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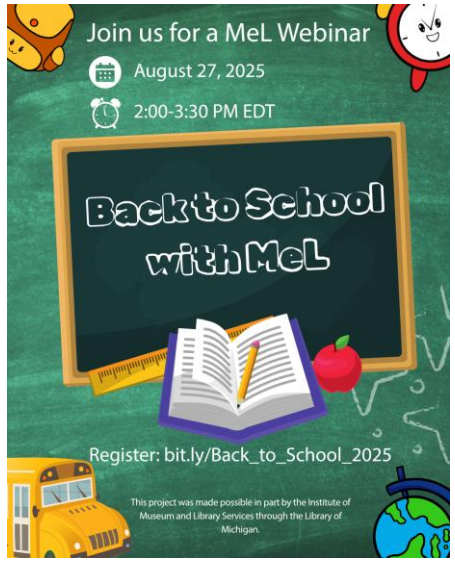

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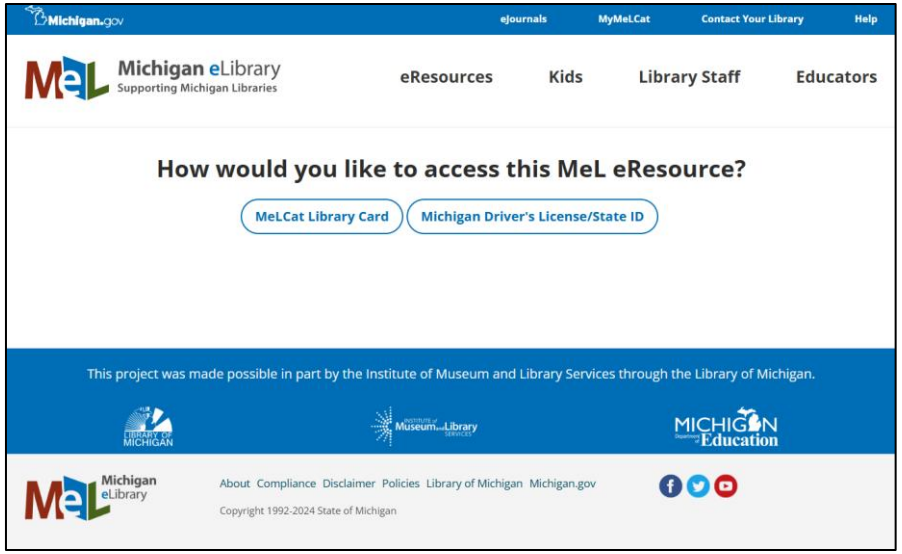

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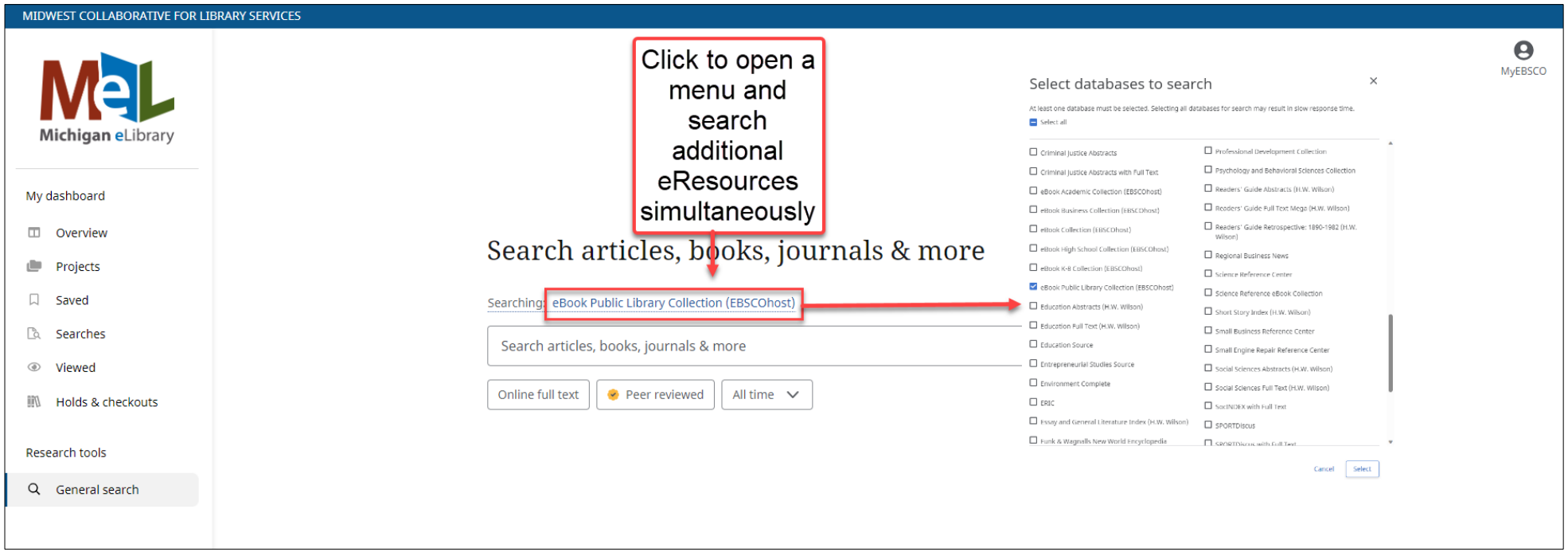

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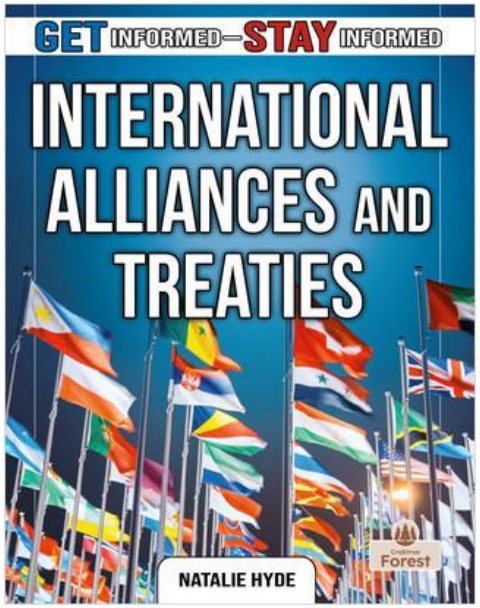

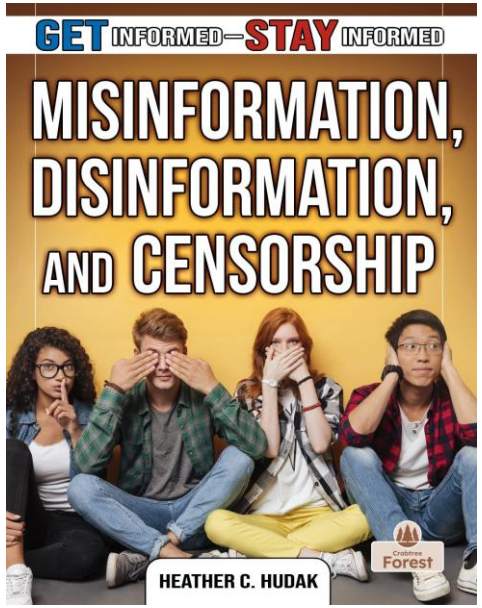

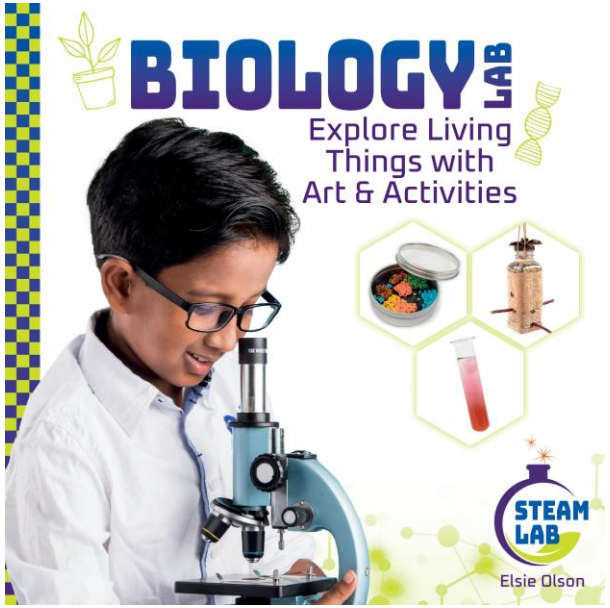

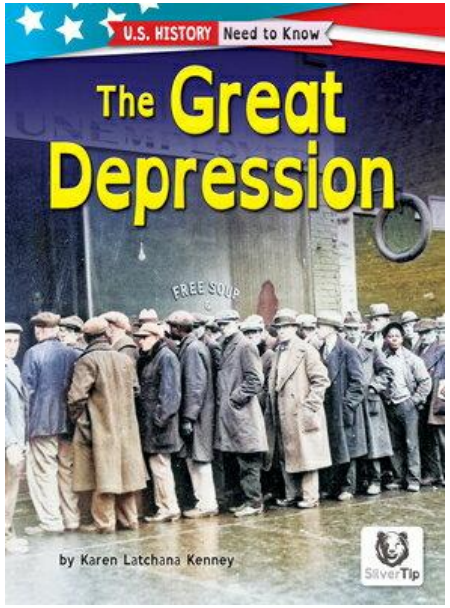

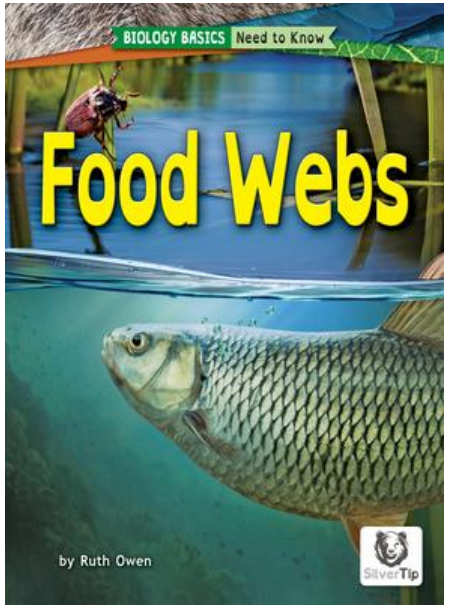

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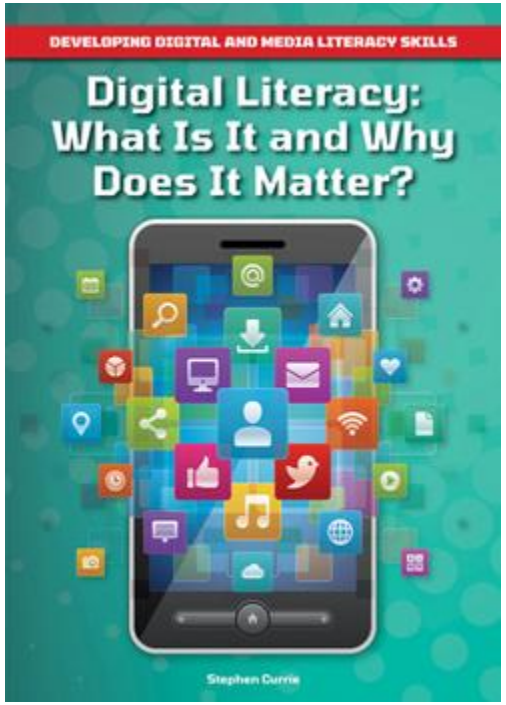

