

## **Kindergarten: Water Is Your Best Friend**

### **Suggested Time of Year**

This lesson can be used at any time of the year to support Investigation and Experimentation Science Content Standards. The best time to use this lesson is when you are teaching the physical science of evaporation or Earth science. It also supports study of the human body.

### **Basic Concept**

Students drink water every day but rarely think about how their bodies need and use water. Through simple demonstrations, students learn that water is essential for all forms of life and their own healthy bodies. They draw and then color in life-sized body outlines to illustrate the proportion of water in their own bodies.

Kindergarten students require a great deal of learning support to integrate information into their body of knowledge. This lesson uses hands-on, repetition, and singing to support the learning process.

### **Contents**

- Scripted Lesson Plan
- Preparation Checklist

## Lesson Plan

### Organizational Considerations

**Classroom Time: 50 minutes**

- 20 minute introduction
- 10 minute instruction
- 7-10 minute activity
- 10 minute closing and assessment

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✓ *See the Preparation Checklist (at the end of the Lesson Plan) at least 24 hours in advance.*

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**Pre-class set-up**

Place the large pieces of paper around the classroom before beginning the lesson because they are difficult to handle and can be disruptive. An aide is needed during the activity.

**Classroom organization:** Whole class and then in pairs

**Required student skills**

- Follow simple instructions
- Work in pairs without constant teacher intervention

### Major Objectives

**Learning Statement**

Students learn that water is essential to life, is present in all living things, makes up most of their bodies, and is contained within cells.

**Behavioral Statement**

The teacher and aide check the children's life-sized drawings to make sure students have accurately shown the amount of water in an average human body (armpits to toe tips).

**Child Development Statement**

Most children in kindergarten are 5 or 6 years old so it is assumed they have reached the *preoperational thought* stage in Piaget's system of cognitive development. Rigidity, centrism, and egocentrism limit their thinking, and they do not conserve numbers. Educators must give directions clearly and concisely with extensive examples and guided instruction. The song in this lesson helps students understand why they need water to survive. The life-sized drawing brings the lesson to life by showing how much of the body is composed of water.

## Vocabulary

**Condensation:** The process by which a vapor becomes a liquid; the opposite of evaporation.

**Evaporation:** The conversion of a liquid into a vapor; it is the opposite of condensation.

## Delivery of Instruction

### 1. Teacher-directed instruction

**“Today we’re going to talk about the water in our bodies. Do we need water?”** Take three answers. **“Yes, of course we do! Did you know that all living things are at least half water?”** Draw a rectangle on the board, divide it into four equal parts, and color in two of them. **“This is a lot; it is half or 50 percent.”**

Scratch your head and act puzzled.

**“Maybe you can help me understand something. I looked up how much water was in a carrot and it is about 88 percent. That is most of the carrot.”** Bring out a fresh carrot and show what portion of the carrot is 88 percent. Cut it open. This is a very powerful attention getter.

**“But when I cut open the carrot, no water comes out.** For emphasis try to shake water out of the carrot. **“Can anyone explain this to me?”** Take four or five guesses; many times students will know why. **“Water is held inside cells within the carrot so the water won’t fall out. Human bodies hold water in the same way—inside millions of cells.”**

**“Who wants to guess how much of our body is made of water?”** Take four or five guesses. **“Yes, we are three-fourths water or 75 percent.”** Color one more segment of the rectangle. Hold up the Mrs. Butterworth bottle and point out how most of the beads are blue. Then point out how the brown and green beads are not water; again show that most of the beads are blue.

**“Does anyone know how long a person can go without food?”** Take guesses. As the children guess, say “More!” or “Less!” until you get to 30 days. **“Does anyone know how long a person can go without water?”** Take guesses. You probably have will to say “Lower!” until you get to three days.

**“So would you agree that water is very important to each of our bodies?”** Nod your head as you ask. **“It is extremely important. Where do you think we find water in our bodies?”**

Hands will raise; allow the students to guess:

- a. **Eyes:** tears wet your eyes (blink to demonstrate).
- b. **Joints:** water lubricates our joints, allowing them to move smoothly (move elbows and knees).
- c. **Blood:** Blood is just water with cells in it. Many of the cells are red so our blood looks red.
- d. **Sweat:** “What happens when you are playing outside on hot days?” Kids will say, “You sweat!” (If they don’t, say it for them.) “Well, that sweat helps to cool us down, especially if we stop and stand in the shade and drink some water when we get too hot.

It's important, especially in the summer, to make sure we drink enough water when we are playing outside on a hot day and to rest in the shade."

- e. **Breath** (This one must be mentioned last.)

**"Who thinks water is in our breath?** Let them answer by raising their hands. **Let's do an experiment to find out.**" (Do not hand out plastic cups yet.) **"In a minute I'm going to hand out small plastic cups that look like this.** Hold up the cup. **"But first I want you to watch me so you know what to do."** Hold the cup with your hands around it and demonstrate how to breathe into the cup. Demonstrate that you are NOT BLOWING into the cup. **"I am not blowing like blowing out a birthday cake; I am just breathing in and out."** Show how to put the cup right up to your mouth and breathe into it rather than blowing into it.

**"Can all of you do this? You will breathe into the cup and then right away look at the cup and see what happens. In science this is called observation. It is very important to report what you actually see rather than try to guess the right answer or what you think I want to hear."**

**"Let's do the experiment now. When I hand out the cups just hold them in your hand and do not breathe into them until I say so. Does everybody understand what we are doing and can I trust you to not breathe into the cup until I say so?"** The classroom teacher helps pass out the cups.

