

LINKING SCIENCE & LITERACY

FOR ALL LEARNERS

Vaping: Not For The Young At Heart!

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I teach 8th Grade Science at New Mark Middle School in the North Kansas City School District. This year will start my 21st year teaching with 16 years in elementary school (grades 1-5 with 10 years in 5th grade) and four previous years in middle school. I am certified to teach elementary (all disciplines), middle school math and science, and speech, drama, and debate grades 5-9.

I have a passion for Science and for teaching middle school students. I love their enthusiasm and energy and the topic of this text set is meaningful and relevant to them. I plan to embed the anchor text in the *Human Body Systems Unit*, focusing on how body systems work together to maintain homeostasis and how vaping can upset that balance. With the need to be flexible should we switch to remote learning, all of the supports offer online or distance learning options. Our district utilizes Canvas as the digital platform for disseminating lessons and supports.

For the 2020-2021 school year I will have 125 students in 3 sections of regular ed science with SPED blended in, and one section of honors science. I plan to utilize the text set and collect data from all classes. I have broken the anchor text into sections and supplemented with supporting texts and videos, etc, to scaffold the concepts as they are introduced in each section (i.e., homeostasis, the autonomic nervous system, the science of addiction, effects of vaping on the body systems, and discussion of vaping as a safer option than smoking).

I include my diverse learners by working in small groups with scaffolded text and resources, targeting specific skill deficits with regard to close reading of rigorous science texts. I utilize the “read aloud” function of Canvas with PDFs, and students who struggle with writing (SPED or ELL) are given the option of recording their responses in an audio or video recording.

Multimodal Text Set

Source	Title	Type
ANCHOR		
	<i>Vaping! Not For The Young At Heart!</i>	
SCAFFOLDS		
	Lesson One; Scaffolds and Supports	
L1: CK-12 text resource	Lab: Plix: CK12 Interactive: The Nervous System	Interactive online puzzle with information attached
L1: YouTube video	The Nervous System in 9 Minutes	article/abstract
L1: CK-12 text resource	Article: CK12: The Central Nervous System	Article summarizing the parts and function of the Central Nervous System
L1: CK-12 text resource	Article: CK12: The Peripheral Nervous System	Article summarizing the parts and function of the Peripheral Nervous System
L1: Explorelearning.com	Gizmo: Circulatory System Gizmo: Circulatory System Student Exploration Sheet in Google Docs	Online simulation lab linked in Canvas assignment for ease of access.
	Lesson Two; Scaffolds and Supports	
L2: YouTube	Video: Eddie's Story	Video describing effects of vaping on an

		adolescent boy (requiring hospitalization).
L2: YouTube	Video: One e-cigarette with nicotine leads to adrenaline changes in non-smokers' hearts	UCLA Dr. Holly Middlekauff
L2:	Article: Quick Facts of the Effects of E-Cigarettes for Kids, Teens, and Young Adults	CDC quick reference outlining the effects of vaping on teens and young adults
L2: YouTube	Video: Why Vaping Is Bad For You	Video explaining harmful effects of vaping in addition to nicotine and THC
L2	Article: Nicotine and Addiction	Quick article explaining why teens are more susceptible to addiction when vaping or smoking tobacco
L2	Support: Graphic: Adverse effects of Vaping	Graphic depicting short and long term effects of vaping on various body systems
L2: YouTube	Supportive video: The Effects of Nicotine on the Body	Video outlines the effects of nicotine and tobacco on the circulatory and respiratory systems and the brain.
L2	One-pager description and guidelines: https://docs.google.com/presentation/d/1JszwkUtn28p_mBrNiQ4Oe9JUA4rGVUHCwSkDrOWdUrU/edit?usp=sharing	
	Lesson 3: <i>Examining Bias</i> Scaffolds and Supports	
L3	YouTube: Is Vaping Safer Than Smoking?	Video: Medical Doctor discusses the fact that vapes don't contain the tobacco and

		tar that TCs do/there are currently no longitudinal studies to claim the safety of vaping.
L3	YouTube: What's the Biggest Concern About the Popularity of Vaping?	Video: public health crisis of vaping among youth, the rise in popularity of vaping and how they just don't know the long term effects and can't certify its safety.
L3	Video: Is Vaping Healthier Than Smoking?	Video discussing the adverse effects of non-nicotine vaping fluids
L3	Guided Note-taker: Examining Bias in Scientific Evidence	
	Lesson 4 Scaffolds and Supports	
L4	Video: Fooled by JUUL: Vape Company Targeted Teens With Advertising	Video explaining how marketing targets youth in advertising and why
L4	Article: Study: Electronic cigarette advertising and teen smoking initiation	Study of 4500+ German middle school students and the effect of exposure to e-cigarette ads on their desire to try e-cigarettes or smoking.
L4	Abstract: Study: A Randomized Trial of the Effect of Youth Appealing E-Cigarette Advertising on Susceptibility to Use E-Cigarettes Among Youth	A study of 417 non-smoking youth and the effects of exposure to e-cigarette ads on their susceptibility to try e-cigarettes or smoking.