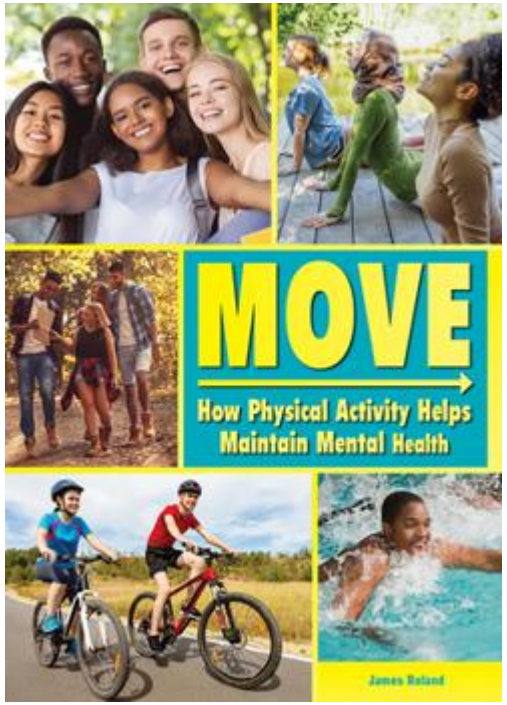

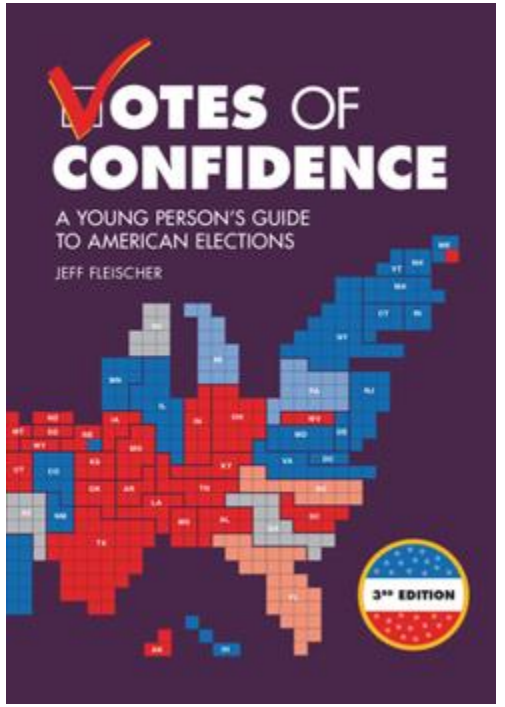

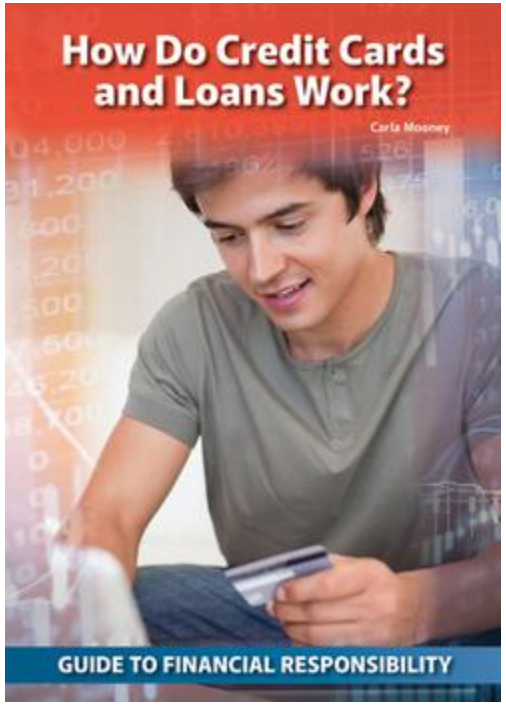

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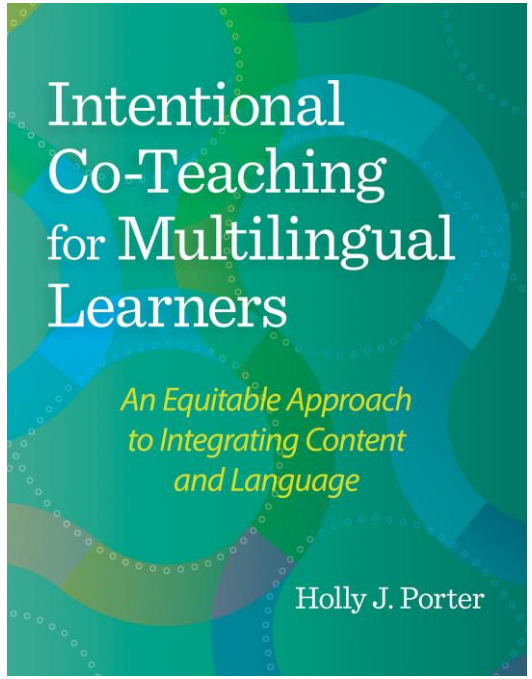

