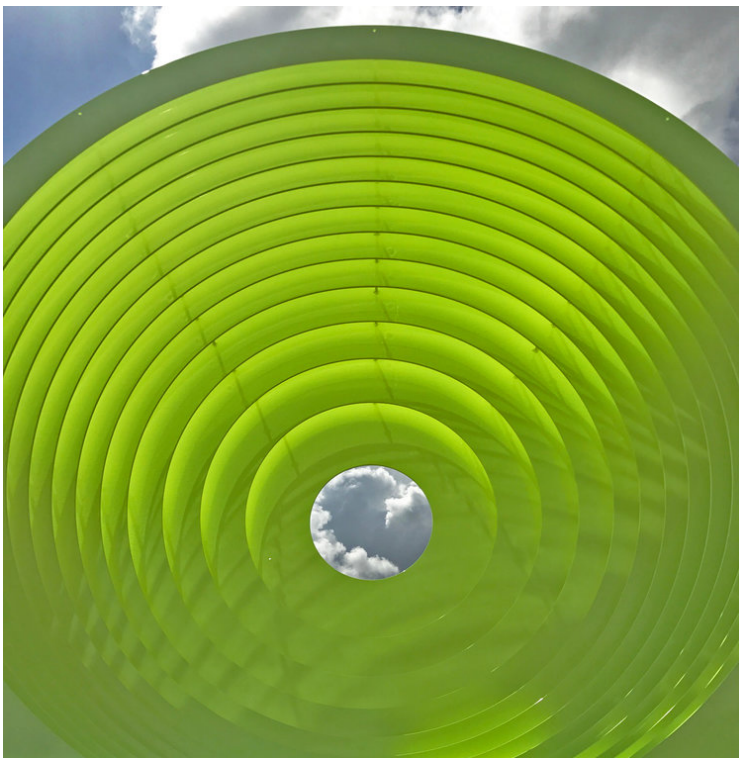


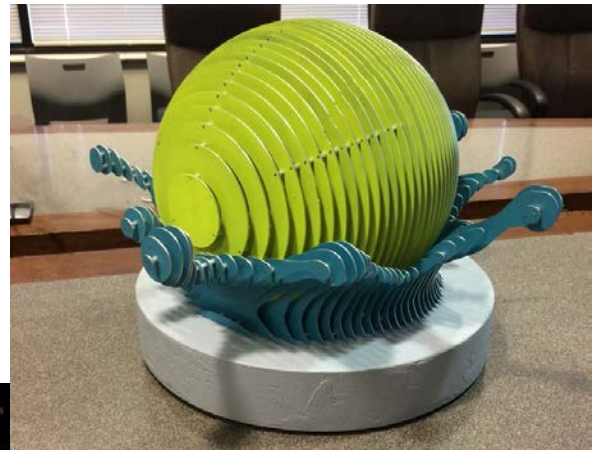


Mark Aeling's "Splash" is an inventive, 18-foot-tall sculptural depiction of a green tennis ball hitting blue water.



"Splash" is made of $\frac{3}{8}$ " wide powder-coated aluminum plates. There is 4" of open space between each one. So, only $\frac{1}{10}$ th of the entire sculpture is made of the plates. Since $\frac{9}{10}$ th of the sculpture is open space, when you view the sculpture from certain angles it almost disappears!

The sculpture was selected in a blind-bid process from over 150 entries to fulfill the Norman Forward art component, which calls for a 1 percent public art piece tied to each project.



Model of Splash

Building and Preparing Splash



In the Florida Studio



Fitting it on the truck



Loading at the studio in Florida

Burke, Mack. "First Norman Forward Art Project Unveiled at Westwood." Norman Transcript, 8 Dec. 2017. <https://www.facebook.com/MgaSculpture/>



Installation at Westwood Park



Artist Mark Aeling



Mark received his MFA in sculpture from Washington University in St. Louis MO in 1993. He remained in St. Louis working as a professional sculptor for 18 years. In 2005, he relocated to St. Petersburg, FL. He owns and operates MGA Sculpture Studio.

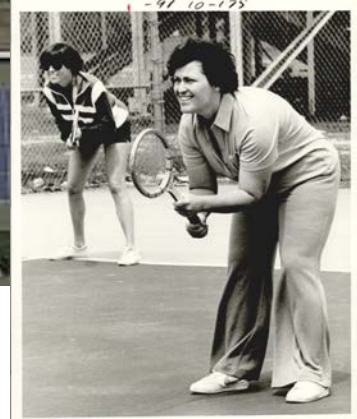
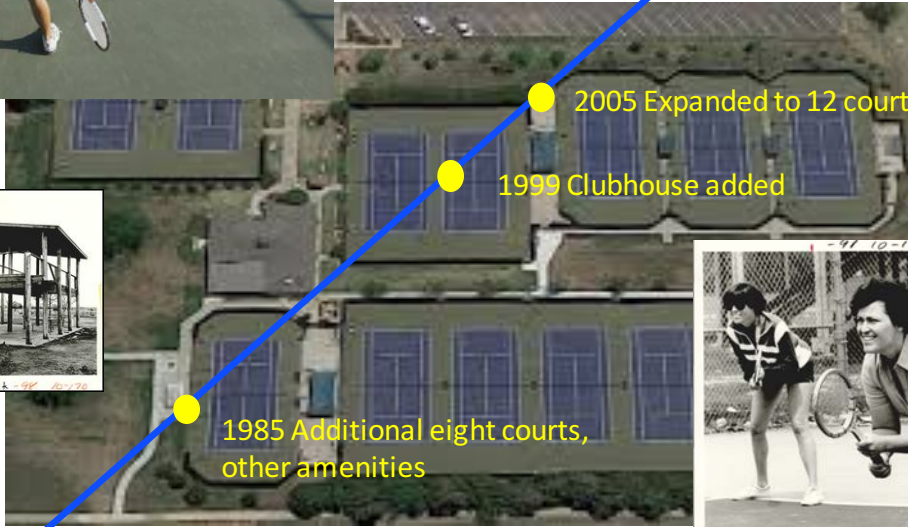
His areas of expertise are metal fabrication and castable mediums, and is able to handle projects at any scale.

