ACS Webinars
CLICK • WATCH • LEARN • DISCUSS

ACS Chemistry for Life®

Have Questions?

Type them into questions box!

"Why am I muted?"
Don't worry. Everyone is muted except the presenter and host. Thank you and enjoy the show.

ACS Webinars
CLICK • WATCH • LEARN • DISCUSS

@AmerChemSociety

@AmericanChemicalSociety

@AmerChemSociety

LinkedIn https://www.linkedin.com/company/american-chemical-society

Check out the Archive!

An ACS member exclusive benefit

ACS Chemistry for Life®

Hundreds of presentations from the best and brightest minds that chemistry has to offer are available to you on-demand. The Archive is divided into 6 different sections to help you more easily find what you are searching.

Professional Development

▶ View the Collection

Learn how to write better abstracts, deliver more engaging presentations, and network to your next dream job. Brush up on your soft skills and set a new career path by mastering what can not be taught in the lab.

Technology & Innovation

▶ View the Collection

From renewable fuels to creating the materials for the technology of tomorrow, chemistry plays a pivotal role in advancing our world. Meet the chemists that are building a better world and see how their science is making it happen.

Drug Design and Delivery

▶ View the Collection

The Drug Design Delivery Series has built a collection of the top minds in the field to explain the mechanics of drug discovery. Discover the latest research, receive an overview on different fields of study, and gain insight on how to possibily overcome your own med chem roadblocks.

Culinary Chemistry

▶ View the Collection

Why does food taste better when it is grilled or what molecular compounds make a great wine? Discover the delectable science of your favorite food and drink and don't forget to come back for a second helping.

Popular Chemistry

▶ View the Collection

Feeling burdened by all that molecular weight? Listen to experts expound on the amazing side of current hot science topics. Discover the chemistry of rockets, how viruses have affected human history, or the molecular breakdown of a hangover.

Business & Entrepreneurship

▶ View the Collection

How do ideas make it from the lab to the real world? Discover the ins and outs of the chemical industry whether you are looking to start a business or desire a priceless industry-wide perspective.

https://www.acs.org/content/acs/en/acs-webinars/videos.html

3

Learn from the best and brightest minds in chemistry! Hundreds of webinars on diverse topics presented by experts in the chemical sciences and enterprise.

Edited Recordings are an exclusive ACS member benefit and are made available to registrants via an email invitation once the recording has been edited and posted.

Live Broadcasts of ACS Webinars® continue to be available to the general public on Tuesdays, Wednesdays, and Thursdays from 2-3pm ET!

A **collection of the best recordings** from the ACS Webinars Archive will be broadcast on Mondays and Fridays from 2-3pm ET!

www.acs.org/acswebinars

4

What is ACS on Campus?

ACS visits campuses across the world offering FREE seminars on how to be published, find a job, network and use essential tools like SciFinder. ACS on Campus presents seminars and workshops focused on how to:

ACS ON CAMPUS

- Publish in top journals
- Find a job
- Effectively use research tools like SciFinder® and ACS ChemWorx
- Communicate your science
- Write grant proposals
- Build industry partnerships
- Prepare for a changing employment landscape

http://acsoncampus.acs.org

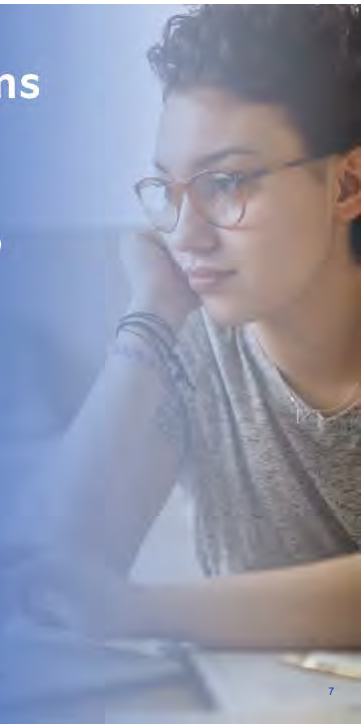
5

An individual development planning tool for you!

