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Technology Integration Workshop
2020

Unit Title: Matter and Its Properties – The Matter of COVID-19

Grade Level: 6

Subject Area: Physical Science

Duration/Length/Number of class periods: 3 Weeks

Description: Students will learn about matter and its properties, research COVID-19, and present how particles of matter affect the transfer of COVID-19. Students will determine their opinion on the need for masks using this information and create a poster through Canva.com and a presentation through Sway.com to communicate their findings. Students will be broken into groups and have a controversial debate on the use of masks and the science behind masks; their debates and presentation through sway will be formative and summative. Summative assessment will also be given based of the MN Standards on Matter on Schoology or a printable copy (depending where we are at that time).

Established Goals (National, State, Local):

MN State Standard:
6.2.1.1 (Students will understand that…) Pure substances can be identified by properties which are independent of the sample of the substance and the properties can be explained by a model of matter that is composed of small particles.

- Benchmark 6.2.1.1.1 (Students will…) Explain density, dissolving, compression, diffusion, and thermal expansion using the particle model of matter.

6.1.2.1 (Students will understand that…) Engineers create, develop and manufacture machines, structures, processes and systems that impact society and may make humans more productive.

- Benchmark 6.1.2.1.1 (Students will…) Identify a common engineered system and evaluate its impact on the daily life of humans.
- Benchmark 6.1.2.1.2 (Students will…) Recognize that there is no perfect design and that new technologies have consequences that may increase some risks and decrease others.

ISTE Standard: Knowledge Constructor-Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others. Students:

a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
b. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
c. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

MN Literacy Standard:
CCSS.ELA-LITERACY.SL.6.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade six topics, texts, and issues, building on other's ideas and expressing their own clearly.

What Enduring Understandings are desired? This topic is worth studying because of its direct impact on student health and the health of those they may encounter. Students need to know that matter is made of tiny particles. They need to understand how particles move through density, dissolving, compression, diffusion, and thermal expansion. Students need to understand how these tiny particles of matter affect their daily lives (even through they cannot see them!) Students need to understand why scientists stress the importance of wearing masks and washing their hands. Students need to understand the impact of masks on the daily lives of humans. They need to recognize there is no perfect design and that new technologies have consequences that may increase some risks and decrease others.

What Essential Questions will be considered? Why Do Scientist Say It Matters to Wear a Mask at School?

Students will know / be able to:

MN Benchmarks:

- Describe what makes something matter.
- Explain what the difference is between a Pure Substance and a Mixture.
- Define what a physical property is and give examples of physical properties.
- Understand that particles (such as atoms and molecules) make up matter.
- Describe the particle model of matter.
- Explain density, dissolving, compression, diffusion, and thermal expansion using the particle model of matter.
- Students can identify the impact of technology such as masks, soap, running water, COVID-19 tests, vaccinations, etc. have on the daily lives of humans.

MN Literature Standards:

- Have an idea of what COVID-19, or coronavirus is.
- Understand the purpose of use of masks because of COVID-19.
- Relate what they learned about matter to discuss why scientists say it matters to wear a mask at school.
- Students can find information and explanations to support their side (of a controversial debate) that is reputable.
- Students can give oral citations to reference their reputable source (According to…).
- Have a controversial debate on if schools should require students to wear masks at school and wash their hands.

ISTE Standards:

- Present their argument for or against the use of masks at school using a poster in Canva.com.
- Communicate their research findings in their argument as well as acknowledging opposing views on Sway.com or PowerPoint.

Description	Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used	ISTE Standards