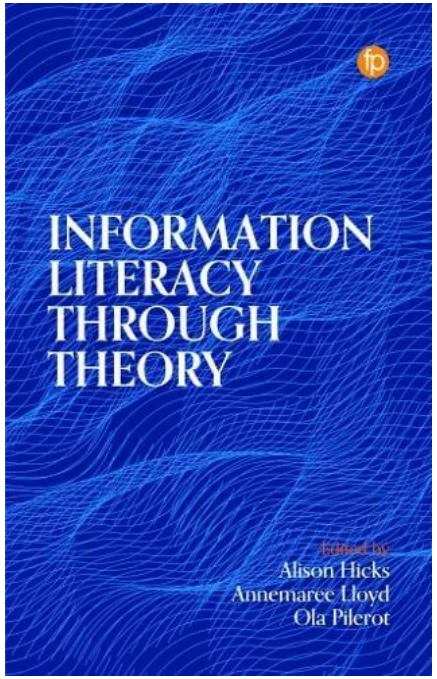

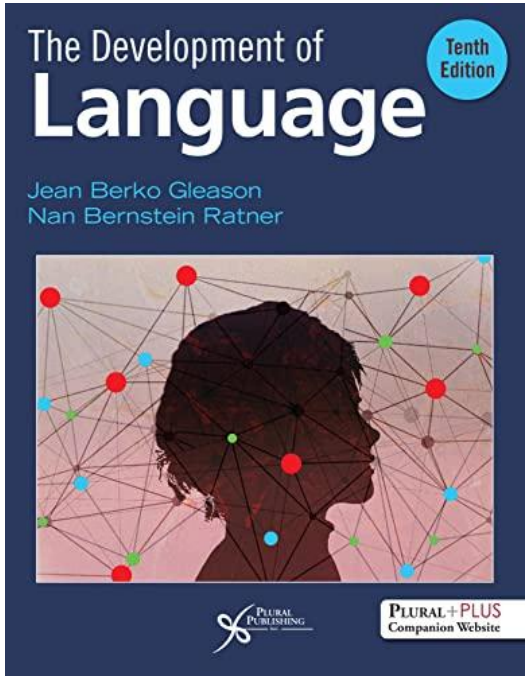

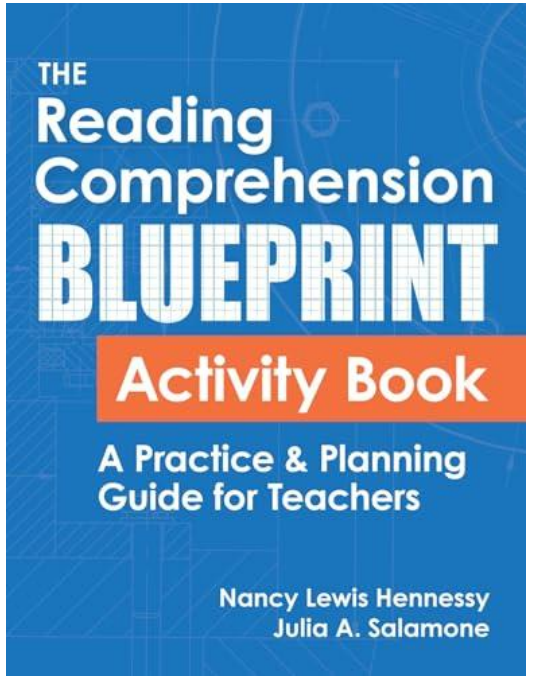

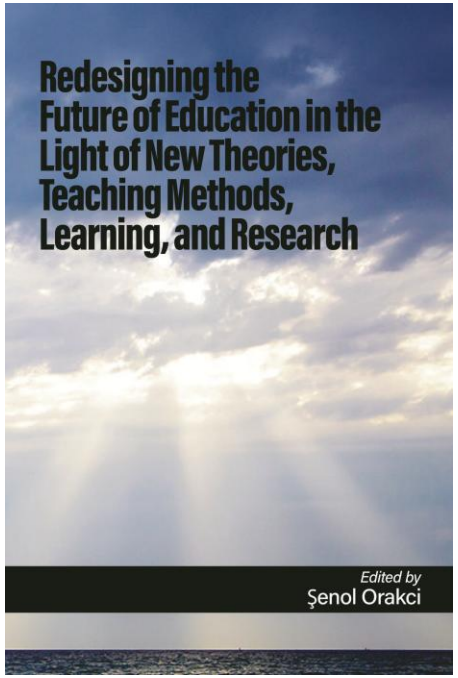

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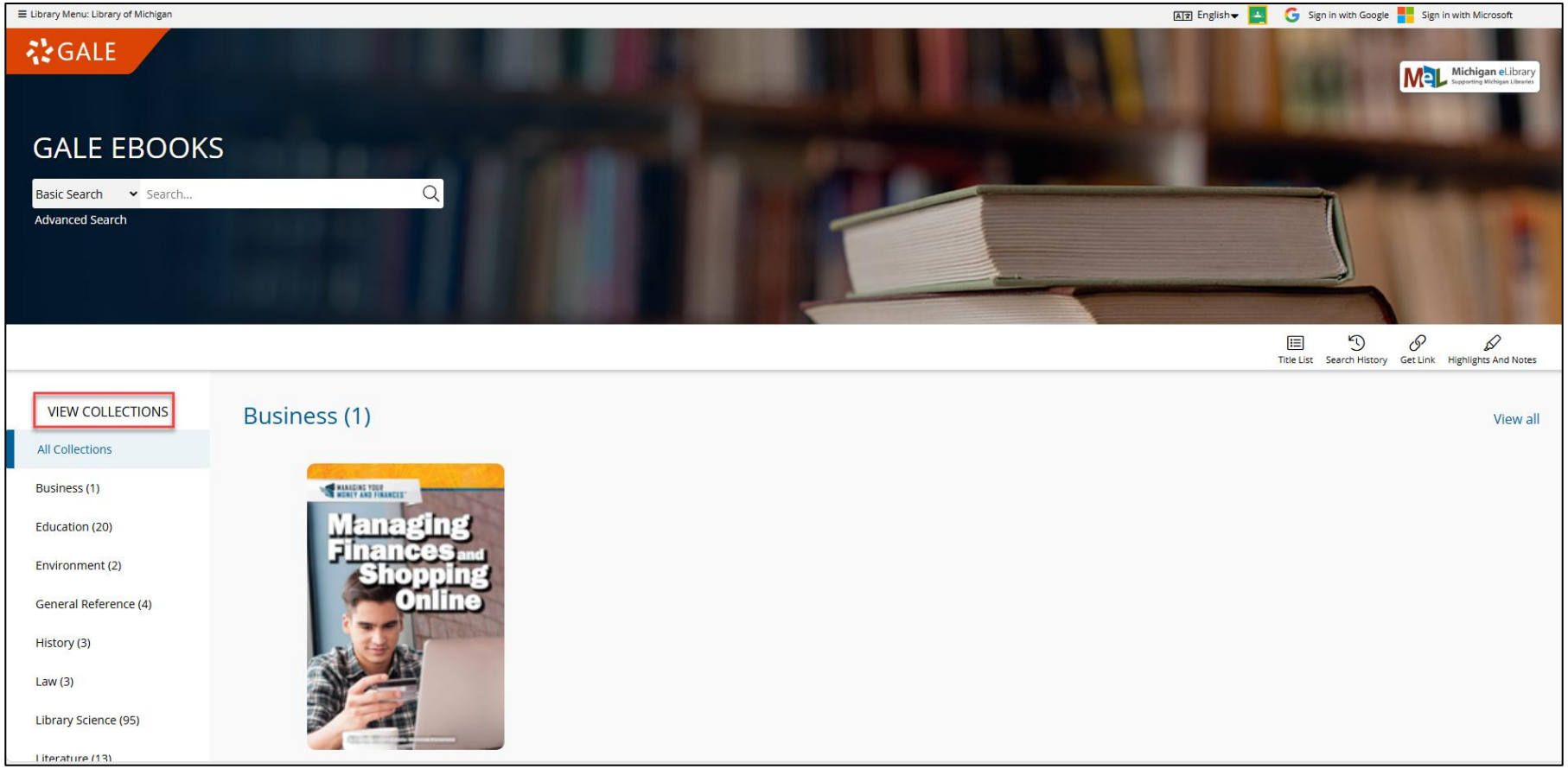
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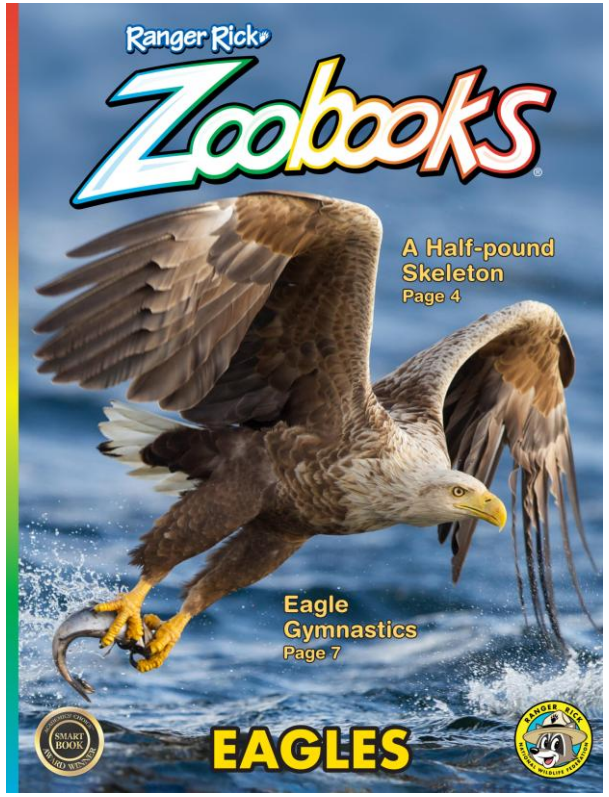

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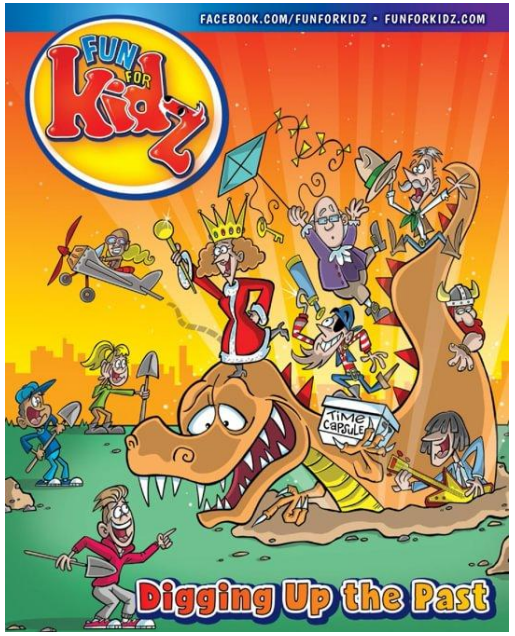

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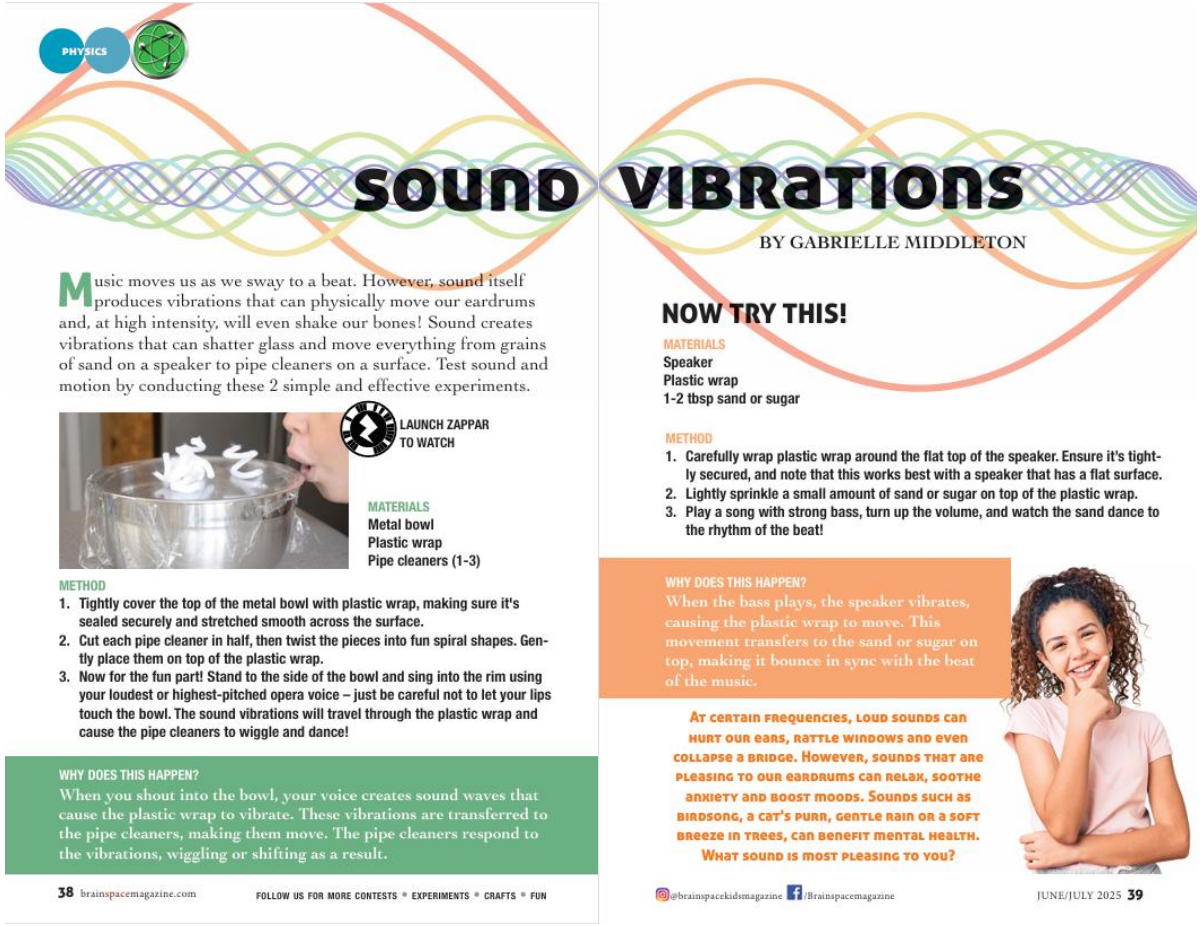

PHYSICS

SOUND VIBRATIONS

BY GABRIELLE MIDDLETON

Music moves us as we sway to a beat. However, sound itself produces vibrations that can physically move our eardrums and, at high intensity, will even shake our bones! Sound creates vibrations that can shatter glass and move everything from grains of sand on a speaker to pipe cleaners on a surface. Test sound and motion by conducting these 2 simple and effective experiments.

LAUNCH ZAPPAR TO WATCH

MATERIALS
Metal bowl
Plastic wrap
Pipe cleaners (1-3)

METHOD
1. Tightly cover the top of the metal bowl with plastic wrap, making sure it's sealed securely and stretched smooth across the surface.
2. Cut each pipe cleaner in half, then twist the pieces into fun spiral shapes. Gently place them on top of the plastic wrap.
3. Now for the fun part! Stand to the side of the bowl and sing into the rim using your loudest or highest-pitched opera voice – just be careful not to let your lips touch the bowl. The sound vibrations will travel through the plastic wrap and cause the pipe cleaners to wiggle and dance!

WHY DOES THIS HAPPEN?
When you shout into the bowl, your voice creates sound waves that cause the plastic wrap to vibrate. These vibrations are transferred to the pipe cleaners, making them move. The pipe cleaners respond to the vibrations, wiggling or shifting as a result.

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NOW TRY THIS!

MATERIALS
Speaker
Plastic wrap
1-2 tbsp sand or sugar

METHOD
1. Carefully wrap plastic wrap around the flat top of the speaker. Ensure it's tightly secured, and note that this works best with a speaker that has a flat surface.
2. Lightly sprinkle a small amount of sand or sugar on top of the plastic wrap.
3. Play a song with strong bass, turn up the volume, and watch the sand dance to the rhythm of the beat!

WHY DOES THIS HAPPEN?
When the bass plays, the speaker vibrates, causing the plastic wrap to move. This movement transfers to the sand or sugar on top, making it bounce in sync with the beat of the music.

AT CERTAIN FREQUENCIES, LOUD SOUNDS CAN HURT OUR EARS, RATTLE WINDOWS AND EVEN COLLAPSE A BRIDGE. HOWEVER, SOUNDS THAT ARE PLEASING TO OUR EARDRUMS CAN RELAX, SOOTHE ANXIETY AND BOOST MOODS. SOUNDS SUCH AS BIRDSONG, A CAT'S PURR, GENTLE RAIN OR A SOFT BREEZE IN TREES, CAN BENEFIT MENTAL HEALTH. WHAT SOUND IS MOST PLEASING TO YOU?