<http://www.mgasculpture.com/>



About Westwood

Tennis



1969 Two Courts

1985 Additional eight courts,
other amenities

1999 Clubhouse added

2005 Expanded to 12 courts

2015 Four Youth
Size Courts

2016 Two courts
converted to indoor
and two new
outdoor courts

Opened August 1967



Golf

95 Acres

About Westwood



Opened
July 4, 1967



Oklahoma
Historical
Society®

Original Pool



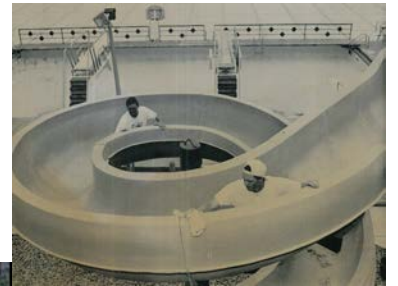
July 14, 1977



Original Prices
25¢-children
50¢-adult



Slides added and
Opened 1993



New Pool

Current Prices
\$8-Individuals



Opened
Summer 2018



Phases of Matter: Water



Background Information



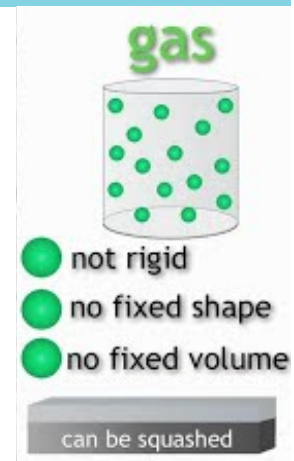
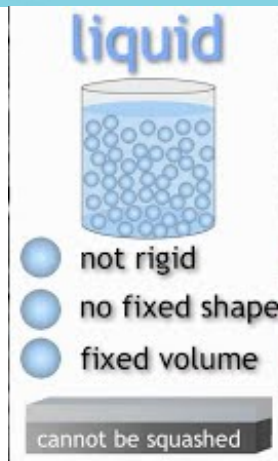
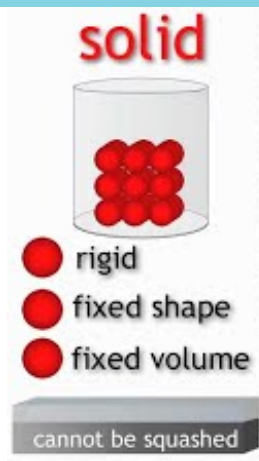
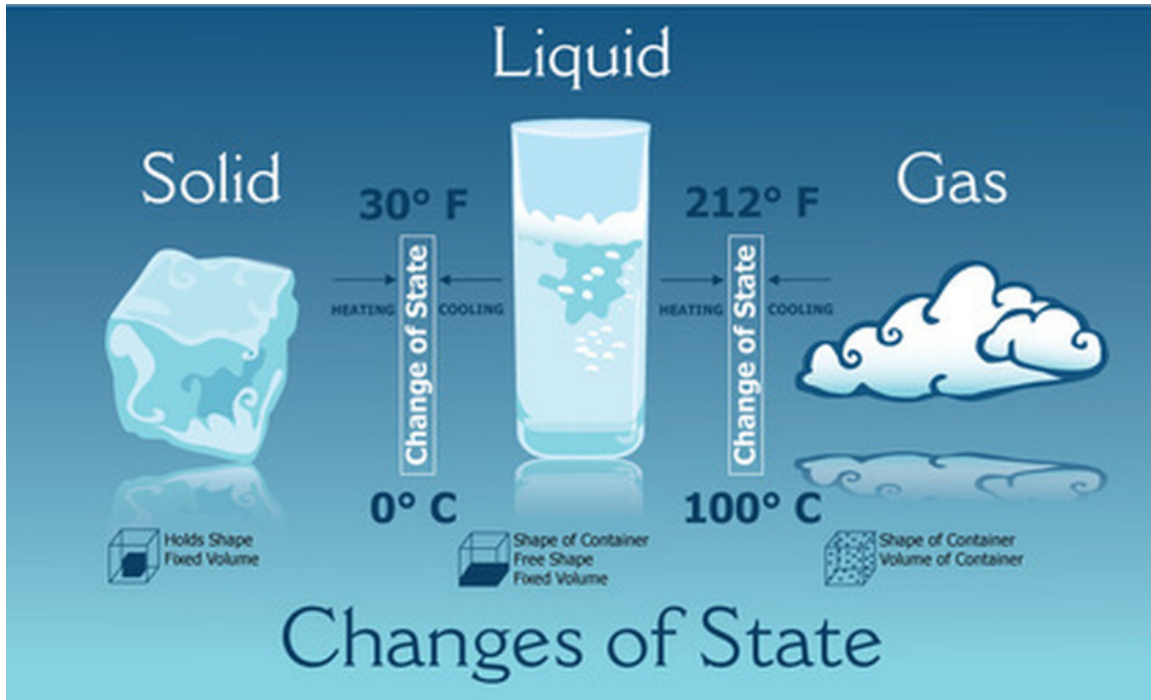
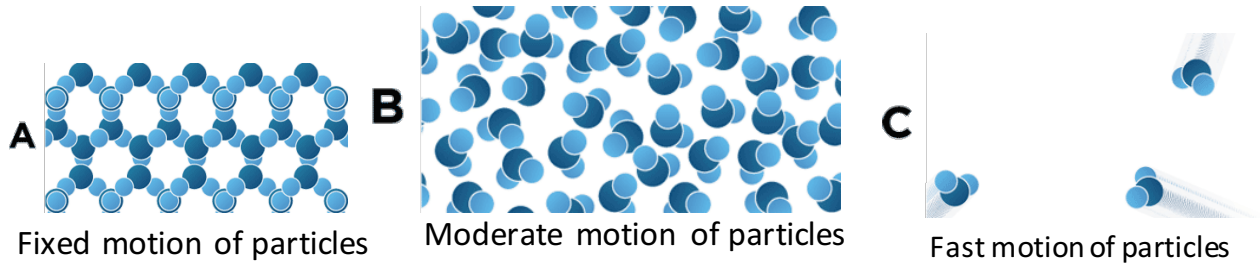
Crash Course: Part(icles) of Your World
<https://goo.gl/3bTKSb>



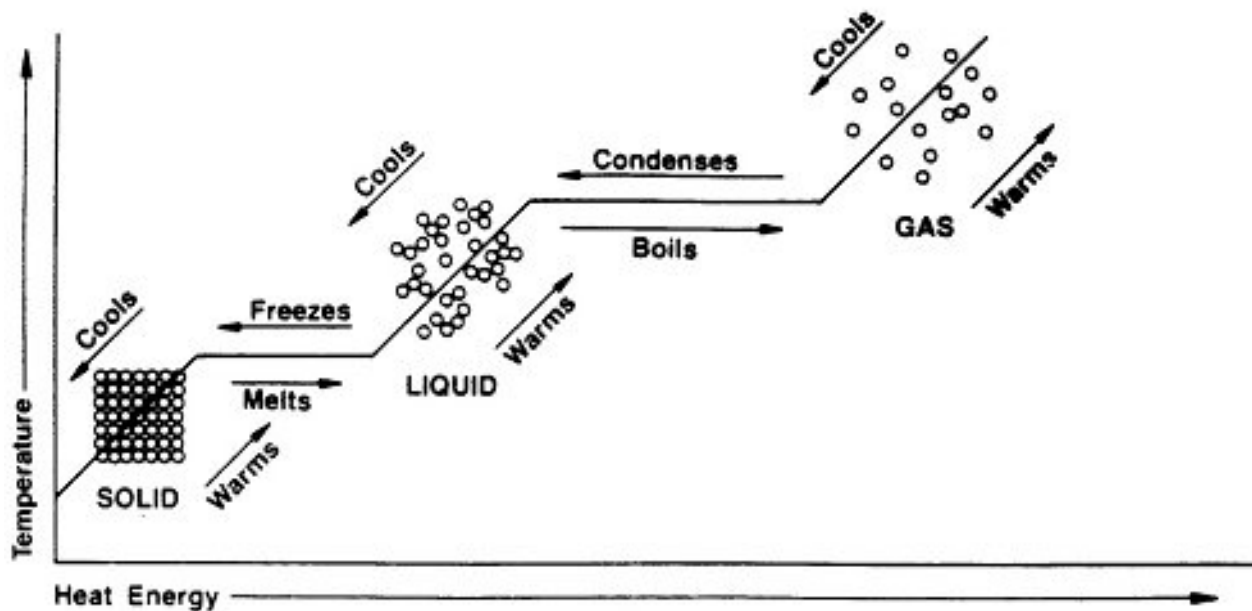
Cook with All 3 Phases of Water
<https://goo.gl/Du5S4D>

Online Questions

<https://goo.gl/uyHAJU>



Experiment with Water



Saltwater Painting

- Measure 1/4 cup of salt into a container. Add 1/4 cup warm water to the salt.
- Add several drops of food coloring to the mixture. Giving all groups different colors.
- Paint with the paint brushes a picture with the mixture. The students are allowed to paint what they like.
- Lay the paintings to dry overnight.
- The water will evaporate from the painting and the colored salt will stay on the paper.
- The students will examine their paintings the next day and see what happened.

<https://eduref.org/lessons/science/ear0020>

Cloud in a Jar activity

- Put the metal pie pan in the freezer for about an hour.
- Fill the jar half full with hot water just before you take the pan out of the freezer.
- Remove the pan from the freezer and fill it with ice cubes. Set the pan on top of the jar. Leave it there for a few minutes and observe what happens inside the jar.

Ice, Ice Baby

Freeze water in different containers to obtain different shapes.

Going, Going Gone

Students hypothesize ways to make an ice cube melt faster. Test to find the fastest ways.

Energy Transference

Supplies

- Basketball
- Tennis Ball
- Ping Pong Ball
- Hard surface with plenty of room
- Yard/meter stick
- Data Recording Sheet
- iPad or cellphone



Part One

1. Hold basketball so the bottom of the ball is even with the top of the yard/meter stick.
2. Release the ball (don't throw or push it).
3. Repeat 3 times.
4. Watch the video and record the height of the bounce.

Part Three

1. Hold the tennis ball touching the top of the basketball in the same position.
2. Release the balls together.

Extension

1. Add a ping pong ball.
2. Try different combinations including all three balls.

Group Jobs

1. Holding the yard/meter stick
2. Dropping the balls
3. Recording the video
4. Recording the data

Group Tips

Video where you can capture the yard/meter stick and the ball bounce.

Hold the yard/meter stick steady.

Part Two

1. Hold tennis ball so the bottom of the ball is even with the top of the yard/meter stick.
2. Release the ball (don't throw or push it)
3. Repeat 3 times.
4. Watch the video and record the height of the bounce.

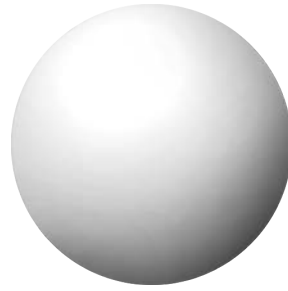
Part Four

1. Hold the basketball touching the top of the tennis ball in the same position.
2. Release the balls together.



Background for Discussion

"During a collision, some of the ball's energy is converted into heat. As no energy is added to the ball, the ball bounces back with less kinetic energy and cannot reach quite the same height."



"Did you also see how a lighter ball shoots high into the air when released at the same time on top of a heavier ball? Both balls fall at the same speed but the heavier ball gains more energy during the fall. When the lighter ball bounces on the heavy ball they exchange energy, and the lighter ball flies off with some of the energy of a heavier ball. It reaches way higher than from the height it was released. The heavy ball, on the other hand, is left behind with little energy and does not move much."

<https://www.scientificamerican.com/article/energetic-2-ball-bounces/>

Video Explanations

Galileo's Cannon

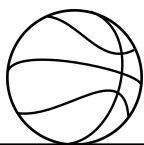
<https://youtu.be/X0y6CzopNCE>

Want to Understand Momentum?

<https://www.youtube.com/watch?v=CEz3cpkno3Y>

Name _____

Energy Data Recording Sheet



Basketball

	Height
Trial 1	
Trial 2	
Trial 3	
Trial 4	

Tennis ball



	Height
Trial 1	
Trial 2	
Trial 3	
Trial 4	

Tennis Ball on Basketball

What happens?



Basketball on Tennis Ball

What happens?



Ping Pong Ball



	Height
Trial 1	
Trial 2	
Trial 3	
Trial 4	

Three Balls

What happens?

