RECOMMENDATIONS FOR HANDS-ON SCIENCE DURING COVID-19 PANDEMIC

The Issue: Doing science typically involves handling/sharing materials and working collaboratively in small groups. However, COVID-19 requires that we get creative with how to make science engaging in the virtual and/or physically distanced classroom. Below are the suggestions from the district for how to adapt and prepare your science

Adapting the Laboratories and Science Materials:

1. **Virtual Labs:** When possible and available, substitute hands-on science investigations with virtual manipulatives, media, and simulations.
2. **Students Observe:** Consider turning group hands-on activities into teacher-led demonstrations. This can be done in class or recorded as a video for students to view virtually or if absent. Teachers can take the materials home to do this if teaching virtually.
3. **Substitute Household Materials:** Consider household items that could be substituted for materials in a lesson and used in activities at home. Students can share their results during class time and discuss what they learned based on their evidence.
4. **Students Take Turns**: Choose a student to perform the experiment or demonstration for the class. Take turns so that each student has the chance to "be the teacher."
    a. If the number of students in one classroom at one time is reduced, you may have enough materials to turn a small group activity into an individual activity so each student has their own materials.
5. **Group Work:** Should you opt for group activities, ensure each group or the class has a "hygienist" that ensures that all glassware, PPE, and supplies are properly cleaned before and after the activity. Within the group, assign only one student to perform the investigation for the group to avoid sharing of materials. That same student can then disinfect the materials after an investigation with warm soap water.
6. **Stations**: Use the physical classroom space to set up stations of activities. Students can work in shifts, where part of the class is at a particular station while the others work independently at their desks. Students can also jig-saw so that members from each station demonstrate what they did and learned with the entire class. Clean and disinfect stations as often as possible (see CDC guidelines).

Safety First! The Physical Science Classroom:

1. **Outside**: Everything is safer outside, if possible!
2. **Sanitizer at Stations:** If using stations, add a bottle of sanitizer with at least 70% alcohol at each station for students to use before and after manipulating the materials at that station. Additionally, all glassware, PPE, and appropriate supplies can be sanitized and cleaned by supplying a wash basin/container with warm soap water.
3. **Bring your own drinking water:** Water that has not been used since the spring should be flushed prior to returning to school. Stagnant water can lead to afflictions such as Legionnaires Disease (see STL Public Radio Story and reference on the disease).
4. **Check Safety Devices:** In grades 6-12, make sure all safety devices are in working order, including: Emergency Eye Wash Stations, Emergency Showers, Goggle Cabinet Sanitizers (if any), Fume Hoods (if any), Fire Extinguishers, Ventilation system.[1] For any work orders, follow the district protocols.
5. **Contact in case of questions:** Contact the Secondary Science Curriculum Specialist, Dr. Valentina Bumbu at valentina.bumbu@slps.org for inquiries, suggestions, or questions about safety in the science laboratories. You may also consult NSTA safety recommendations [1], as well as CDC guidelines.

[1] For more information see NSTA Safety Recommendations for Opening the New School Year