5E Integrated STEM Lesson Plan – COVID19 (Digital Learning Plan)

Lesson Title: How can you keep your community safe?

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Topic: Survival of Parents and Offspring

Targeted Grade Level: First Grade

Time Needed: This lesson will need about a week in a digital learning platform.

Subject Integration: Science, Technology, Engineering, Theater, Health (**sTEtH**)

Justification: All the subjects integrate nicely for this lesson plan because we need people from each of these areas of expertise in the real world to help resolve the pandemic. I cannot teach one component without the other.

Science: In order for a species to survive they rely on qualities passed down (genetics) and behaviors of parents taught to offspring. We are mammals that rely on parents/caregivers to teach us habits for survival. This includes social distance space, hygiene habits, and how to function within a community.

Technology: Technology has shaped our lives. It is the reason why we even have cures for so many viruses. It is also a reason we can continue learning at home. A shift in focus here will be in how to spread information at a rapid rate. This is like the news media except students can show off what they learned to each other using technology as well.

Engineering: People are literally engineering a vaccine as we stay at home. Scientists and researchers are trying to find the cure to prevent widespread disaster as other countries and states have seen even more so. So students will be engineering a plan to show how they can stay safe and prevent spread to others in their community.

Theater: Rather than just writing a sentence why not act out how to be safe. Students are from a generation that watched YouTube and even now, viral videos. One example is Tik Tok. There are so many Tik Tok that students see with misinformation and correct information on how to have fun at home and how to prevent spread. So students can work on acting out how to stop the disease too. Why not engage in global trends? Even huge celebrities are putting out content from home.

Health: All of these subjects come back to health. I actually was not focused on health originally in the design of this lesson, but the more you talk about a pandemic, the more health plays a key role. This is the only way students can really support our global community, good personal hygiene practices.

Standards:

NGSS Performance Expectations

1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts:
* Obtaining, evaluating, and communicating information in K– 2 builds on prior experiences and uses observations and texts to communicate new information. * Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2) * Scientists **look for patterns** and order when making observations about the world. (1-LS1-2)	* Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)	* Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2)

Common Core State Standards:

Math: Not Applicable

ELA:

*** RI.1.1** Ask and answer questions about key details in a text. (1-LS1-2)

*** RI.1.2** Identify the main topic and retell key details of a text. (1-LS1-2)

ITEEA Standards

K-2.2. A .Some systems are found in nature and some are made by humans.

K-2. 8. A. Everyone can design solutions to a problem.

K-2. 9. A. The engineering design process includes identifying a problem, looking for ideas, developing solutions, and sharing solutions with others.

K-2. 6. A. Products are made to meet individual needs or wants.

K-2. 9. B. Expressing ideas to others verbally or through sketches and models is an important part of the design process.

K-2. 7. A. The way people live and work has changed throughout history because of technology.

Engineering Standard

K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

Health Standards
1.3.G Identify a variety of behaviors that promote healthy growth and development **3.1.G** Recognize parents, guardians, and other trusted adults as resources for information about growth and development. **7.1.S** Practice ways to stay safe at home, at school, and in the community **1.3.P** Discuss the importance of preventing the transmission of germs. **1.4.P** Identify ways to prevent the transmission of communicable diseases. **5.1.P** Use a decision-making process to evaluate how personal hygiene behaviors promote one's health.
Theatre Standards
1.TH:Cr1a. Propose potential choices characters could make in a guided drama experience. **1.TH:Pr6** With prompting and support, use movement and gestures to communicate emotions in a guided drama experience and share with others.

Measurable Student Learning Objectives:

Rubric for grading based on a degree of clarity of students demonstration, discussion, and acting upon knowledge.

	Science	Theatre	Engineering	Technology	Health
	Connections to animal parents	**Movement and Gestures**	**Design a Healthy Routine at home**	**Public Service Announcement**	**Germs and Disease**
4	Student clearly made a connection during discussions or in their act on how adults/animals help offspring/kids survive.	Student was clearly communicating how to stay safe through gestures and facial expressions.	Student clearly created a healthy routine to prevent the virus and followed it with a family member for at least a week.	Student's 20 second video clearly showed how to be safe during a pandemic with good audio and visuals.	Student clearly discussed, acted out, or drew how to prevent germs and disease.
3	Student was generally clear in making connections during discussions or in their act on how adults/animals help	Student was generally clear in communicating how to stay safe through gestures and facial expressions.	Student was generally clear in creating their healthy routine to prevent the virus and followed it with a family	Student's 20 second video was generally clear and showed how to be safe during a pandemic with good audio and	Student was generally clear when discussing, acting out, or drawing how to prevent germs

