



# “A Study on Relationship between Scientific Attitude and Achievement in Science among Secondary School Students in Mysore City-Karnataka”

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## Abstract

Science as a body of knowledge is characterized by the organized structure of knowledge that forms its core and the process by which, this knowledge is generated. Science has within its purview numerous bits of information concerning diverse phenomena. These bits of information are arranged in a classificatory system governed by a set of generalizations which in turn are subsumed by certain laws. Principles and theories ultimately terminating in a limited number of major conceptual schemes. A commonly belief among the educators is that, the important outcomes of schooling are positive attitudes, intellectual skills and better achievement. For more than 60 years, science educators have included the development of scientific attitude among the general aims of science education. Moreover, tremendous emphasis in science education has centered on developing teaching strategies which will successfully instruct students in the scientific skills or processes used by scientists. Since recent times, the stress is being given to the development of scientific attitude by several commissions and national educational policies. The child is not mere a passive listener or learner. He has to be given the mechanism of learning. The learning occurs not only in the development of abilities, but also in certain affective outcomes such as development of interests, attitudes and values. Hence, science instruction should concentrate both cognitive

and affective on outcomes. So that in this present study research give more focus on how does the scientific attitude effect on their achievement in the schooling life of the students of the Mysuru district, Karnatak, India.

**Key Words: Science Education, Scientific Attitude, Achievement, Intellectual skills.**

## CHAPTER I

### THEORETICAL BACKGROUND OF THE STUDY

#### Introduction:

#### 1.1 STRUCTURE OF SCIENCE AND SCIENCE EDUCATION:

Science as a body of knowledge is characterized by the organized structure of knowledge that forms its core and the process by which, this knowledge is generated. Science has within its purview numerous bits of information concerning diverse phenomena. These bits of information are arranged in a classificatory system governed by a set of generalizations which in turn are subsumed by certain laws. Principles and theories ultimately terminating in a limited number of major conceptual schemes. Thus, organizational structure of science can be viewed as pyramidal. The core knowledge of science forms an internally consistent structure. Also, since science purports to understand and explain natural phenomena, its core knowledge has necessarily to be consistent with whatever information available about the natural phenomena. New information is accepted only if it does not disturb this consistency. If it does, then either it is rejected as invalid or it creates a dissonance within the structure which may lead to a structural reorganization. This process highlights how knowledge is generated in science. As the core knowledge interacts with the unexplored aspect of natural phenomena, a certain pattern of events gets anticipated. This pattern, by necessity, will be in consonance to the structure of the core knowledge and may be called a theoretical proposition. Such a proposition, on analysis, would suggest the occurrence of certain specific, observable by pathological events. It is validated by searching for the hypothetical events or by fabricating the conditions where they would occur. A continuous cyclic occurrence of formulation of theoretical propositions and their empirical verification would describe the process by which scientific knowledge is generated.

Considering the structure of science as discussed above, a cognitivist's position learning seems most appropriate for explaining learning of science. Learning of science therefore is construction of cognitive structure in the learner is isomorphism to the conceptual structure of science. Hence, learning of science is not merely storing isolated bits of information concerning natural phenomena in memory, but progressively constructing a holistic, unified and internally consistent understanding of the phenomena. Construction of cognitive structure (learning) of an individual is through more or less an analogous process. That is the learning of a concept is actually discovering that concept from the learner's point of view and not memorizing the verbal statement of the concept. Do, an effective instructional situation in science is that which represents a set of conditions that act supportive to the learner's free articulation of his existing cognitive structure and an active interaction with his

environment thereby constructing a newer and stable cognitive structure. The learning can be called a rediscovery of the concepts which already form an integral part of the conceptual structure of science.

The primary function of formal instruction in science, in the present context to be twofold. The preparation of, one, consumers of science and two, the practitioners of science. On analysis, this suggests that the aim of science instruction is, to impart scientific knowledge; to equip the mind with certain abilities that govern the process of science and to develop a general mental disposition that may be called scientific attitude. Taking a cue from the model of science learning as described earlier, the instruction of scientific knowledge will have to be organized in consideration to the structure of the core knowledge of science the process through which as it has been generated, and also the attitude which serves precondition for this.

A commonly belief among the educators is that, the important outcomes of schooling are positive attitudes, intellectual skills and better achievement. For more than 60 years, science educators have included the development of scientific attitude among the general aims of science education. Moreover, tremendous emphasis in science education has centered on developing teaching strategies which will successfully instruct students in the scientific skills or processes used by scientists.

A study of list of objectives of science teaching reveals that each list can generally be divided into two categories. Majority of objectives will be concerned with the science subject matter to be taught and mastered the concepts, theories and facts of science. But also included objective is that the children must develop the processes of science. This last objective is stated in a variety of ways the concepts, theories and facts of science. But also included objective is that the children must develop the processes of science. This last objective is stated in a variety of ways the scientific method, scientific thinking, critical thinking, reflective thought or skills in problem solving.

Since recent times, the stress is being given to the development of scientific attitude by several commissions and national educational policies. The child is not mere a passive listener or learner. He has to be given the mechanism of learning. The learning occurs not only in the development of abilities, but also in certain affective outcomes such as development of interests, attitudes and values. Hence, science instruction should concentrate both cognitive and affective on outcomes.

