

Moisture Around Us



Focus: Students will ask and explore questions about the amount and location of moisture in the environment and in living things.

Specific Curriculum Outcomes

Students will be expected to:

- 8.0 explore evidence of moisture in the environment, in materials, and in living things [GCO 1/3]
- 9.0 propose an answer to an initial question or problem and draw a simple conclusion [GCO 2]
- 10.0 sequence or group materials and objects [GCO 2]

Performance Indicators

Students who achieve these outcomes will be able to:

- communicate places where moisture can be found in the environment
- sequence three fruits or vegetables according to moisture level

NOTES:

Attitude Outcome Statements

Encourage students to:

- show interest in and curiosity about objects and events within the immediate environment [GCO 4]
- be open-minded in their explorations [GCO 4]

Cross-Curricular Connections

English Language Arts

Students will be expected to:

- communicate information and ideas effectively and clearly, and to respond personally and critically [GCO 2]
- use writing and other forms of representation to explore, clarify, and reflect on their thoughts, feelings, experiences, and learning; and to use their imaginations [GCO 8]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Science Card 4 • BLM <i>Which Is the Juiciest?</i> • <i>Come On, Rain!</i> (Read Aloud) • <i>What Is the Inquiry Process?</i> poster • BLM <i>My Plan</i>	• slices of fruits and vegetables of varying moisture levels • paper towels • clear plastic bag • leafy house plant (e.g., Coleus) • digital camera (optional) • spray bottle of water • dehumidifier • students' Science Folders • materials to test for moisture (e.g., soil, moss, baby wipes, bread) • students' Science Journals	• Prepare slices of fruits and vegetables of varying moisture levels, some of which students can taste. • Gather photographs or videos of athletes perspiring. (optional) • Collect (or have students collect) fresh, non-food plant material.	• moisture • moist • juicy

Safety

- Ensure students are not allergic to any foods used for testing.

Science Background

- Since it can dissolve more substances than any other liquid, water is sometimes called the universal solvent. Many of the liquids found in living things are composed of substances dissolved in water. For example, our blood is 82% water. Small amounts of water (moisture) occur in almost any place on Earth, including the atmosphere (humidity) and in soil and rock pores.
- Water is essential for all living things. Water-based liquids in an organism can carry many essential substances, such as sugars (e.g. in blood or sap)

and dissolved salts (e.g. potassium, calcium). Most cell activities cannot occur without the presence of water. About 65-75% of the human body is water.

Possible Misconceptions

- Students likely will think their bodies contain only substances they see coming out of them, such as blood. Moisture in living things, such as juice and sweat, is commonly seen as distinct from water instead of containing water. Water is viewed as necessary to stop you being thirsty only, and that other liquids substitute for this need. You might challenge this by diluting condensed juice and asking students why water was needed.
- Some students may not perceive fruits and vegetables as living things. Provide pictures of the plant that produces the fruits and vegetables students explore. Have students match the pictures to the fruits and vegetables.

ACTIVATE



What Is Moisture?

As a class, review Science Card 4. Ask students if they see any water in the pictures, and if it is a lot or a little. Introduce the term “moisture” and add it to the Word Wall, and explain that we use this word to describe just a little bit of water. Add “moist” to the Word Wall, and explain that we use this word to describe things that have only a little bit of water on them or in them. Then, direct attention back to Science Card 4 and ask students to use “moisture” or “moist” to describe something on the card. Ask:

- What does moisture feel like?
- What does it look like?
- Do you have moisture in you? Do other living things? How do you know?

CONNECT

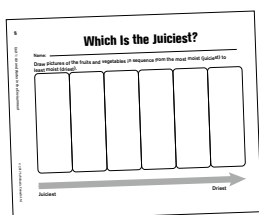
Which Is Juiciest?

Provide samples of various fruits and vegetables for students to test. Include some that are very juicy, such as melons or citrus fruits, and some that are quite dry, such as fresh beans or carrots. Tell students that foods that are juicy have a lot of moisture (water) in them. Ask:

- Which of these do you predict will be the juiciest? Which will be the least?
- If we put these in order from juiciest to least juicy, what would that look like?

As a class, predict the sequence of the items from the most moist (juiciest) to least moist (driest). Record the class prediction. You might record their prediction by taking and printing photographs and making a display of the predicted order.

Inform students that they are going to gather evidence to test their prediction by measuring the amount of moisture in each item. Divide the class into small groups, and provide each with paper towels and fruit and vegetable



samples. Tell students they are not to eat these samples. Make sure a sample of each fruit/vegetable item is tested by at least one group. Tell students to work with a fresh paper towel for each sample. Demonstrate how to blot a sample by placing it on the towel and holding it there for a few moments. Show them the difference between a very moist and a dry sample. Ask:

- **What clues are on the paper towel that I can use to measure how moist my sample is?**
- **How can I use my senses to gather evidence of how moist each item is?**

Tell students to test their samples in the same way you showed them. Remind the class that whenever they do an investigation, they need to record their results in some way. Encourage them to plan how they will keep a record before they begin testing.

As testing proceeds, circulate and make sure students are recording their results in some way. When testing is complete, gather the class together and have each group share their results. Direct attention back to the posted sequence they predicted, and ask the class to help you revise the sequence to fit with their evidence. Prompt thinking about the results by asking:

- **Did anything surprise you in the results?**
- **Is there anything you would like to learn more about?**
- **What new questions do you have?**

Have students make a record of the agreed upon sequence on BLM *Which Is the Juiciest?* Students might add magazine or computer-printed images to the BLM. You might provide new, clean samples of the fruits and vegetables and allow the students to eat them.