**"Okay, everyone breathe into your cup."** Let the children breathe for 3-5 seconds or watch the cups to see when the condensation starts to appear. **"Now stop and watch what happens in the cup. Wait until you see the water evaporating. Who can raise their hand quietly and tell me what they observed?"** You will get various answers; just say okay if an answer is way off the mark. Usually one student will say there was water in the cup and then it went away. Emphasize that this last point is a great observation.

**"I have a new big word for you."** Write *condensation* on the board and say it slowly in syllables (con-den-say-shun). Have the students repeat it out loud. **"Condensation is the process by which a vapor becomes a liquid."** Define it in terms the kindergarteners can understand. **"The cup allows us to catch and see the little tiny water droplets that are in our breath."**

**But what happens in the cup after we stop breathing into it and just observed it?"** Students will say that their cup is clear again or that the water went away. **"Yes it does go away."** Write *evaporation* on the board and say it in syllables (e-va-por-a-shun). Have the students repeat it out loud.

**"Evaporation is: the conversion of a liquid into a vapor; it is the opposite of condensation."** Define it in terms the kindergarteners can understand. **"The water in your cup from your breath goes back into the air in little tiny particles that we can't see with our eyes. Have any of you every seen a puddle on the playground? They disappear don't they? They disappear because the water evaporates, especially when the sun comes out and heats the water."**

“Now, who’s ready to begin our activity?”

### 3. Modeling/Guided Practice

Explain what the students are going to do. Pair the students when you are ready to begin.

**“Today we are going to work in pairs. Each person gets a big piece of paper.”** On the board draw a rectangle illustrating the large piece of paper. **“While one of you lies on the paper, the other will trace an outline of their body.”** Show and explain how to trace by tracing your hand on the white board.

<p>Step 1- Draw a big rectangle on the board</p>	<p>Step 2 – Draw a body outline.</p>	<p>Step 3 – Draw a line from arm pit to arm pit. Write your name across the line. Color in blue from below the line to toe tips.</p>
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Next draw a body on the rectangle. **“All of your body must be on the paper. Hold your arms out like this.”** Hold your arms at a 45 degree angle from your body. **“After one of you is traced, switch places and trace the other person on the other piece of paper. On your own body outline, draw a blue line from arm pit to arm pit and write your name on the line. Then color in the outline in blue from the arm pits down to the toe tips.”** Demonstrate drawing the blue line, writing your name on the line, and coloring in *below the line only*. **“Remember, color from arm pits to toe tips.”**

### 4. Check for Understanding

**“Do we all understand the instructions? Now is the time to ask questions about what we are doing.”** Answer any questions and leave the drawing on the board. Ask the following questions and point to the appropriate part of the picture when asking the questions. Tell students to answer out loud.

- 1) Are we going to have any part of our body off the paper? *NO*
- 2) Are we going to color blue in the arms? *NO*
- 3) Are we going to color the head? *NO*
- 4) Are we going to write our names on the blue line? *YES*
- 5) Are we going to color from arm pits to toe tips? *YES*

### 5. Practice

After choosing pairs, have students come up and get a blue crayon (one per child). **“I am loaning you my crayons and will need to get them back when we are done.”** Students will progress at various speeds and their understanding will vary greatly, so it is important that you and the aide circulate to keep them on track.

When students say they are finished make sure they have completed the activity correctly, fold the papers (cubby size), put child’s name on the outside, have them put papers into their cubbies, and tell them to return to the carpet. At the carpet hand them the activity booklet, *Water and How to Use It Wisely*, and have them put their name on the front. They can look at it while other students are finishing. When about 80% of the students are done, call all students to the carpet. The aide can fold up the remaining drawings.

### 6. Assessment and Closure

**“So, what have we learned today?”** Students should know that water is essential for life and that a large portion of their body is water. Ask the following questions:

- A. **Do we need water to survive?** *YES*
- B. **How much of us is water?** *About 75%*

Refer to the words to the song on the board and take out a pointer. **“Do you want to sing a song?”** You sing first. Point to the words with the pointer as you sing. **“Let’s sing it together.”** Sing with them. **“Now it’s your turn to sing all by yourself.”** They can sing it again if they want to and time permits.

***We Need Water to Survive***  
(To the tune of “Old McDonald”)

*We need water to survive  
It keeps us alive!  
And if you drink it everyday  
You can run and play.  
It’s in our food,  
It’s in the air,  
You’ll find water everywhere,  
We need water to survive,  
It keeps us alive!*

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✓ *The song provides important reinforcement.*

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## PREPARATION CHECKLIST

### Pre-class Preparation and Materials – Do at least 24 hours ahead

- Carrot, 1 per presentation
- Knife or utility blade to cut carrot (keep it in pocket)
- Clear plastic cups, about 10 oz., 1 per student
- Big blue crayons, 1 per student
- Bag of small rubber bands
- 4-foot lengths of Kraft paper (36"width), 1 per student (Store rolled prior to lesson; completed drawings can be folded and placed into cubbies.)
- Optional: activity booklets, *Water and How to Use It Wisely*, 1 per student (request free from DSRSD)
- Pointer

### Set-up on Day of Presentation

- Assemble demonstration materials.
- Place the Kraft paper around the classroom before beginning the lesson; they are difficult to handle and can be disruptive.
- Write song lyrics on the board and place pointer nearby.