https://chemidp.acs.org

6

From ACS Industry Member Programs



- **Industry Matters Newsletter**

  Exclusive interviews with industry leaders and insights to advance your career

  Preview & Subscribe: acs.org/indnews

- **ACS Innovation Hub**

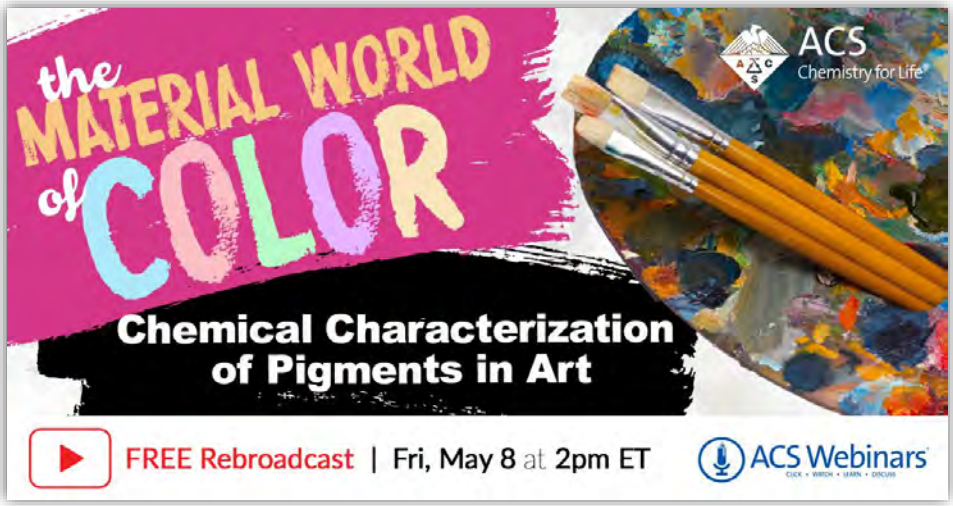
  Connect, collaborate, and stay informed about the trends leading chemical innovation

  Join: bit.ly/ACSinnovationhub

7

Free ACS Webinars Every Weekday!

Tomorrow



www.acs.org/acswebinars

8

Free ACS Webinars Every Weekday!

Coming Next Week

Tuesday, May 12, 2020 at 2-3pm ET
Speakers: Kristin Omberg, Pacific Northwest National Laboratory and Brenda Hogue, Arizona State University
Moderator: Sue Morrissey, American Chemical Society

Register for Free!

What You Will Learn

- How the "novel" coronavirus, SARS-CoV-2 is related to the larger family of coronaviruses
- How this coronavirus is transmitted and how people can become infected
- How long the virus remains in the environment and how to kill it

Co-produced with: ACS External Affairs & Communications

Wednesday, May 13, 2020 at 2-3pm ET
Speakers: Jonathan Lai, Albert Einstein College of Medicine and Raymond Forslund, Syner-G
Moderator: Courtney Aldrich, University of Minnesota and *ACS Infectious Diseases*

Register for Free!

What You Will Learn

- An overview of the virus and therapeutic strategies regarding vaccines, antivirals, serum strategies, and timelines as well as an understanding of why has this become a pandemic
- A review of past outbreaks with focus on lessons learned
- How drug discovery can affect the process and timelines for discovering vaccines

Co-produced with: ACS Science & the Congress

Thursday, May 14, 2020 at 2-3pm ET
Speakers: Supratik Guha, University of Chicago and Argonne National Laboratory and Yi Cui, Stanford University
Moderator: Laura Cassiday, American Chemical Society

Register for Free!

What You Will Learn

- What types of fabrics and household cloth are effective in particle filtration and why
- The basics of particle filtration and data on filtration efficiencies as a function of size for common fabrics that are used in cloth masks
- How to disinfect N95 masks and how many times you can do it without reducing filtration efficiency

Co-produced with: ACS External Affairs & Communications and ACS Publications

www.acs.org/acswebinars

9

Join ACS CHAS Today!

CHAS AWARDS

2020 CHAS AWARDS ANNOUNCED!

ADMINISTRATIVE INFORMATION

2020 CHAS ELECTION CANDIDATES

ADMINISTRATIVE INFORMATION

ACS CHEMICAL HEALTH & SAFETY NOW ACCEPTING SUBMISSIONS!

Membership in the Division of Chemical Health and Safety is FREE for the first year and is a powerful tool for chemical health and safety professionals in industry, academia and government.

https://dchas.org

10

SAFER CHEMISTRY EDUCATION *at home*

THIS ACS WEBINAR WILL BEGIN SHORTLY...

11

ACS Webinars
CLICK • WATCH • LEARN • DISCUSS

ACS Chemistry for Life®

Safer Chemistry Education at Home

Ralph Stuart
Chemical Hygiene Officer, Keene State College, Chair of the ACS Committee on Chemical Safety, and Membership Chair, ACS Division of Chemical Health

Jennifer Bishoff
Assistant Professor,
Frostburg State University

Debbie Decker
Safety Manager for the Department of Chemistry at the University of California, Davis

Presentation slides are available now! Edited recordings are an exclusive ACS member benefit.

www.acs.org/acswebinars

This ACS Webinar is co-produced with the ACS Division of Chemical Health & Safety and the ACS Committee on Chemical Safety.

12

The Chemical Education Challenge at Home

- **There are many resources built into educational laboratories that aren't available at home**
  - Well Ventilated Work Areas
  - Emergency Equipment (sprinklers, spill kits, PPE)
  - Waste Disposal Protocols and Materials
- **Chemistry education is not a "do it yourself" effort:**
  - Professional chemistry expertise does not necessarily smoothly transfer to chemical education at home.
  - Teachers build their curriculum around NGSS rather than current science practice
- With this in mind, this is an opportunity to **redesign hands on chemical education** that takes place in the home for both **learning** and **safety** purposes.