Moisture in Living Things

Carry out at least one of the following three demonstrations/activities.

1. Place a clear plastic bag over a leafy house plant, such as a Coleus, and tape it to the pot so it is airtight. Leave the plant in a sunny location. Moisture will fog up the bag in a few hours. Show the plant in the bag to the class and ask them to explain where the moisture came from.
2. Hand out or have students collect plant material from the schoolyard (e.g. dandelions, fresh leaves). Invite students to predict if any of the materials are moist (juicy), and then direct the class to test their prediction by the same method they used for fruits and vegetable slices. Students can record their results by drawing, writing, or taking digital photos. As they are working, circulate and informally ask if their predictions were correct and/or if they are surprised by the results they see.
3. Invite students to play a game or engage in another activity that will cause perspiration, or show pictures or a video of athletes perspiring. Challenge students to relate what they experience or see, to moisture. Ask:
 - **What is sweat made of? Where do you think it comes from?**
 - **Is sweat evidence that we have moisture in us? Why or why not?**

- **What about other living things? Do they have moisture too? How do you know?**

Invite students to find pictures of their favourite animal, including reptiles, and look for evidence that supports their ideas about moisture in living things.

Read Aloud: *Come On, Rain!*



Summary

A girl hopes for rain to break three weeks worth of hot, dry weather and is rewarded when a refreshing storm arrives and rain is everywhere.

Before Reading

Show students the cover of *Come On, Rain!* and ask:

- **What is the weather like? How might the air feel?**
- **What is the girl holding? Why might she have an umbrella when it isn't raining?**

Tell students that as you read the text aloud, they should listen to find out what the air is like throughout the story and to notice how the conditions of the air change.

During Reading

As you read the story to students, pause frequently to discuss the text and illustrations. As you finish each page, clarify any new vocabulary or concepts. Prompts for discussion could include:

After reading the first spread:

- **I wonder what “parched” means. Mamma says, “Three weeks and not a drop” so it hasn’t rained for three weeks. I think “parched” must mean “thirsty.”**
- **Do you think plants need moisture like people do? How do you know?**

After reading the next two pages:

- **Why does the sight of “gray clouds, bunched and bulging under a purple sky” fill Tessie with hope? What is she hoping for?**

After reading about Mamma kneeling over a melon:

- **What do you think the air feels like? Why do you think this?**
- **Why is Tessie sweating? How does sweating help us when we are very hot? (Sweat contains water and cools off our skin.)**

After reading about Tessie putting on her bathing suit:

- **How will the iced tea help to cool Mamma down?** (quenches thirst and replenishes water in the body)

After reading the next page when the rain comes:

- **What does the air feel like now?**

After reading about the girls and their mamas in the rain:

- **Have you ever felt the air get cooler when it rains?**
- **Why does the rain make everyone feel like dancing?**

After reading the final two pages:

- **What does the air feel like now, after the rain?**
- **What do you think “The rain has made us new” means?**
- **Do you think the rain has helped the “parched plants”?**

After Reading

Discuss with students how the conditions of the air changed throughout the story. Prompts might include:

- **What was the air like at the beginning of the story?**
- **How did this change, just before the rain came?**
- **What was the air like during the rain?**
- **How did the air change after the rain? How did this change affect the people and plants in the story?**

Moisture in the Air

In front of the class, spray water in the air from a spray bottle. Ask students if any of the water stays in the air; have students give reasons for their answers.

On a day when the air is sufficiently humid, bring a dehumidifier to class. Turn on the dehumidifier as students watch, and let it run for several hours. Help students observe the amount of water collected, then discuss the results as a class. Ask:

- **Where did the water come from?**
- **Why would we want to take moisture out of the air?**

CONSOLIDATE

Moisture Around Us

Take students on a moisture treasure hunt in their immediate surroundings or in the schoolyard. Guide students in looking for evidence of moisture (e.g., water stains on ceiling tiles, condensation on windows, dew on grass, frost on car windshields). As you are walking, ask students to suggest places to look and to explain their choices. Take digital photographs or have students draw or write to record where they find evidence of moisture. After

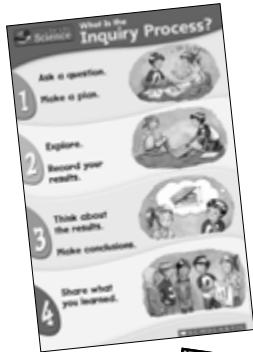


the walk, decide as a class where the most moisture was found. Ask students to tell you what evidence they used in making their decision. Photographs and other recordings may be kept in the students' Science Folders.

EXPLORE MORE

Comparing Moisture

Challenge students to conduct an independent inquiry to compare the amount of moisture in different objects and materials from the Curiosity Centre, such as soil, moss, baby wipes, or bread. Tell students they can choose any object or material they are curious about, other than fruits or vegetables. Point out the *What Is the Inquiry Process?* poster and prompt students to ask a specific question and plan how they will find evidence to answer that question. Hand out copies of BLM *My Plan* for students to record the steps of their plans. Students can communicate their results in their Science Journals, orally, or by making a digital presentation or a poster.

A form titled "My Plan" for recording an inquiry plan. It includes fields for "Name:", "My question:", "My plan:", and "I will need:". Below these are four numbered rows (1-4) for recording steps, each with a small box for notes. At the bottom, it says "© 2011 K5 Learning LLC" and "Page 1 of 100 Science Inquiry Process".

Which Is the Juiciest?

Name: _____

Draw pictures of the fruits and vegetables in sequence from the most moist (juiciest) to least moist (driest).

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My Plan

Name: _____

My question: _____

My plan:

I will need:

1.

2.

3.

4.