L4	Nicotine Addiction Isn't Pretty Athletics The Real Cost of Vapes Nicotine Addiction Isn't Pretty/Bathroom/The Real Cost of Vapes	PSA examples for students to reference when creating their own PSAs
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Unit Overview

Lesson	Outcome(s)	Connections to Standards (MLS, CCSS, NGSS)
1	I can explain how the autonomic nervous system works with the Cardiovascular system to maintain homeostasis	MLS 6-8.LS1.A.4 Present evidence that body systems interact to carry out key body functions, including providing nutrients and oxygen to cells, removing CO2 and waste from cells and the body, controlling body motion/activity and coordination, and protecting the body CCSS NGSS MS-LS1-8 Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
2	I can examine the short and long-term effects of nicotine on the brain and heart I can explain the connection between nicotine and addiction	MLS 6-8.LS1.A.4 Present evidence that body systems interact to carry out key body functions, including providing nutrients and oxygen to cells, removing CO2 and waste from cells and the body, controlling body motion/activity and coordination, and protecting the body CCSS NGSS MS-LS1-8 Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
3	I can explain how personal perspective might influence interpretation of scientific evidence.	ELA 8.SL.1.C Acknowledge new information expressed by others including those presented in diverse media and, when warranted, qualify or justify their own views in light of evidence presented

		SCI: 8.LS4.B.2 engage in argument from evidence assess the credibility, accuracy, and possible bias of each publication and method used in the information gathered use knowledge and additional sources to describe how the information gathered is or is not supported by evidence
4	I can examine the message and the strategy behind the marketing of electronic cigarettes to youth	ELA 8.SL.1.C Acknowledge new information expressed by others including those presented in diverse media and, when warranted, qualify or justify their own views in light of evidence presented SCI: 8.LS4.B.2 engage in argument from evidence assess the credibility, accuracy, and possible bias of each publication and method used in the information gathered use knowledge and additional sources to describe how the information gathered is or is not supported by evidence
5	I can make a claim, backed by evidence, as to the effects of adolescent use of electronic cigarettes.	MLS 6-8.LS1.B.2: Construct a scientific explanation, based on evidence, for how environmental and genetic factors influence the

		growth of organisms CCSS NGSS MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. NGSS MS-LS1-8 Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
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Unit Lesson #1

Guiding Outcome	I can explain how the autonomic nervous system works with other body systems to maintain homeostasis.		
	Key Idea	Learning Activities	Remote Learning Considerations
Engage	Engage: What are the parts of the Central Nervous System?	Lab: Plix: CK12 Interactive: The Nervous System PLIX stands for play, learn, interact, explore. Students participate in an interactive that explores the parts of the central and peripheral nervous systems and their functions.	This free interactive is available online, is linked in the Canvas module for 1 click access, and the interactive includes articles that are available to be read to the student.
Explore	Explore: What are the parts of the Central and Peripheral Nervous Systems and their functions?	Video: The Nervous System in 9 Minutes Article: CK12: The Central Nervous System Article: CK12: The Peripheral Nervous System • Article with review of peripheral nervous system • Outlines the main parts of the Central and	Embedded in Canvas assignment for ease of viewing. CK12 is a digital archive of articles, videos, etc. Linked in Canvas

		Peripheral Nervous Systems with embedded video Students read and mark the text, fill in the guided notes	Nervous System Guided Notes Rolling journals using Cabinet: easily uploads to Canvas
Explain	Explain: What is the function of the Circular/Respiratory system?	Students view the articles and answer the debrief questions in their rolling journals: - What do the nerves of the autonomic nervous system (ANS) connect to? - What is meant by the “rest and digest” response? What part of the ANS is involved with this response? What happens in the body when these signals are sent to the brain? - What is meant by a “fight or flight” response? What part of the ANS is involved with this response? What happens in the body when these signals are sent to the brain?	Students write the guided questions in their rolling journals in Cabinet, then answer based on their annotations in the articles. They can use words, diagrams, or models to display their understanding.
Elaborate	Elaborate: How does the Nervous System work with the Circulatory and Respiratory systems to maintain homeostasis?	Gizmo: Circulatory System Students trace the path of blood through a beating heart and the network of blood vessels that supplies blood to the body. Students record their observations and inferences in the Student Exploration Sheet	Online simulation lab linked in Canvas assignment for ease of access. Student Exploration Sheet in Google Docs Or embedded PDF in Canvas