	offspring/kids survive.		member for at least a week.	visuals.	and disease.
2	Student was lacking a clarity in a connection during discussions or in their act on how adults/animals help offspring/kids survive.	Student was lacking clarity in communicating how to stay safe through gestures and facial expressions.	Student lacked clarity in creating a healthy routine to prevent the virus and followed it with a family member for at least a week.	Student's 20 second video lacked clarity and showed how to be safe during a pandemic with good audio and visuals.	Student lacked clarity when discussing, acting out, or drawing how to prevent germs and disease.
1	Student was unclear and did not make a connection during discussions or in their act on how adults/animals help offspring/kids survive.	Student was unclear in communicating how to stay safe through gestures and facial expressions.	Student was unclear in creating their routine to prevent the virus and followed it with a family member for at least a week.	Student's 20 second video was unclear and showed how to be safe during a pandemic with good audio and visuals.	Student was unclear when discussing, acting out, or drawing how to prevent germs and disease.

Nature of STEM: This unit really supports the nature of STEM because it begins with a phenomena that is currently happening. During this time in the adult world, we have fields of multiple people coming together to bring about a resolution during a pandemic. This is very abstract and complicated for younger students. Mathematicians, doctors, nurses, scientists, government officials, economists, and even delivery drivers are needed to solve this pandemic. To a first grader, this is their macro world they don't get to see all the time. So the lessons add in some of this macro world in a less scary way. By making the virus a mini cartoon it becomes more relatable but not dumbed down. Then by filtering information on brain pop and animal videos from Mystery Science to focus on the act locally perspective rather than global students can grasp what they need to do and why their entire routine has completely changed. So I approached the lesson through a worldwide health crisis lense where students start to relate and make connections about their world and text and their home. By doing so, this lesson shifts a focus to health, theatre, engineering a plan, using technology to present how to help others, and science to show how the entire community helps each other survive.

Engaging Context/Phenomena: Although it is a bit more of a stretch to have a lesson about infectious disease for animals teaching their offspring how to survive, proper hygiene does help humans survive. Parents are the primary sources of proper hygiene. So the lesson begins with discussing the infectious disease that is the reason why every kid cannot come to school right now, COVID 19.

Data Integration: The primary source of data I used came from http://publichealth.lacounty.gov/media/Coronavirus/

This is a government webpage that I used to get updated results on the virus as well as how to create a mask by the surgeon general. Some other resources for information came from BrainPop, Youtube, MysteryScience Curriculum, and mindheart.co.

Differentiation of Instruction: Some scaffold I will use for all students in order to provide UDL (Universal Design for Learning) are:

- Think-pair-share partners
- Sentence frames (I feel…, I agree/disagree with….because, I can be safe by…, I have a connection to….)
- Connections (I will let students share connections they have with the information/text and their lives)
- Signals: C with hands for connections, Hand raised for comment/questions, “the same” signal in sign language to agree with others, and hand moves over the head to show “This is over my head. I am confused”
- Lots of visuals within the text and video to help with content.
- Drawing options instead of writing
- Collaborative conversation
- Acting out without words to force thought and prevent language barrier
- Alternative seating (In a class) I have wobble chairs and I also do not make students sit still but they do have to say in one spot when at a desk (I ask them to push in their chair and stand behind it if they are standing.

Real-life Connection: The real life connection is literally we are being asked to stay at home all over the world to stop the spread of infectious disease. So I have written the lesson to be done at home or on zoom. Buddy shares can be done on a zoom or with their siblings/cousins.caregivers. The digital slide is to be used on a zoom chat or within a household on Google Classroom depending on how much access I can get for my students and how much longer, families want me to discuss this with their children. So any part of the lesson that is whole group can be done on zoom with shared screens. Some portions I can post and ask families to watch earlier in the week. I would love to trial some of this in the next couple weeks with my class and see what they come up with. The slides I created and pulled resources for are: COVID19 5E Lesson. This lesson can be adapted for classroom teaching and altered to talk about the common flu.

Possible Misconceptions: Based on how much news a child has watched at home or how they are raised by families they might not understand what a virus is, think a certain group only gets it or is in trouble for giving it, be scared to leave the house, etc. So I want to refocus that thought into how to stay safe. Anyone can get it so how do we stop spreading it. Animals stay safe by listening to their parents, using camouflage, staying close or far from family, or even eating food a mommy brings back. How are ways our families teach us to be safe? Our community? Our world? How can you stay safe even when everything is over?

