

SNWA Goal 2 Objectives 2.4, 2.5

CCSD Curriculum Essentials Framework

## *Science*

*It is expected that students will:*

- (2)1.8 investigate and describe how objects can change state [WCSD 3.2.2].
- (2)3.2 investigate and describe how changes happen to many things [NS 12.2.1]. (First grade standard for WCSD)
- (2)3.3 investigate and describe how the sun warms the land, air, and water [NS 13.2.1]. (First grade standard for WCSD)
- (2)4.4 describe the various resources that provide the necessary things that are used by people in their daily lives [WCSD16.2.2].
- (2)6.3 make observations w/ & w/o instruments (e.g. thermometer, ruler, etc.) and drawings [WCSD 21.2.1].

## **Purpose:**

Students will observe that water seems to disappear and that methods of conservation can be implemented to save water.

**Time:** 40 minutes

## **Materials:**

- pan of water for each group
- plastic wrap


## **Introduction**

1. Tell students that you have been reading in the paper how important it is to save, or conserve, water. Ask them to think about the many uses of water they included in the song during the previous activity. Allow time for students to share some of the uses of water.
2. Tell students that we will be investigating something special about water and things we can do to help conserve water.


## **Making Discoveries**

3. Provide a pan of water for each group of four students. Go outdoors to a concrete area that has both sun and shade.

## Handprint Evaporation (cont.)

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4. Students make water handprints on a sunny sidewalk and observe carefully what happens to them over the next few minutes. They should write a sentence in their science notebooks about what happened.
  5. Ask several students to share what they wrote in their notebooks. Ask, “What do you think happened to the water?” Tell students that the water doesn't really disappear. It “changes state” or becomes water vapor that we can't see. Scientists call this process evaporation. After a long time it will come back to earth as rain or snow somewhere. But that takes a long, long time.
  6. Have each student make another water handprint on the sunny sidewalk while you time with a stopwatch how long it takes to “disappear.” Have students write down the time in their notebooks.
  7. Ask, “Can anyone think of a way to keep our handprints from ‘disappearing’ or evaporating?”


### **Teacher note:**



*If students don't come up with suggestions, you can suggest trying to make handprints in the shade or covering the handprints with plastic wrap.*

8. Allow groups or individuals to make a plan, then begin your stopwatch as everyone makes their handprints according to their new plans. Have students call out “GONE” when their handprints have evaporated and give them the time that has elapsed for them to record.

### **Closing**

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9. Return to the classroom and discuss the results. Review the approximate time it took for the handprints to evaporate in full sun and briefly discuss variables that may have varied the time, such as more water in one than another, different starting times, etc.
  10. Have students share techniques that made the water handprints remain longer.

## Handprint Evaporation (cont.)

11. Tell students that water scientists have thought about this same question. They wonder, “How can we keep water from evaporating so quickly so that we are able to use it longer?” Here are a few ideas they have thought of:
  - *water lawns very early in the morning (before the sun is up)*
  - *sweep sidewalks and driveways rather than washing them with a hose*
  - *wash cars in the shade or in the evening*
  - *use a cover on pools and spas*
12. Can you think of some other ways to save water? Allow students to share ideas as you list them on chart paper to be extended over time.

### **Extensions**

- *Continue evaporation studies indoors.*
- *Try water handprints on a windy day or blow on/fan handprints.*
- *Continue evaporation studies with a variety of liquids.*



## Handprint Evaporation (cont.)

### Word Bank

*The teacher should introduce or review the following vocabulary with the students within the context of this lesson.*

**change of state:** change of matter from one state (solid, liquid, gas) to another

**conserve:** save; use sparingly

**evaporation:** the change of matter from liquid to the gaseous or vaporous state

**liquid:** fluid matter that takes the shape of its container

**shade:** a place partly sheltered from the full light or heat of the sun

**vapor:** a substance in a gaseous state

