Physical science test answer key

Image: Shutterstock Our world is built on a foundation of science. Without science, none of our technology would exist. Of course, few high school students are expected to know the intricacies of how an i7 chip works, but those most complex scientific achievements are built on centuries of much lower hanging fruit. Science was born in ancient Greece, had its adolescence in the late Middle Ages and Renaissance, and came into its own with the Industrial Revolution and the twentieth century. In 1900, science was still in what we could consider a period of blindness, confusion, and crude groping for the truth. Yet most of the basics were there, waiting for scientists of the future to put things together and give us what we have now. Were you paying attention to science class? By the time you graduated from high school, you probably knew more about science than the top minds of the 1700s. How much of that is stuck? Are you ahead of Sir Isaac Newton, or have you let his in-depth insights into one ear and the other pass? you remember why the world works like it does? Do you know your basic science facts? Put your knowledge to the test with this quiz! The speed of sound depends entirely on the temperature and pressure of the environment. For example, in space, where there are some particles and there are sounds that we can not hear, the speed of sound is about 300 km/s. In case you are wondering about 299,792,458 m/s, that is the speed of light, which does not change, no matter what the temperature is or what the air pressure is. 1 joule is 1 watt per second. The average home needs 126,360,000 joules per day (1 kilowatt hour (kWh) is 3,600,000 joules and the average American home has 35.1 k per day) An average solar flare produces 1,000,000,000,000,000,000,000,000 joules, or one sextillion joules. That means that the average solar flare would power 7.9138968E12 average homes for a day, if you could somehow capture all that energy. If you clicked One was dropped on Hiroshima, and the other on Nagasaki, you're not technically wrong about that fact, but the real difference is the one between fusion and split. An A-bomb uses nuclear fission, which means that a core of volatile nuclear material with exceptionally strong bonds is broken apart at the atomic level, releasing a huge amount of energy as the atomic bands turn into fire and fury. An H-bomb (the H stands for hybrid) uses a very small fission device to trigger a fusion reaction, which is much stronger, in deuterium and/or tritium. If you have a wristwatch that glows in the dark without being exposed to light, you're now wearing some tritium around. you match at least 10 of these science words to the correct definition? 6 Minutes Quiz 6 Min TRIVIA HARD How well do you know basic facts about our solar system? 7 Minute Quiz 7 Min TRIVIA You Answer to This Easy-Peasy Science Science 6 Minute Quiz 6 Min TRIVIA HARD Easy Science Quiz! 6 Minute Quiz 6 Min TRIVIA You Ace This Basic Science Quiz in 7 Minutes? 6 Minutes Quiz 6 Min TRIVIA you answer these basic questions about the moon landing? 6 Minutes Quiz 6 Min TRIVIA The Basic Astronomy quiz 6 Minutes Quiz 6 Min TRIVIA you ask these basic questions about the moon? 6 Minutes Quiz 6 Min PERSONALITY Answer these science questions and we recommend if you want cryogenically frozen 5 minute Quiz 5 Min TRIVIA Influential People of Science Quiz 6 Minutes Quiz 6 Min How much do you know about dinosaurs? What is an octane rating? And how do you use a good noun? Lucky for you, HowStuffWorks Play is here to help. Our award-winning website provides reliable, easy-to-understand explanations of how the world works. From fun quizzes that bring joy to your day, to engaging photography and fascinating lists, HowStuffWorks Play offers something for everyone. Sometimes we explain how things work, other times, we ask you, but we are always looking in the name of fun! Because learning is fun, so stay with us! Playing quizzes is free! We send trivia questions and personality tests to your inbox every week. By clicking Sign In you agree to our privacy policy and confirm that you are 13 years of age or older. Copyright © 2020 InfoSpace Holdings, LLC, a System1 Company Physical science is the study of the physical world around you. Learn about everything from electricity to magnetism in this section. August 24, 2017 1:56 PM ET Order Reprints Print Article Shares of Exact Sciences (EXAS) have tripled this year as investors came around with the idea that the colorectal cancer test could actually gain momentum. The big gains made Barron'sAndrew Barymore cautious on its shares back in June, when he argued that the stock looked fully priced. Leerink's Puneet Souda and Kai Wang explain why they remain optimistic: We continue to outperform at EXAS given that the approval of its Colorectal Cancer screening test Cologuard in the 80M target U.S. population remains very undervalued at only ~2% today with expectations to reach 30% or even longer term. We recently held investor meetings with EXAS CEO Kevin Conroy and came away confident of EXAS efforts to work disaster adoption of Cologuard and believe that implementing some key activities in the field remains critical to deepening Cologuard's approval, ultimately building as a front-line test to colonoscopy in the U.S. CRC screening population. Shares of Exact Sciences rose 0.6% to $40.65. Shares of Exact Sciences (EXAS) have tripled this year as investors came around to the idea that the colorectal cancer test could actually be the traction. An error occurred, try again later. Thanks