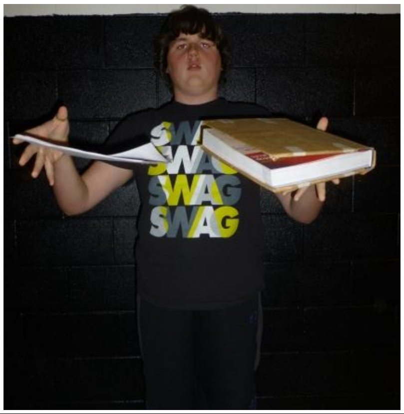


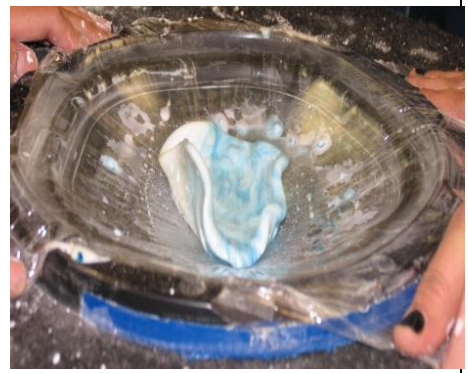
Assessing the Gravity of the Situation

When a packet of papers and physics book drop at the same time and height; the two objects will hit the ground at the same time. The acceleration due to gravity of the physics book and the papers will be the same for both of the objects. This is due to acceleration due to gravity not changing due to an object's mass. Using the equation acceleration=Force/mass you could cancel out the mass through force being the resultant of mass times acceleration and the two masses cancelling each other out, acceleration=~~mass~~*acceleration/~~mass~~. In this example, acceleration is the same as acceleration due to gravity, which is why the two objects will hit the ground at the same time.

Colors of Leaves

Leaves change color during the different seasons. During the fall leaves turn red, orange, and yellow. For the class I took this in, we were working on lines and the different way lines can be used in pictures. Another concept in the picture is the Rule of Thirds. The focal point, the leaf, is in the top right corner of the picture. I put the leaf on a bench so that the dark red color of the leaf would contrast with the brown color of the bench. This inspired me because of how unique the leaf was. I like how, in the picture, you can see the different shades and colors in the leaf. You can see bright red, dark red, and some yellow spots. I also like how you can see the different lines and indents in the leaf.

Plants' leaves change color by the amount of sunlight the leaf gets. So leaves are green in the summer because of the amount of sunlight the plant gets. For the winter leaves, they are more of an orange and yellow color because it is usually cloudy or the sun is not out very much. Leaves turn red because of the food trapped in the leaves. But in the fall, there are also brown leaves lying on the ground. The leaf turns brown because of all the wastes that are left in the leaves. Leaves turn brown, red, orange, yellow, and green by the amount of sunlight the plant that the leaf is on gets.



Dance Oobleck, Dance

"Just think of it! Tomorrow I'll have Oobleck!" (30).What is Oobleck? Oobleck is a non-newtonian fluid made of corn starch and water. It has characteristics of both a liquid and a solid.

The purpose of my experiment was to see if I could make Oobleck dance. To start, I mixed three cups of corn starch with two cups of water and stirred it until it was consistent. Next, I pulled Saran Wrap firmly across a twelve inch subwoofer. Then, I poured the Oobleck onto the middle of the Saran Wrap. Afterwards, I gradually turned the volume up on my radio, which was attached to my subwoofer. To my surprise, the louder the sound got the more the Oobleck reacted or danced.

In the photograph, you can see that the sound waves coming from the speaker were pushing against the underside of the Saran Wrap making the Oobleck bounce up. Gravity's role in the dance was pulling the Oobleck back down.

I was fascinated with the experiment learning that something could be a liquid and a solid at the same time.

Bibliography

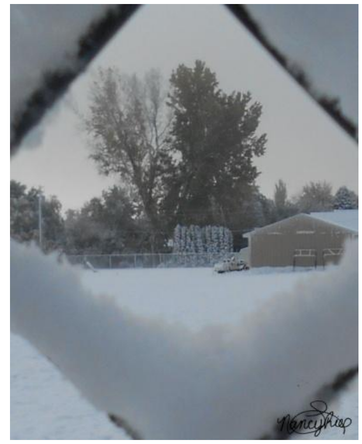
Seuss,Dr. *Bartholomew and the Oobleck*. New York: Random House, 1949.

