

Physics in my daily life essay sample



**ASSIGN
BUSTER**

“ Write an essay of 1500 words, double spaced, in standard fonts , giving credible references on the use of physics in your daily activity. You need to mention 5 or more activities where physics is used. Please follow the APA format.”

As a senior in college, I lead a rather busy life. My days usually follow the same routine and pattern. I wake up at 7am everyday, so I am rather tired. To get going in the morning, I usually drink a cup of coffee. Then I attend my classes, one of which this semester is my senior research project on brown trout. Once classes are finished, I head to team practice, since I am a member of my college's cheerleading team. After practice, I usually eat dinner with my teammates. What little time is left in my day is dedicated to doing homework, and keeping my room clean and laundry washed. This daily schedule I just described may sound menial and mundane, but it is jammed packed with physics. Lets begin with my morning cup of coffee. As an eco-conscious environmental science student, I forgo the wasteful paper cup with its cardboard sleeve and plastic lid. Instead I use a ceramic mug that I can wash and reuse everyday.

When my hot coffee is poured into the ceramic mug the heat from the hot coffee transfers to the main part of the mug, which would burn my had if I held it by that portion. Instead, I hold and carry my mug by its handle. The transfer of heat from one object to another is called conduction. The ceramic of my coffee mug is a decent conductor, or a substance that conducts heat well or Conductors are materials that permit electrons to flow freely from particle to particle. Another conductor is metal, which is another common material used for coffee cups. Sometimes I am running late to class I use my

travel thermos, which is made from plastic, plastic is an insulator, or a material that is bad at transferring heat or materials that impede the free flow of electrons from atom to atom and molecule to molecule. As I mentioned before, I am an environmental science student, and a senior as well.

My senior research project is being done on brown trout of the Little Juniata River. In order to research the trout, we selected the least stressful mode of catching in order to reduce the impact we have on the fish. The selected mode is rod and reel with barbless hooks. Each one of our study animals is caught using a fishing rod. A fishing rod is a type of lever. A lever is a simple machine that allows the user to gain a mechanical advantage in moving an object or in applying a force to an object. A lever consists of a fulcrum, applied force and load. There are three common types or classes of levers, depending on where the fulcrum and applied force is located. The mechanical advantage is that you can move a heavy object using less force than the weight of the object, you can propel an object faster by applying a force at a slower speed, or you can move an object further than the distance you apply to the lever. A Fishing rod is a type three lever. A class 3 lever has the fulcrum at one end, the load at the other end, and the force in the middle.

The class 3 lever always has a mechanical advantage of less than 1, because the load travels a greater distance than the force travels. Consequently, the work requires more effort than would ordinarily be needed. Although they boost the amount of effort needed, class 3 levers are useful for increasing the speed at which a load is moved. A baseball bat and a broom are also

examples of class 3 levers, with which a greater effort results in a smaller load moving at a greater speed. Once I am finished my classes for the day, I attend cheerleading practice. My favorite aspect of cheerleading is also the most dangerous thing we do: the stunting. The higher and more exciting stunts we do, the greater the reaction and cheers are from the crowd. One of the main principles behind the physics of cheerleading is setting up good weight distribution in the stunts, such as pyramids.

Putting a greater number of people at the bottom than at the top creates the pyramids stability. A standard all girl stunt group is composed of two bases, a back spot and a flyer. The two bases lift the flyer while the back spot (that's my position) assists with providing upward lift and help balance the flyer while in the air. The stronger (and usually heavier) team members are usually the bases and back spots which form the support at the bottom while the lighter team members are flying at the top. This enables greater ease in performing stunts that involve holding the cheerleaders up (at the top of the pyramid), and tossing them into the air. Stunts rely heavily on having the right number of people at the top and bottom of the pyramid. As you can imagine, keeping balance is critical during the stunts, as well as keeping an even weight distribution among the team members involved in supporting the weight of the other team members. Even weight distribution is important because it helps the supporters keep the cheerleaders at the top of the pyramid level.

If the weight distribution is uneven, one side of the cheerleaders at the top of the pyramid will dip more than the other side, and this will not look as clean and safe. In a commonly performed cheerleading stunt, six bases support

two flyers that in turn support a third flyer. The two cheerleaders in the middle of the pyramid are each supporting half the cheerleader's weight at the top. And at the bottom of the pyramid the six team members are all supporting the three girls in the middle and top of the pyramid. Therefore, each team member at the bottom is holding approximately half a cheerleader's weight. Therefore, the weight is distributed evenly among all the team members who are involved in supporting the weight. It's clear that good weight distribution (and how to achieve it) is one of the main areas of focus in the physics of cheerleading.

Some of the more advanced stunts involve tossing the cheerleaders into the air, called a basket toss, and the flyer doing flips and twists while airborne. This can incorporate some gymnastics skills as well, which adds a dynamic component to cheerleading physics. The landing of the cheerleaders is cushioned by the support base, which catches the cheerleaders in a cradle position. They do this by bending their knees during the "catch", which allows them to more easily absorb the force of landing. This in turn reduces the forces acting on the cheerleaders during landing.

Once cheerleading practice is finished, as a team we all eat dinner together in our schools cafeteria. Many of us chose to have a canned beverage such as Diet Coke or Brisk Iced Tea along side our meals. The tab on a soda can is a type 1 lever. In a type 1 lever, the fulcrum is in the middle and the effort is applied on one side of the fulcrum and the resistance on the other side. The mechanical advantage may be greater or less than 1 for a type 1 lever.

After dinner I try to maintain the cleanliness of my room, and since I can never decide what to wear in the morning, there is often piles of laundry on my floor and in my closet, so this means I do a lot of laundry. The spin dryer of a washing machine removes excess water from the clothing by rotating at a high speed. The high speed of rotation creates a high centrifugal force for the water in the clothing, which causes it to be pulled to the outside of the spinning portion of the washing machine and away from the clothes. Centripetal force is what keeps the clothes themselves away from the outer portion of the washing machine. The walls of the rotating spin dryer provide this. Since there is insufficient centripetal force affecting the water (only friction & surface tension holding it to the clothes), it flows to the outer walls and is separated from the clothes, which removes the excess water.

My days are fairly average and not very exciting, but they do contain a large amount of physics (just like everyone else of course). But, lets recap all that I experience. First, my morning cup of coffee is an example of convection. My senior research project that relies on the use of fishing rods, relies on physics since a fishing rod is a type 3 lever. My cheerleading team uses the physics of weight distribution in the planning and safe execution of our stunts. Dinnertime beverages use type 1 levers with our soda and other soft drink cans pop tab. And lastly, my laundry duty would be much sloppier without the utilization of centrifugal force.

Sources:

“ Centripetal Force.” Wikipedia. Wikimedia Foundation, n. d. Web. 09 Apr. 2015. “ How Brakes Work – HowStuffWorks.” HowStuffWorks. N. p., n. d. Web. 09 Apr. 2015. “ Lever.” Lever. N. p., n. d. Web. 09 Apr. 2015.

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