This article has been sent to the independent, trusted guide to online education for over 22 years! Year! ©2020 GetEducated.com; Approved Colleges, LLC All Rights Reserved Harvard Perspectives on Prostate Disease An interview with renowned urology researcher E. David Crawford, MD, about the state of clinical trials on prostate health Can hormone therapy prolong the lives of men with advanced prostate cancer? Can a drug traditionally prescribed to treat benign prostate hyperplasia (BPH) help prevent prostate cancer? Does a short course of hormone therapy prior to a radical prostatectomy prevent or delay return of cancer? In physical science, mass is a measure of the number of atoms in an object combined with the density of those atoms. The mass of an object determines how that object reacts to forces such as gravity and friction. The typical measure for mass is kilogram. Mass is a fundamental property of matter, which is all that mass has and takes up space. Central to the concept of mass is the concept of inertia. All physical objects withstand changes in their motion states. Inertia is the name of this resistance. Mass is a quantity that depends solely on the resistance of an object or system against change. Objects of higher mass have higher resistance, or inertia. Mass is not necessarily related to size. For example, a large balloon can have very little mass, and a lead bullet can be very small, but have a lot of mass. Mass is not the same as weight, but on Earth they function in the same way: objects with more mass weigh more than objects with less mass. This is due to the experience of gravity on Earth. The weight of an object changes under different gravitys, but the mass does not change. The urge to reopen society surpasses scientific discovery. Ten scientists offer a plan to close the gap. May 9, 2020 Getty / The Atlantic The United States and many other countries launch a life-threatening experiment. They are rapidly and perhaps prematurely easing restrictions on businesses and social activity–even if the new coronavirus, SARS-CoV-2, is still prevalent and much of the population remains susceptible to the disease it causes, COVID-19. The understandable desire to quickly restore normal life has ens withpowed the scientific knowledge needed to do so safely. The result could be mortality rates that are occurring even now, exceeding in the first wave of the pandemic. Since the end of last month I have regularly met online with a group of nine colleagues: David Baltimore, Mike Brown, Don Ganem, Peggy Hamburg, Richard Lifton, Marc Lipsitch, Dan Littman, Shirley Tilghman and Bruce Walker. All known for their work in areas such as virology, immunology, genetics and epidemiology. All have served in one or more leadership positions: as presidents of universities or other academic institutions, as heads of government institutions, as advisors to pharmaceutical or biotechnology companies, or simply as pioneers and and in their field. All have sought solutions to the major medical problems of our time. None of us can remember a crisis as grim as COVID-19. Everyone in our group agrees that most governments were not prepared for and underestimated a pandemic, and that health workers were hampered by a shortage of protective clothing and diagnostic kits. Without effective treatments to reduce frightening mortality rates or vaccines to protect against infections, societies have had to resort to simple measures to blunt the pandemic. Seven centuries ago, in The Decameron, Giovanni Boccaccio wrote about 10 fictional inhabitants of Florence who turned to a forest to tell stories, escaping a world largely sealed off by a plague. Today's distancing and sheltering are even more serious, but information technology allows people with diverse expertise - including the ten scientists in our group - to meet and think about how to end the current dilemma. After a very shaky start, the United States may finally have enough tests developed to diagnose most patients who come to hospitals to treat COVID-19 symptoms. Nevertheless, we believe that expanding the current testing capacity remains a matter of extreme urgency - one that justifies a level of intense, coordinated work on a national, even international scale similar to the campaigns we associate with world wars. This means, at the very least, marshaling the vast physical and intellectual capacity of biomedical-research laboratories in the United States. The lack of testing is not only a problem for individual patients and their doctors. It also holds up large-scale surveys of seemingly healthy populations, in workplaces and elsewhere, and scientific research into the fundamental properties of the virus and the disease it causes. The ability of states and communities to reopen without risking calamities depends on a rapid acceleration of scientific discovery. With the number of new cases decreasing in many places, the purposes and the required extent of testing have shifted. While doctors in hospitals still have to make diagnoses of individual patients, there is an escalating need to repeatedly test much larger groups - to track the spread of the virus as restrictions- and to conduct population-based studies that will reveal more about how this virus behaves. Testing for the virus is based on detection of the unique RNA sequences of the coronavirus in nose or throat or saliva. Most tests in the United States are currently conducted in large reference laboratories using automated commercial instruments that can each handle only 1,000 to 3,000 tests per day, resulting in the current