



Early Childhood
Hands-On Science

Rainy Weather



Acknowledgements

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Overview

Overall Goal: Children explore where rain comes from, what it is, and where water goes after it rains.

Lesson	Objectives	Vocabulary	Key Concepts	Tools
#1: Cloud Watchers	Children will observe clouds in the sky and learn how clouds make rain.	cloud(s) rain/rainy sunny water droplets weather	<ul style="list-style-type: none">• Rain is a kind of weather.• A cloud is made up of water droplets.• When water droplets get bigger they fall to the ground, as rain.	clipboard dropper
#2: Let It Rain!	Children will discuss various weather conditions and explore how some types of clothing can keep us dry.	absorb/absorbed dropper dry/wet poncho raincoat umbrella	<ul style="list-style-type: none">• Some materials help us stay dry in the rain because they do not absorb water.• Observing the weather helps us know what to wear for the day.• Rain feels wet because it is water.	dropper spray bottle
#3: Is All Rain the Same?	Children will explore the various sounds of rain.	loud mist quiet raindrop(s) rainstick	<ul style="list-style-type: none">• Heavy rain can sound loud, light rain can sound soft.• Mist is a type of quiet rain.• A rain stick is a musical instrument that makes rhythmic sounds like the rain.	spray bottle
#4: When the Rain Falls	Children will investigate how rain puddles are formed.	puddle shallow	<ul style="list-style-type: none">• Rain makes puddles on the ground, in shallow holes, and on flat surfaces.• Rain puddles may be absorbed by soil on the ground.	dropper

Science Process Skills

Science Process Skills	Lesson #1	Lesson #2	Lesson #3	Lesson #4
Observing				
Identifies object properties	●	●	●	●
Uses senses to observe concrete, familiar objects	●	●	●	●
Differentiates between models and the real thing	●	●	●	●
Uses measurement tools to record observations				
Uses tools to observe objects or events		●		●
Describing				
Describes key attributes of objects		●	●	●
Creates drawings or models depicting objects	●		●	
Describes changes in objects		●	●	●
Discusses changes in variables that affect an investigation		●		
Categorizing				
Notices similarities and differences	●	●	●	●
Sorts objects into groups using one attribute at a time				
Establishes own sorting criteria				
Sorts objects using multiple attributes				
Provides reasoning for grouping objects				
Predicting				
Verbalizes thinking	●	●	●	●
Recognizes and extends patterns				
Makes simple predictions		●		●
Makes predictions based on observations				●
Uses estimation to make quantitative predictions				
Experimenting				
Investigates models of objects/phenomena		●		●
Manipulates materials		●		●
Identifies factors that might affect the outcome of an experiment				
Participates in collecting data			●	
Interprets data using symbols or graphs			●	
Performs trial-and-error investigations		●		
Drawing Conclusions				
Makes verbal interpretations of observations	●	●	●	●
Finds patterns from data collected		●		●
Connects findings from an investigation				

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Lessons at a Glance

In **Cloud Watchers**, children learn that clouds are made up of water droplets. Children venture outdoors to notice similarities and differences among the many clouds in the sky. Some clouds are white and others are gray; some clouds look puffy or resemble familiar objects. With a clipboard in one hand and a piece of chalk in the other, children observe and draw the clouds they see. Children also read the ECHOS book *What Falls from a Cloud?*

As pretend rain falls from a spray bottle, children hide beneath an umbrella. Will they all stay dry? In **Let It Rain!** children predict and experiment with various materials to discover what helps people stay dry in the rain.

In **Is All Rain the Same?** children explore sounds of rain by listening to the ECHOS CD and a rainstick, a musical instrument that makes sounds similar to rain. Sometimes it rains a lot and sometimes it rains a little. Children make drawings while listening to rain sounds, differentiating between quiet and loud sounds.

In **When the Rain Falls**, children investigate how puddles are formed. Rain makes puddles on the ground in shallow holes and on flat surfaces. The children use droppers to make their own puddles in dirt. But where do puddles go after the rain? Some of the rain is absorbed into the ground.



Key Concepts

When children dress up for a rainy day, gaze at the clouds passing overhead, or listen to the sounds of rain, they begin to notice and observe rain and weather patterns. Although young children may not fully grasp concepts such as evaporation or condensation until later on, they can begin to explore the concepts of where rain comes from, where it goes, and how to prepare for it. **Rainy Weather** introduces these Earth science concepts using multi-sensory experiences with objects familiar to children.

- **Weather** is the condition of outdoors any time of the day or night. Weather also describes changes in temperature and wind. It can be hot or cold, wet or dry, calm or stormy, clear or cloudy. Rain is a kind of weather.
- **Clouds** can have many shapes. Clouds can appear white or even appear to have many colors during sunrise and sunset. During stormy weather, clouds may appear dark and grey.
- Some types of fabric **absorb** water, and others do not. Materials that do not absorb water help us stay dry in the rain. Fabrics that do not absorb water are used to make raincoats, rain boots and umbrellas that keep us dry in the rain.
- A **puddle** is an accumulation of water in shallow holes or flat surfaces. A puddle is small enough to step over or shallow enough to walk through. Rain puddles are **absorbed** into the ground or evaporate when the sun warms the ground.

The Water Cycle

- The water that rains down on us today is the same water that has rained on our planet for millions of years. The Earth's water is recycled over and over. This process is called the **water cycle**.
- In the water cycle, the Sun heats water until it **evaporates** from the Earth's surface, making the atmosphere moist.
- The moisture in the air is called water vapor. When water vapor cools it condenses into tiny water droplets. This is how clouds form.
- When water droplets in the clouds get too big and heavy, they fall from the atmosphere back to the Earth's surface in the form of **rain**. This process repeats as water is continuously cycled between the Earth's surface and the atmosphere.

Lesson Guide

TEACHER TALK

Teacher talk is indicated by **bold letters that appear in large print**. When you first start teaching ECHOS, you may need to rely heavily on this text to ensure that you are presenting the science concepts accurately. As you become familiar with the text, use it as a guide or refer to it only as needed. You should always read the entire script prior to delivering the lesson.

TEXT IN ALL CAPS

Text IN ALL CAPS appears throughout the script to emphasize a step or instructions given to children.

VOCABULARY WORDS

Vocabulary words are introduced during the lesson and reinforced in the Outcomes section.

They appear in *red italic letters* the first time they are introduced.

MATERIALS IN BLUE LETTERS

Materials listed in *blue letters* in the *Material Preparation* page, indicate materials that are non-consumable. Once acquired, these materials do not need to be replaced.

SCIENCE AREA

The last page of each lesson contains suggested materials that could be added to your science area. Before adding any materials for children's independent use, evaluate whether the item is safe to be explored with limited supervision. The science area should be a place that children use freely to explore and conduct their own trial and error experiments, rather than a display area.