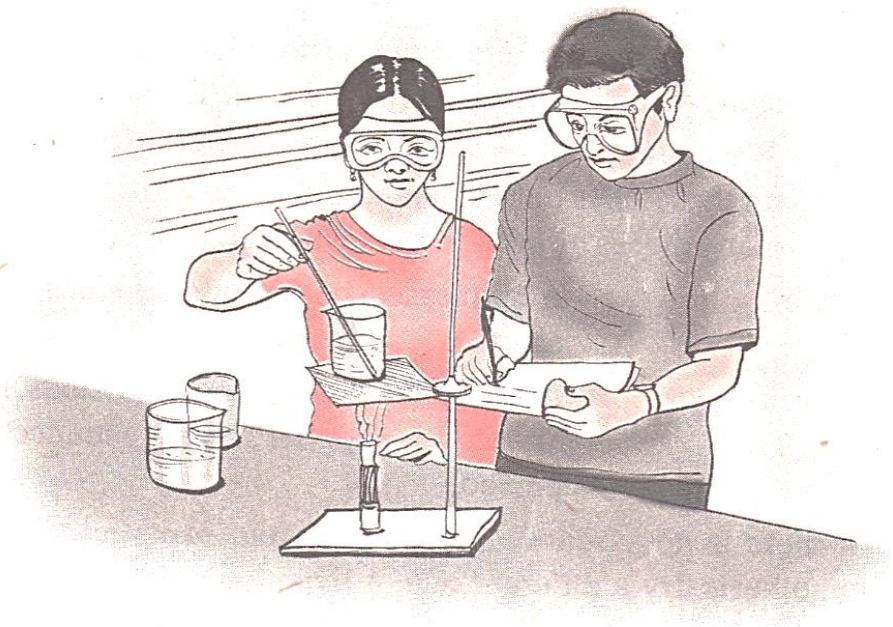
Socho....Scientifically



You have a younger brother. He becomes upset when he misses afternoon **nap** (a short sleep). You want to find out : What is different in his **behaviour** (વર્તન) on those days ? Let's use the steps of scientific method to see how you could find the answer.

(1) Ask a question :

"How does my little brother act differently when he misses his afternoon nap ?"

(2) Gather information about the question :

Watch your brother on days when he takes a nap and on days when he misses his nap. Ask your parents or brothers or sisters how he acts differently.

(3) Form *a hypothesis* (તાર્કિક ધારણા) **:**

"My little brother has less patience in the evenings on days he misses his nap than on days he takes a nap."

|| Science is the way of thinking ||

(4) Test the hypothesis :

Perhaps you've **noticed** (observed) that on some evenings your little brother will work for a long time putting the pieces of a puzzle together. Other times he gets **mad** (angry) at the puzzle and throws the pieces across the room.

(a) Pick five days when your brother takes a nap. After dinner on those days give him a puzzle to put together. Count how many pieces he uses before **giving up** (leaving).

(b) Pick five days when your brother misses his nap. After dinner on those days give him a puzzle to put together. Count how many pieces he uses before giving up.

Observation : In both cases, he uses almost same number of pieces.

Result : The hypothesis : "When he does not take afternoon nap, he loses patience" is not proved.

If there is no **evidence** (proof) from your experiment to support your hypothesis, try a different one. A hypothesis you could test quite easily would be: "My brother cries more often in the evenings on days when he misses his nap."

(a) Pick five days when your brother takes a nap. Count the number of times he cries between 6:00 pm and 8:00 pm.

(b) Pick five days when your brother misses his nap. Count the number of times he cries between 6:00 pm and 8:00 pm.

Examine (check) your results. Does your brother really seem to cry more in the evenings on days when he misses his nap ?

(5) Tell someone what you found :

Your parents might be interested. Your elder brother or sister might like to know. What you learned might help your mother to **handle** (deal with) your little brother.

Everywhere you look, there are questions. You could use the scientific method to answer them.

- Which kind of food does your dog like best ?
- Does your mother go to bed earlier on **weekday** nights or on **weekend** nights ?

- Do you eat more food on days when you go to school or on days when you stay home ?
- Does your father drive the car or ride the bike more on weekdays or on weekends ?
- Do dishes really get cleaner if you wash them in hot water instead of cold water ?
- Is your older sister more likely to help you if you say 'Please' ?

There are thousands of questions you can ask and answer. You might learn some surprising things. You might learn something your parents or teacher didn't know. You might even learn something no one else ever knew. That's what makes science exciting. All kinds of new discoveries can be made. All you have to do is to ask the right question and know how to answer it.

Do it Yourself

Q.1 (A) Read the paragraph and find out from the lesson words with similar meanings for the underlined ones.

When I reached home I found that my father was greatly disturbed, I did not ask him anything. But soon I discovered that he had lost his pen. I asked my mother, "Should I give him my pen ?" She replied, "Don't do that." You don't know how to deal with him when he is angry. After some time you will observe that he has become normal. Let him take a short sleep and he will be all right.

(B) Fill in the blanks with the proper form of the underlined word. One is done for you.

1. I love to drive, I love driving.
2. I feed my dog, I give _____ to my dog.
3. The child observed her mother's behaviour. Her _____ was correct.
4. He acted well in the drama. His _____ was good.
5. My mother is extremely patient, I like her _____.

Q.2 (A) Say whether the following statements form a part of scientific method. Write 'Yes' or 'No' against each one of them :

1. I believe in what others say, I do not doubt. ☐
2. I jump to conclusions without much thinking. ☐
3. I observe things and form opinions. ☐
4. I try to find out a proof for what I believe in. ☐
5. I do not ask questions. ☐
6. I form a hypothesis but do not try it out. ☐

(B) Say whether the following statements are True or False :

1. In a scientific method a person depends more on his observation than on what others say. ☐
2. A hypothesis is always true. ☐
3. Asking right questions is very important. ☐
4. A laboratory is a must for a scientific method. ☐
5. New discoveries are not possible without a scientific method. ☐

(C) Answer the following questions.

1. What are the main steps in a scientific method ?
2. How can we test a hypothesis ?
3. How are discoveries made ?