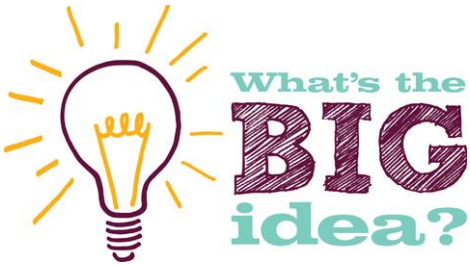
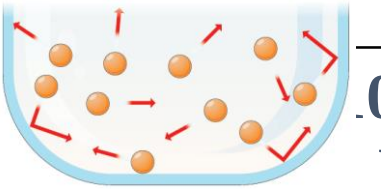
You need to know the content of this sheet. 100%

100% Sheet Pressure



Forces

Objects can affect other objects at a distance and changing the movement of an object requires a net force to be acting upon it.

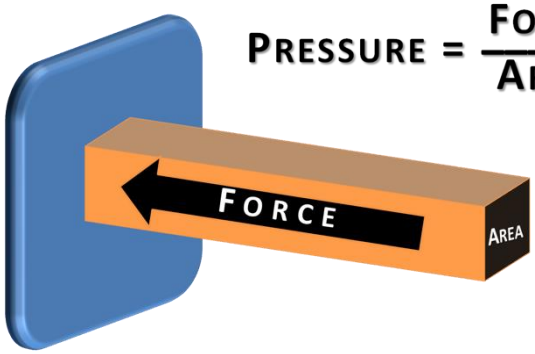


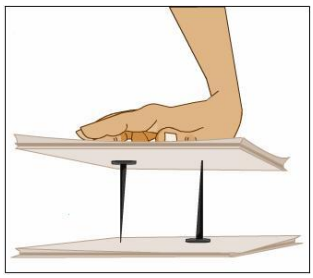
Air Pressure is caused by particles hitting or pushing against another surface. The more often the particles hit or the harder they hit the greater the pressure is. Increasing the temperature increases air pressure as the air particles have more energy and move faster

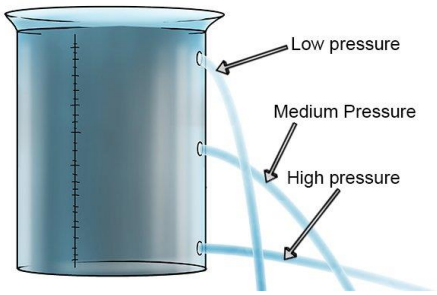
Pressure caused by solids depends on 2 factors. The amount of force that is pushing on the other object and the surface area. It can be calculated using the pressure equation.

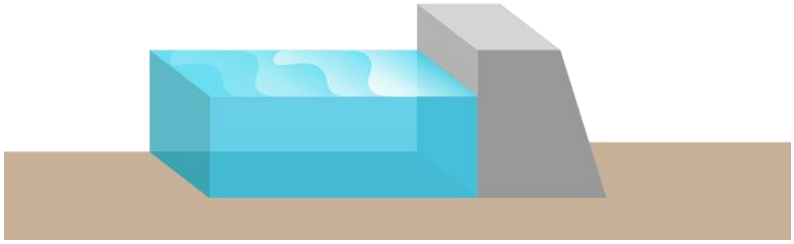
To see the effect of surface area, look at the diagram below. The same force of the hand will have different results depending on surface area of the pin

$$\text{PRESSURE} = \frac{\text{FORCE}}{\text{AREA}}$$









Pressure caused by liquids depends upon the depth of the water. The deeper the water is the greater the pressure is as all of the water pushes down. This is easily seen using the spouting can experiment. It is also important when designing dams as the bottom of the dam will experience the greatest force of pressure and will have to be thicker to cope with this extra force and not break

You need to know the content of this sheet. 100%

WORK FOR PROGRESS

Forces

Objects can affect other objects at a distance and changing the movement of an object requires a net force to be acting upon it.

Working Towards

Expected

Greater Depth

ski boot

trainer

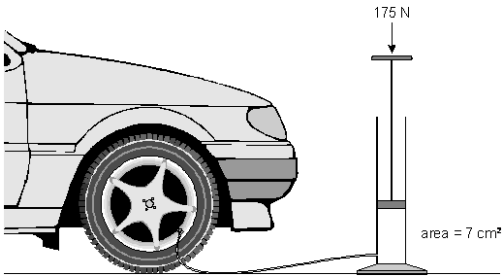
ice skate

walking boot

Sort these types of footwear from lowest to highest pressure.

Explain why these different types of footwear all exert different pressures on the ground

Karen wants to pump up her car tyre.
Her pump has a piston with an area of 7 cm^2.



Karen pushes the handle down with a force of 175 N.

(a) What pressure does she exert on the air in the pump?

(b) The air pressure in the tyre is 27 N/cm^2.
What pressure would be needed **in the pump** in order to pump more air into the tyre?

(c) Another of Karen's car tyres exerts a pressure of 30 N/cm^2 on the road. The area of the tyre in contact with the road is 95 cm^2
What is the force exerted by the tyre on the road?

..... N