Education with Fun

Name: _____ Date: _____

Force and Pressure

Q1.   If the area of my head were 10 cm × 10 cm, how much weight of air would I be carrying on my head? Why don't we feel the weight of such a huge amount of air on us?

Ans.   _____

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Q2.   Why do Magdeburg hemispheres stick together?

Ans.   _____

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Q3.   How does a rubber sucker work?

Ans.   _____

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Force and Pressure

Q1. If the area of my head were 10 cm × 10 cm, how much weight of air would I be carrying on my head? Why don't we feel the weight of such a huge amount of air on us?

Ans. The weight of air in a column of the height of the atmosphere and area 10 cm × 10 cm is as large as 1000 kg. The reason we are not crushed under this weight is that the pressure inside our bodies is also equal to the atmospheric pressure and cancels the pressure from outside.

Q2. Why do Magdeburg hemispheres stick together?

Ans. This is due to the fact that since there is no air inside, the unopposed atmospheric pressure acting over the whole surface of the hemispheres from outside presses them very, very hard and does not allow them to be separated.

Q3. How does a rubber sucker work?

Ans. When we press the sucker, most of the air between its cup and the surface escapes out. The sucker sticks to the surface because the pressure of atmosphere acts on it. To pull the sucker off the surface, the applied force should be large enough to overcome the atmospheric pressure. In fact, it would not be possible for any human being to pull the sucker off the surface if there were no air at all between the sucker and the surface.