

The scientific method



The scientific method has been used for several experiments and had been the guiding principle of every discovery. Scientific method is defined as the systematic method of inquiry and is a term which denotes “ the principles that guide scientific research and experimentation, and also the philosophic bases of those principles” (“ Scientific Method, 2005). The scientific method can be applied to an experiment involving a plant and its growth. The first step in a scientific method of inquiry is observation and questioning (“ The Scientific Method,” n. d.).

This is an important step since the problem that concerns something is the springboard for an inquiry or a problem. It will guide the researcher to search for answers regarding something. The researcher makes an observation about something and poses a question that needs an answer. Going back to the plant experiment, it has been observed that when a potted plant is placed near a window, its growth is leaned towards the window. There are several questions that can be raised to direct the study. Is the plant attracted to the window that is why it is growing towards it?

Is the plant attracted to the light that is coming from the window, which it needs to make food and survive, that is why it is growing towards it? Is the plant attracted to the outside world? Is the plant attracted to the fresh air outside? The second step in the scientific method is the formulation of a hypothesis (“ The Scientific Method,” n. d.). The hypothesis is an intelligent guess which is temporary that takes into account a set of facts that can be assumed to be true for purposes of investigation and testing (“ Hypothesis,” 2005).

After posing the problems in the first step, it is important to have an idea which needs to be tested for acceptance or rejection. Without anything to test, the researcher can not go on with the experiment stage because there is nothing to prove or disprove. For the plant experiment, a good hypothesis would be “ if the plant is leaning towards the window, it must be responding to something in the window that serves as its stimuli. ” In addition to this, the only stimulus that can be found in the window is the light that streams through the window and the glass.

Air, as considered in the questioning stage, is also present inside the room so it must not account for the leaning of the plant. The third step in the scientific method process is the testing or experiment stage (“ The Scientific Method,” n. d.). This is the stage where the hypothesis will be accepted or rejected and from where the conclusion can be drawn. To test the hypothesis for the plant experiment, 6 plants will be placed in a room. Three of these plants will be positioned with light on their left side and a glass on the right side. This first set of plants will be labeled Plants A.

The other three plants will be exposed to light on their right side and a glass on the left side. This group of plants will be labeled Plants B. The plants will be placed in different parts of the room such that one set of plants will not be exposed to the light meant for the other set of plants. This is to avoid contamination. The glass was considered since it the plant also grows towards it. This is to find out whether it also has an effect or does not have an effect on the plant considering that it is not normally a necessary element for a plant’s survival, unlike the light which is needed for photosynthesis.

The fourth step of the scientific method is the stage where the results are recorded and noted (“ The Scientific Method,” n. d.). A scientific inquiry requires that a good record of the results is written down as soon as there is progress or change to maintain accuracy. In the experiment, recording can be taken every week to see the degree of response towards the two stimuli presented, which is the light and the glass. After three to four weeks, the plants with the light placed on their left have grown towards the left. On the other hand, the plants with the light on their right have grown towards the right.

The fifth is the interpretation of the results or the explanation (“ The Scientific Method,” n. d.). The results should give the explanation and should be interpreted according to the hypothesis posed before the experiment. In the experiment, its growth affirms the hypothesis that it responds to something in the window, which is the light. In addition to this, it crossed out the possibility that it must be the glass that affects its growth. The sixth and last step is the formulation of a new question (“ The Scientific Method,” n. d.).

Scientific investigation is a never-ending process where a researcher never stops until there is nothing more to prove. More and more findings should be taken until it reaches a theory and becomes a law. Even after that, there are still researchers who dare to continue and disprove it. For the plant experiment, a good question to pose is that “ Will the plant prefer artificial light over natural light? ” In our everyday lives, the scientific method could also be applied. First, one could observe that a child holds a teddy bear so dearly and takes it wherever he goes.

What will he do if someone takes it away from him? This is the observation and questioning part where a question is posed to an observation. Second, the hypothesis would be, “ if one would take away the toy, he would probably cry for the toy captor to give it back to him. ” This hypothesis should be an intelligent guess that would be the idea subjected to testing. Third, the captor could test the hypothesis by taking the toy away from the kid. This testing would be where the hypothesis would be subjected to approval or rejection.

Fourth, the result would be the child would incessantly shriek and cry until the toy captor gives it back. This is the result of the experiment conducted. Fifth, the results would be interpreted such that the child cries because his toy was taken away from him. This reaffirms the hypothesis and would lead to conclusions for the experiment. Sixth, a new question would be formulated to pursue further research. The new question would be “ what would happen if it is not his own toy but a toy that he just borrowed that would be taken away from him”? Will it elicit the same response?