Lesson Procedure:

5E Model	5E Objectives
Engage Day 1: 30-40 min	**Procedure:** **Introduce** *(15-20 minutes)* The teacher will introduce students to COVID 19. It is a natural phenomena that is actually occuring right now. They will all start off on the carpet (or in zoom) in a whole group and watch a brain pop video just to get some facts, sympathize with how stressful or scary the news is, and hear some small ways to help. The teacher should NOT expect students to retain all this knowledge just yet, it is just some exposure to give a baseline of information. Then the teacher will facilitate student conversation while going through a virtual book. **Activity** *(10 minutes)* The teacher will have students draw how they feel on the printable worksheet. After they finish, students will write or draw on a post-it what they still want to know more about or their wonders. This will go on a poster and remain up for the remainder of the 5E lesson. For online this can be posted to a Google Classroom as a question or it can be done on a whiteboard feature on zoom. If it is a question on Google Classroom, adults can help students complete the question for students struggling in writing. **Debrief** *(5 minutes)* The teacher will then go over a few to close day one and save some to start off tomorrow. **Modifications:** After the video I will slowly go through the digital book with students. Some scaffold I will use for ELD and Special education students will be: ● Think-pair-share partners ● Sentence frames (I feel…) ● Connections (I will let students share connections they have with the information/text and their lives) ● Signals: C with hands for connections, Hand raised for comment/questions, “the same” signal in sign language to agree with others, and hand moves over the head to show “This is over my head. I am confused” ● Lots of visuals within the text and video to help with content. ● Activity is a drawing so even students struggling with writing can participate as well. **Standards Addressed:** **Science and Engineering Practices** ● Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)

	• Scientists **look for patterns** and order when making observations about the world. (1-LS1-2) **Cross-cutting Concepts** • Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. **Technology (ITEEA)** • **K-2.2. A** .Some systems are found in nature and some are made by humans. **Connected English Language Arts** • **RI.1.1** Ask and answer questions about key details in a text. (1-LS1-2) • **RI.1.2** Identify the main topic and retell key details of a text. (1-LS1-2) **California Health Standards** • **3.1.G** Recognize parents, guardians, and other trusted adults as resources for information about growth and development. • **7.1.S** Practice ways to stay safe at home, at school, and in the community • **1.3.P** Discuss the importance of preventing the transmission of germs. • **1.4.P** Identify ways to prevent the transmission of communicable diseases. **Formative/Summative Assessments:** There won't be a formative assessment in this section just an informal check in. The informal check ins will be the page the students draw out their emotions on and the post it notes. **Resources:** The resources are from a variety of locations, they are collected and organized onto a google slide: COVID19 5E Lesson.
Explore Day 2: 30-35 min **[1 hour total for Day 2]**	**Procedure:** **Introduce** *(15-20 minutes)* The teacher will then go over a few more post it notes on the wonder board. The teacher should have scanned through them the day prior and picked ones that might feed into the lesson today or ones that have major misconceptions. Then the teachers will facilitate a conversation about how we can prevent COVID19. The teacher will start by using the slides to draw connections to the anchor science standard of how animals help their offspring, so adults can help children (We all are mammals, right?). What do parents tell you to do? Can adults help children be safe? Do animals do the same thing? Then the teacher will encourage students to come up with ways they have heard their adults tell them to stay safe. **Activity** *(10-15 minutes)*

	Students will then pick one or two ways to stay safe and try acting it out for their classmate. They will practice acting it out without making a sound. This is the beginning step to pantomime in theatre. It also makes it more challenging to demonstrate. Teacher will walk around and facilitate buddies to ensure students are on task, the teacher can pause, and have students guess what one pair is doing, or pause and have them all try the same one. It is up to the teacher based on the engagement of the class. *****See Debrief in the next "Explain" section** **<u>Modifications</u>: The same modifications used for engage will be used here.** Also, there is an extension for students who seem to grasp pantomime. The teacher will encourage students to express the emotions they felt from day one with each action. Such as: ***Student A:*** *Walks up and looks tired and coughs in their arms next to student B.* ***Student B:*** *Student B shows a look of disgust or gross and walks six feet away.* ***Student A:*** *Looks sad because their friend just moved away* ***Student B:*** *Shows okay symbol and points to space. Gestures (we will see how they play with a nice gesture, new societal norms appearing) that he is happy. They are still friends. Maybe pretends to hold a phone to call his far away friend.* **<u>Standards Addressed</u>:** **Science Standards** ● **1-LS1-2.** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. **Disciplinary Core Ideas** ● Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2) **Engineering Standards** ● **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **Theater** ● **1.TH:Cr1a.** Propose potential choices characters could make in a guided drama experience.