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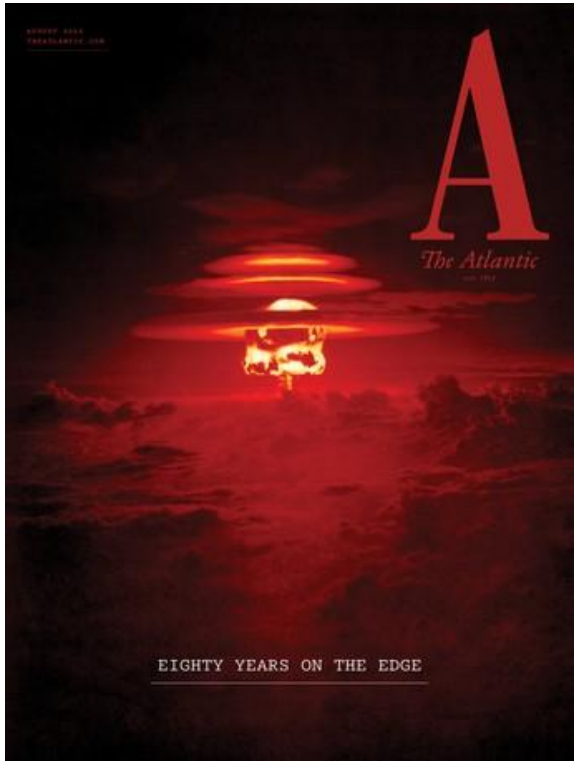
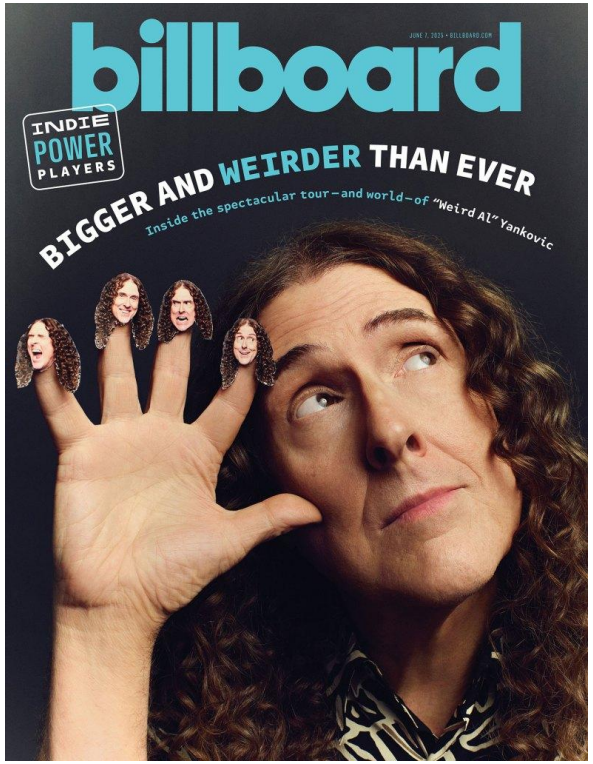
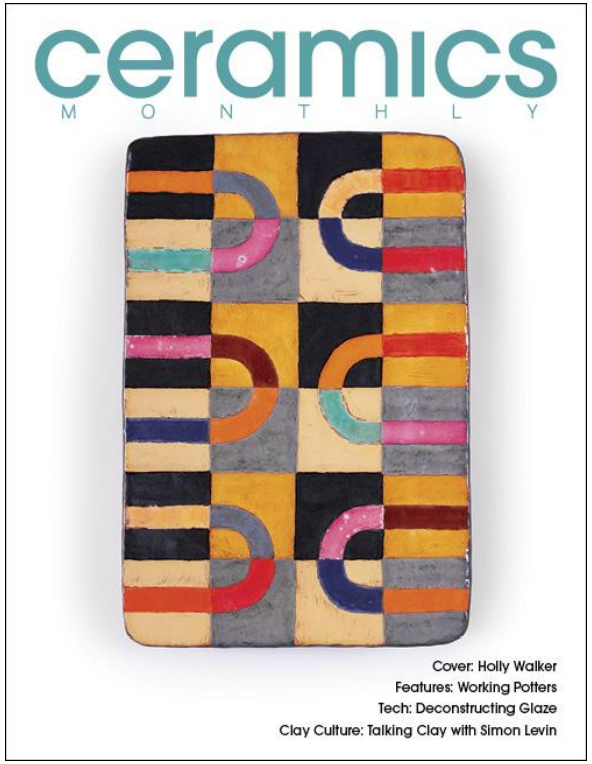
MAS Complete







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TECHNO FILE

deconstructing a glaze

by Jeff Zamek

Knowing how a glaze turns out after a firing isn't enough for some potters. They need to dig through the why and the how of a glaze. By doing so, a foundation of knowledge can be applied to glazes fired at other temperature ranges and in different kiln atmospheres.

Defining the Terms

Alkaline or Alkali: A classification of glazes which are glossy in surface texture offering bright color responses. Alkaline-based glazes can craze due to their high rates of expansion and contraction.

Batch Weight: Glaze materials that add up to 100%. Gums, suspension agents, dyes, opacifiers, metallic coloring oxides, and stains are listed after the 100% batch weight. A method used in some instances to compare one glaze with another.

Coefficient of Expansion: The change in length or volume in a clay body or glaze due to temperature change.

Eutectics: A mixture of two or more materials causing a melting point lower than the melting points of the individual raw materials.

Refractory: A material that can withstand high temperatures.

Unity Formula, Unity Molecular Formula (UMF), or Seger Formula: The formula represents glaze materials in molecules (Mols, units of measurement). In three columns, oxides are listed as fluxes, stabilizers, and glass formers. This system of classification allows one glaze to be compared to others.

Vitrification: Occurs when fluxes in a clay body or glaze start the glass formation process.

The Building Blocks

What's in a glaze is a common question we have all considered. When mixing your own glazes or using pre-mixed commercial glazes at some point have you ever wondered what functions specific raw materials serve in a glaze formula, or what amounts of them will be required to achieve a precise outcome? Finding answers to these questions will offer insights into a greater understanding of raw materials when developing your own glazes or trying to correct glaze defects. Deconstructing a glaze will examine the basis for its composition with regard to the individual raw materials' characteristics and their limits based on batch weight guidelines.

One definition among many states glazes are composed of silica which is the primary glass former in pottery glazes. In fact, if a glaze could be formulated just from silica it would be stable in rapid temperature changes, and produce a hard, abrasion-resistant surface, all characteristics potters are currently trying to achieve. However, silica will not go into a melt until 3092°F (1700°C) a much higher temperature than potters can reach in their kilns. The refractory nature of silica requires other oxides to bring it into a melt, forming a eutectic and lowering its maturing point. Additionally, using a 100% silica glaze on a clay body will require a compatible coefficient of expansion on the clay body for an adequate glaze fit (both the clay body and glaze shrinking upon cooling in an acceptable range). Due to silica's unique ability to withstand high temperatures, a form of it was used in the space shuttle tiles.

Some of the most frequently used oxides in glazes are boric oxide, sodium oxide, potassium oxide, lead oxide (no longer used as it is toxic), tin oxide, titanium oxide, zinc oxide, barium oxide, calcium oxide, magnesium oxide, and zirconium oxide. One or more of these oxides can be combined with silica to form a useable glaze that can mature within pottery kiln temperature ranges. Additions of alumina, often in the form of clay which is a refractory material, will stiffen the glaze when molten helping it to remain in place on vertical surfaces and not pool in horizontal areas. The oxides and their carbonate forms can be found individually in raw materials such as zinc oxide (Zn0) or in combinations as found in dolomite calcium and magnesium (Ca0 and Mg0). The combination and amounts of each oxide will determine the temperature range, opacity, surface texture, color development, and light transmission in the glaze. Simply stated, a glaze is composed of silica fluxed with other oxides and stiffened with alumina to form a covering glass over a clay body.[1]

Another factor influencing glaze development is the kiln atmosphere whether it is fired in an oxidation atmosphere (more air than fuel present at combustion), neutral (equal amounts of air and fuel), or reduction (excess fuel than air). In reduction kiln atmospheres, carbon monoxide (oxygen-hungry gas) develops removing oxygen from metallic oxides such as copper and causes its transformation to a red color in glazes. Reduction kiln atmospheres also flux or melt metallic oxides such as iron and manganese causing increased degrees of vitrification as opposed to oxidation atmospheres even when fired to the same temperatures.

A potter looking at a ceramics supplier's catalog of raw materials at first would be overwhelmed by the different clays, feldspars, metallic coloring oxides, and other raw materials. The average list of materials can exceed 120 items. This vast array of materials presents too many options from which to formulate a glaze. However, this universe can be substantially condensed by knowing that eighty percent of glazes will only require between one and twelve raw materials. Some glazes might need only flint, clay, and feldspar to function while others could require eight or more raw materials. By understanding just a dozen materials a workable knowledge of how to construct a glaze becomes possible. Other materials can be added as you become familiar with these twelve.

A central question when looking at any glaze is its raw material content. What are the characteristics of each raw material and how do they influence the fired glaze? Keep in mind raw materials do not act independently but can form eutectic combinations. Raw material combinations can also alter a glazes' surface texture, light transmission, color, and maturing temperature.

Functions of Raw Materials in a Glaze

Each raw material used in a glaze contains one or more oxides or their carbonate forms. Some raw materials contain multiple oxides such as Minspar 200 feldspar having sodium, potassium, alumina, and silica components. When possible it is always best to choose raw materials that have multiple oxide components as long as they fulfill the requirements of the glaze formula as their oxides are integrated more efficiently in nature as compared to using only single oxides. However, in some instances, a single oxide is needed to complete the glaze formula. Potters have many raw material choices to fulfill a glaze formula. Additionally, the same glaze can be constructed using a different set of raw materials as long as the oxide requirements are met in the formula. Let's take apart a glaze and see how each material functions.

Minspar 200 — Na_2O K_2O SiO_2 Al_2O_3 The major flux in this glaze is feldspar. This sodium-based feldspar (the predominate oxide is sodium with lesser amounts of potassium, both are strong alkalis) also contains silica and alumina. Feldspars are an efficient way to introduce alkali oxides into a glaze in relatively insoluble forms. At cone 9 (2300°F/1260°C) Minspar 200 contains all of the above oxides in near-ideal ratios to form a glaze almost by itself. Minspar 200, aside from being a strong flux at this temperature, also brings other glaze materials into an active melt.

Silica — SiO_2 Silica will not melt by itself at the temperatures reached in potter's kilns; however, combining it with other glaze materials lowers its melting point. For most glazes, 325-mesh silica is used. However, finer 400-mesh or coarser 200-mesh sizes are available from most ceramics suppliers. As a general rule, the finer the mesh the more complete the melt as additional surface area is exposed in the heating process.

Wollastonite — CaO SiO_2 This common glaze material contains calcium and silica and is an ideal way to incorporate both materials into a glaze formula. In many glazes, wollastonite can be used in place of whiting (calcium carbonate) as it does not release carbon dioxide when going into a melt. The release of this gas can cause bubbles in the fired glaze. Either the glaze can be recalculated for the addition of silica contained in wollastonite or, in some instances, the extra silica will not significantly change the glaze.

EPK — Al_2O_3 $2SiO_2$ $2H_2O$ EPK is one of many kaolins which are a group of primary clays formed on site. They are relatively non-plastic and white firing. Both its silica and alumina content are refractory stiffening the molten glaze and keeping it on vertical surfaces. An addition of any type of clay in the glaze helps to suspend the liquid glaze in storage.

Gerstley Borate — Na_2O 2CaO $5B_2O_3$ $16H_2O$ 2CaO $3B_2O_3$ $5H_2O$ Na_2O 2CaO $5B_2O_3$ $10H_2O$ Gerstley borate is a popular glaze material with a complex chemical composition of ulexite, colemanite, and probertite. Gerstley borate is an unrefined, hygroscopic (can take on water in the atmosphere in storage), soluble ore with a chemical history that can vary. While these are characteristics that do not lead to reliability, Gerstley borate is found in many past and current glaze formulas bringing other glaze materials into a melt.[3] Gerstley borate is soluble and can leach into the water system of a glaze altering the actual glaze formula. Soluble materials in Gerstley borate can also migrate to the outer surfaces of the pottery during glaze application causing blisters and rough areas in the fired glaze. However, Gerstley borate can promote a variegated glaze surface which is one reason for its use in glazes. Gerstley borate is no longer being mined but still remains in potters' raw material bins. Before formulating any glaze make sure all materials are still currently available.

Zinc Oxide — ZnO While not a strong flux in small amounts it reacts with other glaze materials causing fusion. Zinc oxide also helps prevent crazing (a fine network of lines in the fired glaze due to glaze tension upon cooling) and has an intensifying effect on cobalt blue colors. Zinc oxide contributes durability and hardness, and promotes a craze-resistant glaze.

