



## Buoyancy

**Lesson Title:** Buoyancy

**Grade Level:** 2<sup>nd</sup>-5<sup>th</sup>

**Purpose:** Teach age appropriate skills for fire and life safety while teaching to statewide learning standards.

**Materials Needed (Optional):**

For Demonstration:

- Pictures of Different Bodies of Water

**Standards:**

**Next Generation Science Standards:**

**Science:**

**PS1.A: Structure and Properties of Matter**

Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1)

Different properties are suited to different purposes. (2-PS1-2),(2-PS1-3)

A great variety of objects can be built up from a small set of pieces. (2-PS1-3)

**PS1.A: Structure and Properties of Matter**

Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see & are moving freely around in space can explain many observations, including the inflation & shape of a balloon and the effects of air on larger particles or objects. (5-PS1-1)

The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)

**Washington State Health and PE Standards**

**Health**

**H1.Sa1.1c** Understand fire, water, and sun safety rules.

**Safety:**

- Water Safety
- Life Jackets

**Objectives:** The students will demonstrate understanding of:

- Water Hazards
- Reaching and Throw
- Rowing
- Protection and Prevention

**Vocabulary:**

- **Buoyancy-** the ability of an object to float or sink.
- **Density-** how close particles are in a material.
- **Displacement-** something that happens when an object is submerged in a fluid and the fluid is pushed out of the way (or **displaced**) to make room for the object
- **PFD-** personal floatation device, or life jacket.



**Time:** 45-60 minutes for presentation and demonstration.

**Instructional Content:**

*\*\*Use this bulleted list to guide you and keep you on track and meeting all objectives for lesson. Everyone has their own style for teaching, the most important thing is the make it fun and engaging for the kids.\*\**

• **Warm up Activities: (5-7 Minutes)**

- **Mini KWL:**
  - Ask students to individually make a mini KWL chart about buoyancy.
    - K-What do you already know about Buoyancy?
    - W-What do I want to know about Buoyancy and Density?
- **Bell Ringer:**
  - Buoyancy Bell Ringer
    - Have students complete the top portion of the Buoyancy Bell Ringer.
- **Entrance Ticket:**
  - Ask students to try to define: Buoyancy, Density, Displacement, PFD

• **Video:**

- Follow the link:
  - [http://www.snofire7.org/preparedness\\_education/home\\_education\\_lessons/index.cfm?video\\_id=20&omo=1\\_1](http://www.snofire7.org/preparedness_education/home_education_lessons/index.cfm?video_id=20&omo=1_1)
- Watch Video:
  - Run time: 45:41
- Have students fill out the worksheet as they watch.

• **Closure Activities: (5-7 Minutes)**

- **Buoyancy Bell Ringer:**
  - Have students complete the exit ticket activity on the Buoyancy Bell Ringer Worksheet.
    - **Exit Ticket:** On the bell ringer, at the top of the first page, see if you wrote the correct hazards that can be present near each body of water. If not, add to or correct your answers. Did you circle the correct items that will float and sink? If not, correct your answers with a different color!
- **Exit Ticket:**
  - Ask students to use what they learned to add more detail to the definitions they wrote at the beginning of class for the following words:
    - Buoyancy, Density, Displacement, PFD
- **Mini KWL:**
  - Ask students to finish the last column for the KWL chart about buoyancy.
  - L-What did you learn?

**Homework and Enrichment Activities:**

- Density Experiment
- Life Jacket Fitting Challenge
- Water Safety Connect the Dots
- Wear a Life Jacket Maze

**Handouts:**

- Buoyancy Bell Ringer
- KWL Chart





# BUOYANCY

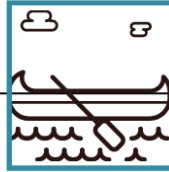
## BELL RINGER

**Directions:** Answer the following questions before watching the video. If you don't know the answer, use your best guess:

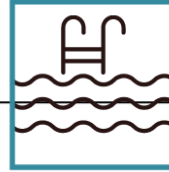
- 1) List at least two hazards that can occur around each different body of water



Ocean



Lake



Pool



River

- 2) Circle the things that float.



- 3) What does it mean to float? What makes something float? \_\_\_\_\_

**Directions:** While watching the video, fill in the blanks, and answer the questions:

- 4) Hypothesis: Write in blue. Will the object float or sink? Write the results with a different color.

OBJECT	FLOAT?	SINK?
Apple		
Orange		
Spoon		

OBJECT	FLOAT?	SINK?
Cork		
Penny		
Bottle		



**5) Vocabulary:** Fill in the blanks:

\_\_\_\_\_ is the ability of an object to float. It has to do with two ideas, displacement and \_\_\_\_\_, which refers to how close particles are in a material. \_\_\_\_\_ is the amount of water that is moved aside so that an object can take up that space.

**6) List 2 ways the water rescue team can help a person that is in trouble:**

1. \_\_\_\_\_ 2. \_\_\_\_\_

**7) Hypothesis for the Boat Experiment:** What do you think is going to happen?

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**8) What can you do to prevent emergencies in and around the water?**

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**Life Jackets:****9) Where-**do we wear them? Circle where we should wear them.

Boats      Rivers      Lakes      Pools      Bath Tubs      Oceans

**Why-**do we wear life jackets?

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**Exit Ticket:** On the bell ringer activity at the top of the first page, see if you wrote the correct hazards that can be present near each body of water. If not, add to or correct your answers. Did you circle the correct items that will float and sink? If not, correct your answers with a different color!



# MINI KWL CHART



NAME OF STUDENT:

SUBJECT:

LESSON:

**WHAT I  
KNOW:**

**WHAT I  
WANT TO  
KNOW:**

**WHAT I  
LEARNED:**