# Year 10 Science: Pressure in liquids and gases, depth and hydraulics

Name: _____ Date: _____

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

## Practice

1. A box weighing 240 N rests on a face of area 0.6 m². What pressure does it put on the floor?

2. Find the pressure from the water 5 m down in Lake Taupō. Fresh water has density 1000 kg/m³; use g = 9.8 N/kg.

3. Explain why a dam wall is built thicker at the bottom than at the top.

4. A hydraulic lift has a small piston of 0.0005 m² and a large piston of 0.05 m². A 40 N push is applied to the small piston. Find the output force and the mechanical advantage.

5. A student measures each jet from a holed bottle once, with a ruler held by hand. Suggest two improvements, and say whether each improves accuracy or reliability.

## Fix the mistake

6. Correct this statement: "P = 600 ÷ 400 cm² = 1.5 Pa."

7. Correct this statement: "Pressure in water only pushes down."

8. Correct this statement: "The water pressure on a dam is bigger when the lake behind it stretches back further, even at the same depth."

9. Correct this statement: "A hydraulic jack gives you more energy than you put in."