The information gathered from experiments is called

Throughout the laboratory part of most biology laboratories, experiments will be conducted. Science goes on using the experimental method. This leaflet provides a summary of the steps used to follow up on scientific research. This general method is used not only in biology but in chemistry, physics, geology and other solid sciences. To gather information about the biological world, we use two mechanisms: our sensory perception and our ability to think. We can identify and sort tree species in a forest with our own eyes, we can identify birds in the rainforest canopy with our ears, and we can identify the presence of skunks with our nose. Touch and taste help us experience the biological world as well. With the information we collect from our senses, we can make inferences using our mind and logic. For example, you know that you see palm trees in tropical and subtropical areas and can conclude that palm trees will not be found in the center of Maine because of the harsh winter we have. Our reason allows us to make predictions about the natural world. Scientists are trying to predict and possibly control future events based on current and past knowledge. The ability to predict accurately depends on the seven steps of the scientific method. Step 1 - Accelerate work to improve feedback. These observations should be objective rather than subjective. In other words, monitoring should be able to be verified by other scientists. Self-observations, based on personal opinions and beliefs, are not in the field of science. Here is an objective statement: it is 58 degrees Fahrenheit in this room. Here is a self-statement: it is a wonderful thing in this Room. The first step in the scientific curriculum is to provide objective observations. These observations are based on specific events that have already occurred and others can verify whether or not they are true. Step 2 - Accelerate the work in this work forming a hypothesis. Our observations tell us about the past or the present. As scientists, we want to be able to predict future events. We must therefore use our ability to think. Scientists use their knowledge of past events to develop a general principle or interpretation to help predict future events. The general principle is called a hypothesis. The type of logic involved is called inductive logic (derived from the generalization of specific details). The hypothesis must be the following characteristics: • A general principle must exist across space and time • it must be a preliminary idea • you must agree to the available observations • should remain as simple as possible. • Should be testable and potentially resupplieable. In other words, there should be a way to show that the hypothesis is wrong; a way to refute the hypothesis. Some mammals have two hindlimbs would have a useless hypothesis. No note does not fit this hypothesis! All mammals have two hindlimbs good hypothesis. We were looking around the world at mammals. When we find whales, which have no We had shown our hypothesis to be false, but we had falsified the hypothesis. When the hypothesis involves a cause-and-effect relationship, we say our hypothesis to indicate that there is no effect. The hypothesis, which confirms that there is no effect, is called null and void. For example, Silebra does not help relieve rheumatoid arthritis. Step 3 - Make a prediction. From step 2, we have made a preliminary hypothesis that may or may not be correct. How can we decide whether our hypothesis is correct? Our hypothesis should be broad; it should be broad;and it should be applied uniformly over time and space. Scientists are usually unable to verify every possible situation where the hypothesis may apply. Let's look at the hypothesis: all plant cells have a nucleus. We cannot examine every living plant and every plant ever lived to see if this hypothesis is wrong. Instead, we generate a prediction using enriched inference (generating a specific prediction of generalization). From our hypothesis, we can make the following prediction: if you examine the cells from a blade of grass, each one will have a nucleus. Now, let's look at the drug hypothesis: Silepera does not help relieve rheumatoid arthritis. To test this hypothesis, we will need to choose a specific set of conditions and then predict what will happen under these conditions if the hypothesis is correct. Conditions that you may want to test administered doses, the length of time the drug is taken, the ages of patients and the number of people to be tested. All of these conditions that are subject to change are called variables. To measure the effect of Silybra, we need to conduct a controlled experiment. The trial group is subject to the variable we want to test and the control group is not exposed to this variable. In a controlled experiment, the only variable that must be different between the two groups is the variable we want to test. Let's make prediction based on the silybra effect notes in the laboratory. The prediction is: patients with rheumatoid arthritis who take celebra and patients who take a placebo (starch tablet instead of medication) do not differ in the severity of rheumatoid arthritis. [Note that we are building our prediction on our empty hypothesis of any effect from Silebra.] Step 4 - Conduct an experiment. We are once again relying on our sensory perception to gather information. We design an experiment based on our prediction. Our experience may be as follows: 1000 patients between the ages of 50 and 70 will be randomly assigned to one of two groups of 500. The experimental group will take Silebra four times a day and the control group will take a placebo starch four times a day. Patients will not know if their tablets are celibaor or placebo. Patients will take medications for two months. At the end of two months, medical examinations will be performed to determine whether the elasticity of the arms and fingers has changed. The government's efforts to provide the necessary support to the government and the government have been a positive step in the process of establishing a new government. Our experience yielded the following results: 350 out of 500 people who took Celebra reported a decrease in arthritis by the end of the period. 