Cobalt Carbonate — $CoCO_3$ Cobalt carbonate and the more concentrated larger particle size, cobalt oxide is one of the strongest metallic coloring agents in either its oxide or carbonate form. One part of cobalt in 100,000 parts of white glaze will have a tinting effect. Cobalt can be a strong flux in glazes and dissolves efficiently in high alkaline and boron-based glazes.[4]

DARK BLUE GLOSS GLAZE Cone 6 Reduction		BATCH WEIGHT LIMITS[2]
Gerstley Borate	16 %	0 to 20%
Minspar 200	42	40 to 70%
Wollastonite	8	0 to 10%
EPK Kaolin	12	2 to 12%
Silica 325 Mesh	18	5 to 25%
Zinc Oxide	4	0 to 10%
	100 %	
Add:		
Cobalt Carbonate	7 %	

This is a glossy, opaque glaze when fired to cone 6 (2232°F (1222°C)) in a reduction atmosphere.

Batch Weight Limits

The batch weight limit formulas are, in part, based on the unity molecular formulas, which detail the specific parts of molecules of the oxides in the glaze. The unity molecular formula is often referred to as the Skeleton Formula as many glazes are based on this calculation and are then turned into batch weight formulas ready for use.

Based in part on the unity formula batch weight limits for each glaze, materials can be determined. There are no precise cut-off points to the minimum and maximum amounts of materials. In most instances, when a minimum or maximum limit has been reached, as in silica 5% to 25%, the glaze will not be noticeably different—even if 4% or 26% of silica, or possibly greater percentages, is used.

100% Batch Glaze

The individual glaze materials when added should total 100% in the glaze batch. Gums, suspension agents, dyes, opacifiers, metallic coloring oxides, and stains are listed after the 100% batch weight.[5]

the author *Jeff Zamek started his career 57 years ago. He obtained BFA/MFA degrees in ceramics from Alfred University, College of Ceramics, New York. In 1980, he started Ceramics Consulting Services, a ceramics-consulting firm developing clay body and glaze formulas for ceramics supply companies throughout the US. His books,* The Potter's Studio Clay & Glaze Handbook, What Every Potter Should Know, Safety in the Ceramics Studio, *and* The Potters Health & Safety Questionnaire *are available from Jeff Zamek/ Ceramics Consulting Services. For technical information, visit www.jeffzamek.com.*

1 Jeff Zamek, Ceramics Technical # 39 November 2014 March 2015, Glaze Description and Notation.
2 Val Cushing Handbook, 3rd edition and raw material notes from Alfred University, College of Ceramics 1972–73.
3 Jeff Zamek, Ceramics Technical #39 November 2014, March 2015, A Simple Glaze
4 Frank and Janet Hamer, The Potter's Dictionary of Materials and Techniques, Adc C Black, University of Pennsylvania Press, Philadelphia, 1986, page 65.
5 Alfred University, College of Ceramics raw material notes 1973.
Acknowledgments: The following sources were used for additional technical information:
Ian J. Mc Colm. Dictionary of Ceramic Science and Engineering, second edition, Plenum Press, NY
Tony Hansen's Digital Fire Insight Program Limit Formula (Ron Roy Limits).

Curricular Connections

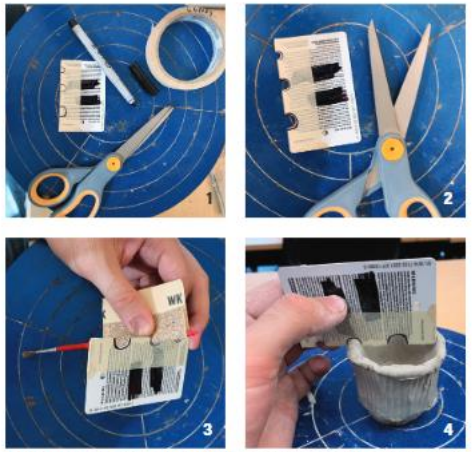
QUICK TIP

rim repair tool

by Damon Lundy

When I was an undergraduate student at SUNY New Paltz, in New Paltz, New York, I remember my former professor having a tool that looked eerily like an old credit card. I saw them using it to add texture to the surface of a ceramic pot, and I asked them about it. They told me they made these homemade tools to fill a niche that they couldn't find in a commercially made tool. I quickly decided to take an old, hard-plastic card lying around and make my own. I've made many of these tools over the years for handles, textures, and refining the rims of bowls, and I think that it's a quick way to modify and adjust a form that you couldn't do as easily with another tool.

The custom rib I find myself using most often is one that I made to refine the rims of bowls. Sometimes I cover my work in plastic, and the plastic will tug on the work and make the rims a little wonky. Instead of scrapping the whole piece, I use this tool to refine the rim to match the other sides of the vessel. I often create these out of old credit cards, or any other thick plastic card, like a student ID or a transit card. To make them, I mark the shape in Sharpie that I want to remove (1), cut out that area with scissors (2), and then refine and smooth the cut edge with 120-grit sandpaper. Usually, I will wrap the sandpaper around the end of a paintbrush to help me round out the cut space evenly (3). To use the rib, drag it over the rim of a piece and notice how the clay takes the shape of the cut profile (4).



1 Suggested tools: permanent marker, scissors, tape, paintbrush handle, hard-plastic card, and 120-grit sandpaper. **2** Cover the card in tape, mark your rounded profiles, and cut with scissors. **3** Sand edges to remove any rough spots. **4** Use to refine any rims or feet to fit the profile cut into the card.

Articles to support:

- Curricular objectives
- Specialized content areas
- Personalized interests

Curricular Connections

A DAY IN THE LIFE

MORNING
7:00 Wake up take Dominic, my dog, out, let out the chickens, and feed all the animals.
8:00 Drink coffee, tidy up the house, watch the news, and make an Instagram post.
9:00 Walk with Dominic through the woods and prairie, sometimes with my pottery cohort Connee Mayeron, who lives next door.
10:00 Begin studio time, tasks vary depending on what I am working on. Sometimes wheel throwing, sometimes handbuilding, and sometimes glazing.

AFTERNOON
1:00 Go inside for lunch, check on the garden, and walk Dominic.
2:00 Studio afternoons begin with more forming of pieces or glazing, or sometimes photographing work.
5:00 Finish up studio work, take Dominic out, collect eggs from the chickens, and pick vegetables for dinner.

EVENING
6:00 Make a cocktail and cook dinner.
7:00 Have dinner with my husband and housemate.
8:00 Watch TV with my husband.
10:00 Take Dominic out before bed, take a hot bath, and go to sleep.

CAREER SNAPSHOT

YEARS AS A PROFESSIONAL POTTER
24

NUMBER OF POTS MADE IN A YEAR
500–1000

EDUCATION
Bachelor of Arts/English Literature, University of Michigan
One-year apprenticeship in studio ceramics with UK potter Rupert Spira

THE TIME IT TAKES (PERCENTAGES)
Making work: 60%
Promotion/selling: 25%
Office/bookkeeping: 15%

FAVORITE TOOL
Sherrill Mudtools blue rib

PROCESS
I love combining throwing and handbuilding: throwing and handbuilding components and then assembling them into a thrown and altered form.

WHERE IT GOES
Retail Stores: 5%
Galleries: 40%
Craft/Art Fairs: 30%
Studio/Home Sales: 10%
Online: 5%
Other/Commissions/Interior Designers: 10%

WHERE TO SEE MORE
Lucy Lacoste Gallery; www.lucylacoste.com
Studio Tashtego; studiotashtego.com
The Nineteen Twenty-Two; www.thenineteentwentytwo.com
Dobrinka Salzman Gallery; www.dobrinkasalzman.com

LEARN MORE
www.anikasten.com
Instagram: @anidagmar
Facebook: @ani.kasten

WORKING POTTER

Ani Kasten

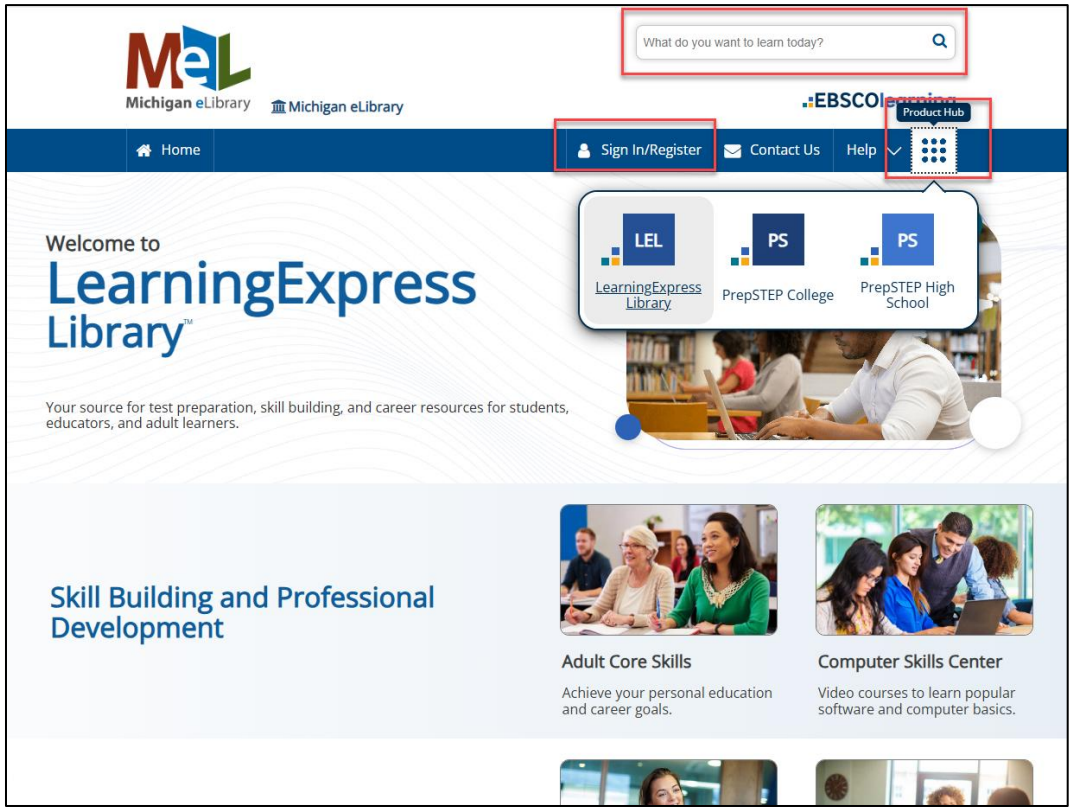
Growing up in a family with two artisan parents, my sister and I were raised without television and were encouraged to pursue creative activities starting at a young age. I was brought up with a strong ethos in our daily lives enriched by objects made by hand. My father made textiles and our home was filled with handmade rugs, drapery fabric, and upholstery fabric. My mother grew our food and was a masterful gardener and cook. They both collected and valued art. Throughout my schooling, I became interested in writing and wanted to pursue a liberal arts degree in college, always with my desire to work in visual arts on the back burner. I feel to this day that my time studying literature and writing is very useful to me in the life I have made working in clay—being able to communicate and write proficiently has many important applications for a working potter, from crafting artist statements to applying for grants to writing articles, I use my English degree almost daily.

A Clay Introduction

After college, I began an apprenticeship in studio ceramics with a potter in the UK named Rupert Spira. My love of working with clay came about randomly and as a bit of a surprise. The apprenticeship was very traditional and located on a old sheep farm in the countryside of the West Midlands, near the Welsh border. My days began at 8 in the morning and included three hours with which to practice wheel-throwing, and working on my own pieces. The rest of the day was packed with studio tasks like pugging clay, mixing glazes, testing glazes with line and triaxial blends, firing the reduction gas kilns, weighing out clay balls, and stoking the wood stove in my teacher's studio, as well as packing his work for shipping. As soon as I began the apprenticeship, I knew clay was going to be my chosen path for the rest of my life.

