SCIENCE 8 – PRESSURE CALCULATIONS WORKSHEET
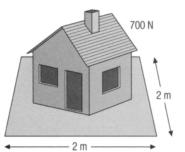
NAME: _____

1) A football player is tackled by another player and lands with the combined weight of both players on his knee. If the combined weight of the players is 2400 N and the player's knee measures 0.1 m by 0.1 m, how much pressure is exerted on the turf when the player lands on his knee?

2) A forestry worker accidentally strikes a pipe with the end of a pickaxe while trying to dig a hole. If the pickaxe strikes with a force of 2000 N and the end of the pickaxe measures 0.02 m by 0.01 m, how much pressure is exerted on the pipe by the pickaxe?

3) A skateboarder lands on all four wheels after riding a railing. If the skateboarder has a weight of 900 N and the area on the bottom of a single wheel is 0.0001 m^2, what pressure does the skateboard put on the ground?

4) Calculate the pressure for the following situation:
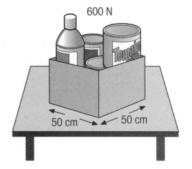

700 N

2 m

2 m

5) A swordfish jumps out of the water and the tip of its pointy upper jaw strikes a wooden wall of a fishing boat with 7500 N of force. If the tip of the pointy jaw has an area of 0.0004 m^2, what pressure is placed on the part of the wooden wall that is struck by the jaw?

6) A brick delivery truck parks on a roadside scale that measures 4 m by 6 m. If the brick truck weighs 60,000 N, what pressure does the scale put on the spring below?

7) A ballet dancer does a pirouette on the tip of his toe. If the dancer has a weight of 580 N and the tip of his ballet shoe measures 0.02 m by 0.01 m, what pressure does his toe exert on the stage?

8) Calculate the pressure for the following situation:

600 N

50 cm   50 cm

9) A poorly tied down blimp falls over in a field. If the blimp exerts a downward force of 4000 N over an area of 250 m^2, what pressure is put on the ground by the blimp?

10) The tip of a hypodermic needle is pressed against someone's skin with a force of 2 N. If the tip of the needle has an area of 0.000 001 m^2, what is the pressure exerted on the skin by the needle?

11) A charity fundraiser fits 12 students into a small car. If the combined weight of the car and students is 1600 kg and the combined area of the wheels touching the ground is 0.08 m^2, what is the pressure placed on the ground by the car and students?