This mom went on a Twitter rant about trying to homeschool her first-grader. A few hours later, she was named a Guggenheim Fellow

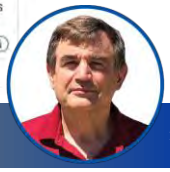
It was quite a day for Maine native Sarah Parcak.

Sarah Parcak
@lindyfromspace

We just wrote a hard email. I told our son's (lovely, kind, caring) teacher that, no, we will not be participating in her "virtual classroom", and that he was done with the 1st grade. We cannot cope with this insanity. Survival and protecting his well being come first.

7:57 AM · Apr 8, 2020

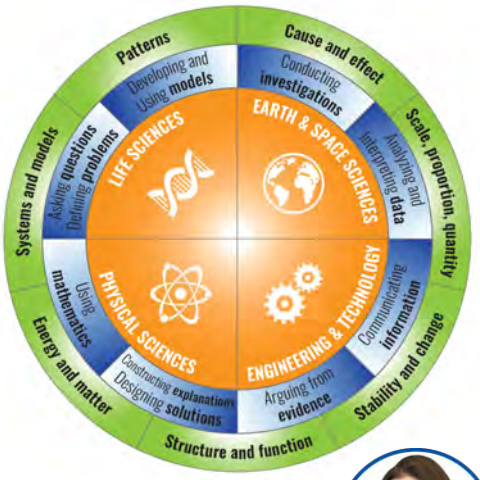
36K 6.8K people are talking about this



13

Next Generation Science Standards

- Many states use NGSS in curriculum planning and mapping
- NGSS is not very prescriptive in terms of content, especially chemistry
- Each standard, or "performance expectation" is combined from three dimensions intended to build a cohesive understanding of science throughout the K-12 experience



14

The Three Dimensions of NGSS

- **Crosscutting Concepts**

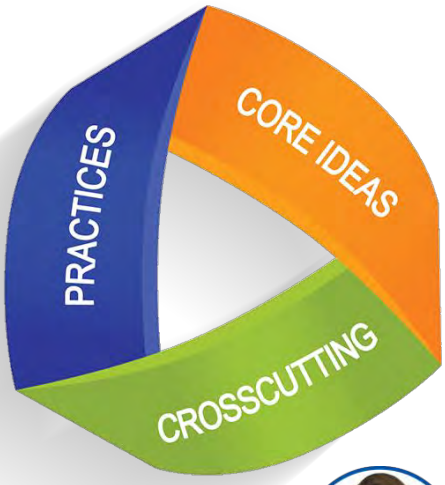
  These have applications across all sciences and "they provide an organizational schema for interrelating knowledge from various science fields into a coherent and scientifically-based view of the world." (nextgenscience.org)

- **Science and Engineering Practices**

  "The practices describe behaviors that scientists engage in as they investigate and build models and theories about the natural world and the key set of engineering practices that engineers use as they design and build models and systems." (nextgenscience.org)

- **Disciplinary Core Ideas**

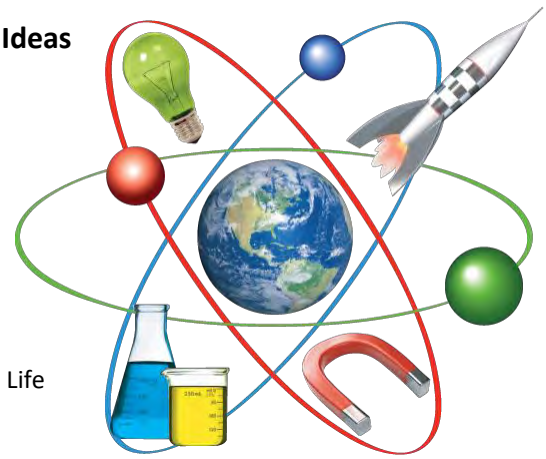
  Physical, Life, Earth/Space, or Engineering/Tech



15

How does chemistry fit into NGSS?

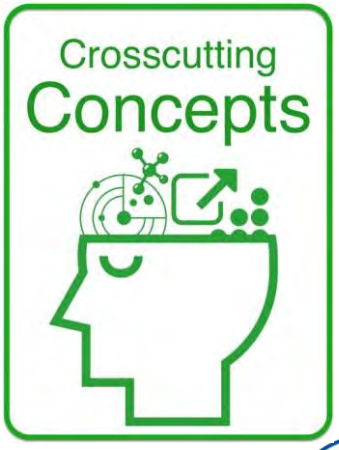
- **Physical Sciences has four main Disciplinary Core Ideas**
  - **PS1: Matter and Its Interactions**
    - PS1.A—Structure and Properties of Matter
    - PS1.B—Chemical Reactions
    - PS1.C—Nuclear Processes
  - **PS2: Motion and Stability: Forces and Interactions**
  - **PS3: Energy**
    - PS3.D—Energy in Chemical Processes and Everyday Life
  - **PS4: Waves and Their Applications in Technologies for Information Transfer**
    - PS4.A—Wave Properties



