Year 10 Science: Buoyancy: why things float or sink

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. A block weighs 20 N in air and 14 N when completely underwater. What is the buoyant force?

2. A fishing float has a weight of 0.5 N and floats on a lake. What is the buoyant force on it, and why?

3. An object is fully underwater in the sea and displaces 0.003 m³ of seawater (density 1025 kg/m³). Find the buoyant force, using g = 9.8 N/kg.

4. A kayaker paddles from the Waikato River out into the sea at Port Waikato. Does the kayak sit higher or lower in the water at sea? Explain.

5. A student tests whether shape affects floating, using a different amount of plasticine for each shape. What is wrong with this test, and how would you fix it?

Fix the mistake

6. Correct this statement: "Heavy things sink and light things float."

7. Correct this statement: "The buoyant force is always equal to the object's weight."

8. Correct this statement: "The spring balance reading in water is the buoyant force."

9. Correct this statement: "0.46 kg of water is displaced, so the buoyant force is 0.46 N."