Classifying Matter Launch Lab – Teams Recording and Discussion Thread (From Textbook)	X		X	X			
Separating Mixtures Lab – Video/Home or At School Lab – Four Options to Separate (from Textbook)	X			X			
Particle Model of Matter Challenge (Tournament with "Cootie Catchers"-each flap a particle model statement, most successes in three minutes)– Teams Live Meeting or Hybrid In-Class Challenge	X			X			
Density Lab, Demos, and Discussion – Teams Recording and Discussion Thread, *Video	X			X	X	X	
Quizizz: "Particles of Matter"	X			X	X	X	
Density Math Activity (using ratios-From Textbook Practice) – Teams Live Meeting, Flip Grid Check for Understanding, Schoology Quiz	X		X	X			
COVID-19 or Corona Virus Research and Flip Grid Understanding Checks (Students get sides, research reputable articles and/or videos—suggested below).	X		X	X	X	X	X
Use Glow Germ on one student at the beginning of class (without other's knowledge) to track transfer of germs. Watch Mark Rober's *YouTube Video: COVID 19* on seeing the germs around us. After Instruction, use blue light to find the transfer of germs.				X			
Controversial Debate using Data and Research to Support (Four-minute Flip-Grid Presenting Side-Using Science Information to Support) – Using format from Teacher's Pay Teachers "Debate Template Bundle" by Gater Educator. (Discussion on seeing the other side of one's perspective. Student led research of reputable sources. Students try to determine opposing view and figure out how to respond with data. Students will document on debate graphic organizer). Students will learn and implant oral citations.	X	X		X	X	X	X
Assessment: Properties of Matter - Schoology	X	X			X	X	

Materials, tools and resources:

Free Videos: (For Lesson Assistance)

Matter:

- *Teacher's Pet YouTube: Matter (until 8:03)*
- *TED-ED YouTube: Just How Small is an Atom*
- *Crash Course Kids YouTube: The Great Picnic Mix Up: Crash Course Kids #19.1*
- *Crash Course Kids YouTube: Matter Compilation: Crash Course Kids*
- *Crash Course Kids YouTube: Hunting for Properties: Crash Course Kids, #9.1*
- *Crash Course Kids YouTube: Organizing Properties: Crash Course Kids, #35.1*
- *Crash Course Kids YouTube: What's My Property: Crash Course Kids, #35.2*

Particles of Matter:

- *It'sAumSum Time YouTube: Density: Why Does Oil Float on Water?*

- *The Spangler Effect YouTube: Anti-Helium – The Deep Voice Gas – Steve Spangler on DIY Sci*
- *The Spangler Effect YouTube: Making Colorful Convection Currents – Steve Spangler on DIY Sci*
- *The Spangler Effect YouTube: The Spangler Effect: Density Science, Season 2 Episode 05 and 06*
- *It'sAumSum Time YouTube: Thermal Expansion: Why are Gaps Left Between Railway Tracks?*
- *Bublebear 83 YouTube: Eureka! Program 19: Expansion and Contraction*
- *Fuse School – Global Education: Diffusion of Gasses, Properties of Masses, Chemistry, Fuse School*
- *Tyler DeWitt YouTube: What Happens When Stuff Dissolves?*
- *High School Science 101 YouTube: The Particle Model*
- *Generation Genius YouTube: Particle Model of Matter for Kids*
- *Crash Course Kids YouTube: Part(icles) of Your World: Crash Course Kids, #3.2*

Articles/Videos: (Reputable Sources for Kids to Research on COVID-19 – Controversial Debate)

- *CBS This Morning YouTube, Bill Nye and the Science of Masks: COVID-19*
- *Minnesota Department of Health: Protect Yourself and Others COVID-19*
- *Time YouTube: COVID-19*
- *BrainPop YouTube: COVID-19*
- *SciShow YouTube: COVID-19*
- *Mark Rober's YouTube Video: COVID 19, Video 2 COVID19*
- *Centers for Disease Control and Prevention: Considerations Wearing Cloth Face Coverings*
- *Centers for Disease Control and Prevention: Get the Facts About Corona Virus*
- *USA Today: What We Know About Coronovirus Keeps Changing*
- *The Wall Street Journal: How Face Masks Work and Which Types Offer the Best COVID-19 Protection*
- *The Wall Street Journal: Face Masks Really Do Matter. The Scientific Evidence is Growing.*
- *The Mayo Clinic: COVID-19: How Much Protection Do Face Masks Offer?*
- *Minnesota Department of Health: Face Covering Requirements and Recommendations Under Executive Order 20-81*
- *National Geographic Kids: Facts About Coronavirus*

Unit Plan Author (Danielle Thor, Marshall Middle School)

Additional credit given to: