

Grade 4	Lesson: 1-3 Condensation	Reference to English
Standard(s): 1.OA.1	Domain:	
Content Objective(s):	Language Objective(s):	
Compare the process of evaporation and condensation of water.		
Essential Understanding:	Academic Vocabulary for Word Wall: Listen: Read: Write: Speak:	
Materials: <ul style="list-style-type: none"> • “My Water Cycle Book” (1 per student) • Mirror • Glass Jar • Cold and Hot Water • Ice Cubes • Food Coloring • Paper Towel • Clear Plastic Cups (2 per group) • Clear Tape • Plastic Sandwich Bag • Matches • Blue Construction Paper (1 piece per student) • White Paint • Cotton Balls (1-2 per student) 	Additional Lesson Vocabulary: Sentence Frames:	
Lesson: Condensation	Instructional Time:	

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Opening: (10 minutes)

- Hold up a mirror.
- Invite a student to breathe on it.

T: What happened? (the mirror fogs up) Where did the fog come from? What is it made of?

- Help the students understand that we are observing the process of condensation.

T: When you breathe on a mirror, the warm air from your lungs hit

T: Is the colder surface of the mirror and condenses.

T: Earlier we learned that evaporation is the process of changing water to gas or water vapor. Condensation is the opposite. Condensation is changing a gas to a liquid. We are changing water vapor to liquid water.

T: When we breathe on the mirror, we see our breath condense. If we wait a few minutes, the fog will disappear. This is evaporation.

- Have students breathe heavily (pant) into the palm of their hand until it feels wet or moist. This is condensation. Wait a few seconds and watch/feel the moisture disappear. This is evaporation. Blow cool air against the palm of your hand to evaporate any remaining condensation.
- Record the definition of condensation in their "My Water Vapor Book."

Introduction to New Material (Direct Instruction): (7 minutes)**Guided Practice: (10 minutes)***Condensation Experiment #1: Cold Water*

- Fill a glass bottle half-full with cold water.
- Add ice cubes until the jar is almost full.

T: What temperature is our room? (warm) What temperature is the water? (cold) What do you think will happen when the warm air in the room touches the outside of the cold jar? (allow students to predict)

T: While you are waiting for condensation to take place, help student understand that water molecules are always moving by adding food coloring to the jar. Add one drop at a time of: red, blue, and yellow. Watch each drop of color spread out into the water before adding the next color.

- Now observe what is happening on the outside of the jar. Have students look for the drops of water.
- Help them understand that as the warm water in the room touches the cold jar, the water vapor condenses. We see it as liquid water on the outside of the jar.
- Prove to the students that the condensation is water vapor from the classroom air and not from the inside of the jar. Dip a paper towel inside the jar and show students the colored water. Wipe a paper towel on the outside of the jar and show students the clear water.
- Have students illustrate and record what they learned from this experiment in their "My Water Cycle Book."

Condensation Experiment #2: Hot Water

- Divide students into groups and give each group two clear plastic cups.
- Pour hot water into one of the cups and place the other cup upside down over the top of the first.
- Carefully tape the gap between the two cups to prevent any heat from being lost.
- Observe as the steam evaporates from the hot water and then condenses on the top cup. As the water condenses, it will collect and drip down like a rainstorm.
- When water evaporates, it become water vapor. Sometimes the water vapor moves freely through the air. Sometimes the water vapor is trapped by something (a cup in our case). As the water vapor collects together, it condenses and becomes liquid water again.
- Have students illustrate and record what they learned from this experiment in their "My Water Cycle Book."

Apply it:

- Have students use what they have learned about condensation to explain why we see our breath outside on a cold, winter day.
- (Our breath is warm air that condenses when it touches the cold air of a winter day. The fog we see is condensation.)

Independent Practice: (6 minutes)*Condensation Experiment #3: Make a Cloud:*

- When water vapor condenses in the atmosphere, they make clouds. Let's make our own cloud!

1st Try:

T: Pour an inch or two of very hot water into a glass jar and quickly cover with the lid. (You don't want any heat to escape.)

T: Place a few ice cubes in a plastic sandwich bag.

T: Remove the lid of the jar and place the sandwich bag of ice cube over the opening. Allow the ice cubes to rest slightly lower than the mouth of the jar. Stretch the plastic bag over the mouth of the jar to seal it tightly.

T: Wait a few minutes to watch your cloud form.

T: You will notice the jar is covered in condensation, so you can't see much. Remove the sandwich bag and

Assessment:

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