Kinetic Energy



Energy an object has
due To its motion

Law of Conservation of Energy



Energy cannot be created or destroyed but
Transferred from one form To another

Potential Energy



Stored energy based
on The position OR state



The four most important tennis events of the professional season are called the Grand Slam tournaments or the Majors.

The most points are awarded for these tournaments.

Australian Open



Where:
Melbourne

Court Surface:
Hard

When:
January

French Open



Where:
Paris, France

Court Surface:
Clay

When:
May/June

Wimbledon



Where:
London, England

Court Surface:
Grass

When:
July

US Open



Where:
New York City, USA

Court Surface:
Hard

When:
August/September

Win	2000
Finals	1200
Semi-Finals	750
Quarterfinals	360

Men

Points Earned	Number of Players
5200	I
4360	I
1950	I
1560	I
1200	I
1100	III
750	III
720	II
360	IIII II

Women

Points Earned	Number of Players
3150	I
2360	II
2000	II
1860	I
1560	I
1470	I
1200	I
1110	I
750	III
360	IIII III

Mode

The number that appears the most

2, 2, 3, 4, 4, 4, 6, 7

Median

The number in the middle

2, 2, 3, 3, 4, 4, 6, 7

Range

The difference in the largest and smallest numbers

2, 2, 3, 3, 4, 4, 4, 6, 7
7 - 2 = 5

Minimum

The smallest number

2, 2, 3, 3, 4, 4, 4, 6, 7

Maximum

The largest number

2, 2, 3, 3, 4, 4, 4, 6, 7

Men's 2017 Grand Slam Point Earners



Quarterfinals and Above

	Australian Open	French Open	Wimbledon	US Open	Total
Rafael Nadal	1200	2000		2000	5200
Roger Federer	2000		2000	360	4360
Stan Wawrinka	750	1200			1950
Marin Cilic		360	1200		1560
Kevin Anderson				1200	1200
Andy Murray		750	360		1110
Pablo Carreno Busta		360		750	1110
Sam Querrey			750	360	1110
Dominic Thiem		750			750
Grigor Dimitrov	750				750
Juan Martin del Potro				750	750
Tomas Berdych			750		750
Milos Raonic	360		360		720
Novak Djokovic		360	360		720
Andrey Rublev				360	360
David Goffin	360				360
Diego Schwartzman				360	360
Gilles Muller			360		360
Jo-Wilfried Tsonga	360				360
Kei Nishikori		360			360
Mischa Zverev	360				360

Win	2000
Finals	1200
Semi-Finals	750
Quarterfinals	360

Women's 2017 Grand Slam Point Earners

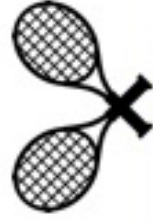


Quarterfinals and Above

	Australian Open	French Open	Wimbledon	US Open	Total
Venus Williams	1200		1200	750	3150
Garbine Muguruza	360		2000		2360
Jejena Ostapenko		2000	360		2360
Serena Williams	2000				2000
Sloane Stephens				2000	2000
CoCo Vandeweghe	750		360	750	1860
Simona Halep		1200	360		1560
Karolina Piskova	360	750		360	1470
Madison Keys				1200	1200
Johanna Konta	360		750		1110
Magdalena Rybarikova			750		750
Mirjana Lucic-Baroni	750				750
Timea Bacsinszky		750			750
Anastasia Pavlyuchenkova	360				360
Anastasija Sevastova				360	360
Caroline Garcia		360			360
Caroline Wozniacki		360			360
Elina Svitolina		360			360
Kaia Kanepi				360	360
Kristina Mladenovic		360			360
Petra Kvitova				360	360
Svetlana Kuznetsova			360		360

Win	2000
Finals	1200
Semi-Finals	750
Quarterfinals	360

Name _____



Men's

Women's

Points Earned	Number of Players
5200	I
4360	I
1950	I
1560	I
1200	I
1100	III
750	IIII
720	II
360	IIII II

What is the range? _____

What is the mode? _____

What is the minimum number of points received? _____

What is the maximum number of points received? _____

What is the median number of points? _____

What is the mode? _____

What is the minimum number of points received? _____

What is the maximum number of points received? _____

What is the range? _____

What is the median number of points? _____

Points Earned	Number of Players
3150	I
2360	II
2000	II
1860	I
1560	I
1470	I
1200	I
1110	I
750	III
360	IIII III

Grand Slam 2017

KEY

Name _____



Men's

Women's

Points Earned	Number of Players
5200	I
4360	I
1950	I
1560	I
1200	I
1100	III
750	IIII
720	II
360	IIII II

What is the mode? **360**

What is the minimum number of points received? **360**

What is the range? **4840**

What is the median number of points? **750**

Points Earned	Number of Players
3150	I
2360	II
2000	II
1860	I
1560	I
1470	I
1200	I
1110	I
750	III
360	IIII IIII

What is the mode? **360**

What is the minimum number of points received? **360**

What is the range? **2790**

What is the maximum number of points received? **3150**

What is the median number of points? **750**

Grand Slam 2017

Your Water Footprint

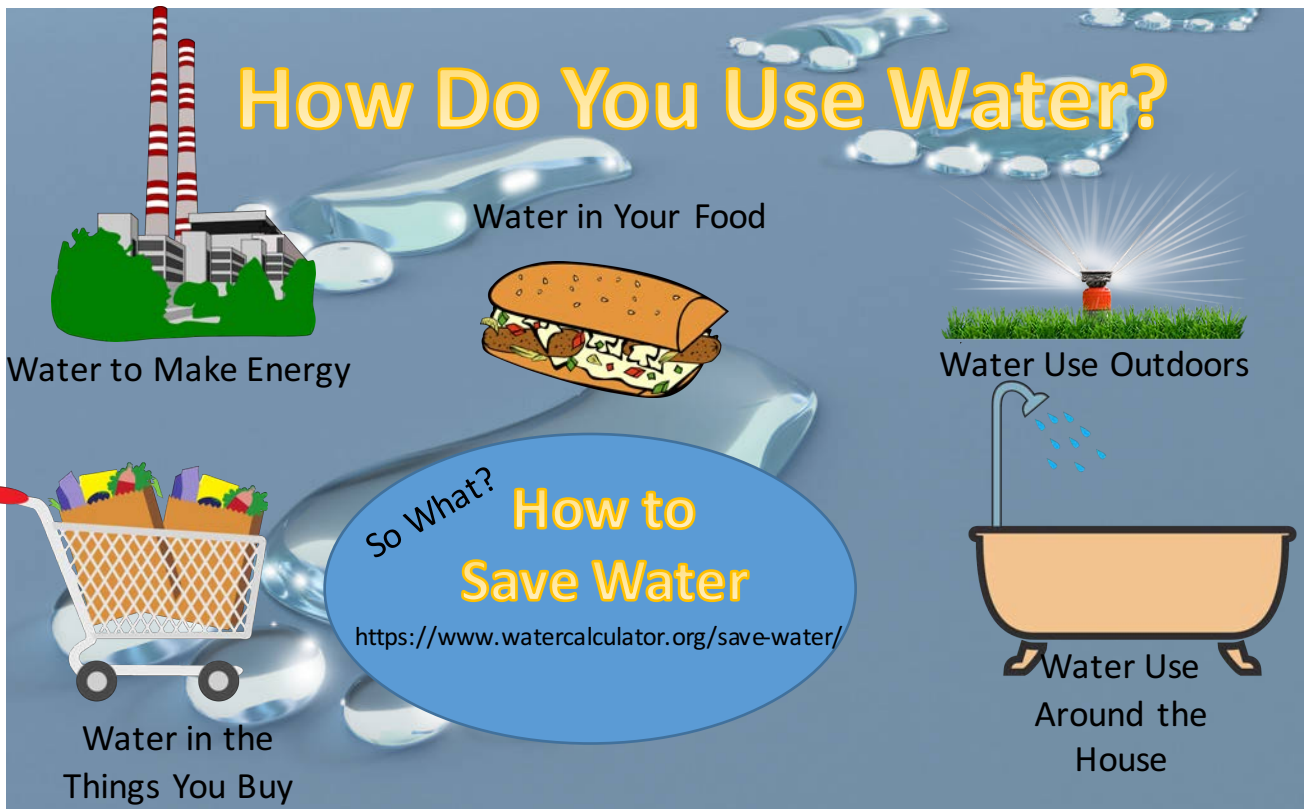
<https://www.watercalculator.org/water-use/#food>

Where is My Water?

<https://youtu.be/b1f-G6v3voA>

This is the total amount of water you use in your daily life. There is the 'direct' water you use in your home and the 'hidden' water used to produce your goods and services.

How Do You Use Water?



Virtual Water

Virtual water is the 'hidden' water it takes to produce our food and other products.

What if I told you:
you EAT 3,496 liters of water
EVERYDAY?



Share this site with students to learn about our "virtual water" use.

<http://thewaterweeat.com/>

Additional Resources

Food's Big Water Footprint

<https://www.watercalculator.org/water-use/foods-big-water-footprint/>

What Do You Know About Virtual Water?

