Organic compound chemistry pdf

There is a concept in chemistry known as activation energy. Activation energy is the minimum amount of energy that should be available for chemical reaction. Let's say you hold a match and gently touch the striking strip on the side of the match box. Nothing will happen because there is no energy needed to activate the chemical reaction and spark the fire. This post originally appeared on James Clear's blog, . However, if you hit a match against a strip with some force, then you create the friction and heat needed to light the match on fire. The energy you added by hitting the match was enough to reach the energy activation threshold and start reacting. Chemistry textbooks often explain the energy of activation by a diagram like this: it's a bit of a rolling boulder uphill. You have to add extra energy to the equation to push the boulder to the top. Once you have reached the peak, however, the boulder will roll the rest of the way by itself. Similarly, chemical reactions require extra energy to get started and then continue the rest of the way. So, activation energy is involved in the chemical reactions around us, but how is it useful and practical for our daily lives? Energy activation of new habits Anology to the way each chemical reaction has energy activation, we can think of each habit or behavior as having energy activation as well. It's just a metaphor, of course, but no matter what kind of habit you're trying to build there's a certain amount of effort needed to start a habit. In chemistry, the harder the chemical reaction, the greater the activation energy. For habits, it's the same story. The more complex or complex the behavior, the higher the activation energy needed to run it. For example, sticking to the habit of doing one push-up a day requires very little energy to get started. Meanwhile, doing 100 push-ups per day is a habit with much higher energy activation. It takes more motivation, energy and grit to start challenging habits day in and day out. The gap between Goals and HabitsHere is a common problem that I experienced when trying to build new habits: It can be very easy to get motivated and hyped about the great goal you want to achieve. This big goal makes you think that you need to liven up and change your life with a new set of ambitious habits. In short, you are stuck dreaming of life-changing results rather than doing lifestyle improvements. The problem is that large targets often require large energy activation. In the beginning you might find the energy to get started every day because you are motivated and excited about your new goal, but pretty soon (often within a few weeks) that motivation starts to fade and suddenly you lack the energy needed to activate Every day. This is the first lesson: smaller habits require less energy activation, and this makes them more resilient. The more energy activation for your habit, the harder it will be to stay consistent in the long run. When you need a lot of energy to start there are bound to be days when the beginning never happens. Finding a catalyst for your habits is in search of tactics and hacks that can make success easier. Chemists are no different. When it comes to dealing with chemical reactions, one trick chemists in the sleeves is to use what is known as a catalyst. A catalyst is a substance that accelerates the chemical reaction. Basically, the catalyst reduces the energy of activation and facilitates the reaction. The catalyst is not consumed by the reaction itself. It's just there to make the reaction happen faster. When it comes to creating the best habits, you also have a catalyst that you can use: your environment. The most powerful catalyst for creating new habits is the design environment (what some researchers call the choice of architecture). The idea is simple: do the environments in which we live and work affect our behavior, so how can we structure these environments to make good habits more likely and bad habits more difficult? Imagine that you are trying to build a habit of writing for 15 minutes every evening after work. Noisy environments with loud roommates, rambling children, or constant television noise in the background will require high-energy activation to stick to your habit. With so many distractions, it is likely that you will drop the track with your writing habits at some point. Meanwhile, if you entered a quiet writing environment like a desk in your local library, your surroundings suddenly become a catalyst for your behavior and make it easier for the habit to continue. Your surroundings can catalys your habits in big and small ways. If you install sneakers and workout clothes the night before, you just lowered the activation of the energy needed to run the next morning. If you hire meals to deliver low-calorie meals to your door each week, you have significantly reduced the activation energy needed to lose weight. If you turn off the TV and hide it in the closet, you just lowered the activation of the energy needed to watch less television. This is the second lesson: the right environment as a catalyst for your habits, and it reduces the activation of the energy needed to start a good habit. Intermediate states of human behaviorChemical reactions often have an intermediate reaction, which is like an intermediate step that occurs before you can get to the final product. So instead of going straight from A to B, you go from A to X to B. The step has to happen before we go from start to finish. There are all kinds of intermediate steps with habits habits Ok. Let's say you want to build a development habit. Well, this can include intermediate steps like paying for gym memberships, packing a gym bag in the morning, driving to the gym after work, exercising in front of other people, and so on. Here's the important part: Each intermediate step has its own activation energy. When you are struggling to stick to a new habit it may be important to examine each link in the chain and find out which one is your sticking point. In other words, what step has the energy of activation that prevents the habit from happening? Some intermediate steps can be easy for you. To continue our example of fitness from above, you might not be able to care about paying for a gym membership or packing your gym bag in the morning. However, you may find that driving to the gym after work is frustrating because you end up hitting more rush hour traffic. Or you may find that you don't like working in public with strangers. Developing solutions that remove intermediate steps and reduce the total activation energy needed to fulfill your habit can increase your consistency in the long run. For example, perhaps going to the gym in the morning will allow you to avoid rush hour traffic. Or maybe starting a home workout routine would be better since you could skip the traffic and avoid exercising in public. Without these two barriers, two intermediate steps that caused friction with your habit, it will be much easier to follow through. This is the third lesson: learn carefully about your habits and see if you can eliminate the intermediate steps with the highest activation energy (i.e. the biggest sticking points). The fundamental principles of chemistry reveal some useful strategies that we can use to create better habits. Each habit has the energy of activation that is needed to get started. The less habit, the less energy you need to start. Catalysts reduce the activation energy needed to start a new habit. Optimizing the environment is the best way to do it in the real world. In the right environment, every habit is simpler. Even simple habits often have intermediate steps. Eliminate intermediate steps with the highest energy activation and your habits will be easier to perform. And that's the chemistry of building the best habits. Chemistry building the best habits (en) James ClearJames Clear writes about the science of human behavior and how to build the best habits. Thousands of people took part in his online seminars on habits, willpower and procrastination. Top image of Maya2008 and MapensStudio (Shutterstock). Follow the latest daily buzz with buzzFeed Daily Newsletter! It's no secret, President is great on green chemistry: He has appointed the father of green chemistry, Paul Anastas, to head the EPA's division at NIOC, and his administration is pushing for a chemical safety program program Plants. Now Obama is going after the secrets of others, criticizing policies that allow manufacturers to keep their chemicals confidential. These trade secrets, environmental groups claim, are also a veil of potentially harmful chemicals, and the White House is calling for greater transparency. This political attention has lured this conference to the nation's capital this year; For the first time, Congressman (Democrat John Tierney of Massachusetts) will attend. - ANNE C. LEEMon, June 21 DETOX Green Chemistry ConferenceIn the event to share? E-mail calendar (at'fastcompany)dot'comVisit BLOG FC Now or Calendar App for more event fees. The Faculty of Biological Chemistry conducts cellular and molecular studies to study basic biology and origin and treatment of human diseases. Their goals include protein, metabolic and genetic disease control, as well as cell growth and differentiation in various biological systems, including skin, hair, fat and sensory nerves. Faculty member Dr. Peter Agre was one of the winners of the 2003 Nobel Prize in Chemistry for the discovery of aquaporin water channels in his laboratory. The Faculty is associated with biochemistry, cellular and molecular biology Graduate program, postgraduate studies in cellular and molecular medicine and predoctoral training program in the field of human genetics. Director

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