ALTERNATIVE LESSON PLANS FOR DISTANCE LEARNING

These alternative lesson plans condense what is taught and suggest ways to support students learning at home.
We acknowledge that every situation is unique and strive to provide plans that can be used online or as printed packets.
Focus on fewer scientific principles. Use print and audio readings. Share the videos that you can. Discuss if you can.

UNIT TITLE	**IC1**
DRIVING QUESTION	How can I smell things from a distance?

STUDENT ACTIVITY VIDEOS TO COME

Lesson 1 (1 days)	**Can You Smell What I Smell?**
Activity 1.1	Can You Smell What I Smell? Teachers are unable to provide an odor experience remotely, however, teachers can contextualize the experience by discussing the "Special Instrument" view and modeling used in this unit. (See TE) Teachers may want to share student models as possible and discuss.
Reading 1	*Can You Smell What I Smell?*

Lesson 2 (2 days)	**What Is Similar among an Odor, Sugar, and Milk*?***
Activity 2.1	Can Something Have Mass Even if I Cannot Feel It? Search for a video demonstrating air has mass in a ball or Share this: https://youtu.be/kBha3XkQ7uU
Reading 1	*Can Something Have Mass Even if I Cannot Feel It?*
Activity 2.2	Measuring Volume Search for video for measuring volume with a ruler and by displacement or Share this: https://youtu.be/s5u5cmA9Dp0
Activity 2.3	What Happens to My Lungs When I Breathe In Air? Share: https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_2-36.mp4
Reading 2	*What Happens to My Lungs When I Breathe in Air?*

Lesson 3 (2 days)	**What Must Happen to Matter so I Can Smell It?**
Activity 3.1	Investigating Matter https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_3-29.mp4 Teachers need to point out before starting, that menthol starts out as crystals. Make sure that students see *after* heating and then cooling again that the inside of the flask is covered with white material. The bottom of the watch glass is covered with crystals (re-solidified menthol after it has cooled). These observations are evidence that menthol WAS a gas that filled the flask--even though it can't be seen in gaseous form--as the evidence of it everywhere happens after it cools. And the crystals are important to match the original form.
Reading 1	*Three Forms of Matter: Solid, Liquid, and Gas*
Activity 3.2	Why Does Water Have Many Names? Search for a video to demonstrate phase change of water or Share this: *https://youtu.be/tuE1LePDZ4Y* The purpose is to assist students in developing the Scientific Principle that "matter can exist as a solid, a liquid, or a gas at room temperature."
Reading 2	*What Needs to Happen to a Material so that I Can Smell It?*

Lesson 4 (1 day)	**How Can We Model the Things Gases Do? Part 1**
Activity 4.1	How Can I Model the Things Gases Do? Share: https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_4-39.mp4 Teachers may have students share model if possible, or create a model, share and discuss (See TE for possible student ideas)
Reading 1	*How Can I Model the Things Gases Do?*

Lesson 5 (3 days)	**How Can We Model the Things Gases Do? Part 2**
Activity 5.1, 5.2	What Else Can Gases Do? Search for air compressed in a syringe or Share this: https://youtu.be/WrM5SQrRTMM This video goes beyond the scope of the lesson, however it does demonstrate that air in the syringe is compressed and gives a brief explanation - no need to show the rest of this video at this time. Teachers can have students share models if possible and discuss.
Reading 1	*How Can I Model the Things Gases Do?*
Activity 5.3	Developing and Using a Consensus Model Teachers may want to develop a consensus model to share with students and discuss.

Lesson 6 (2 days)	**What Makes Paper Change Color?**
Activity 6.1	Comparing Two Clear Liquids Share: https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_11-37.mp4 Search for video using search terms "diffusion," "model of diffusion," or "diffusion simulation"
Reading 1	*In What Ways Do People Use Detectors?*
Activity 6.2	How Does the Odor Get to My Nose? Search for virtual gas model or Share this: https://phet.colorado.edu/sims/html/gas-properties/latest/gas-properties_en.html
Reading 2	*Are All Types of Matter Made of Particles?*