	• **1.TH:Pr6** With prompting and support, use movement and gestures to communicate emotions in a guided drama experience and share with others. **Technology (ITEEA)** • **K-2. 8. A.** Everyone can design solutions to a problem. • **K-2. 9. A.** The engineering design process includes identifying a problem, looking for ideas, developing solutions, and sharing solutions with others. • **K-2. 6. A.** Products are made to meet individual needs or wants. • **K-2. 9. B.** Expressing ideas to others verbally or through sketches and models is an important part of the design process. **California Health Standards** • **1.3.G** Identify a variety of behaviors that promote healthy growth and development • **7.1.S** Practice ways to stay safe at home, at school, and in the community • **1.3.P** Discuss the importance of preventing the transmission of germs. • **1.4.P** Identify ways to prevent the transmission of communicable diseases. **Formative/Summative Assessments:** There will be no formative assessment here. Teachers will informally assess students to see that they are acting out activities discussed. Exploring how to communicate emotions and actions through their body language. The teacher will also check to see that students are making connections with parents showing them how to survive. This will be assessed formally. So the teacher will need to take anecdotal notes throughout the lesson series. **Resources:** The resources are from a variety of locations, they are collected and organized onto a google slide: COVID19 5E Lesson.
Explain Day 2: 30-35 min **[1 hour total for Day 2]**	**Procedure:** **Debrief from explore** *(5 minutes)* The teacher will pick a couple students to share how they think we can stay safe. Then, the class will try to guess how they are staying safe. **Leading to the introduction to Explain** (10-15 minutes) The teacher can play the viral videos from the slide under “Explain”. Then will facilitate these guiding questions: • Why do you think a mask helps? (this is to get them thinking) • **How has technology changed how we live? (Focus)**

	● Why is it easy to be at home when this happens? (Add on) Sample comments could include that it is easy because I have a Nintendo switch, wifi, etc. The teacher should talk about what else you can do with NO INTERNET! **Assessment/Activity (10-20 minutes)** Now it is time for the students to take action. If you were on a zoom call, now would be the time to leave the call. Have students make a video acting out how to stay safe. They can do this with their parents/siblings. Whoever is available. They will now use and apply the technology that makes our life easier into a public service announcement on good health for their classmates. The teacher should make a google classroom assignment so students can post their videos. Then the teacher should tie the videos together using a movie app like iMovie to create one long video for the class to see. The students videos should be no longer than 20 seconds. **Modifications:** Students without much technology or support at home can act out the scene on zoom with the teacher, take a picture of an object that can help them in this pandemic (soap, mask, gloves, bandana, coughing in arms, talking on a phone, etc.), or they can act it out on the next zoom call for the class. Students with very limited tech can draw a picture of what to do and have their parents text the teacher what adults have taught them to do to stay safe in a pandemic. EXTENSION: Going back to why masks are made, challenge students to create their own masks using the surgeon general's video in the google slides. **Standards Addressed:** **Science Standards** ● **1-LS1-2.** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. **Disciplinary Core Ideas** ● Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2) **Science and Engineering Practices** ● Obtaining, evaluating, and communicating information in K– 2 builds on prior experiences and uses observations and texts to communicate new information. **Engineering Standards**

	• **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **Theater** • **1.TH:Cr1a.** Propose potential choices characters could make in a guided drama experience. • **1.TH:Pr6** With prompting and support, use movement and gestures to communicate emotions in a guided drama experience and share with others. **Technology (ITEEA)** • **K-2. 8. A.** Everyone can design solutions to a problem. • **K-2. 9. A.** The engineering design process includes identifying a problem, looking for ideas, developing solutions, and sharing solutions with others. • **K-2. 6. A.** Products are made to meet individual needs or wants. • **K-2. 9. B.** Expressing ideas to others verbally or through sketches and models is an important part of the design process. **California Health Standards** • **1.3.G** Identify a variety of behaviors that promote healthy growth and development • **7.1.S** Practice ways to stay safe at home, at school, and in the community • **1.3.P** Discuss the importance of preventing the transmission of germs. • **1.4.P** Identify ways to prevent the transmission of communicable diseases. **Formative/Summative Assessments: See formal assessment rubric for videos at the beginning of the lesson descriptions.** Their formal assessment will be their video submission. **Resources:** I get my resources from a variety of locations, so I collect and organize them all onto the google slide: COVID19 5E Lesson.