Hammer Head

When people look at this picture they think of pain but in actuality there is no pain at all. This is possible by Newton's first Law of Motion. This law states, "An object in motion tends to stay in motion and an object at rest tends to stay at rest unless acted upon by an outside force." This is also known as Newton's Law of Inertia, inertia is the tendency of an object to resist change. Every object has inertia but the objects with more mass have more inertia. In this picture you can see that the four books have a large mass and mass and inertia are directly related. Because of this these books have a large amount of inertia which means the books have a large resistance to change in motion. As the hammer comes down on the books; the large amount of inertia that the books posses resists the motion of the hammer that is trying to change the motion of the books. Because of inertia the force of the hammer does not harm the student under the books.

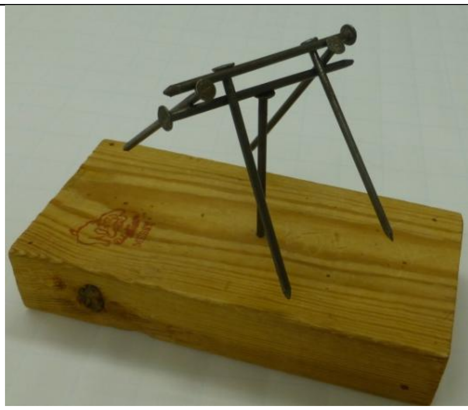
Hot Water 1^{st} Place

In my photo, I chose to throw hot water at its boiling point of 212^{o}F (100^{o}C) outside in the cold of about 10^{o}F and it turned to mist. With the water at its boiling point, the molecules are in flux between the liquid and gas phases. Provide energy, in this case, throwing it into the air will encourage the particles to stay in the gas (vapor) phase and dissipate into the air. Cool the particles, and they will form a liquid or solid if cooled even further. Much of the hot water freezes (solid phase) as soon as it comes in contact to the very cold air (10 F or -12 C) and that is why it appears like a mist. The solid water drops refract the light so we see the "cloud." Most will dissipate before it hits the ground. Evaporation is the transformation of water from a liquid phase to the gas phase. The rate of the evaporation depends on the temperature. If the water is not hot enough the evaporation will be slower and will hit the ground before it freezes or evaporate, low humidity will cause a more rapid evaporation and dissipation of the water molecules into the air.



Looking Through a Fence

The physics of the photo contain snow, wind and cold. Snow is formed when water goes from the ground to the clouds in a low pressure system. There, it cools down and freezes, creating a crystalline structure that gets to a certain mass. When this mass is reached, it falls back to the ground and it looks the way it does because of the crystalline structure. The snow is able to stick to the fence because the snow fell at an angle and since it was cold enough to freeze, the snow froze and stuck to the fence. The wind was not strong enough to blow away.



Nailed it

In this picture the diagonal nails are balanced on opposite sides and opposite ends of horizontal nails and placed in the middle of the one vertical nail; this demonstrates the center of mass. The center of mass is composed in this picture of having objects equal and opposite each other to balance out their masses and therefore creating a center for mass, namely the one vertical nail. When contriving this photo, one must make sure the heads of the nails are only 1 mm away from the bottom horizontal nail and consider the lengths at which two nails must be placed on each side and each end of the nail. After this, place the top nail the opposite direction of the bottom nail but directly above. Then place the middle of this group of nails on the vertical nail, carefully balancing the ends on one tip.

Splooosh! *2nd Place*

In our display – of a physics concept – we are covering Newton's 1st Law. Newton's 1st Law states that an object at rest tends to stay at rest, unless acted upon by an outside force. In this picture, our quarter is the object in which we are observing the concept of inertia. The quarter rests on top of the note card. The note card is then pulled quickly from under the quarter. The quarter's inertia allows it to remain at rest and fall once the card is removed. Sploosh!

Why does soda Carbonate? 3rd Place

When you drink a pop, more often than not if you were to pour it into a clear glass, you would see bubbles rising up the inside of it. That is due to carbonation. Carbonation is the process of dissolving carbon dioxide in a liquid. The process usually involves carbon dioxide under high pressure. When the pressure is reduced, the carbon dioxide is released from the solution as small bubbles, which causes the solution to become fizzy. When pressure is released in a carbonized drink, it separates into a gas. Pop, or soft drinks, contain carbonation in them, along with some sort of sweetener. In 1767, Englishman Joseph Priestley first discovered a method of infusing water with carbon dioxide to make carbonated water. He discovered this when he suspended a bowl of distilled water above a beer vat. Since then, carbonated water had been improved and sold as many different things. It wasn't Swedish chemist Jöns Jacob Berzelius started adding spices and sugars that we got what is now called today soda or pop. So when you have your pop, and you see the bubbles sliding up the inside, you now know why.