Physics - Key Stage 4 - Forces

Pressure

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OAK
NATIONAL
ACADEMY

You Do - Independent Practice

1. A force of 1000 N acts over an area of 10 m^2. Calculate the pressure.

2. A hammer hits a nail with a force of 150 N into some wood. The area of the point of the nail is 0.04 cm^2. Calculate the pressure the nail puts on the wood?

3. A boy has a weight of 450 N and his feet have a total area of 300 cm^2. Calculate the pressure his feet put on the ground.

4. A van has a weight of 6,400 N, and has four wheels. Each wheel has an area of 80 cm^2 touching the road. Calculate the total pressure the car puts on the ground.

Rearranging - You Do

1. A student uses a glue stick with an area of 0.04 m^2, putting a pressure of 5000 Pa on her book. Calculate the force she puts on the glue stick..

2. A weight puts a pressure of 50 Pa on an area of 0.25 m^2. Find the force of the weight on the table..

3. Calculate the area of a dart which hits the dartboard with a force of 10 N and pressure of 2000 N/cm^2.

Written Task

1) What would happen to the pressure if an object's area stayed the same, but the force of the object doubled?

2) What would happen to the pressure of the same object if the force was halved?

3) Explain why snowshoes help to stop a person sinking into snow.

4) Explain why a heeled shoe would sink into soft ground more in comparison to a regular shoe.

5) Explain why you hammer the sharp end of the nail into a wall