Elaborate *Day 3:* *30 min*	**Procedure:** **Introduce** *(15 minutes)* The teacher will start off by playing the connected videos of the PSA's that students made. Students who did not have access to tech can also show off what they would have done. Drawings that were submitted should be in the videos. Then The teacher will introduce the brain pop video showing how the good hygiene habits that parents teach us (connecting the cat cleaning her kitten) how to stay healthy and well, especially when you don't fee like you need them because you are quarantined inside all day. **Activity** *(15 minutes)* Students will then create their own hygiene chart. They will make their own routine for practicing good hygiene that can be followed each day, especially while in quarantine. This will include even chores, as cleaning a house adds to good hygiene. **Debrief** (10 minutes) Students will share their wishes and stars from all lessons all on a Zoom Chat. The teacher will facilitate the conversation so students can begin reconnecting how when disasters like a pandemic happens, it is important to look to adults and parents in your community for ways to stay safe. Just as how many animals (the ones that stay with families) look to their parents for how to survive. **Modifications:** See slides. Three styles of assessment students can engage in. There are three levels because some families do not have access to printing, some students can ulty with reading and writing. All three options hit the same goals. **Standards Addressed:** **California Health Standards** ● **5.1.P** Use a decision-making process to evaluate how personal hygiene behaviors promote one's health. ● **1.3.G** Identify a variety of behaviors that promote healthy growth and development ● **3.1.G** Recognize parents, guardians, and other trusted adults as resources for information about growth and development. ● **7.1.S** Practice ways to stay safe at home, at school, and in the community ● **1.4.P** Identify ways to prevent the transmission of communicable diseases.

	Engineering Standard ● **K-2-ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **Technology (ITEEA)** ● **K-2. 9. A.** The engineering design process includes identifying a problem, looking for ideas, developing solutions, and sharing solutions with others. ● **K-2. 6. A.** Products are made to meet individual needs or wants. **Formative/Summative Assessments:** The students routine will be created with a parent or caregiver and will be turned in or followed with that caregiver throughout the week. See the slides for the forms. Slides: 25-31 **Resources:** I get my resources from a variety of locations, so I collect and organize them all onto the google slide: COVID19 5E Lesson.
Evaluate	**Procedure:** The evaluation will be done through the teacher reflecting on the past work students completed and students will be graded on the rubric at the top of this form. Teachers will also facilitate zoom sessions with students to check in and get feedback on how they have been following their routines. Parents will be encouraged to send the teacher pictures of students following routines at home so the teacher can post them to ClassDojo or other communication methods and share it with other families. Students should be completing their weekly routines they have set for themselves. **Extensions:** Students can set timers on phones for when they need to brush their teeth, do their chores, start their schoolwork, Zoom chat times, etc. It is a way of holding themselves accountable for their work. Students can show off the masks they made that week from the surgeon general video. All parents and families will get access to the slides via google classroom. Another extension is to research why we would want to wear a mask or why t the Mayor wants us to stand six feet away and not two (Hint: it has to do with coughing and sneezing) **Modifications:** Students who do not have much technology access at home will have difficulty participating in Zoom chats and the lesson from home. I will

	post the slides to Google classroom so parents can facilitate the lesson from their phones, and many districts are now distributing devices. Also, the formal assessment is modified into printable books or students can simply write out a routine with a parent on an extra piece of paper. Some students have learned how to edit work on an ipad if they cannot print so the one page worksheet is meant more for this purpose. **Standards Addressed:** See the rubric for the main components graded here. **Formative/Summative Assessments:** See the rubric for the main components graded in the summative assessment. **Resources:** I get my resources from a variety of locations, so I collect and organize them all onto the google slide: COVID19 5E Lesson.

Teacher Background: The teacher does not really need any background knowledge more than the google slides listed. It would be helpful to have watched some news coverage from a variety of stations so that way the teacher is a little better prepared for comments that may arise. What the teacher does need to know is how to facilitate a lesson to young children in a socially and emotionally healthy way. This means presenting information in a calm and collected manner, understanding that students pick up on stress from families, being sensitive to misinformation and being able to redirect misconceptions (which can come in the form of racial remarks considering some news footage has mentioned Chinese disease and that minority communities are impacted more) Even if this lesson is modified to involve the common flu, students may say rude remarks like dirty kids get the flu. In order to facilitate a conversation, a teacher needs to feel comfortable briefly correcting the misconception while understanding that it might come from someone close.