Evaluate	Model of Nervous, Circulatory, and Respiratory systems and their relationship	Create a visual model demonstrating the conversation between the Nervous System (the brain), the Circulatory System (the heart), and the Respiratory System (the lungs) and how they work together to maintain homeostasis.	Students individually create a model using the platform of their choice: it can be digital or on paper, 2D or 3D. Physical models are uploaded to their rolling journals in Cabinet .
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Unit Lesson #2

Guiding Outcome	I can examine the short and long-term effects of vaping on the brain and body.		
	Key Idea	Learning Activities	Remote Learning Considerations
Engage	Vaping is harmless, isn't it?	YouTube: Eddie's Story Video describing the effects of vaping on an adolescent boy (requiring hospitalization). Discussion: what was the link between vaping and Eddie's diagnosis? Is Eddie any different than a typical teenager? (Some students will bring up the fact that Eddie is overweight but that can lead to a deeper discussion about how excess weight taxes the circulatory and respiratory systems - students made a connection between this and the more severe incidence of COVID.)	

Explore	Vaping is a good alternative to smoking, isn't it?	Text: Vaping: Not For The Young At Heart! Read and annotate the summary section only: add key points to discussion in science notebook. Video: One e-cigarette with nicotine leads to adrenaline changes in non-smokers' hearts	YouTube video: UCLA Dr. Holly Middlekauff
Explain	How does vaping affect teens and young adults differently?	Article: Quick Facts of the Effects of E-Cigarettes for Kids, Teens, and Young Adults Video: Why Vaping Is Bad For You Video explaining harmful effects of vaping in addition to nicotine and THC. Students add to science notebook.	The teacher embedded the articles and videos into Canvas
Elaborate	Why is vaping so addictive and harmful to teens?	Article: Nicotine and Addiction Anchor Text: Introduction, Study, and Results Support: Graphic: Adverse effects of Vaping Supportive video: The Effects of Nicotine on the Body	Anchor text read aloud and discussion video linked in Canvas for virtual students.
Evaluate	What do teens need to know about vaping?	Using the articles, videos, and summary section of the Anchor text, students create a one-pager outlining the contents of e-cigarettes and their effects on the teenage brain and body.	One-pager description and guidelines: https://docs.google.com/presentation/d/1JszykUtn28p_mBrNiQ4Oe9JUA4rGVUHCwSkDrOWdUrU/e/dit?usp=sharing Students can use a digital platform such as Keynote or Powerpoint, or can use a physical piece of paper, but paper copies are uploaded to Canvas and put in their rolling journals in Cabinet .

Unit Lesson #3

Guiding Outcome	I can explain how personal perspective might influence interpretation of scientific evidence.		
	Key Idea	Learning Activities	Remote Learning Considerations
Engage	Examining Perspective	Scenario: In this assignment, you will choose and assume the perspective of one of the cases below: • a 55 year old who smoked a pack a day for 40 years and started vaping 3 years ago • a parent of a college student who began smoking in high school and has noticed their child has switched to vaping • a high school student who never smoked but casually vapes with friends • a high school student who only uses non-nicotine vapes because they like the flavors. • a 30 year old who started smoking in college but switches to vaping in order to gradually quit • a middle school student who started vaping last year and is now fully addicted Video: Is Vaping Safer Than Smoking Cigarettes? YouTube video where a medical doctor discusses the fact that vapes don't contain the tobacco and tar that TCs do. He also states that there are currently no longitudinal studies to claim the safety of vaping.	File: Examining Bias in Scientific Evidence Review The teacher fully outlined the assignment in Canvas and embedded all videos and files

		Question: What information presented in the video might be important to your chosen person's perspective in defending their habit of vaping?	
Explore	Counter Argument	What information in the video below could be considered a counter-argument to your perspective's defense of vaping? Video: What's the Biggest Concern About the Popularity of Vaping? Continuation of video #1 where a medical doctor discusses the public health crisis of vaping among youth, the rise in popularity of vaping and how they just don't know the long term effects and can't certify its safety. Students use Examining Bias in Scientific Evidence Review to record evidence	File: Examining Bias in Scientific Evidence Review The teacher fully outlined the assignment in Canvas and embedded all videos and files
Explain	New Evidence	Discussion: Vaping is healthier than smoking, right? What if your vape doesn't contain nicotine? How might your person's perspective influence their interpretation of the evidence presented in the next video? (What information would be important to them?) Video: Is Vaping Healthier Than Smoking? YouTube video discussing the adverse effects of non-nicotine vaping fluids	File: Examining Bias in Scientific Evidence Review The teacher fully outlined the assignment in Canvas and embedded all videos and files