16

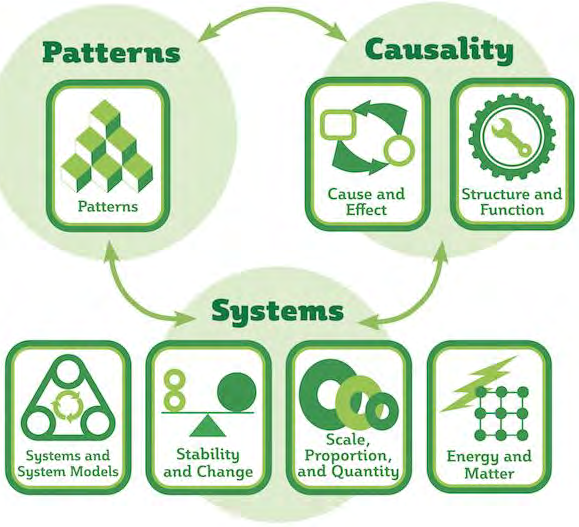
What Does This Mean for Home Chemistry?

- A strict focus on content may not be necessary
- Broader focus on **Crosscutting Concepts** and **Science and Engineering Practices** could be helpful without requiring parents/guardians to re-learn high school chemistry!
- This can also help prepare students with skills to continue in their next science class…whether at home, in K-12 school, or in college



17

Let's Focus On…



Crosscutting Concepts

- Patterns
- Cause and Effect
- Scale, Proportion, and Quantity
- Systems and System Models
- Energy and Matter
- Structure and Function
- Stability and Change

18

Let's Focus On…

Science and Engineering Practices

- Asking questions (for science) and defining problems (for engineering)
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations (for science) and designing solutions (for engineering)
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

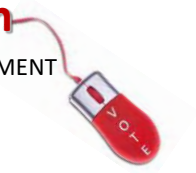
What Are Some Resources to Help Us Teach at Home?

ACS and AACT have a variety of resources to help at-home chemistry instruction:

- **For K-8 Students:**
  - At-Home Activities for K-8 Students
    - This source includes activities on density, temperature, kinetics, and more
    - Activities include simple, kitchen-based ingredients
  - Middle School Chemistry Website
  - ACS Elementary and Middle School Resources
- **For High School Students:**
  - The Chemistry Close Read is a great way to focus on skills other that pure chemistry content
  - ACS High School Chemistry Education Resources
- **ACS Page** for Chemistry Education Resources contains some of the links above, but also allows you to search by topic, such as the Earth, Water, or Food
- **On the AACT website,** search for "unlocked resources" for more at-home help

Audience Challenge Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT



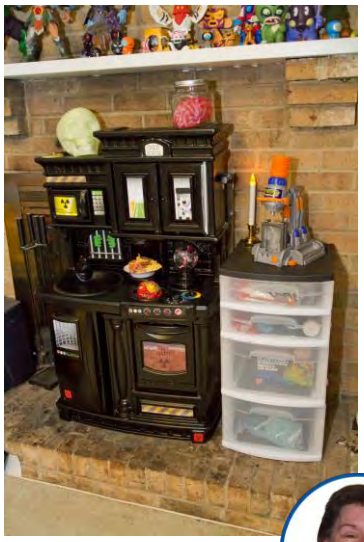
What level of at-home chemistry are you involved in teaching or facilitating?

- Elementary school
- Middle school
- High school
- College / University
- This question is not applicable to me

** If your answer differs greatly from the choices above tell us in the chat!*

Safety Concerns With Home Chemistry Education

- **Multiple perspectives:**
  - Safety Manager in the Chemistry Department at an R1 institution, supervising undergraduate laboratory teaching staff;
  - School Board Trustee; and
  - Grandparent of school aged children learning at home.
- **Multiple types of science education going on at home**
  - Undergraduate chemistry laboratory teaching
  - High school/Middle school science
  - Elementary school science



The Challenge of Undergrad Labs

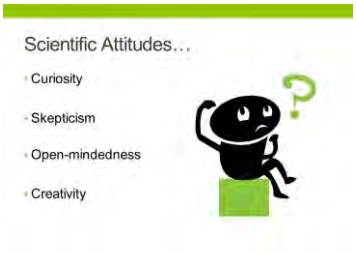
- **The University of California Davis approach** – online "virtual" laboratories – intent is for virtual labs to be temporary through our summer sessions
  - Early on, decided against sending kits home with students – sheer numbers of students (and the attendant potential liability) precluded that
- Institutions with smaller enrollment may be able to move hands-on labs from on-site to home or they may have guidance already in place for home labs
- UC Davis has a strong commitment to continuing hands-on laboratory instruction for general chemistry, once the pandemic resolves

The Challenge of Virtual Undergraduate Labs

- **The unspoken goals of undergraduate laboratory education**
  - Use a match
  - Glassware
  - Rulers and other simple measurement tools
  - Differences between measuring solids and liquids and the units associated with each
  - Basic understanding of safety concepts and comfort with wearing PPE
  - An exploratory and questioning attitude - important not only in laboratory coursework but to be able to think critically about safety concerns

  General Chemistry requirements are foundational to follow-on STEM coursework. There's an expectation students coming from General Chemistry have these basic skills and attitudes.

