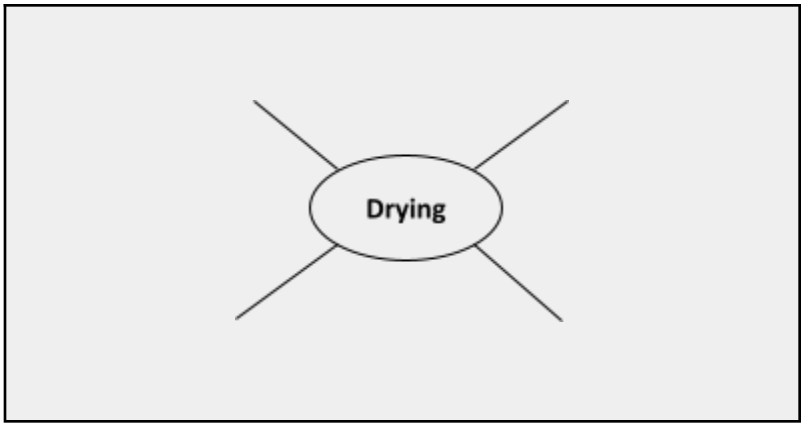
WEEK 3 Lesson 1

Science and Engineering: Physical Science

Matter and Its Interactions: Reversible and Irreversible Changes (Evaporation)

S & E **Big Ideas**	Matter changes states when it is cooled or heated. Some changes of matter are reversible and some are not.
S & E **Guiding Questions**	How can water change? Can a liquid be changed into a gas?
Content Objective	I can make a prediction about what will happen to water when I leave it out in a certain spot in the classroom. (2-PS1-4, Practice 3)
Language Objectives	I can ask and answer questions to find out about my classmates' ideas about what happens when water is exposed to air. (SL.2.2.b) I can explain the reasons for our group's decision. (SL.3.2.a)
Vocabulary	**evaporation**: the process of turning from liquid into gas **exposed**: left uncovered
Materials and Preparation	Unless specific changes are indicated, children will work in the same small groups of 4-5 children as in Week 2. Consider whether they will benefit from continuing in the same roles or choosing different ones. ● Time-lapse of water evaporation video (https://www.youtube.com/watch?v=Aenwt7pQFNE) ● projector and screen ● Role Cards, from Week 2 ● Group Cards, from Week 2 ● Science and Engineering packets ● writing tools ● petri dishes without lids, one for each group ● container of water, about one pint ● tablespoon measure ● chart paper and markers Prepare the following chart, Drying.

	
Opening 9 minutes	*Last week we learned that a solid can change to a liquid: the ice cube—a solid—melted and turned into water—a liquid. We discovered that the warmer the location of the ice cube, the faster it melted. Today we are going to think about and investigate another change in states of matter.* *Let's watch a video to start thinking about another way that matter changes.* Show the video. *Talk to your partner about what you noticed in the video.* *What did you see happening?* *What do you think was happening?* *Have you ever seen something like this before?* *This video shows someone dumping a cup of water on bricks in the sun. Then it looks like the water goes away. Where does it go?* Harvest children's ideas. Offer a clarifying explanation for evaporation, as needed. ***Evaporation*** *happens when a liquid is heated up enough to change into a gas. In this case, we can assume the liquid was water. What was the source that heated the water?* [the sun] Continue the discussion: *Along with puddles, what have you ever noticed that dries or dries up?* As children share their experiences, record them on the Drying chart, organizing ideas into categories, as appropriate. Ideas may include clothes in a dryer or on a clothesline, classroom paintings, paint on a wall, clay when it is not covered, hair after a bath or shower, nail polish, food on dishes.

	*Today we are going to investigate what happens when we leave water in a container **exposed** to, or left uncovered in, the air in our classroom.* Remind children of their groups from the previous week, distribute Group Cards and Role Cards, and send groups to their work spaces. Assign or have children choose roles. Note that Recorders will not have a specific role until Lesson 2.
Investigation 10 minutes	Have Materials Managers collect one petri dish for each group. *First, you will add water to your petri dishes. Then you will place your dishes in different locations around the classroom, like you did for melting ice. Before we do this, talk with your group about this question:* *What do you think will happen to the water in a petri dish when we leave it exposed to air, without putting a lid on it?* *Explain your idea to your group, and listen to each other's ideas.* Allow children time to discuss their ideas. *Now, decide together on a location in our classroom where your group will place your petri dish to test your idea. As you talk with your group, make a prediction of what will happen to the water in this location. Will it dry? Will it stay the same?* Each group decides on an interesting place to set up the petri dish and places it there, labeled with the group number. Once petri dishes are in place, fill each with two tablespoons of water; this will fill the dishes to the rim, allowing for experimental control. Direct children to fill in the first table in their Drying Observations in their packets. Allow time for them to discuss and record their predictions. Children will only fill in the top table and Prediction lines in this lesson; the second table and Observation lines will be completed in Lesson 2.
Discussion 10 minutes	Facilitate a whole group conversation, inviting each group to share their decisions about location. Encourage them to give reasons for the decisions they have made and to share their predictions about what will happen next. Children may or may not use the word "evaporate." Introduce the ideas that will feature in Lesson 2: *In the same way that we observed water changing from a solid state*

	*to a liquid state, water can also change from a liquid to a gas, called **water vapor**. This process is called **evaporation**. Remember that many gases are hard to see, so this is a complicated idea that we are exploring in this investigation.*
Closing 1 minute	*Today we talked about situations in our everyday life when water dries up, disappears, or goes away. We also set up an investigation to learn more about what happens to water when this happens. Tomorrow you will make observations and discuss them.*
Standards and Practices	**SL.2.2.b** Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue. **SL.3.2.a** Describe people, places, and things, tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences. **2-PS1-1.** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
Ongoing assessment	Consider the children's decisions and the ideas and experiences on which these decisions are based. What understandings are they drawing on to design this investigation? Reflect on the class discussion. What questions do children ask in order to clarify their understanding of each other's ideas? What language do they use to explain or clarify their own thinking? How do children explain and defend their decisions? How do they regard other groups' decisions?

Notes