Elaborate	Anchor Text: Study Results Discussion	Anchor Text: Vaping: Not For The Young At Heart Study and Results Section. Students annotate and record evidence presented as to the effect of vaping on the stress response and heart rate.	File: Examining Bias in Scientific Evidence Review Anchor Text embedded as a file in Canvas with video read aloud and text read aloud function enabled.
Evaluate	CER	Letter to a middle schooler: Based on the evidence presented in the videos and article above, what advice do you believe your chosen perspective would give a middle or high school student about the safety of vaping vs. smoking and the decision to start vaping, either casually or as a nicotine delivery system? The students write a letter to a middle or high school student at another school explaining their view. Cite a minimum of 3 pieces of evidence that affected your chosen perspective and their advice to a young person such as yourself. Students submit letter to Canvas for evaluation of CER.	File: Examining Bias in Scientific Evidence Review Students write their letter in the digital platform of their choice (Word, Cabinet, etc). They upload their response and submit it with the Examining Bias document to Canvas and add it to their rolling journals in Cabinet.

Unit Lesson #4

Guiding Comment	I can examine the message and the strategy behind the marketing of electronic cigarettes to youth.		
	Key Idea	Learning Activities	Remote Learning Considerations
Engage	Who is the target for the e-cigarette market?	Video: Fooled by JUUL: Vape Company Targeted Teens With Advertising Question: Why target youth and teens with advertising?	Students answer this question in their rolling journals in Cabinet
Explore	How bad is it?	How bad is it: an investigation into marketing for teens Students search “ads for e-cigarettes,” “Kid friendly e-cigarette ads.” Use PIC COLLAGE to collect marketing images and ads targeting teens.	PIC COLLAGE is a free app available through the APP store or Google Play. Teachers and students create a login and can create collages using a variety of free templates and designs. Access to the app: PIC COLLAGE
Explain	What’s the Message?	Analysis: What’s the message? Students analyze and expose the message behind ads targeting teens. They create a mock (satirical) marketing campaign where they “sell” the message to the vaping company, guaranteeing success based on imagery and subtle messaging. Students create the proposal using slogans, images, and music (using I-movie, PIC COLLAGE, or keynote). Resources: Article: E-Cigarette Ads and Youth	Access to the apps: I-movie, PIC COLLAGE, and Keynote Students pick one of their saved ads to create a mock (satirical) marketing campaign they will “sell” to a vaping company, guaranteeing success based on imagery and subtle messaging. They create the proposal in Keynote or I-movie using slogans, images, and even music. Students must explain to the vaping company why their ad will appeal to young people and the message they are selling.

		CDC article connecting ads to sales and consumption of e-cigarettes by youth, explaining the platforms used to expose youth to e-cigarette ads.	
Elaborate		How successful is advertising to teens and youth? Students examine the two studies presented; Students present evidence of their success by quoting and displaying 2 pieces of evidence from the studies below that prove the success of targeting teens and youth in vape product advertising. Displays can be charts, graphs, or textual data linking the effect of advertising on teen vaping initiation. Resources Article: Study: Electronic cigarette advertising and teen smoking initiation Study of 4500+ German middle school students and the effect of exposure to e-cigarette ads on their desire to try e-cigarettes or smoking. Abstract: Study: A Randomized Trial of the Effect of Youth Appealing E-Cigarette Advertising on Susceptibility to Use E-Cigarettes Among Youth A study of 417 non-smoking youth and the effects of exposure to e-cigarette ads on their susceptibility to try e-cigarettes or smoking.	How successful is advertising to teens and youth? Students examine the two studies presented; Teens More Likely to Vape After Seeing Store Ads A Randomized Trial of the Effect of Youth Appealing E-Cigarette Advertising on Susceptibility to Use E-Cigarettes Among Youth Students present evidence of their success by quoting and displaying 2 pieces of evidence from the studies above that prove the success of targeting teens and youth in vape product advertising. Displays can be charts, graphs, or textual data linking the effect of advertising on teen vaping initiation.
Evaluate	What's Your Message?	Students create a PSA: The hidden cost of vaping Vaping PSA guidelines Examples: Nicotine Addiction Isn't Pretty Athletics The Real Cost of	Students use I-MOVIE, Quicktime, or Studio in Canvas Vaping PSA Guidelines

		Vapes Nicotine Addiction Isn't Pretty/Bathroom/The Real Cost of Vapes	
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This text set was created by Robin Banes, of the *Linking Science & Literacy for All Learners* team

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