  We can teach students the content virtually and show them video of the experiments. But how do we provide students with the hands-on, muscle memory piece critical to experiential learning?



The Challenges of K-12 Science Education

- **The School Board perspective: Teaching Science Safely** – in the classroom and at home – means attempting to manage the liability risks for school districts. Equity of access needs to be assured for students who may not have the support or resources at home to accomplish science activities. WiFi access is not universal, even with a hotspots provided. The digital divide for students attempting to learn at home places students at a further disadvantage who may already be disadvantaged.
  - **Technical assistance for parents and teachers is available in the community through local sections and ACS divisions**. These organizations are ready to help recruit and develop volunteers for local school districts.
- **Opportunities and challenges of EHS outreach to chemistry educators** – time in the teaching schedule – pacing guides, standards to accomplish, horizontal and vertical articulation
- **Distance learning chemistry experience policies based on kits** (e.g. Penn State's *Guidance For Performing Remote Teaching Or Research From Home*)

25

The Challenge of K-12 Science Education

Parent involvement and oversight of science education at home is important. Parents need to understand what teachers are wanting their students to accomplish or what your kids are planning to do. **Encourage your kids to write a hypothesis and a procedure, do a hazard/risk assessment, and describe materials needed.** Middle/high school students could do this on their own. For younger students, this is the opportunity to teach them these concepts.

Some ideas might include:

- DIY home chemistry: hand sanitizers; making face masks; cleaning solutions
- Commercial chemistry demonstrations and kits: Carolina Biological and Flinn Scientific are two options
- Emulating amateur videos: Let's try this at home, *but do a risk assessment first*!

26

Safety Considerations for Science Education at Home

- **Kitchen:** Try not to let the kids do anything in the kitchen that couldn't otherwise be eaten or applied to the skin. Use food grade materials when possible. ***Potential hazards include burns, cuts, or spills.***
- A good way to demonstrate weights and measures is by cooking and using recipes to teach material manipulation. Gloves and safety eyewear could be used for students to become accustomed to working wearing PPE.

These are lab skills, too, and can help build valuable muscle memory.

- **Garage:** A sink and a work bench are optimum. Using hand tools or power tools should be supervised and always with proper PPE – safety eyewear, for sure.
- **Outside:** Could use more hazardous materials or activities. Launching rockets or doing chemistry activities that might involve extremes of temperature. A hazard/risk assessment or "What if?" analysis is an important learning. Proper PPE should be worn.

27

Science Education at Home – An Example

Fun with Dry Ice:

Dry ice is a **readily available, easily handled material** that can be used to illustrate a number of concepts, discussed in Jennifer's presentation. **Temperature extremes, phase changes, gas production, etc.**

But dry ice is not without hazards. Because it's extremely cold, handling it with bare hands or thin gloves is risky. **Using leather gloves or a thick mitt is best. Best is to handle with tongs or a tool**.

Off gassing carbon dioxide, as the dry ice sublimes, **could create an oxygen deficient atmosphere**, particularly indoors or in a basement location.

Disposal of dry ice can also be problematic. Attempting to wash it down a sink drain could result in failure of the drain due to temperature extremes on the plumbing material or gas expansion within plumbing.

28

Sample K-8 Idea

- **Engineering a Flotation Device**

  https://www.acs.org/content/acs/en/education/resources/k-8/inquiryinaction/fifth-grade.html

Objective

Students will design, test, modify, and optimize a device that uses a chemical reaction to produce enough gas to inflate a bag to make a cell phone float.

Safety

Make sure you and your students wear properly fitting safety goggles. Citric acid is an eye irritant. Read and follow all safety warnings on the label.

Materials for Each Group

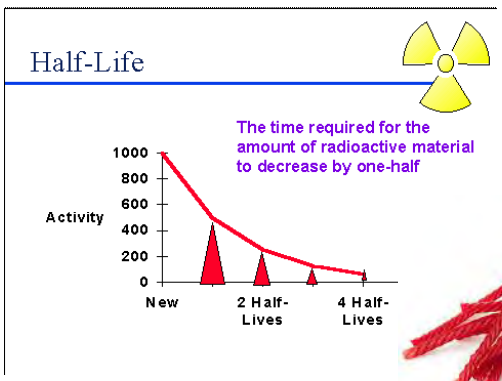
• Goggles • Citric acid • Cream of tartar • Baking soda • Water • 2 Small clear plastic cups • Liquid dish detergent • Dropper • Graduated cylinder • Measuring spoons (⅛ tsp, ¼ tsp, and ½ tsp) • Snack size, zip-closing plastic bag

29

Sample High School Idea

- **Twizzler Half-Life**

  https://teachchemistry.org/classroom-resources/twizzler-half-life



Objectives

By the end of this lesson, students should be able to understand what a half-life is.