<https://www.amnh.org/explore/ology/water/what-do-you-know-about-virtual-water>

Aquapass

http://waterfootprint.org/media/downloads/AquaPASS_WFN_Final.pdf

Calculating Water Footprint

Following Pages

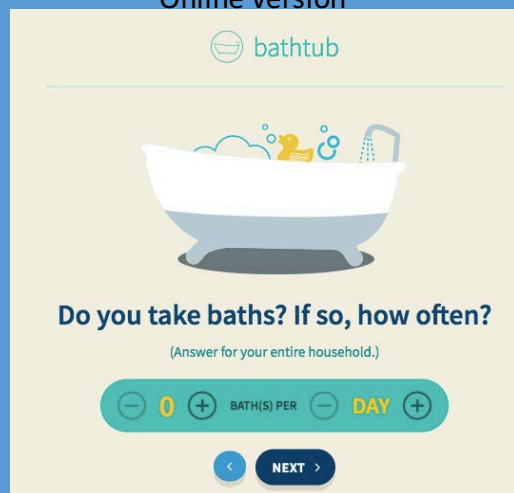
- Two Page Worksheet
- Two Page Key (if using Example Family)
- Example Family Information can be used or students can use their own family

Math Involved

- 7- 1x1 multiplication problems
- 8- 2x1 multiplication problems
- 5- 3x1 multiplication problems
- 1- 4x1 multiplication problems
- 8 addition problems

Water Footprint Calculator

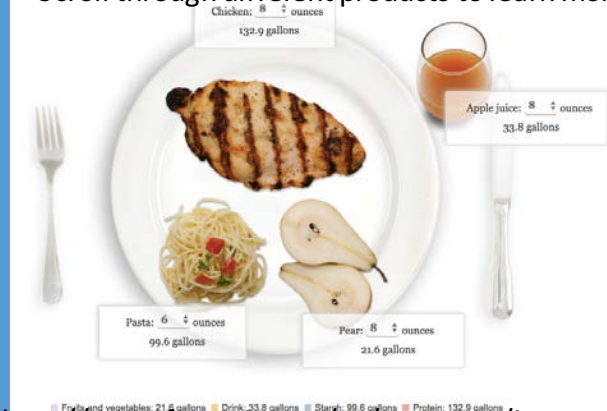
Online Version



<https://www.watercalculator.org/>

Water Use Product Gallery

Scroll through different products to learn more.



<http://waterfootprint.org/en/resources/interactive-tools/product-gallery/>

Virtual Water Use of Calculating Food

Change food items on your plate to see the difference in your water use.



<http://graphics.latimes.com/food-water-footprint/>

A Day in the Life of a Drop
(Labeled "Day Use Table"
6 Pages After)

Students can track the actual direct use of water in their home.

<https://www.epa.gov/sites/production/files/2017-02/documents/ws-ourwater-drop-2-worksheet.pdf>

Name _____



Your Water Footprint

Fill in dotted lines.
Shaded boxes will
be used for Totals
on the back

Water Use To Make Electricity

Use:	How Many:	Do the Math Magic	Total:
Electricity	(# of people in Home)	X 87 (Oklahoma)	A.

Water Use Around the House

Use:	How Many:	Do the Math Magic	Total:
Baths	(# per week)	X 5 (gal)	
Showers	(minutes)	X 3 (gal/min) X # of people	
Toilets	(# of people in home)	X 15 (gal/person)	
Sinks (Bathroom & Kitchen)	(minutes)	X 3 (gal/min) X # of people	
Laundry	(loads/week)	X 4 (gal/load)	
Dishwasher	(loads/week)	X 4 (gal/load)	
		Add the Columns Above	B.

Water Use Outside

Use:	How Many/Often:	Do the Math Magic	Total:
Water the lawn/garden	(times per week)	X 391 gal	
Pool If you have 1	(# of people)	X 22 gal/day	
Auto--Gas	(# of people)	X 27 gal/day	
Car Washing	(# of people)	X 1 gal/day	
		Add the Columns Above	C.

Water In the Things We Buy


Use:	How Many:	Do the Math Magic	Total
Shopping	(# of people)	X 583 gal/day	D.

Water Use To Make Food

Type of Eater	How Many:	Do the Math Magic	Total:
Meat Eaters	(# of people)	X 1739 (gal/day)	
Vegan	(# of people)	X 638 (gal/day)	
Vegetarians	(# of people)	X 790 (gal/day)	
Pet Food	(# of pets)	X 200 (gal/day)	
		Add the Columns Above	E.

Water Savings

Do you?	How Many:	Do the Math Magic	Total:
Paper Recycling	(# of people)	X 3 (gal/day)	
Plastic/Aluminum Recycling	(# of people)	X 2 (gal/day)	
Clothing Recycling	(# of people)	X 3 (gal/day)	
Use of Grey Water		If yes, + 40	
Collect Rainwater	(# of people)	X 2 (gal/day)	
		Add the Columns Above	F.

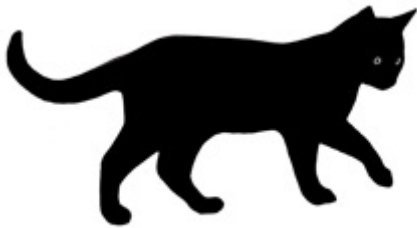
	A.	+
	B.	+
	C.	+
	D.	+
	E.	+
	F.	--
Household Total		
Divide (# of people)		
Individual Total		

The Average American Score is 2,220

1,999 & below: Water Warrior: Congratulations, you are doing better than most Americans! Give yourself a pat on the back for being water conscious. You have a thing or two to teach your neighbors, but there may still be ways to cut back on your water use.

2,000-2,400: Water Activist: Not too shabby! Your water consumption is typical of most Americans. But as we know, Americans are among the highest water users worldwide. The good news is, there are many ways to use less water and decrease your footprint.

2,401 & above: Water Enthusiast: Time for a water-use makeover! Your household is a thirsty one, even by American standards. Now is a great time to think of ways to



Example Family Information

- 3 People (1 adult, 2 kids)
- 2 Meat Eaters, 1 Vegetarian
- Has 2 pets



- Average sink use is 20 minutes a day
- 7 Loads of Dishes a week

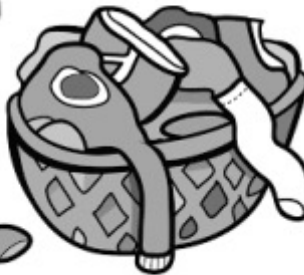


- 1 Bath a week
- Everyone takes about 10 minutes showers

- Water the lawn 2 times a week
- Has 2 cars



- 7 Loads of Laundry a week



- Recycles paper, plastic and clothing regularly
- Does not reuse graywater or collect rainwater





- Has a pool



Key

Green Numbers will vary if students are using their own family. Red Numbers are contingent on the Green Numbers.

Name _____

 **Your Water Footprint** 

Fill in dotted lines.
Shaded boxes will be used for Totals on the back

Water Use To Make Electricity

Use:	How Many:	Do the Math Magic	Total:
Electricity	(# of people in Home) 3	X 87 (Oklahoma)	A. 261

Water Use Around the House

Use:	How Many:	Do the Math Magic	Total:
Baths	(# per week) 1	X 5 (gal)	5
Showers	(minutes) 10	X 3 (gal/min)	90
	3	X # of people	
Toilets	(# of people in home) 3	X 15 (gal/person)	45
Sinks (Bathroom & Kitchen)	(minutes) 20	X 3 (gal/min)	180
	3	X # of people	
Laundry	(loads/week) 7	X 4 (gal/load)	28
Dishwasher	(loads/week) 7	X 4 (gal/load)	28
		Add the Columns Above	B. 376

Water Use Outside

Use:	How Many/Often:	Do the Math Magic	Total:
Water the lawn/garden	(times per week) 2	X 391 gal	782
Pool If you have 1	(# of people) 3	X 22 gal/day	66
Auto--Gas	(# of people) 3	X 27 gal/day	81
Car Washing	(# of people) 3	X 1 gal/day	3
		Add the Columns Above	C. 932

Water In the Things We Buy

Use:	How Many:	Do the Math Magic	Total:
Shopping	(# of people) 3	X 583 gal/day	D. 1749

These numbers are based on the example family.

Key


Green Numbers will vary if students are using their own family. Red Numbers are contingent on the Green Numbers.

Water Use To Make Food

Type of Eater	How Many:	Do the Math Magic	Total:
Meat Eaters	(# of people) 2	X 1739 (gal/day)	3478
Vegan	(# of people) 0	X 638 (gal/day)	0
Vegetarians	(# of people) 1	X 790 (gal/day)	790
Pet Food	(# of pets) 2	X 200 (gal/day)	400
		Add the Columns Above	E. 4668

Water Savings

Do you?	How Many:	Do the Math Magic	Total:
Paper Recycling	(# of people) 3	X 3 (gal/day)	9
Plastic/Aluminum Recycling	(# of people) 3	X 2 (gal/day)	6
Clothing Recycling	(# of people) 3	X 3 (gal/day)	9
Use of Grey Water	No	If yes, + 40	0
Collect Rainwater	(# of people) No	X 2 (gal/day)	0
		Add the Columns Above	F. 24

	A. +	261
	B. +	376
	C. +	932
	D. +	1749
	E. +	4668
	F. --	24
Household Total		7962
Divide (# of people)		3
Individual Total		2654

The Average American Score is 2,220



These numbers are based on the example family.