national total of about 150,000 tests per day. While that number could double in the coming months, the methods now used are unlikely to yield the level of testing - in the range of 2 2 tests or more per day- necessary to monitor large populations and conduct ambitious experiments. Can alternative technologies meet these new test requirements? Significant indications that they can. A particularly compelling argument can be made for harnessing powerful DNA sequencing machines, each of which can test tens or hundreds of thousands of samples a day for viral RNA. The required sequencing machines are already in widespread use-for medical research and detection of mutations in cancer patients or other diseases–in numerous academic and commercial laboratories across the country. Several teams of researchers are devising and testing new protocols that could achieve the new goals. In a proposal that our group considered to achieve this kind of scale, samples from each person would be given a unique id-in essentially, a barcode. Thousands of samples would be mixed and sequenced, allowing them to determine which samples contained viral RNA and which did not. Scientists now have extensive experience in using this approach, for example to measure amounts of thousands of different cellular RNAs in millions of individual cells that are merged into one tube, and to inspire confidence that the method should work. Sequencing has not previously been used on this scale for clinical trials, especially since its sheer capacity has not been necessary, but the FDA has used the method to investigate the food supply for infecting pathogenic organisms. The use of such sequencing methods shows a notable shortcoming: the need to transport samples to places where the sequencing machines are located, creating costs and delays. This approach may be acceptable to some of the studies we're proposing below, but it's less helpful to determine whether an individual is safe to enter a workplace or school on a given morning. Ideally, tests should be carried out quickly and at high volume for later purposes at the sites where samples are taken. Numerous ideas for such tests have been proposed, but none has yet been validated to work on the required scale. Such an approach, still in development, would abuse the ability of the known bacterial gene-editing system known as CRISPR coronavirus RNA to recognize. While the need for highly comprehensive testing in the next phase of this pandemic is widely recognized, the United States does not have a coordinated plan for how to achieve this. The technical building blocks are in hand, but how to put them together is not yet clear. In addition, important regulatory hurdles limit the use of the results of new tests in the especially in certain states such as New York. And the logistics of deploying enough personnel to track samples and deliver results are daunting. Because of the complexity and importance of such testing, a centralized program, run by a strong scientific leader and paid for with federal dollars, dollars, are the only solution. Congress recently made $25 billion available to be used for various facets of the testing drum. We propose that at least some of these funds - and many more if necessary - be headed by a single office housed within a large government agency, with the power to synchronize the currently fragmented efforts to develop better tests; providing financial incentives to biotechnology companies with promising ideas; reduce and harmonise the legal requirements; implement efficient new testing methods across the country; and to help put together the teams needed to collect and process these tests. This is a huge undertaking. But we're at war with the invading coronavirus, and wars require no less. Armed with efficient and accurate testing to detect the virus (indicating active infection) and reliable tests to measure antibodies against the virus (implying prior exposure and possible immunity), public health programs can paint an accurate picture of the current pandemic. Small and large businesses, schools, health care institutions and other organizations were able to track the results of their attempts to restore normal activities, and scientists were able to answer important questions about viral transmission and host immunity. Laboratory experiments in animal models and cell cultures already provide useful information about some of these questions. But decisive answers will only come from studying people who are exposed to the virus under real-life conditions. Such studies can only be feasible under circumstances in which natural transmission takes place to a significant extent, as it is now. If we want to get answers to the following questions, we must act now. Without a vaccine, can we take sufficient precautions to protect people in the workplace? An uncontrolled experiment is currently underway among health professionals who have direct contact with a large number of COVID-19 patients and cannot always keep physical distance from them or from each other. These workers use personal protective equipment- N95 masks, gowns and gloves - to reduce transmission within hospital settings, and they rely on frequent monitoring of symptoms and temperature and testing for viral RNA to detect and confirm cases. These practices - and other evidence that physical distancing and even simple cloth masks are useful- support the hypothesis that similar measures in a variety of other workplaces, combined with close control for infection, will in many other professions to return safely to work. This hypothesis