65 out of 500 people who took the placebo reported an improvement. The data appear to show that there is a significant effect of Silebra. We should do a statistical analysis to show the impact. This analysis reveals that there is a statistically significant effect of Celebra. Step 6 - Accelerate work to improve our analysis of the experiment, we have two possible outcomes: the results are consistent with the prediction or are inconsistent with the prediction. In our case, we can reject our prediction that Silybra will not have an effect. Because the prediction is wrong, we must also reject the hypothesis on which it was based. Our task now is to reformulate the hypothesis, which is a model consistent with the information available. Our hypothesis could be now: Silybra administration reduces rheumatoid arthritis compared to placebo management. With current information, we accept our hypothesis as true. Did we prove that's true? Absolutely not! There are always other explanations that can explain the results. It is possible that more than 500 patients who took Silabra were about to improve anyway. It is possible that most of the patients who ate Silybra ate bananas every day and that bananas improved arthritis. You can suggest countless other explanations. How can we prove that our new hypothesis is correct? We can never scientifically allow for any hypothesis that can be established. Hypotheses in this case can be refuted this hypothesis is rejected as wrong. All we can say about the hypothesis, which stands by, the test for its falsification is that we have failed to refute it. There is a world of difference between failure to refute and prove. Make sure you understand this distinction; Is the basis of the scientific method. What are we going to do with our above assumption? We currently accept that it is true. To be strict, we need to subject the hypothesis to more tests that can prove to be wrong. For example, we can repeat the experiment but switch the control and trial group. If the hypothesis continues to stand up to our efforts to bring it down, we can feel more confident about accepting it as true. However, we will not be able to say that the hypothesis is correct. We even accept it as correct because the hypothesis has been countered by several experiments to show that it is wrong. Step 7 - Speed up 1,100 report your results. Scientists publish their findings in journals and scientific books, in conversations at national and international meetings and at seminars at colleges and universities. The publication of the results is an essential part of the scientific curriculum. It allows other people to check your results, develop new tests for your ability, or apply the knowledge you've gained to solve other problems. Java Games: Flashcards, matching, focus, and search ing the word. AB theme that reflects the idea that there A gradual change in the characteristics of species over time is the transfer of organisms adapting to stimulation by a reaction called aresponse of organisms changing during their lives through the growth and development of all living organisms __ to make more living things reproduce the key to the study of biology is learning about life around us organisms do not adapt to their surroundings by building on previous knowledge studying the criteria of what is true and what is wrong called information collected from experiments called data conducted by regulatory procedure to collect information To test the hypothesis is aexperiment applying science to the needs and problems of society is a scientifically interpreted technology in all the same circumstances are thecontrol of the common steps used by scientists in getthering information to test hypotheses and solve problems called scientific methods explained by their test to a question or problem is knowledge ahypothesis acquired by scientific research in never as good nature or bad human technology has been allowed to produce more food and reduce the chance of famine by individuals in some countries. How has this feature created additional technological needs? Technology has allowed the population to continue to grow, creating the need for additional food because it is often difficult to collect digital data, __ information collected by the obsolescence of quantitative research is often reported ___ to help understand maps and graphs _ Research is usually based on digital measurement is __-testing the hypothesis of the volatility of the local population in Surpur, roads, police and fire services and the impact of the movement of people between provinces has _ impact on the world's total population that does not exist in the world and umconty that It has a stable population characterized by a life structure which is about the same as amond all groups of bacteria employing - reproductive strategycy organisms that use a ususally slow-reproduction strategy that requires an environment in which population scalables that grow up to their ability to withstand and usually have independent intensity factors are limiting factors whose effects are not affected by the unfettered population density of organisms experience growth in the population when studying all the developmental characteristics of the human population, you are studying population control factors for their demographic synographers who The effects of increasing the size of population increases factors that depend on evolutionary categories history of species is itsphylogeny systen for the naming of species that use two words to label a living object is the label is to put information or objects in groups based on certain similarities is the classification a eukaryote heterotrophic associated with the decomposition of dead organisms is afungus afungus of the relevant categories of plants is adivision From the aggregation and naming of istaxonomy organisms the method used to contruct a virtual evolutionary tree iscladistics our biologists __ to create cladogramderived qualities qualities

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