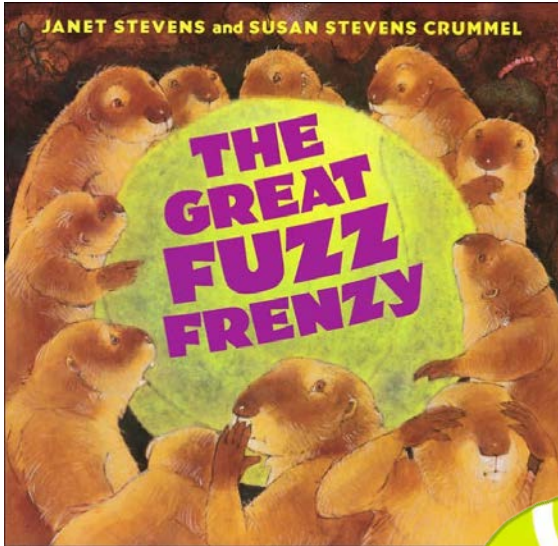
WATER USE TABLE



Today is:

Note: If you need more rows (more than 6 uses), add them to the back of this sheet, but don't forget to include them in your calculations!

		Family Members →			Mom			Audrey			Dad			Number of minutes/uses per fixture										
		Fixture →			Faucet	Shower	Bath	Toilet	Faucet	Shower	Bath	Toilet	Faucet	Shower	Bath	Toilet	Faucet	Shower	Bath	Toilet				
USES	1ST	1.5 min	12 min	1																				
	2ND	14 min		1																				
	3RD	4 min		1																				
	4TH			1																				
	5TH			1																				
	6TH																							
A 1-4	Total # of minutes or uses per person, per fixture, per day	19.5 min A1	12 min A2	0 uses A3	5 A4																			
B 1-4	Total # of gallons per person, per fixture, per day	42.9 gal B1	18 gal B2	0 gal B3	17.5 gal B4																			
C	Total # of gallons per person, per day	78.4																						
D	Total # gallons per person, per week	452.6 gal/week					423 gal/week	500.5 gal/week					581.7 gal/week											
E	Average # gallons per person, per day	82.5 gal/day					71.5 gal/day					83.1 gal/day												
BONUS		Average # gallons per family, per day																						
		553.3 gal/family/day																						

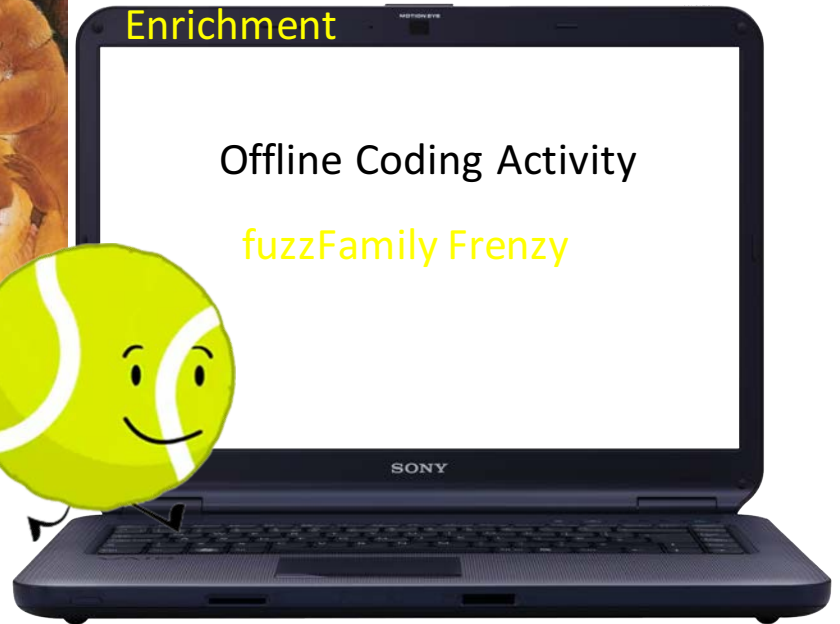


Use The Great Fuzz Frenzy to introduce or review a variety of figurative language types.

Enrichment

Offline Coding Activity

fuzzFamily Frenzy



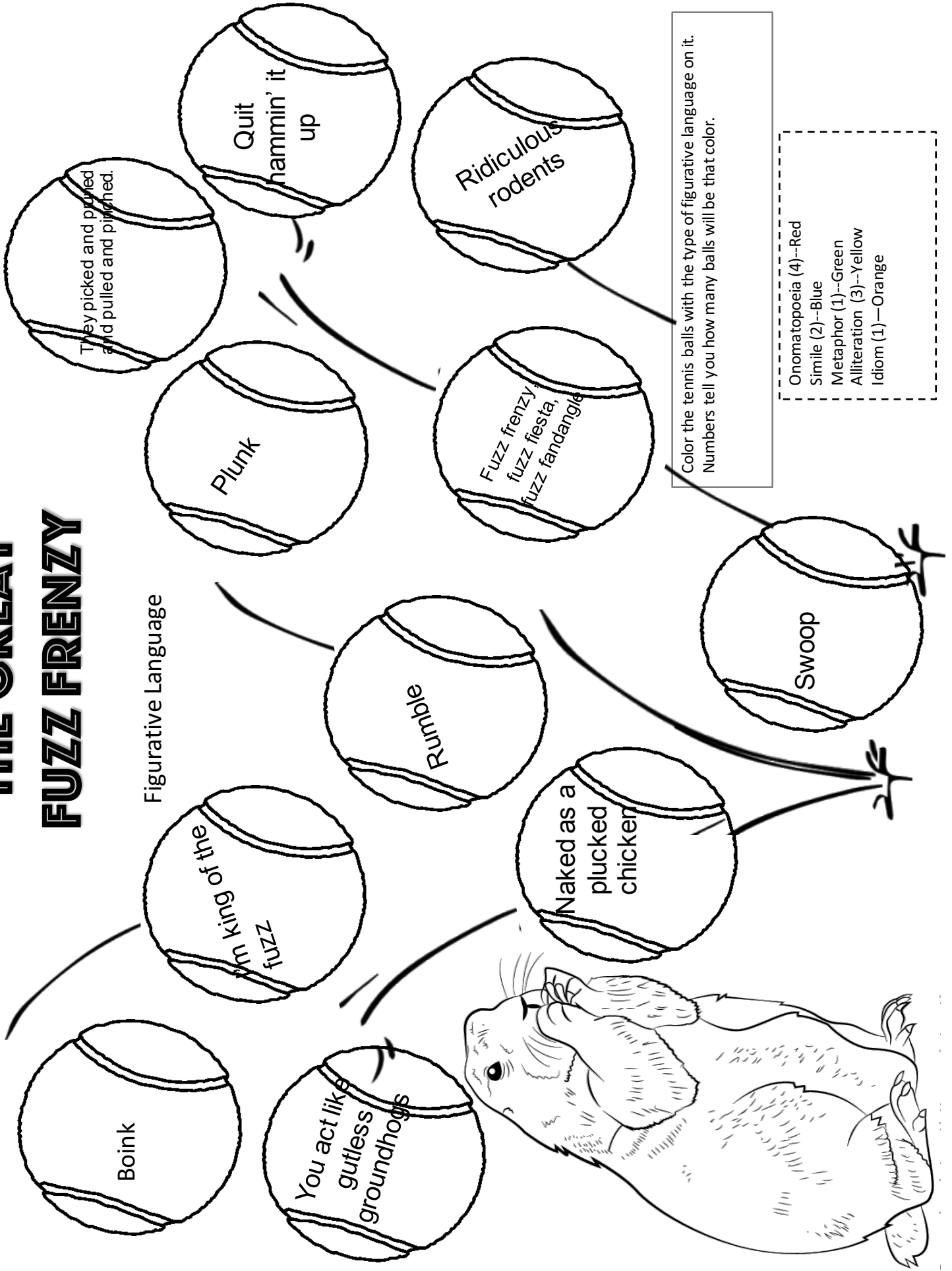
The following 7 pages include a worksheet and figurative language posters. *Not all types of figurative language is included in the book.

<http://code.org/files/fuzzFamilyFrenzy.pdf>

Name _____

THE GREAT FUZZ FRENZY

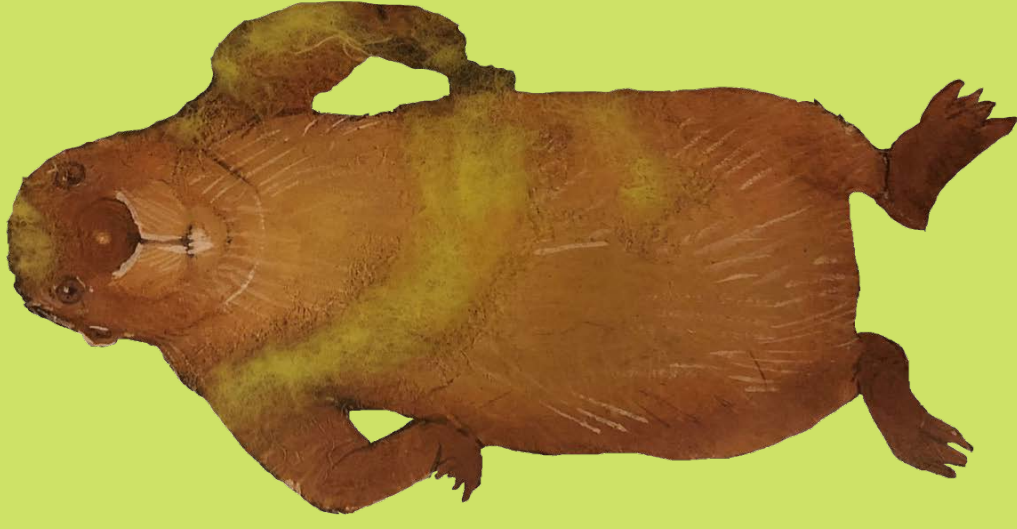
Figurative Language



Alliteration

*The repetition of the same
beginning sound in a series of
words.*

Example: It was a fuzz
fight. A fuzz feut. A fuzz
fiasco.