The apprenticeship was a hit-the-ground-running crash course on making a living as a professional potter. Every day we worked from 8–5, and I learned all

EBSCO Learning

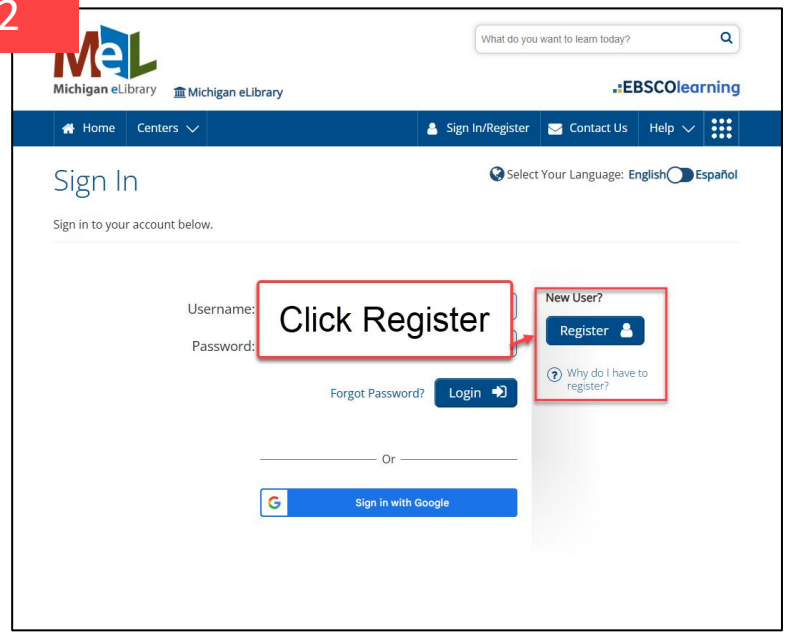


- Learning resources for grades 4-12
- High-stakes test prep (ACT, SAT, AP, GED)
- Computer hardware and software tutorials
- Career, trades, and military preparation

Create a FREE EBSCO LearningExpress Account

1

2



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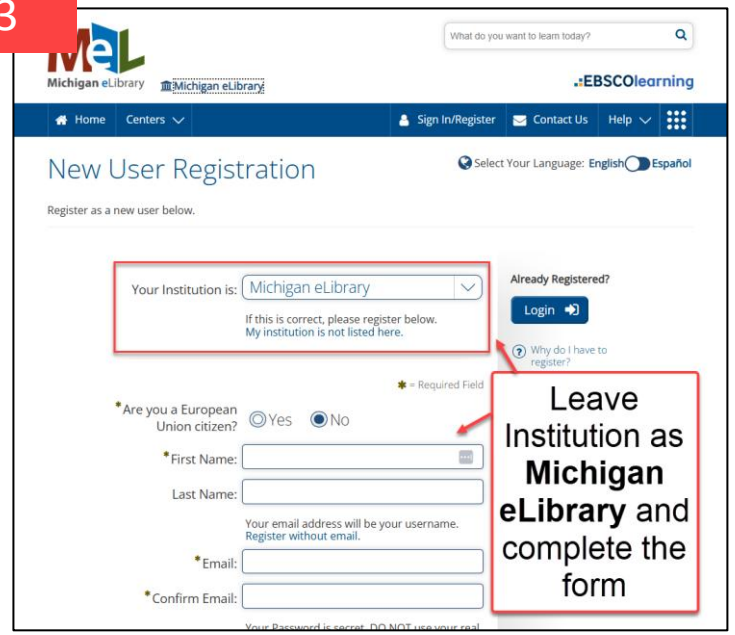


If **Your Institution does not display as **Michigan eLibrary**, contact melerhelp@mcls.org for support

Content Updated Quarterly

New and Updated Resources

August's quarterly content release contained 149 new and updated resources. You do not need to do anything to take advantage of these newly added resources. As part of your EBSCOlearning subscription, all new content will automatically appear.

New

- Guided GRE® Course including 59 Microlessons
- 27 AWS Center Training Courses
- 12 Flashcard Decks of English-Spanish medical terms
- 10 Digital ACT® Practice Tests
  - English Practice Tests 3 & 4
  - Math Practice Tests 3 & 4
  - Reading Practice Tests 3 & 4
  - Science Practice Tests 3 & 4
  - Writing Practice Tests 3 & 4
- 4 ACT® Microlessons
- 8 SAT® Guided Course Module Posttests
- 6 AI Microlessons
- 4 ServSafe® Practice Tests
  - ServSafe® Allergens Practice Exams 1 & 2
  - Spanish-language ServSafe® Allergens Practice Exams 1 & 2
- OAT® Practice Exam 2

Updated

- 9 DSST® Practice Tests
  - Business Mathematics Practice Test 1, 2 & 3
  - Computing and Information Technology Practice Test 1, 2 & 3
  - Management Information Systems Practice Test 1, 2 & 3
- 2 DSST® Videos
  - DSST® Business Mathematics Test Prep: Introduction
  - Computing and Information Technology: Introduction
- 5 AP® Practice Tests
  - Algebra-Based Practice Exam 1 & 2
  - Physics C: Electricity and Magnetism Practice Exam
  - Chemistry Practice Exam 1 & 2
- Physical Therapist Assistant Practice Exam 2
- Scholarship Finder

New Guided GRE® Course with Microlessons

EBSCOlearning has added a new guided GRE® course with 59 microlessons designed to help learners master key areas of the exam.

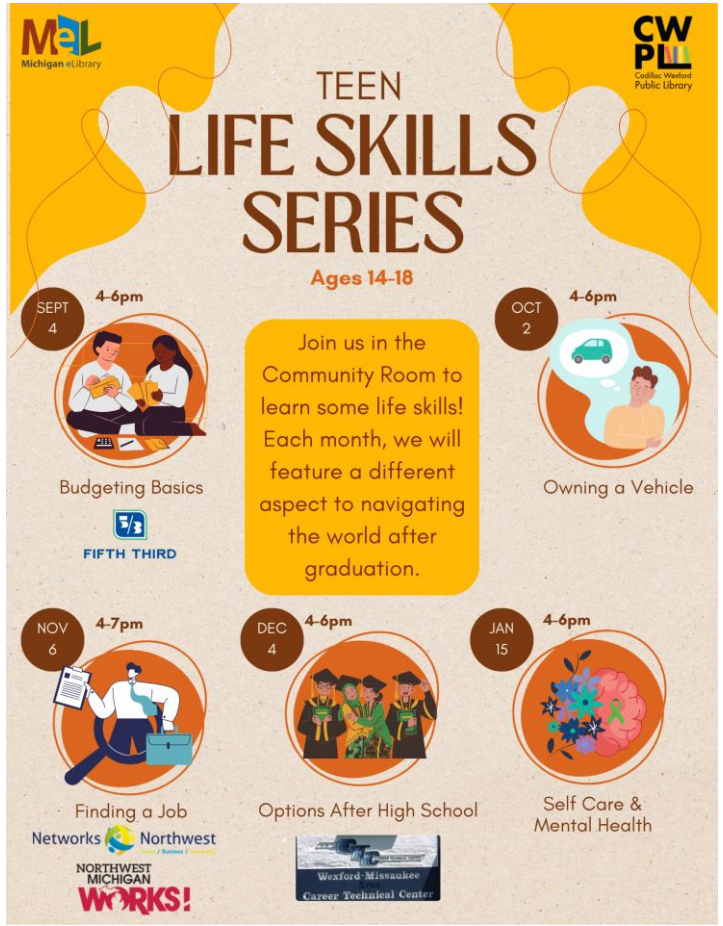
Math Strategy and Review topics include:

- Arithmetic
- Exponents
- Linear Equations
- Number Theory
- Probability
- Ratios and Proportions

Verbal Strategy topics include:

- Critical Reasoning Questions
- Identifying the Tone and Attitude of a Passage
- Inference Questions
- Reading Passages
- Sentence Equivalence Questions
- Vocabulary in Context Questions

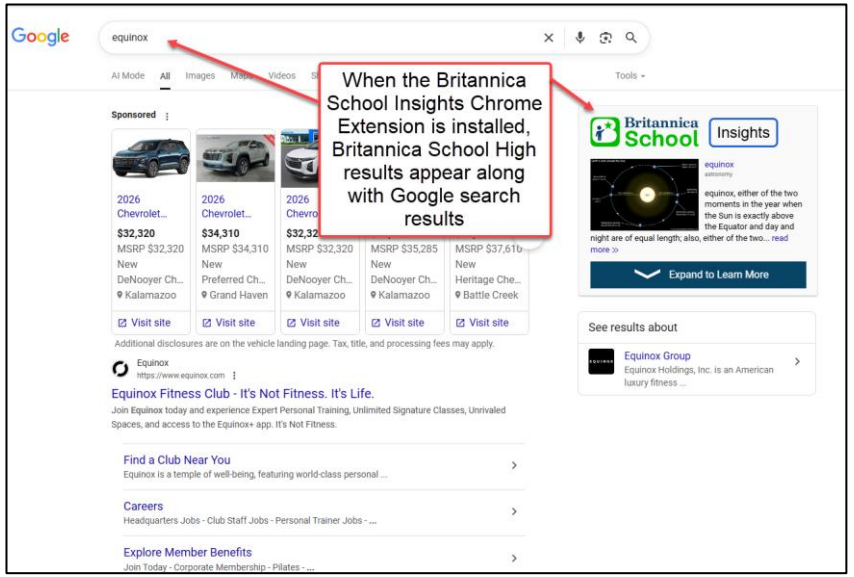
A Library in Action!



Gale in Context: Opposing Viewpoints

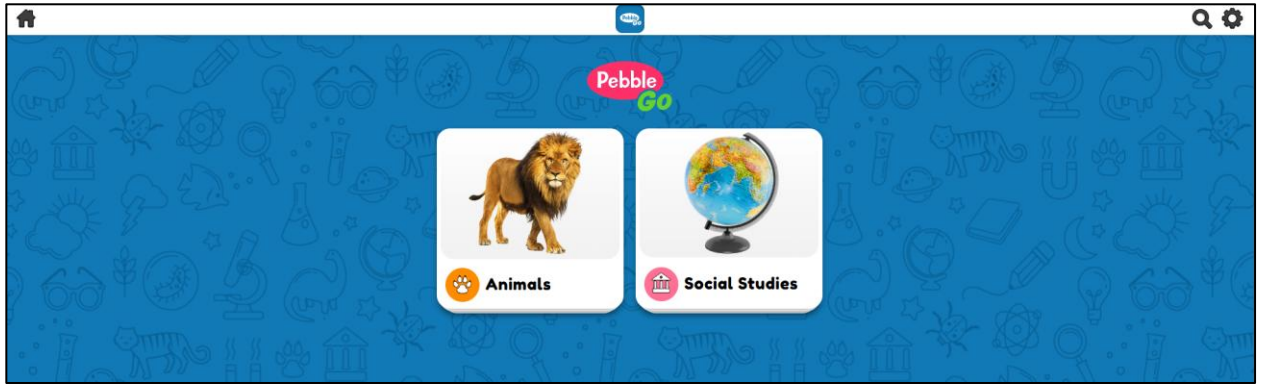
- 487 issues that are updated regularly
- Each issue includes multimedia content with multiple viewpoints
- Access to newspapers, magazines, and academic journals