Chemistry Topics

This lesson supports students' understanding of Half-life and radioactive decay

Materials

2 pieces of licorice

Safety

• Food in a lab should be treated as a chemical and not consumed.

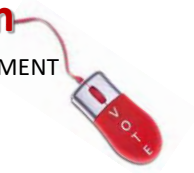
• If you allow students to consume the licorice after the activity, make sure to complete the activity away from a lab setting, chemicals, or other harmful materials. Have students handle their own licorice.

30

31

Audience Challenge Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT

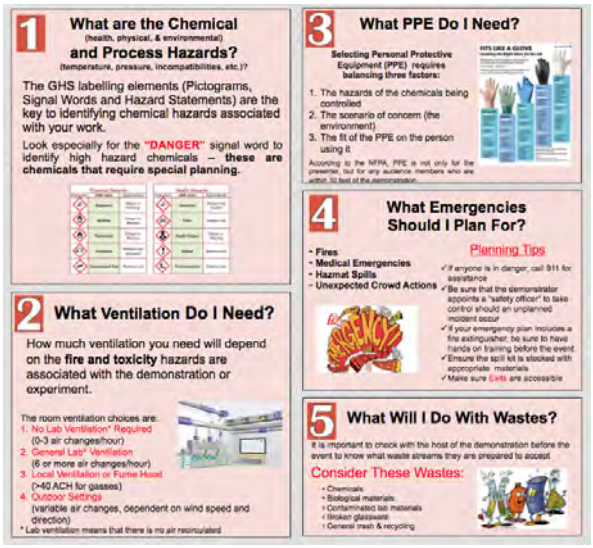


Which home chemistry exercise presents the greatest safety concern to you?

- DIY chemistry products such as disinfectants
- Freelancing exploration
- Emulation of YouTube chemistry influencers
- Repurposing of retail chemicals
- Other (Let us know more in the chat)

** If your answer differs greatly from the choices above tell us in the chat!*

Key ACS Resources for Safe Home Chemistry Education

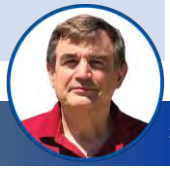


- **Five Key Questions for Safe Research and Demos:** https://inchemistry.acs.org/content/inchemistry/en/college-life/five-key-questions-for-safe-research-and-demos.html
- **Demonstration and video safety rubric at** https://www.acs.org/content/acs/en/chemical-safety/teach-and-learn/safer-demonstrations.html
- **Pointers to Web resources from ACS Safety Program and the American Association of Chemistry Teachers** https://teachchemistry.org/about-us/unlocked-resources

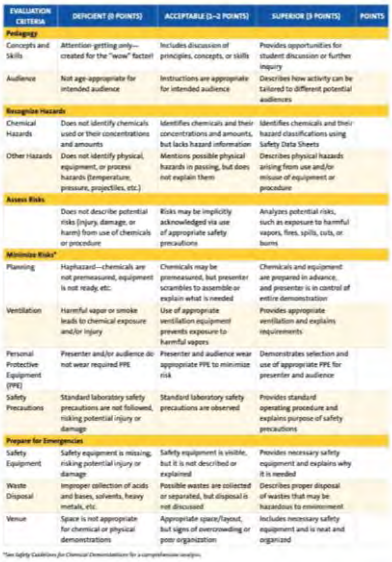
32

Example Safety Considerations for Home Chemistry

	Ventilation	Housekeeping	Waste disposal
Kitchen	Likely to be able to manage nuisance odors	Critical to maintain family safety and health	Drain disposal is available but should be carefully considered, both for corrosions and reactions in the plumbing
Outdoors	Ventilation is freely available	A manageable concern with standard household chemicals	Airborne chemicals are quickly dissipated; protect neighbors, vegetation and wildlife
Garage or basement or workshop	Limited ventilation can be a significant problem (e.g. cleaning solution incidents)	Less critical than in the kitchen, but still a consideration	Planning is required to control contamination