Simile

A comparison of two unlike things using "like" or "as".

Example: That big round thing
was as smooth as a bald head.



Metaphor

*A comparison of two unlike things
WITHOUT using "like" or "as".*



Example: Lil Pip is an angel.

Onomatopoeia

*A word used to
imitate a sound*

Example: Thump! Plop!



PERSONIFICATION

When nonhuman things are given human characteristics or actions



Example: The big round thing hoped no one would notice it.

Idiom

A phrase that has a different meaning that what it says



Example:

The appearance of the big round thing rocked the boat.

Meaning: it caused a disturbance

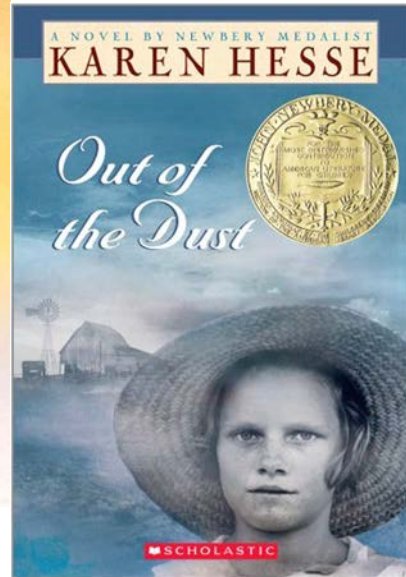
Hyperbole



Example: The eagle zoomed in at the speed of light.

An extreme exaggeration

Two characters desperately needing water...



One story told in a picture book....

The other is a free verse novel.

Teach one book or teach them together for comparison.



Author Karen Hesse

The seed for *Out of the Dust* grew out of a picture book idea. Presented with an early draft of my picture book, *Come On, Rain* (Scholastic Press), my writing group insisted I elaborate on why my characters wanted rain so badly. I began researching times when people desperately wanted rain, and *Out of the Dust* blossomed into existence.

Language Arts

Speaking, Reading, Writing, Listening and More Lesson Ideas

<https://betterlesson.com/community/document/384078/book-come-on-rain-pdf>



Complete Lesson Plan for Book :

Page by Page
<https://goo.gl/ibS2l3>

Online Version of Come On, Rain!

http://assets.pearsonschool.com/asset_mgr/pending/2013-10/GK_3_Text_Collection.pdf

Language Arts

Class Reading Guide

Lesson Plans focus on Theme, Vocabulary

<https://www.scholastic.com/content/dam/teachers/lesson-plans/migrated-featured-files/out-of-the-dust-story-tg.pdf>

Onomatopoeia

Alliteration

Metaphor

Symbolism

Foreshadowing

Personification

Tone

Theme

Discussion Guide

Focus on Plot, Character

Simile

Hyperbole

<https://www.scholastic.com/teachers/lesson-plans/teaching-content/out-dust-discussion-guide/>

Imagery

Allegory

Novelinks Extensive Resources

<http://novelinks.org/pmwiki.php?n=Novels.OutOfTheDust>

Allusion

Out of the Dust



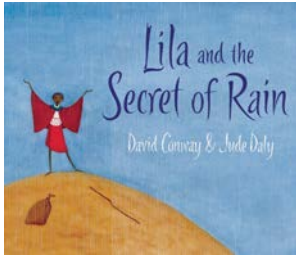
Public Art is SmART

Norman Arts Council

Splash

RELATED BOOKS

Picture Books

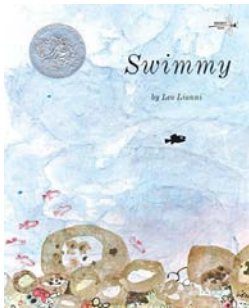


Lila and the Secret Rain

By David Conway & Jude Daly

For months the sun has burned down on Lila's Kenyan village. It is too hot to gather firewood, too hot to weed the garden, even too hot to milk the cow. Without rain the well will run dry and the crops will fail. Lila is so worried that when her grandfather whispers to her the secret of rain, she decides to go and talk to the sky herself. How Lila saves the village by telling the sky the saddest thing she knows is told in David Conway's elegant and spare prose style, which is complemented perfectly by Jude

Daly's beautiful and poignant illustrations. www.amazon.com



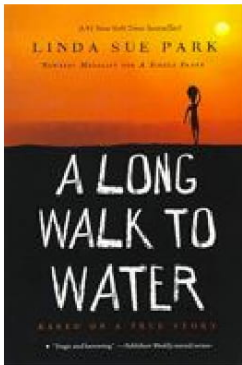
Swimmy

By Leo Lionni

Deep in the sea lives a happy school of fish. Their watery world is full of wonders, but there is also danger, and the little fish are afraid to come out of hiding . . . until Swimmy comes along. Swimmy shows his friends how—with ingenuity and team work—they can overcome any danger.

Winner of the 1964 Caldecott Honor, this beloved tale of a brave little fish has been a favorite to generations of readers. www.amazon.com

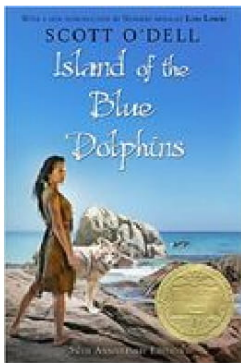
Novels



A Long Walk to Water

By Linda Sue Park

The New York Times bestseller *A Long Walk to Water* begins as two stories, told in alternating sections, about two eleven-year-olds in Sudan, a girl in 2008 and a boy in 1985. The girl, Nya, is fetching water from a pond that is two hours' walk from her home: she makes two trips to the pond every day. The boy, Salva, becomes one of the "lost boys" of Sudan, refugees who cover the African continent on foot as they search for their families and for a safe place to stay. Enduring every hardship from loneliness to attack by armed rebels to contact with killer lions and crocodiles, Salva is a survivor, and his story goes on to intersect with Nya's in an astonishing and moving way. www.amazon.com



Island of the Blue Dolphins

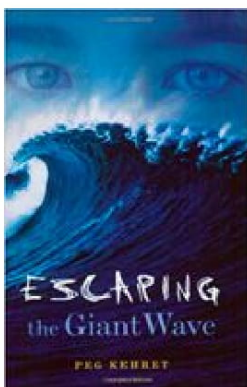
By Scott O'Dell

Far off the coast of California looms a harsh rock known as the island of San Nicholas. Dolphins flash in the blue waters around it, sea otter play in the vast kelp beds, and sea elephants loll on the stony beaches.

Here, in the early 1800s, according to history, an Indian girl spent eighteen years alone, and this beautifully written novel is her story. It is a romantic adventure filled with drama and heartache, for not only was mere subsistence on so desolate a spot a near miracle, but Karana had to contend with the ferocious pack of wild dogs that had killed her younger brother, constantly guard against the Aleutian sea otter hunters, and maintain a

precarious food supply.

More than this, it is an adventure of the spirit that will haunt the reader long after the book has been put down. Karana's quiet courage, her Indian self-reliance and acceptance of fate, transform what to many would have been a devastating ordeal into an uplifting experience. From loneliness and terror come strength and serenity in this Newbery Medal-winning classic. www.amazon.com



Escaping the Giant Wave

By Peg Kehret

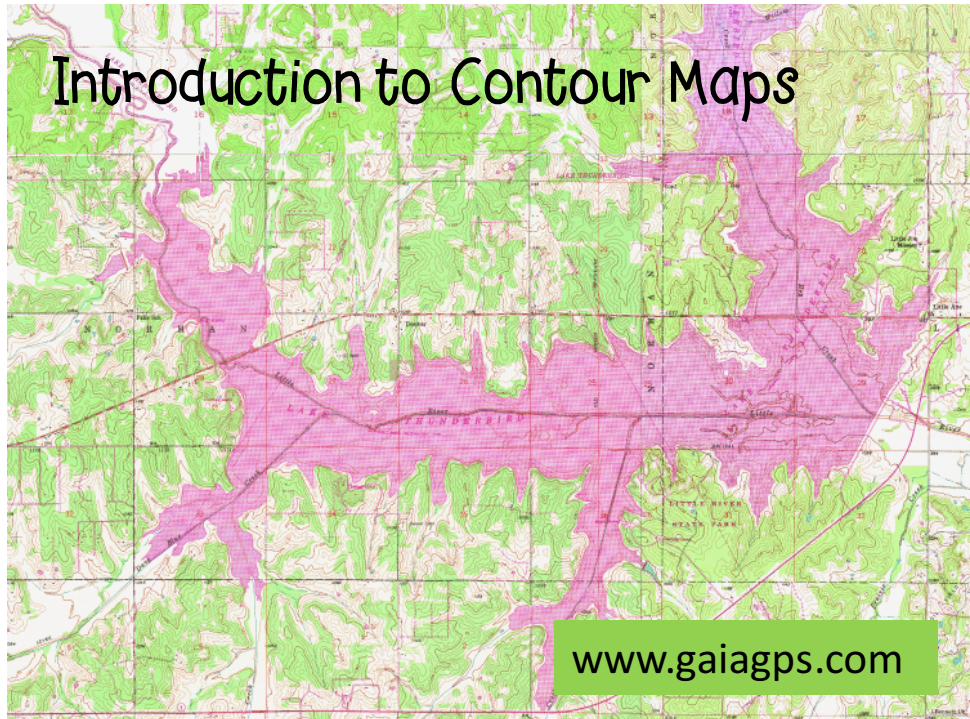
The Worst Vacation Ever!