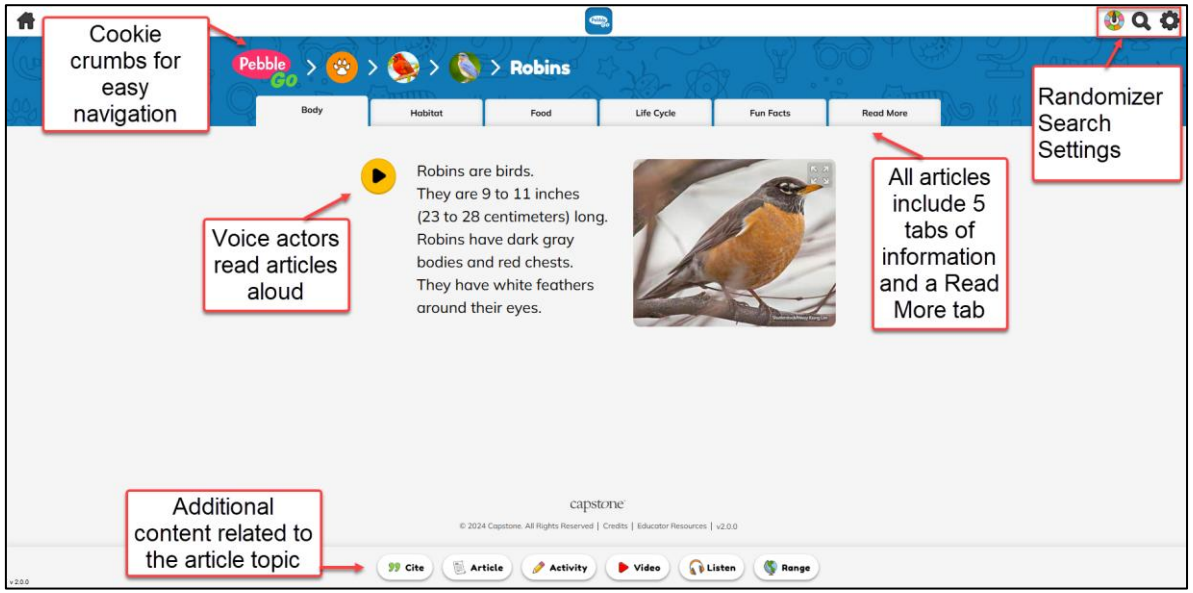
Britannica School, Britannica School Insights, and Teach Britannica



- Leveled articles across the content
- Articles include a clickable dictionary plus images and videos
- Interactives for Elementary and Middle
- NEW! Interface for High School (now matches Elementary and Middle)
- NEW! Teach Britannica (lessons, instructional strategies, and graphic organizers)
- Britannica School Insights can be installed as a Chrome Extension to provide Britannica School--High results alongside Google searches

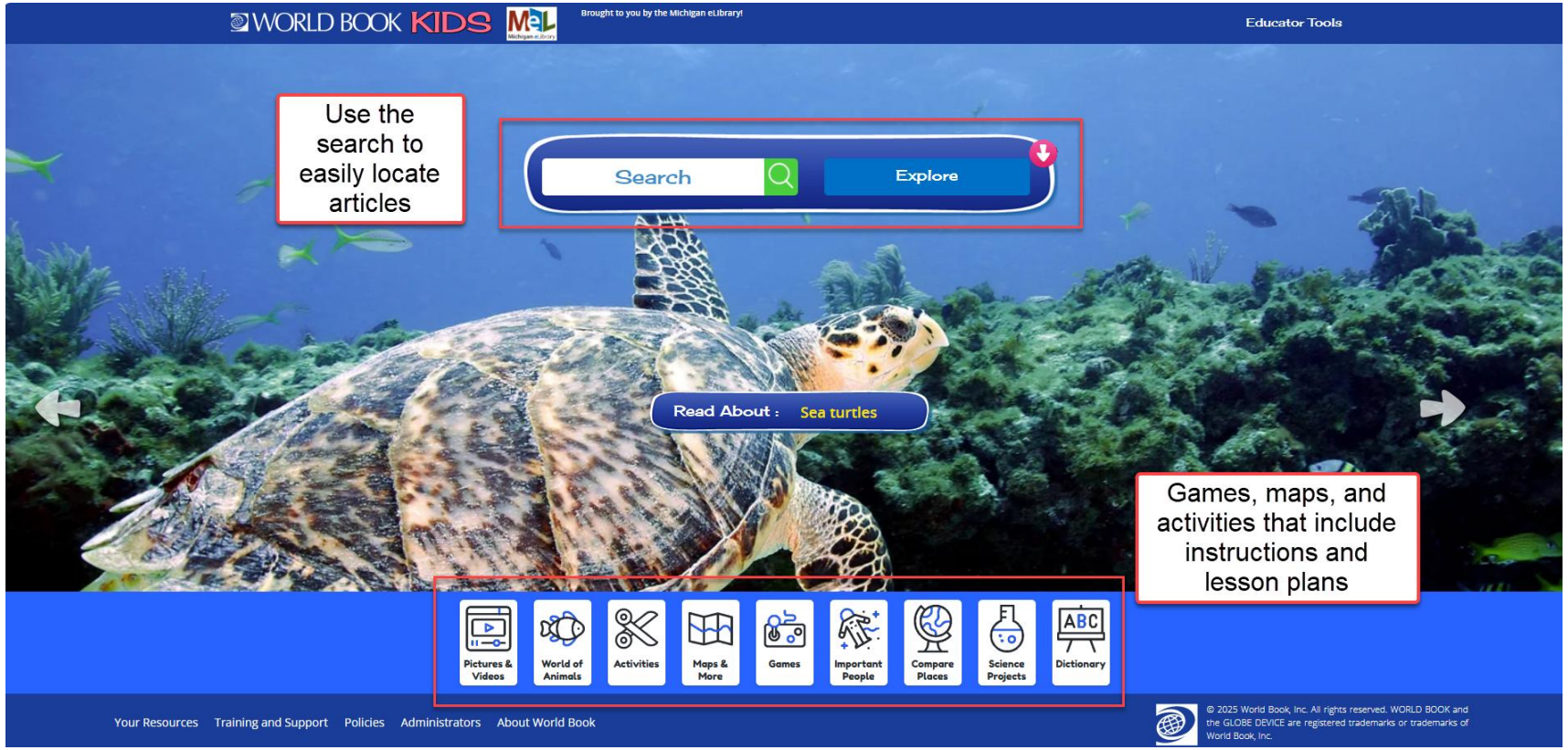
PebbleGo





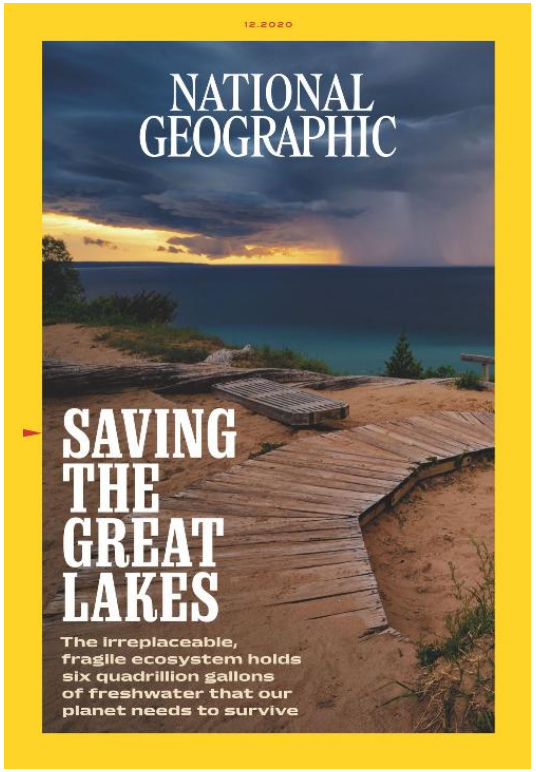
- Grades K-3 content
- Voice actors read articles aloud
- Activities, videos, sounds, and images

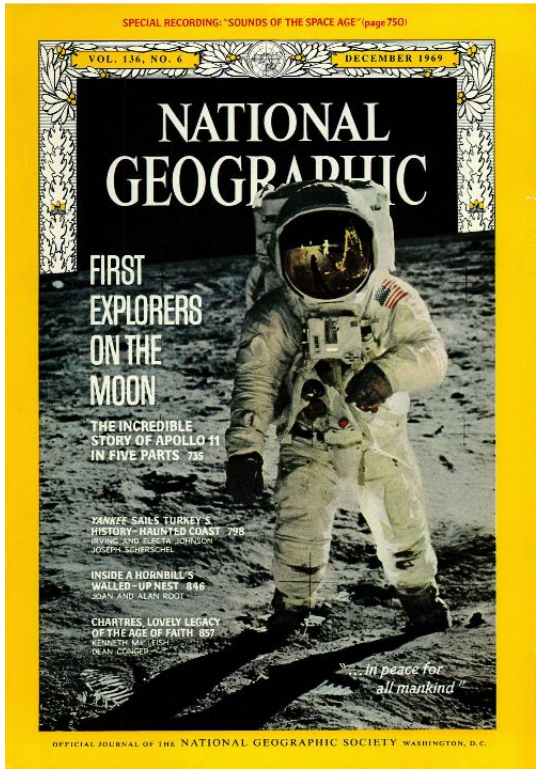
World Book Kids

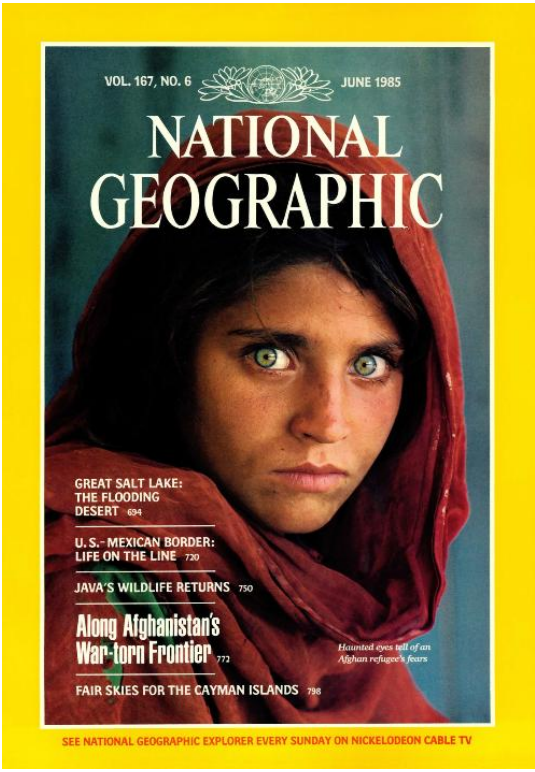


- Pre K-grade 5 content
- Articles include pictures and videos
- Many articles link to Spanish language versions of the content

Gale Presents: National Geographic Virtual Library

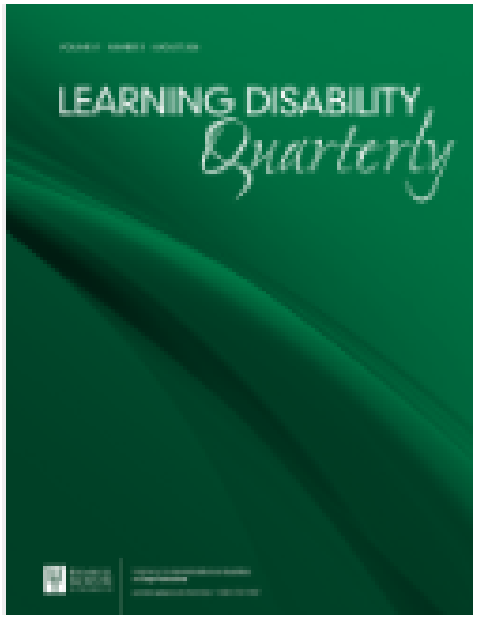


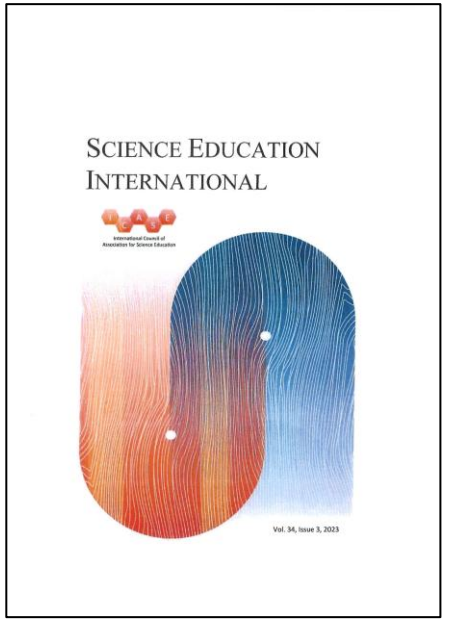




- NEW eResource with over 1,500 issues of National Geographic
- Issues run from October 1888 to December 2020

