At-Home Science Safety General Guidelines
Grades K-12

To provide and maintain a learning and working environment for students and teachers that is as safe as possible, it is recommended that science educators:

- exercise reasonable judgment when conducting laboratory investigations;
- minimize, if not eliminate, risk by using virtual laboratory simulations/investigations;
- plan lessons that incorporate low risk, safe hands-on activities that provide **all students** with equitable access to NGSS curriculum;
- accept the **duty of care** to provide all students and staff with the safest environment possible when performing hands-on science investigations or demonstrations in the classroom or at-home setting.

Inherent in laboratory-based activities is the potential for injury. As professionals, teachers of science have a **duty or standard of care** to ensure the safety of students, teachers, and staff. **Duty of care** is defined as an obligation, recognized by law, requiring conformance to a certain standard of conduct to protect others against unreasonable risk (Prosser et al.1984, NSTA 2014a). As such, science educators must act as a reasonably prudent person would in providing and maintaining a learning and working environment for their students and staff that is as safe as possible.

To ensure that science experiments at home are safe, positive learning experiences, teachers should encourage students and their parents to read, discuss, and sign the **student version** of the *At-Home Science Safety General Guidelines*. The student, parent, and science instructor should each keep a copy for their records.

1. Stress to students and parents to read and understand the lab procedure before beginning.
2. Thoroughly review written lab procedures in advance and understand what you are going to do as a demonstration or student-centered activity. Know any potential hazards before you begin. Stress to your students the importance of following all instructions you or the adult supervisor provide.
3. Stress to students they should only perform experiments you recommend.
4. Encourage students to be properly prepared to do the experiment. Provide students with an easily accessible list of necessary materials (including potential approved substitutes) and lab/activity directions. Encourage students to discuss any concerns they have with you prior to doing the experiment.
5. Be sure to communicate to your students any safety warnings as they relate to the experiment.
6. Communicate to students and parents that all experiments should be performed on surfaces that can be easily cleaned or wiped up. The family may need to consider a way to protect against any materials which could stain or damage countertops or furniture.

Collaboratively developed by Dean Gilbert, EDU Consulting LLC (dean@educonsultingllc.com), Jennifer Moses, National Board Certified Teacher, Burbank Unified School District (jennifermoses@burbankusd.org) and Anthony Quan, STEM Coordinator, Los Angeles County Office of Education (quan_anthony@lacoe.edu), September 2020.

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7. When doing an experiment in distance learning instruction, it is advised that your students activate their video component to insure appropriate oversight/supervision.
8. In most cases, at-home experiments you assign will probably be considered extremely low-risk and NOT require protective eyewear. IF you require your students to participate in an experiment that requires protective eyewear (i.e. goggles), the school should provide them. As an alternative to this, you may demonstrate the experiment and/or videotape it for your students to observe.
9. Prior to doing any at-home experiments, review with your students their family's emergency evacuation plan and location of a first aid kit.
10. Act and model responsible online behavior at all times. Emphasize to students that no horseplay should occur in the experiment area.
11. Emphasize to students they should never taste, eat or drink any materials they work with in an experiment. Eating, drinking, and storing food in the work area during an experiment is not recommended.
12. Be sure your work area is free of clutter.
13. Heat sources (i.e. candles, matches, stove/oven) are not recommended for at-home science. However, some experiments may require use of hot/warm water from the tap--inform your students to be careful when using anything with extreme temperatures. If you or a student burn yourself, treat immediately by putting the burned area under cold water for at least 15 minutes.
14. Report all accidents and injuries to the appropriate school/district administrator immediately.
15. Be sure students inform you as to any allergies and/or medical problems they may have, prior to the start of any experimentation, by completing the bottom section of the **student version** of the *At-Home Science Safety General Guidelines*.
16. It is recommended that both you and your students wash your hands with soap and water for at least 20 seconds BEFORE and AFTER every experiment. Be sure to clean your work surfaces with an appropriate disinfectant frequently.
17. If you provide students with an at-home science kit, emphasize to parents it should be stored so that small children or pets can't reach them.
18. Frequently remind students if they have any questions or confusion around an experiment or lab procedure(s), they should NOT proceed until they seek clarification from you.
19. Remind students to be extremely careful when navigating the internet. It is recommended they only open links that you find reliable, and safe for purposes of instruction.

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Acknowledgements:

- The Laboratory Safety Institute- Safe Science at Home, Science Safety Rules Agreement
- NSTA Position Statement- Liability of Science Teachers for Laboratory Science
- When in doubt about safety and liability issues related to any hands-on activities, refer to the Science Safety Handbook for California Public Schools.

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