Thirteen-year-old Kyle thought spending a vacation on the Oregon coast with his family would be great. He'd never flown before, and he'd never seen the Pacific Ocean. One evening Kyle is left in charge of his younger sister, BeeBee, while his parents attend an adults-only Salesman of the Year dinner on an elegant yacht. Then the earthquake comes -- starting a fire in their hotel! As Kyle and BeeBee fight their way out through smoke and flame, Kyle remembers the sign at the beach that said after an earthquake everyone should go uphill and inland, as far from the ocean as possible.

Giant tsunami waves -- three or four stories high can ride in from the sea and engulf anyone who doesn't escape fast enough.

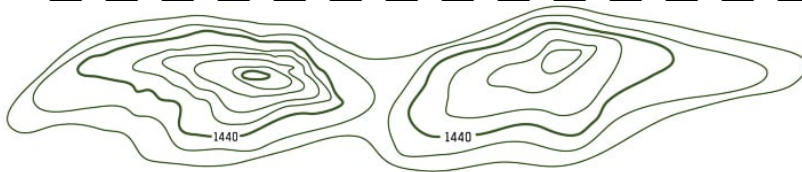
Kyle and BeeBee flee uphill as a tsunami crashes over the beach, the hotel, and the town. The giant wave charges straight up the hillside and through the woods where the children are running for their lives. The perfect vacation has become a nightmare! Somehow Kyle and BeeBee have to outwit nature's fury and save themselves from tsunami terror. www.amazon.com

Introduction to Contour Maps

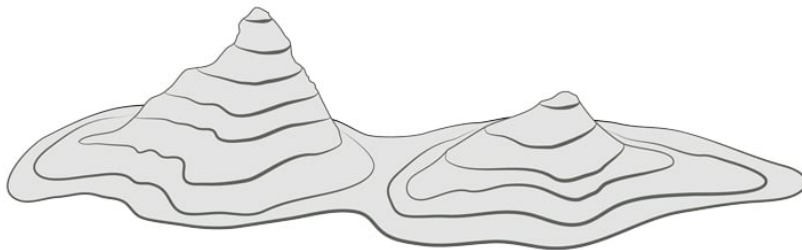


www.gaiagps.com

Use this resource to explore different contour maps.



WHAT YOU SEE
ON YOUR MAP



3-D VIEW
OF LANDMARK

What is a Contour Map?

Understanding Contour Lines

https://youtu.be/4i_6eToM3X8

A contour map is another name for a topographic map, or a map that shows the elevation of land on a flat paper surface.



Shows the shape of the land

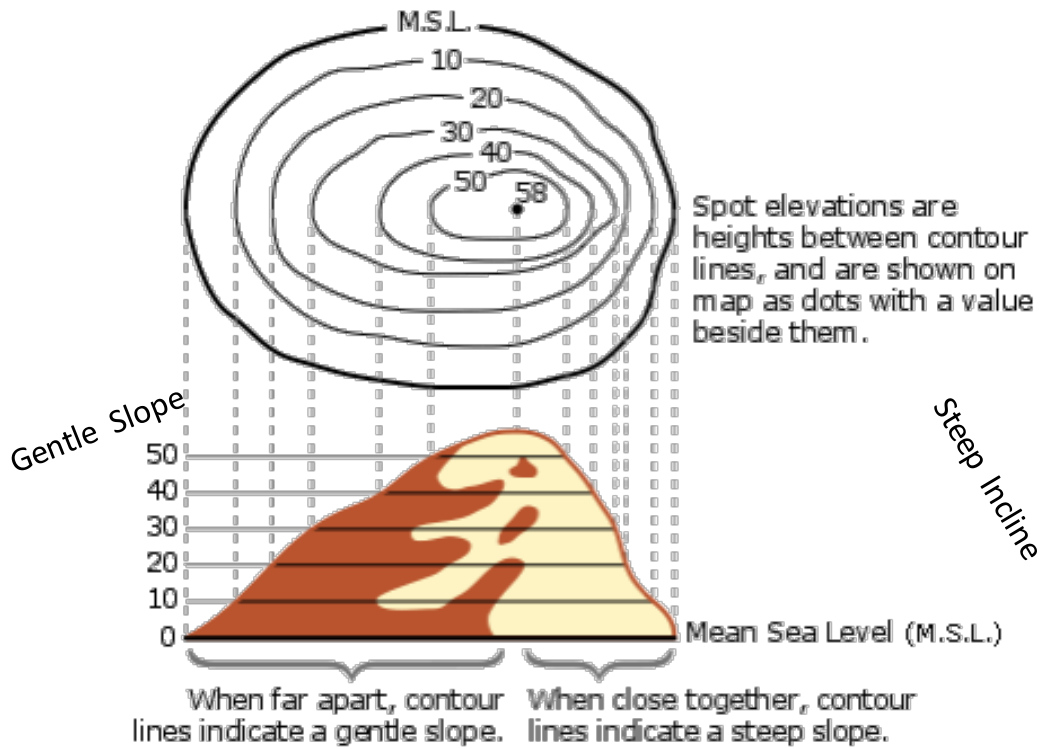
Representing



National Geographic Introduction to Contour Maps

<https://es.education.nationalgeographic.com/activity/introduction-to-contour-maps/>

FAR APART LINES



CLOSE TOGETHER LINES

Ed Ted Talk: Introduction to Topographic Maps
<https://ed.ted.com/on/GWPcBLpe#review>

TERMS TO HELP

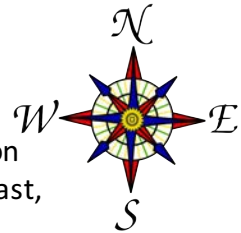
Elevation

Height Above Sea Level; Altitude



Compass Rose

Shows the direction on the map like North, East, South, West



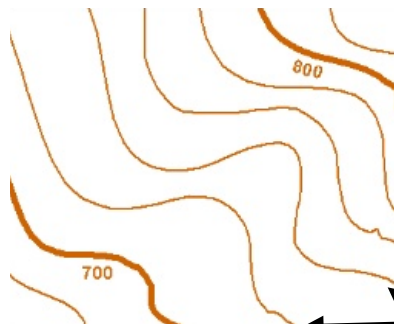
Relief

The difference between the lowest and highest elevations



Contour Lines

A line on a map that joins points of equal elevation



20 units change in elevation

Terrain

The physical features of an area

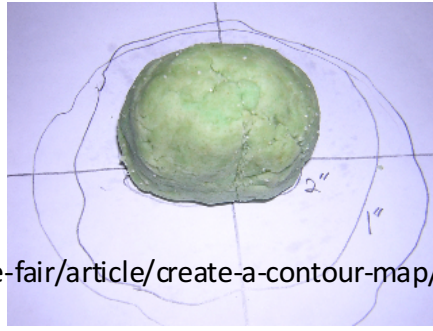


Contour Interval

Similar to a scale on a map, it tells you the amount of rise in elevation for each line drawn

Create a Contour Map

<https://www.education.com/science-fair/article/create-a-contour-map/>



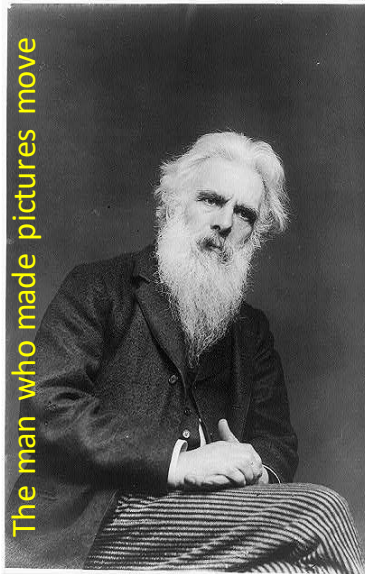
Make a Knuckle Contour Map

<https://www.education.com/activity/article/knuckle-contour-map/>

Watch this bit of Oklahoma history...



https://youtu.be/PLV_ThA-eZk



https://www.flickr.com/photos/library_of_congress/13624593813

As one walks around Splash, there is a sense of movement with the placement of the metal plates. Learn about the man credited with the first "moving" pictures. Then, create moving pictures using stop motion animation.

