SNOHOMISH REGIONAL FIRE & RESCUE

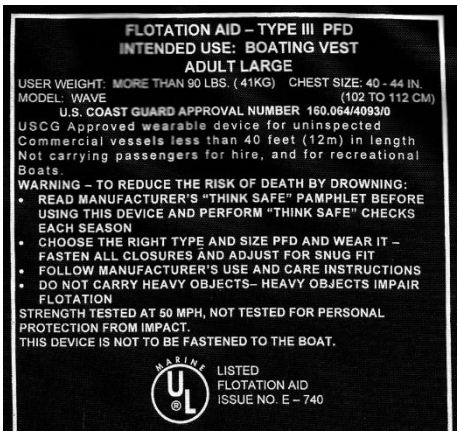
Life Jacket Fitting Challenge

1. Find a scale and weigh yourself.
   How much do you weigh?_____

2. Based on your weight and the following size guide, circle the size you need.

- **Infant PFDs:** 8–30 pounds
- **Child PFDs:** 30–50 pounds
- **Youth PFDs:** 50–90 pounds
- **Adult PFDs:** 90+ pounds

Use the black tag to answer the next **two** questions:



3. How much should a person weigh for this life jacket to fit?_____

4. What is the size of this life jacket?_____

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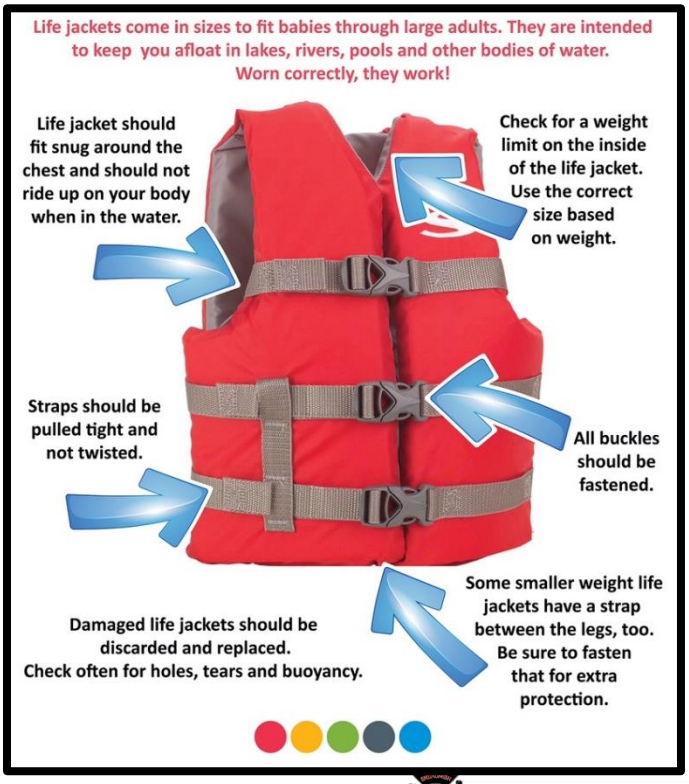
5. Find the tag on the inside of YOUR life jacket. What is the weight requirement on the tag?_____

6. Is your life jacket the right size? Circle one: **Yes** or **No**



7. What are two other areas to check to be sure your life jacket is properly fitted?

1._____

2. _____

Density Experiment Challenge:

What You Need:

- 3 150 ml beakers (or use glass jars or clear plastic cups)
- 600 ml beaker (or use a large jar)
- water
- corn syrup
- vegetable oil
- food coloring
- several small objects - raisins, paperclips, pennies, small corks, etc.

Experiment 1: Sink or Swim

Question & hypothesis:

Will a raisin, paperclip, penny, small cork, ball of paper, and other small objects sink or float if they are placed in water, corn syrup and vegetable oil?

Write down what you think will happen when you place each object into the three different liquids.

What You Do:

1. **Pour 150 ml of water into beaker #1, 150 ml of corn syrup into beaker #2, and 150 ml of vegetable oil into beaker #3. (If you are using glass jars, use 2/3 cup of liquid, which is approximately 150 ml.)**
2. **Gently set a raisin in each beaker. Does it sink or float? Write down what happens to the raisin in each beaker.**
3. **Take the raisins out of the beakers and try a different object, such as a paperclip or cork. Record what happens in each beaker.**

Conclusions: Were your predictions right? Did the raisins and other objects sink and float when you expected them to? Did they float in one liquid and sink in another? Why do you think they acted the way they did?

The denser a liquid is, the easier it is for an object to float on it. If one of your objects floated in the corn syrup but sank in the water, what does that tell you about the densities of water and corn syrup? Take the experiment a step further to find out more.

Experiment 2: Mix it up

Question & hypothesis: Which is the most dense: water, corn syrup, or vegetable oil? Which is the least dense? Based on your results from experiment #1, predict which liquid you think is the most dense and which you think is the least dense.

What You Do:

1. **Place a few drops of food coloring into the beaker of water so you will be able to tell it apart from the other liquids. (This is not necessary if you are using dark corn syrup.)**
2. **Carefully pour each of the liquids into a 600 ml beaker or a large jar. Let them settle.**
3. **What happened? Did the three liquids mix together or separate into layers? Which liquid is at the bottom of the jar? Which is at the top?**

Conclusions: Was your prediction right? If so, the liquid you thought was densest should be at the bottom of the jar. The next dense will float on top of that, and the least dense will float at the very top.

Now you know how the densities of the three liquids compare to each other. If you want to find out the approximate density of each, you can calculate it using this formula: Density = Mass/Volume.

On Earth we measure mass (how much of a substance there is) by calculating weight (how heavy it is). Weigh each liquid in grams (make sure you subtract the weight of the beaker!) and then divide that number by the volume (number of milliliters) of the liquid.

The answer is density in grams per milliliter.

(Your answer will be more exact if you use a graduated cylinder instead of a beaker to measure the volume and weigh the liquid.)

From https://www.homesciencetools.com/. For more experiments and activities visit their website.