

USING THE SCIENTIFIC METHOD

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All of us have benefited greatly from the use of scientific method in solving problems such as those dealing with the maintenance of health, the production and preservation of foods, the construction of our homes, and the improvement in communication and transportation. Not only have our ways of living changed, but people themselves have also been changed. Today we are better able to explain happenings which used to be considered strange and mysterious. Although there is still need for improvement, we are now generally less fearful than our fathers and grandfathers were. We are also more critical in our thinking than our ancestors.

This lesson should help you understand how the use of scientific method has improved living conditions and changed people. It should also help you understand how you can make better use of the scientific method in your everyday living.

Better Control of Disease. If you had been born two hundred years ago, you would have had about one chance in eight of living to be one year old. In other words, in those days about seven out of eight babies died before reaching their first birthday. Suppose you had been an unusually strong little fellow and had lived through that first year. Very likely, before you were six years old, you would have had smallpox, and by the time you reached the age of twelve, you would undoubtedly have had measles, whooping cough, scarlet fever, and diphtheria. Even then your battle for life was not over. Yellow fever, malaria, typhus, cholera, typhoid fever, and even influenza, once started, spread through a community. Life was most uncertain. A person who lived to be more than thirty years of age was indeed fortunate. It is unbelievable that such conditions could have existed so short a time ago. Today babies are born in hospitals where there is little likelihood of their getting a disease. Young people are treated to protect them against smallpox, diphtheria, and typhoid fever. Today a person can expect to live to be almost seventy years old. In other words, more than thirty years have been added to the expected length of man's life. These changes have been made possible by use of the scientific method to solve such problems as the causes of disease and its prevention.

Better Sanitary Conditions. It is difficult to imagine what sanitary conditions in some of our larger cities were like only one hundred years ago. Into the narrow, unpaved, and poorly drained city streets household garbage and other refuse were thrown. Animals wandered through the streets, feeding upon the garbage. Outdoor toilets were common, many of them situated where human wastes drained into wells from which people obtained drinking water.

Today our city streets are paved and well drained, and they are cleaned regularly. It is against the law to throw garbage in the streets. Sewage from all sections of a city is carried

through sealed pipes to disposal plants. Through the use of the scientific method it has been demonstrated that unsanitary conditions cause the spread of diseases like typhoid fever, cholera and dysentery. Today most city governments have departments of sanitation which keep the cities clean and thereby prevent the spread of certain diseases.

A century ago it was common practice in many cities to bring water by the bucketful for household use. Water had to be carried a considerable distance from the well to the home. It was, therefore, used very sparingly for bathing and cleaning purposes. Often it came from sources that contained disease – producing germs.

Towns and cities today have water systems that usually provide water enough for household use. One of the most important problems in the growth of cities has been to provide sufficient water to meet the many needs of an increasing population. Los Angeles has solved the problem by bringing water to the city from the Colorado River, 544 kilometres away. Carried through a pipeline, or aqueduct, a thousand million litres of water are delivered to the district daily. This is a remarkable advance from the bucket system of supplying homes with water.

More Food and Better Food. Changes have taken place, too, in our eating habits. Through the use of science we have learned that it is healthful to eat many kinds of food, and we have learned how to provide ourselves with a variety of foods throughout the year. People who lived a century ago probably enjoyed eating as much as we do today, but they could not have as many different kinds of food. Most of their foods had to be produced on their own farms or in their own gardens. Since fresh vegetables could be obtained only during the growing season, people living in cold climates had none during the winter months. Thrifty housewives preserved their home grown vegetables and fruits by canning, pickling, or drying them for use during the cold weather. Meats were preserved by salting and drying or by freezing when the weather was cold enough. Seafoods were generally available only along the coast, fish and shellfish could be eaten soon after they were caught.

Regardless of where people live today, they can obtain some fresh fruits, meats and vegetables throughout the year. By the quick-freeze method, vegetables, fruits, seafoods, and meats of various kinds can be preserved so that they are both nutritious and enjoyable. Modern methods of selecting, grading, and processing foods have removed the risk or danger of poisoning from canned foods, dehydration, or the removal of water from such foods as milk, eggs, potatoes, and apples, has proved a practical method of preservation.

Our eating habits are not the only things in our lives changed by the use of science. Because we have used science to learn more about the processes and materials in our surroundings and about the methods of controlling them, we have been able to improve our ways of building houses, our methods of communication and transportation, and even the way we spend our leisure time.

Better Attitudes. By an attitude we mean the way we feel toward some idea or some

event. If a person believes that wearing some kind of charm will prevent him from having bad luck, he will wear the charm, and will feel uncomfortable without it. Feelings which involve fears such as this are called superstitions. Superstitious people believe in signs of good or bad luck, and their lives are greatly influenced by such signs.

Superstitious beliefs are being overcome by using the scientific method to demonstrate that there is no sound basis for them. Few people today believe that diseases are caused by evil spirits. Though astrology and fortune-telling are still practised, they do not influence the lives of as many people as they once did. It has been learned that there is always a good natural reason for everything that happens to people. As a result, most people no longer fear black cats, broken mirrors, and the number 13.

By the scientific method it has been demonstrated that ideas are not necessarily true because they have been believed for a long time. Ideas must now be supported by facts in order to be acceptable to the scientist or to people who use the scientific method.

The discoveries of scientists have helped people develop an attitude of open-mindedness. They are more willing to look for new truths than to assume that what has been considered true will always be true. Because people have had to change their old ideas as a result of new discoveries made by scientists, they are less likely to accept conclusions as final.

NOTES

Words Explained:

maintenance :	keep going in good condition. The train maintained a speed of 50 miles per hour. She has to maintain a large family.
communication :	act of getting in touch with, act of imparting news or giving information. Communication between these two villages is slow.
transportation :	act of taking persons, goods from one place to another
prevention :	prevent is to keep things from taking place, or persons from doing
sanitary :	clean, healthy
drain :	waterway for taking off water
garbage :	food etc., put out as waste
refuse :	waste material
outdoor toilet :	easing oneself in the open
human waste :	waste material sent out by human bodies
sewage :	matter conveyed in sewers
nutritious :	with high food value

use sparingly :	economically, with great care, as little as possible
delivered :	supplied, The postman delivers our letters at 8 a.m.
thrifty :	careful in the use of money and goods
housewife :	woman controlling household, woman keeping house
canning :	getting food tinned
pickling :	keeping meat good by salt and vinegar
grading :	putting in order, in grade
processing :	putting goods through some process, or way of making
leisure :	time free from work
charm :	words, acts or things credited with strange powers
sign :	omen
astrology :	observation of the stars in the belief that their motion has an effect on man's life
open-mindedness :	willingness to accept new ideas, a liberal outlook

ANSWER THESE QUESTIONS

1. How has the scientific method helped us in our fight against disease?
2. Write a note on the better sanitary conditions available in our cities today and compare them with what they were like a hundred years ago.
3. What are the sanitary conditions like in our villages today and how would you improve them?
4. How has the scientific method helped us in the production and preservation of foods?
5. We are now generally less fearful than our ancestors. What were our ancestors afraid of?
6. How has the scientific method enabled us to get over the old fears?
7. What part did astrology play in the lives of men and women in the past? Give examples.
8. Describe some of the superstitions still current in our country. How do they affect the lives of those who believe in them?