A More Comprehensive Set of Considerations



EVALUATION CRITERIA	DEFICIENT (0 POINTS)	ACCEPTABLE (1–2 POINTS)	SUPERIOR (3 POINTS)	POINTS
Pedagogy				
Concepts and Skills	Attention-getting only—created for the "wow" factor!	Includes discussion of principles, concepts, or skills	Provides opportunities for student discussion or further inquiry	
Audience	Not age-appropriate for intended audience	Instructions are appropriate for intended audience	Describes how activity can be tailored to different potential audiences	
Recognize Hazards				
Chemical Hazards	Does not identify chemicals used or their concentrations and amounts	Identifies chemicals and their concentrations and amounts, but lacks hazard information	Identifies chemicals and their hazard classifications using Safety Data Sheets	
Other Hazards	Does not identify physical equipment, or process hazards (temperature, pressure, projectiles, etc.)	Mentions possible physical hazards in passing, but does not explain them	Describes physical hazards arising from use and/or misuse of equipment or procedure	
Assess Risks				
	Does not describe potential risks (injury, damage, or harm) from use of chemicals or procedure	Risks may be implicitly acknowledged via use of appropriate safety precautions	Analyses potential risks, such as exposure to harmful vapors, fires, spills, cuts, or burns	
Minimize Risks*				
Planning	Haphazard—chemicals are not premeasured, equipment is not ready, etc.	Chemicals may be premeasured, but presenter scrambles to assemble or explain what is needed	Chemicals and equipment are prepared in advance, and presenter is in control of entire demonstration	
Ventilation	Harmful vapor or smoke leads to chemical exposure and/or injury	Use of appropriate ventilation equipment prevents exposure to harmful vapors	Provides appropriate ventilation and explains requirements	
Personal Protective Equipment (PPE)	Presenter and/or audience do not wear required PPE	Presenter and audience wear appropriate PPE to minimize risk	Demonstrates selection and use of appropriate PPE for presenter and audience	
Safety Precautions	Standard laboratory safety precautions are not followed, risking potential injury or damage	Standard laboratory safety precautions are observed	Provides standard operating procedure and explains purpose of safety precautions	
Prepare for Emergencies				
Safety Equipment	Safety equipment is missing, risking potential injury or damage	Safety equipment is visible, but it is not described or explained	Provides necessary safety equipment and explains why it is needed	
Waste Disposal	Improper collection of acids and bases, solvents, heavy metals, etc.	Possible wastes are collected or separated, but disposal is not discussed	Describes proper disposal of wastes that may be hazardous to environment	
Venue	Space is not appropriate for chemical or physical demonstrations	Appropriate space/layout, but signs of overcrowding or poor organization	Includes necessary safety equipment and is neat and organized	

*See Safety Guidelines for Chemical Demonstrations for a comprehensive overview.

The **ACS Safety Rubric** provides a guide for critically assessing Chemical Demonstration Videos. It is designed to be used to compare two **well-defined options**, ***not to say that any one demonstration or video is "safe enough to use at home".***

It addresses both educational and safety elements based on the RAMP system. Specifically, it addresses:

Pedagogy
- Concepts and skills
- Appropriate ages

Safety
- Recognizing Hazards
- Assessing Hazards
- Managing Safety
- Preparing for Emergencies and Protecting the Environment

The Classic Elephant's Toothpaste Demonstration

Edited version of https://www.youtube.com/watch?v=r9LItsBy1g4

35

36

Audience Challenge Question

ANSWER THE QUESTION ON BLUE SCREEN IN ONE MOMENT

Would you do the *Elephant's Toothpaste Demo* at Home in the way that the Video Demonstrates?

- Yes, they use best practices in the video
- Yes, but I would want to make some changes in their process
- Yes, but I would not allow minors to do this demonstration
- No, I don't believe that this demonstration has enough educational value
- No, I don't have the appropriate facilities at home

** If your answer differs greatly from the choices above tell us in the chat!*

Assessing this Video

Educational Concepts introduced:
- The role of catalysts in chemical reactions
- Movement of fluids as related to the shape of container
- Further reasons to study more chemistry

Recognize Hazards:
Identifies chemical hazards and concentrations – O_2 and 30% H_2O_2
Identifies process hazards – heat and pressurized gases

Assessing Risks:
Focus on specific hazards during the process (heat, skin exposures)

Managing Safety:
Ventilation; Personal Protective Equipment; Crowd management

Planning for Emergencies:
Working outdoors reduces risks and provides controls temperature and off-gassing concerns

Potential Safety Discussion Questions:
- *How hot does the foam get?*
- *Is that dangerous?*
- *What are the wastes of this demonstration and what is an appropriate clean up protocol?*
- *What happens if you do this inside?*

37

Further ACS Resources and For Follow up

- **AACT open teaching resources for high school lesson plans** at https://teachchemistry.org/about-us/unlocked-resources
- **ACS Chemical Safety Resources** at http://www.acs.org/safety
- **ACS Education Video Series on Youtube**
  https://www.youtube.com/user/AmerChemSoc/playlists?view=50&sort=dd&shelf_id=19
- ***Playing with Fire: Chemical Safety Expertise Required*,** Samuella B. Sigmann
  https://pubs.acs.org/doi/10.1021/acs.jchemed.8b00152
- **Other questions or comments?**
  E-mail us at membership@dchas.org and we'll ask the DCHAS-L for help.

38

Free ACS Webinars Every Weekday!

Tomorrow

www.acs.org/acswebinars

39

Free ACS Webinars Every Weekday!

Coming Next Week

Tuesday, May 12, 2020 at 2-3pm ET
Speakers: Kristin Omberg, Pacific Northwest National Laboratory and Brenda Hogue, Arizona State University
Moderator: Sue Morrissey, American Chemical Society

Register for Free!