Eadweard Muybridge

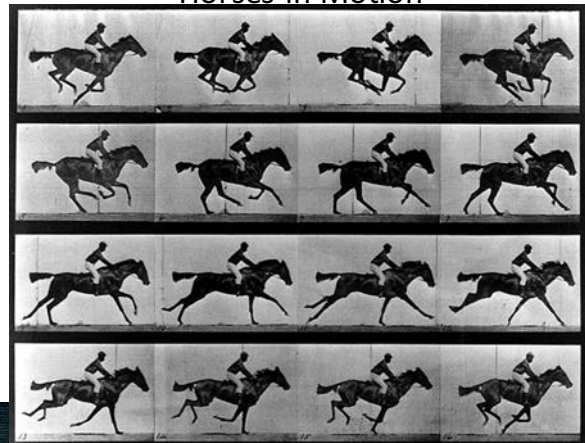
"In 1872, the former governor of California Leland Stanford, a race-horse owner, hired Eadweard Muybridge to undertake some photographic studies. Stanford had reputedly taken a bet on whether all four of a racehorse's hooves are off the ground simultaneously. On 15 June 1878, Muybridge set up a line of cameras with tripwires, each of which would trigger a picture for a split second as the horse ran past. "

<https://www.theguardian.com/artanddesign/picture/2013/jun/15/horse-eadweard-muybridge>

Other Muybridge Sources and Photographs

- <http://100photos.time.com/photos/eadweard-muybridge-horse-in-motion>
- https://alumni.stanford.edu/get/page/magazine/article/?article_id=39117
- http://www.eadweardmuybridge.co.uk/muybridge_image_and_context/animal_in_motion/

Horses in Motion



Lawn Tennis



*Be aware that Muybridge did many nude photos so use discretion.

Stop Motion Animation

Learn About Stop Motion Animation

ISTE: Engage elementary students with stop motion animations

<https://www.iste.org/explore/articledetail?articleid=128>

10 steps for getting started using Stop Motion with your students—any age

Stop Motion Animation in the Classroom with Kathy Shrock

<http://blog.discoveryeducation.com/blog/2016/05/01/animation/>

Curriculum ideas along with practical advice to get started with your class. Ideas for using Slides, Cut-outs, and more.

Making Claymation in the Classroom

http://www.tech4learning.com/files/Making_Claymation_in_the_Classroom.pdf

Extensive, thorough guide to stop motion.

Clay-mation

<http://www.ipadartroom.com/clay-mation/>

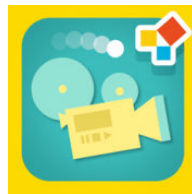
Great advice for stop motion with some tips for using clay!

Stop Motion Animation Apps/Programs

Apps come and go. In some of the articles, they references apps that don't exist any longer. These are current apps (as of 2018).



Easy Studio Stop-Motion Studio for iPad



PAID



iMovie (Mac and iPad)



On NPS Devices

TIPS

One rule of thumb is for students to take 10 different images for each second of video they want to create.

It's really important to not move the iPad/camera between shots.




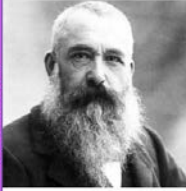
Storyboarding helps students to plan and helps the process not get bogged down when filming.

Warning: Students often try to make too big of changes between each shot.

Art Cards

Request a complete set of the Water themed Art Cards!

The margin of the card is colored coded according to the medium so all oil paintings are pink, all photography is yellow, etc. This will make it easier for you if you want to use all of one media in your activity. There are no rules; you can use all of the cards or just some of them.

Felting		<p style="text-align: center;"><i>Seascape Collection</i></p> <p>Created Unknown Medium Mixed Media including Hand felted wool What is in the picture? In this work, Wyeth uses shiny beads to resemble the sparkle of sunlight in the water as it reaches the beach. Do you see... Wyeth uses the felted wool in a similar way to how she used brushstrokes in an oil painting. She discovered that creating textile pictures combined her love of painting and drawing with sewing and making things that she had growing up. Did you know... Felting is an ancient craft that involves working with a fiber like sheep's wool to make a felted fabric using soap and water. The wool isn't spun and it's not knitted, woven, or crocheted. The technique is basic, requires very little experience or tools, and "mistakes" may well lead to interesting results.</p>	
Acrylic		<p>Created 2014 Medium Acrylic What is in the picture? To give the appearance of water in the upper left backs, flippers and snorkels. Do you see... Acrylic paint is a fast-drying mixture of man-made pigments and a variety of different mediums like a watercolor or an oil. Did you know... Baroncelli travels to many locations around the world to capture nature's beauty.</p>	
Oil on Canvas		<p style="text-align: center;"><i>Regatta at Sainte-Adresse</i></p> <p>Created 1867 Medium Oil on Canvas What is in the picture? This seascape depicts groups of well-dressed people enjoying a summer day. Do you see... The white sails visually connect the blue and green, cool colors, of the water to the blues and whites of the sky. Did you know... Monet concentrated on painting sunlight in a scene at different times of the day and would sometimes work on several paintings all at the same time, switching back and forth as the light changed.</p>	

The Splash art cards provide a fun, visual way for students to relate art history to a work of Norman's public art that is about a ball hitting the surface of water making a splash. Each card features a work art that has an element of water as the subject matter. These works of art cross a wide span of time and include several different media such as oil on canvas, watercolor, photography, prints, and felted wool. The reverse side of each card lists the artist, title, date created, and medium as well as a description of the subject, a note about the work, and an interesting fact.

Art Card Activities

Individuals



1. Write about the image (formal details e.g. the colors, lines, style, etc.)
2. Tell about what they see in the image
3. Research the artist and find interesting additional facts about them (but be aware that some contemporary artist don't have a lot written about them)
4. Write about the story the image tells
5. Draw or write about the next scene
6. Give a critique of the work (what they think is good and what they think isn't very good) –everyone is a critic but they have to identify and articulate/write about specifics
7. Create their own picture showing the water in a similar way it's handled on their card
8. Reproduce the image they selected in another medium

Pairs of students

1. Each student would pick a card
2. Together they compare and contrast the two images



Whole Group

Select a card, read the information and then talk about the piece.

After that provide time for students to talk about it, what they see, how it makes them feel, etc.



Class project

- Each student can make a piece of art based on the theme of water
- Students will make their own art card with their artwork and information. (Cards can either be handwritten a card or created using the electronic template including a picture of their artwork.)
- Display the cards in the hall and make a class copy of water themed art cards.

Splash

Oklahoma Standards

Many standards only change in the depth and breadth as grade levels progress. Generally, standard numbers are given where the base standard applies although working might be slightly different amongst grade levels.

VISUAL ARTS

STANDARD 1: Language of Visual Art: “Presenting” The student will identify and communicate using a variety of visual art terms.

1. Use appropriate art vocabulary to describe art.

STANDARD 2: Visual Art History and Culture: “Responding” The student will recognize the development of visual art from a historical and cultural perspective.

2. Identify connections between different the visual arts and other art disciplines.

STANDARD 3: Visual Art Expression: “Creating” The student will observe, select, and utilize a variety of ideas and subject matter in creating original works of art.

3. Demonstrate understanding and knowledge of composition using the elements of art and principles of design.

STANDARD 4: Visual Art Appreciation: “Connecting” The student will appreciate and utilize visual art to make interdisciplinary connections and informed aesthetic decisions

4. Make learning connections between visual art and other disciplines, such as mathematics, science, Language Arts, social studies, and media arts.

MATH

3.N.2.3

Use strategies and algorithms based on knowledge of place value and equality to fluently add and subtract multi-digit numbers.

4.N.1.5 , 5.N.1.4

Solve real-world and mathematical problems requiring addition, subtraction, multiplication, and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.

4.N.1.3

Multiply 3-digit by 1-digit or a 2-digit by 2-digit whole numbers, using efficient and generalizable procedures and strategies, based on knowledge of place value, including but not limited to standard algorithms.

5.A.1.1

Use tables and rules of up to two operations to describe patterns of change and make predictions and generalizations about real-world and mathematical problems.

5.D.1.1

Find the measures of central tendency (mean, median, or mode) and range of a set of data. Understand that the mean is a “leveling out” or central balance point of the data.

LANGUAGE ARTS

3.2.F.2, 4.2.F.2

Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text.

3.3.R.4, 4.3.R.4

Students will find examples of literary devices

5.3.R.4, 6.3.R.4, 7.3.R.4

Students will evaluate literary devices to support interpretations of literary texts.

3.2.R.2, 4.2.R.2, 5.2.R.2 Students will compare and contrast details (e.g., plots or events, settings, and characters) to discriminate genres.

3.5.R.3 Students will recognize adjectives, articles as adjectives, and adverbs.

3.1.R.3, 4.1.R.3, 5.1.R.3 Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly in pairs, diverse groups, and whole class settings.

SCIENCE

Science and Engineering Practices

1. Ask questions and define problems

4-PS3-3 Students who demonstrate understanding can: Ask questions and predict outcomes about the changes in energy that occur when objects collide.

3. Plan and conduct investigations

4-PS3-2 Students who demonstrate understanding can: Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents

4. Analyze and interpret data

4-ESS2-2 Students who demonstrate understanding can: Analyze and interpret data from maps to describe patterns of Earth's features.

5. Use mathematical and computational thinking

6. Construct explanations and design solutions

4-PS3-1 Students who demonstrate understanding can: Use evidence to construct an explanation relating the speed of an object to the energy of that object.

8. Obtain, evaluate, and communicate information

2-ESS2-3 Students who demonstrate understanding can: Obtain information to identify where water is found on Earth and that it can be solid or liquid.

SOCIAL STUDIES

Process and Literacy Skills Standard 3

The student will develop and demonstrate Common Core speaking and listening skills.

A. Comprehension and Collaboration

1. Engage effectively in a range of collaborative discussions

History Literacy Content Standard 4 (3rd)

The student will analyze the significant events and historic personalities contributing to the development of the state Oklahoma.

Content Standard 1 (4th)

The student will analyze the physical, cultural, political, economic, and the historic features and places of the regions of the United States.