Lesson 7 (2 days)	**How Do I Know Whether Things that Look the Same Are Really the Same?**
Activity 7.1	Gases All Look the Same to Me Share projected image: 1. Gas Particles Share: https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_9-26.mp4 *https://www.youtube.com/watch?v=oae5fa-f0S0*
Reading 1	*How Can I Tell Whether Things that Look the Same Really Are the Same?*
Reading 2	*Detectors Work because of Properties*

Lesson 8 (2 days)	**What Makes Materials Different?**
Activity 8.1	Investigating Elements Search for video of hardness test or Share this: https://youtu.be/R-bw7_u3gSQ Search for Malleability test or use this: https://youtu.be/Cu8r0icQUAo
Reading 1	*Why Do Properties of Materials Matter?*
Reading 2	*Why Is the Periodic Table of Elements Important?* Teachers may want to share: https://youtu.be/yWelTP-zOpY
Reading 3	*What Makes Elements Different from One Another?*

Lesson 9 (2 days)	**What Does It Mean that "Odors Are in the Air"?**
Activity 9.1	Comparing Models in Two- and Three- Dimensions Teachers may want to share the chart in the TE related to pure substances. Share projected image: Atoms and Molecules Invite students to search the Internet for elements, compounds, or items they are interested in learning more about. Create gumdrop models to share and discuss with students, or students might build ball- and- stick models or draw other models.
Reading 1	*What Kinds of Particles Do I Breathe, and What Are They Made Of?*

Lesson 10 (1 day)	**Why Do Substances Have Different Odors?**
Reading 1	*Why Does One Odor Smell Different from Another Odor?*

Lesson 11 (1 day)	**How Can I Make Molecules Move Faster?**
Activity 11.1	*How Can I Make Molecules Move Faster?* *Share:* *https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_11-37.mp4* Teachers may also choose to share: *https://youtu.be/7fqf7t-fOHI)*
Reading 1	*How Can I Make Particles Move Faster?*

Lesson 12 (1 day)	**What Happens When Gases Are Cooled and Heated?**
Reading 1	*How Can the Volume of a Balloon Change without Removing or Adding Air?* Teachers may also choose to share: *https://youtu.be/7fqf7t-fOHI)*

Lesson 13 (1 day)	**How Does an Odor Get into the Air?**
Activity 13.1	What Happens to Bromine as It Is Cooled or Heated? Share: https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_te_v2_0_5_video-ic1_lesson_13_bromine_activity-381.mp4
Reading 1	*How Do Substances Become Part of the Air?*
Reading 2	*Where Do Drops of Water Come From?*

Lesson 14 (1 day)	**What Is the Difference between Hot and Cold Liquids?**
Reading 1	*How Do Odor Molecules Move?*
Activity 14.2	Which Liquid Moves Faster? Share: https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_14-27.mp4 Teachers may also choose to share: *https://youtu.be/7fqf7t-fOHI)*
Reading 2	*Which Liquid Moves Faster?*

Lesson 15 (1 day)	**What Happens to the Molecules as Ice Melts?**
Activity 15.1	What Happens to the Molecules as a Solid Melts? Share: https://d16dnhlej6sizh.cloudfront.net/assets/portal/Teacher-Portal-Resources/IC1_se_v2_0_5_video-lesson_15-28.mp4
Reading 1	*What Happens to Molecules When a Substance Melts?*
Reading 2	*How Can I Smell Something that Is Solid?*

Lesson 16 (2 days)	**How Can Our Model Apply to Everyday Life?**
Activity 16.1	Building a Consensus Model of Matter Teachers may choose to share all of the Scientific Principles again at this time and also the table after "Step 3: Creating a Class Consensus Model" in the TE at the end of Activity 16.1
Reading 1	*Summarizing This Unit: What Have I Learned about Matter?*
Activity 16.2	What Else Can My Model Explain? Teachers may choose to assign a scenario to different students or have students self select a scenario. It may be helpful to do one scenario with a student and discuss prior to independent work.

SUMMATIVE ASSESSMENT: Activity 16.1 (Constructing Individual Models) might be used as a summative assessment of students' ability to explain how they can smell things from a distance using a molecular model. Question #4 also asks how their model has changed, which can be used to assess students' understanding of models and modeling, and of how scientific knowledge is constructed.

You might choose to emphasize only a portion of this as a final assessment, given what you are able to teach and what students are actually able to do during this remotely taught unit.