What You Will Learn

- How the "novel" coronavirus, SARS-CoV-2 is related to the larger family of coronaviruses
- How this coronavirus is transmitted and how people can become infected
- How long the virus remains in the environment and how to kill it

Co-produced with: ACS External Affairs & Communications

Wednesday, May 13, 2020 at 2-3pm ET
Speakers: Jonathan Lai, Albert Einstein College of Medicine and Raymond Forslund, Syner-G
Moderator: Courtney Aldrich, University of Minnesota and *ACS Infectious Diseases*

Register for Free!

What You Will Learn

- An overview of the virus and therapeutic strategies regarding vaccines, antivirals, serum strategies, and timelines as well as an understanding of why has this become a pandemic
- A review of past outbreaks with focus on lessons learned
- How drug discovery can affect the process and timelines for discovering vaccines

Co-produced with: ACS Science & the Congress

Thursday, May 14, 2020 at 2-3pm ET
Speakers: Supratik Guha, University of Chicago and Argonne National Laboratory and Yi Cui, Stanford University
Moderator: Laura Cassiday, American Chemical Society

Register for Free!

What You Will Learn

- What types of fabrics and household cloth are effective in particle filtration and why
- The basics of particle filtration and data on filtration efficiencies as a function of size for common fabrics that are used in cloth masks
- How to disinfect N95 masks and how many times you can do it without reducing filtration efficiency

Co-produced with: ACS External Affairs & Communications and ACS Publications

www.acs.org/acswebinars

40

ACS Webinars
CLICK • WATCH • LEARN • DISCUSS

ACS Chemistry for Life®

Safer Chemistry Education at Home

Ralph Stuart
Chemical Hygiene Officer, Keene State College, Chair of the ACS Committee on Chemical Safety, and Membership Chair, ACS Division of Chemical Health

Jennifer Bishoff
Assistant Professor,
Frostburg State University

Debbie Decker
Safety Manager for the Department of Chemistry at the University of California, Davis

Presentation slides are available now! Edited recordings are an exclusive ACS member benefit.

www.acs.org/acswebinars

This ACS Webinar is co-produced with the ACS Division of Chemical Health & Safety and the ACS Committee on Chemical Safety.

41

Join ACS CHAS Today!

ACS Chemistry for Life®

Membership in the Division of Chemical Health and Safety is FREE for the first year and is a powerful tool for chemical health and safety professionals in industry, academia and government.

https://dchas.org

42

ACS Webinars®
CLICK • WATCH • LEARN • DISCUSS

@AmerChemSociety

@AmericanChemicalSociety

@AmerChemSociety

https://www.linkedin.com/company/american-chemical-society

Contact ACS Webinars ® at acswebinars@acs.org

ACS Webinars®
CLICK • WATCH • LEARN • DISCUSS

ACS Chemistry for Life®

ACS Webinars® does not endorse any products or services. The views expressed in this presentation are those of the presenter and do not necessarily reflect the views or policies of the American Chemical Society.

Contact ACS Webinars ® at acswebinars@acs.org

Free ACS Webinars Every Weekday!

Coming Next Week

ACS Chemistry for Life®

Tuesday, May 12, 2020 at 2-3pm ET
Speakers: Kristin Omberg, Pacific Northwest National Laboratory and Brenda Hogue, Arizona State University
Moderator: Sue Morrissey, American Chemical Society

Register for Free!

What You Will Learn

- How the "novel" coronavirus, SARS-CoV-2 is related to the larger family of coronaviruses
- How this coronavirus is transmitted and how people can become infected
- How long the virus remains in the environment and how to kill it

Co-produced with: ACS External Affairs & Communications

Wednesday, May 13, 2020 at 2-3pm ET
Speakers: Peter Hotez, Baylor University / Jonathan Lai, Albert Einstein College of Medicine / Raymond Forslund, Syner-G
Moderator: Courtney Aldrich, University of Minnesota and *ACS Infectious Diseases*

Register for Free!

What You Will Learn

- An overview of the virus and therapeutic strategies regarding vaccines, antivirals, serum strategies, and timelines as well as an understanding of why has this become a pandemic
- A review of past outbreaks with focus on lessons learned
- How drug discovery can affect the process and timelines for discovering vaccines

Co-produced with: ACS Science & the Congress

Thursday, May 14, 2020 at 2-3pm ET
Speakers: Supratik Guha, University of Chicago and Argonne National Laboratory and Yi Cui, Stanford University
Moderator: Laura Cassiday, American Chemical Society

Register for Free!

What You Will Learn

- What types of fabrics and household cloth are effective in particle filtration and why
- The basics of particle filtration and data on filtration efficiencies as a function of size for common fabrics that are used in cloth masks
- How to disinfect N95 masks and how many times you can do it without reducing filtration efficiency

Co-produced with: ACS External Affairs & Communications and ACS Publications

www.acs.org/acswebinars

45