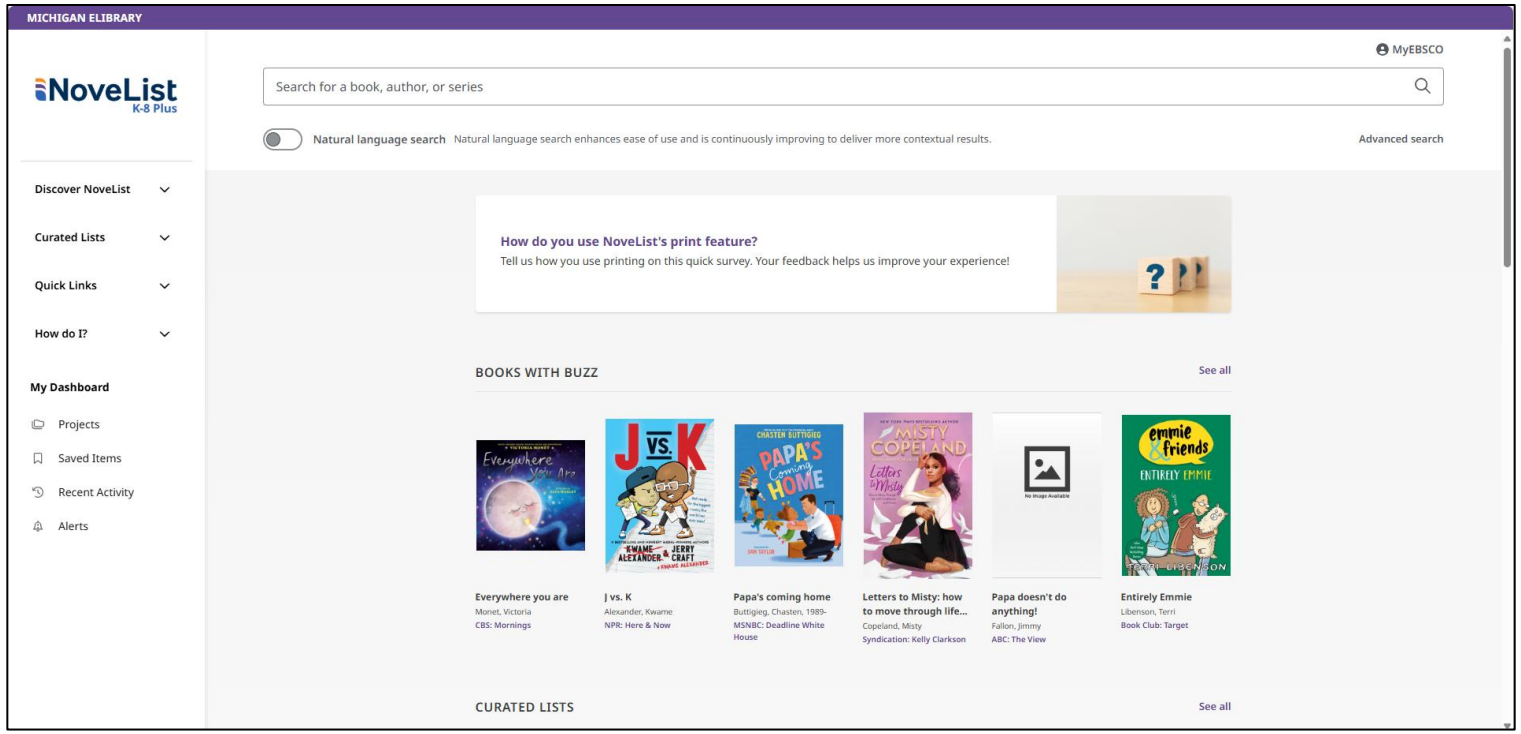
Education Source





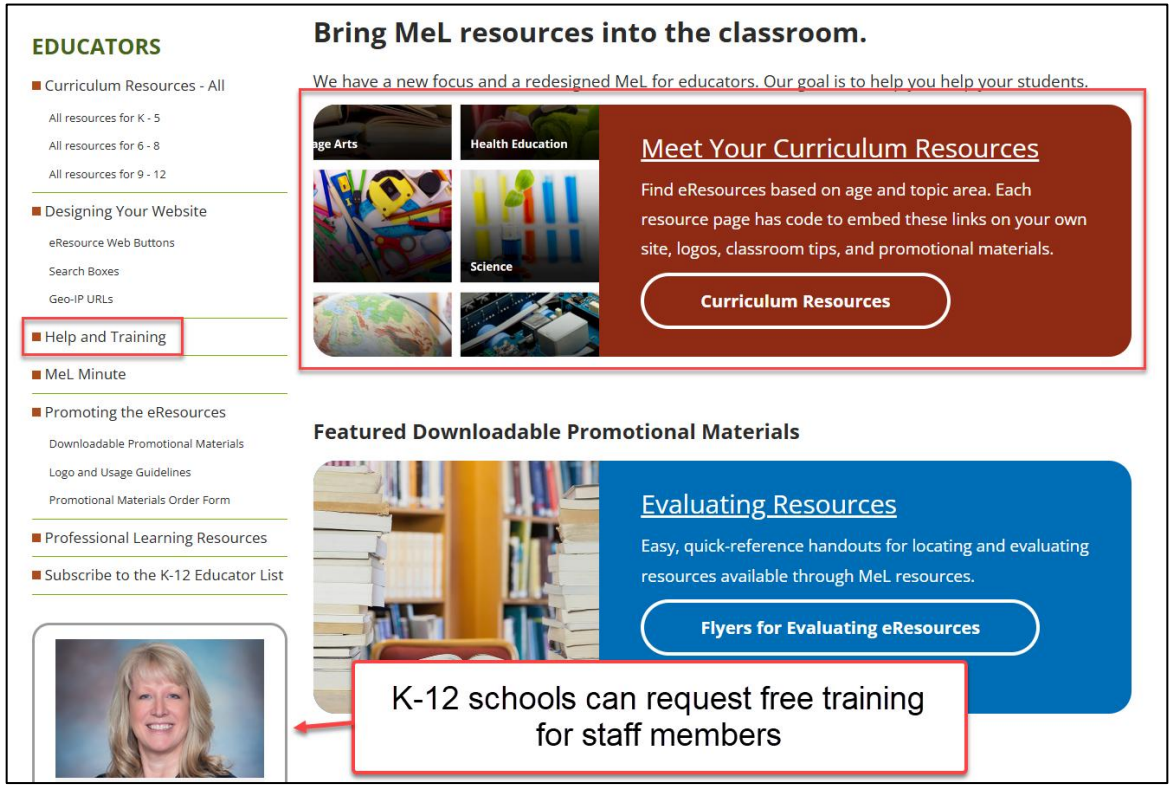
- Scholarly journals for educators
- Research on current topics of interest that can be used to back up funding/grant requests, collaborative programs, and curricular updates

NoveList K-8 Plus



- NEW! Updated user interface
- Back-to-school guide with ideas for librarians and educators
- Curated lists, easy access to series titles, and helpful tips for readers' advisory

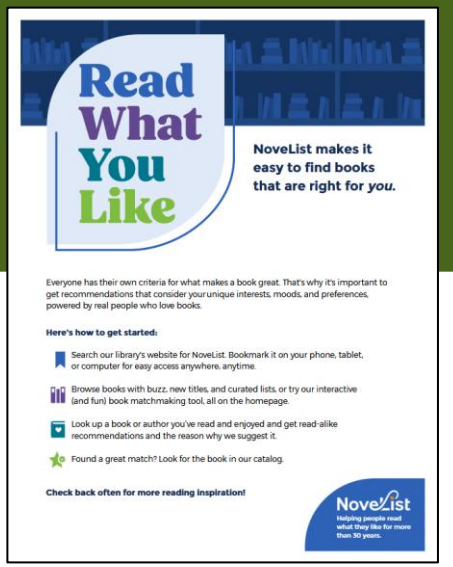
MeL Educator Page

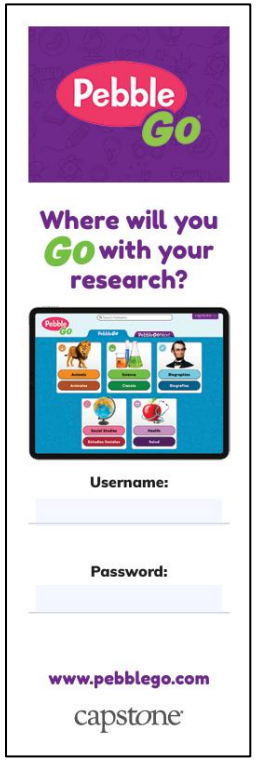


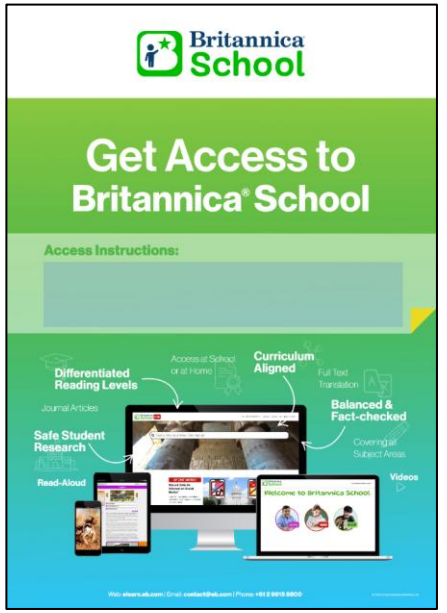
- MeL eResources organized by curricular area and grade level bands
- Access to free SCECH courses from EduPaths (Help and Training)
- Links for help and support

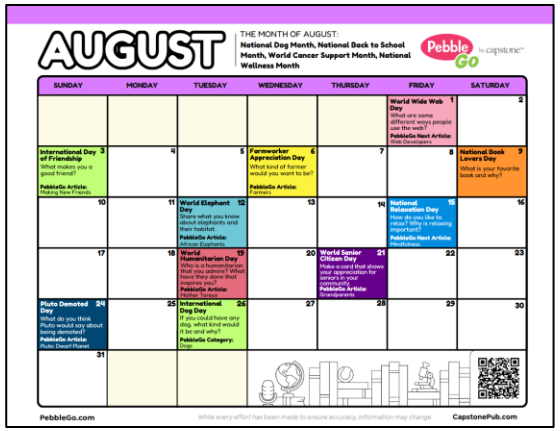
EBSCO NoveList Plus Resources

- EBSCO Promotional Materials
- Britannica School Promotional Materials
- World Book Promotional Materials
- PebbleGo Promotional Materials









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This project was made possible in part by the Institute of Museum and Library Services through the Library of Michigan.

Thank you for your time

Want to know more? Check out MeL.org

Need eResource help?
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1-517-939-1384