could be challenged in different environments in the coming months to determine its validity. Weekly tests of all employees would make it possible to detect new cases early. In combination with rigorous contact tracking and enhanced surveillance, researchers should be able to distinguish between new new which occurred in the workplace and occurred elsewhere in the community. Knowing whether patients who recover develop long-term immunity to reinfection has far-reaching consequences for allowing people to go back to work or school. It would also shed light on the prospects for a vaccine. Studies to answer these questions require identifying enough people who have recovered, then testing them repeatedly for the appearance of a new infection. Such people are relatively easy to find. They include doctors and nurses in hospitals in hard-hit metropolitan areas such as New York City; staff and residents of nursing homes with a high degree of infection; and crews of U.S. Navy ships that have been affected by covid-19 outbreaks. Results of weekly tests for the virus in health professionals who are still exposed should provide answers compared to the results of their colleagues who have not previously been infected. When previously infected sailors are deployed on other ships, they will be surrounded by many unaffected sailors. If another outbreak occurs on such a ship, weekly testing for the virus should show whether attack rates differ between those who were previously infected and those who were not. If significant numbers of people are found to be susceptible to reinfection, it will be important to assess whether previous exposure makes the disease less severe the second time around. Such studies could also have a significant impact on the design of a coronavirus vaccine, as they would help scientists understand which types of immune response lead to complete protection against reinfection. What are the important characteristics of asymptomatic infection? Growing evidence indicates that a significant proportion of people infected with the coronavirus are currently having no symptoms. Widespread and frequent tests for the virus, especially among those at particularly high risk of infection (such as health workers and slaughterhouse workers) can identify asymptomatic infections. Follow-up on these cases will shed light on how many asymptomatic people eventually develop symptoms; how long it takes them to do this; or asymptomatic people who eventually develop symptoms have higher viral loads than those who do not get sick; or symptomatic and asymptomatic people have different immune responses; or other, simpler procedures (such as tests for a chemical abnormality in the blood) can be used to screen for infection; and how great a contribution asymptomatic people make to the constant transmission of the virus. Similarly, when schools reopen, it is important to know the contribution that children (who rarely develop the symptoms of COVID-19) make to the transmission of the virus, especially to contacts at home. Such studies can also be combined with studies on with different numbers of residents and different amounts of space per resident. Such information would help health officials and the general public to plan sensible containment strategies. Most of the work that normally takes place in the world's laboratories has been delayed or discontinued, for the same reasons that so many other regular activities in our society are limited. At the same time, a remarkable number of scientists, including in biomedicine and other fields, have turned their attention to issues related to the pandemic, regardless of their past interests. As a result, in just a few months literally thousands of papers have appeared in peer-reviewed journals or simply posted online. Such speed carries risks to the reliability and rigour of scientific work. But the efforts have also provided a comprehensive picture of the many events of COVID-19; accounts of the results of the still very imperfect methods of care and prevention; and hundreds of strategies to develop vaccines, test existing drugs and find new ones. And all of this is built on top of a rich and long history of discoveries in many areas that have fostered our understanding of human viruses, enabled the development of advanced molecular tests, and provided digital tools to track the epidemiological patterns of diseases. Despite so many past and recent activities, important questions about the pandemic remain unanswered, a situation that we attribute largely to the complexity of the problems and the inherently slow nature of the scientific process. To make matters worse, part of what science has learned has been ignored. Despite repeated warnings after previous epidemics about the likelihood of new ones caused by new microbes, the United States and many other countries failed to respond efficiently to this. Scientists would have discovered the new coronavirus much earlier with the better microbial surveillance tools that already exist; prevent the pathogen from spreading worldwide through more aggressive testing and contact tracking; and better and safer healthcare supported with larger supplies and pipelines for the purchase of medical equipment. Humanity must never be so unprepared again. Now, as countries around the world consider when and how to reopen their societies, the need for more comprehensive testing – and for the scientific knowledge it will bring – is more urgent than ever. The world cannot return to normal unless science can deliver life-saving information at sufficient speed. Speed.