## **1.2 NEED AND SIGNIFICANCE OF THE STUDY:**

Though, much has been spoken about the development of certain cognitive abilities and scientific attitude, science instruction in the schools seem to have failed in achieving these due to improper methods of teaching science. As discussed above, the children should be taught to observe, classify, hypothesize, experiment, infer and generalize. Scope should be provided in the classroom in order to develop inquiring mind and analytical

abilities. Evaluation in science teaching should not only be concerned with assessment of student's achievement, but also in evaluating the scientific attitude. But taking real classroom situation, it is disheartening to find that no scope is provided for the development of the evaluation of the same. Evaluation practices carried out in the schools do not have any scope for the appraisal of students, understanding and scientific attitude. Many studies on science instruction reveal that the skills like reasoning, application, analysis and creativity are not developed in students. Studies conducted by Menon - 1973, Pandey - 1978, Sundarrajan 1988 reveal that the academic achievement in science is dependent on the attitude and interest towards science. But developments of scientific attitude, logical thinking ability are totally neglected. So, there should be emphasis on the process skills involved in processing information rather than merely the transfer of factual subject matter.

In addition to this, the gender difference, effect of social status of child on achievement in science should be taken into account. Because, the limited studies on achievement in science and gender difference reveal that girl are underachievers. Hence, it might be interesting areas to research into know the responsible factors. Most of the studies which are carried out in science education are related to achievement and methods of teaching. There are hardly few studies concerned with scientific attitude. Hence, it is felt important that there is need for studying about achievement in science and scientific attitude. Because, all these two are interrelated and interdependent. But, there is no empirical evidence about this type of correlation. Therefore, is felt necessity to study the relationship of achievement in science and scientific attitude.

### 1.3 STATEMENT OF THE PROBLEM:

Considering the importance to investigate into the relationship between student's achievement in science and scientific attitude the problem is stated as follows.

A study on “**Relationship of achievement in Science and Scientific attitude among IX standard students of Mysore city**”.

### 1.4 OPERATIONAL DEFINITIONS:

In the present study, the terms that are used are achievement in science and scientific attitude. These variables are explained and defined as follows.

- **ACHIEVEMENT IN SCIENCE:** Achievement in science is the total score obtained by the student in the science achievement test which attempts to measure the cognitive abilities like knowledge, understanding, reasoning, application of the scientific facts, concepts and principles etc.
- **SCIENTIFIC ATTITUDE:** Aiken and Aiken 1969 defines scientific attitude as the adherence to the scientific methods and displaying scientific mindedness. Scientific attitude is the open-mindedness,

skepticism, observation, objectivity, honesty, intellectual integrity, suspension from the judgement till evidence is obtained.

### **1.5 OBJECTIVES OF THE STUDY:**

The major objectives of the study are:

1. To study the interrelationship of achievement in science and scientific attitude.
2. To study the influence of social status on achievement in science and scientific attitude.
3. To study the difference between boys and girls, achievement in science and scientific attitude.

### **1.6 HYPOTHESES OF THE STUDY:**

The major hypotheses of the study are:

1. There is a significant relationship between achievement in science and scientific attitude of students.
2. There is an influence of social status on achievement in science and scientific attitude of students.
3. There is a significant difference between boys' and girls' achievement in science and scientific attitude.

In the next chapter, the review of research studies and literature pertaining to the study are presented. This chapter provided a theoretical framework of the study which constitutes the structure of science and science education, it also discusses in brief about development of scientific attitude as the core objective of science education. It also included need and significance, objectives and the hypotheses of the study.



## REVIEW OF RELATED LITERATURE

In the previous chapter, a conceptual framework to the present study which tries to investigate into relationship between achievement in science and scientific attitude was discussed. In this chapter, a review of research studies and the concerned literature related to the undertaken study under 4 sections, viz., 2.1 studies related to scientific attitude, 2.2 - studies related to gender difference and achievement in science and 2.3 studies related to social status and achievement in science are discussed.

### 2.1 Studies related to scientific attitude:

Scientific attitude was a neglected aim though science education purported to develop many intellectual capacities and skills. It was John Dewey who inspired the researchers through his paper entitled. "The supreme Intellectual obligation in which, he declared that the responsibility of science cannot be fulfilled by methods which are chiefly concerned with self-perpetuation of specialized science while neglecting the development of scientific attitude which involves the characteristics like open mindedness, intellectual integrity, observation and interest in testing opinions and beliefs. Following this, many science educators began to think about the formal definition and measurement of scientific attitude. (Ira. C. Davis 1935, Hoff.A.C. 1936 and Victor H. Null – 1935 and many others) and they began the task of developing items for testing scientific attitude among various sectors of the population. Besides this, most of the empirical work done before the II world war had virtually the development of scientific attitude as main focus. Gardner (1975) gives two main categories of attitudes related to science. One is attitude towards science which contributes interest in science, attitude towards scientists, attitude towards social responsibility in science and scientific attitude which constitutes open-mindedness', honesty, skepticism, observation, objectivity and suspension from judgment. Aiken and Aiken (1969) suggested that the scientific attitude was associated with the adherence to the scientific method and displaying scientific mindedness.

Stein Kamp and Machr (1983) reveal that correlation between achievement and affect, cognition and affect were low amongst secondary science students. A study conducted by Maddock (1982) also revealed the same result. Science educators like Whipple (1932), Henry (1947), Henry (1960), tell goals of science education in USA have constantly among which, scientific attitude was given more prominence. In an analysis of aims of science education of secondary school, Fraser (1977) found that almost half of these could be categorized as aims related to development of scientific attitude.

Hukins (cited in Gauld and Hukins – 1980) reported that open - mind, curiosity and belief in cause and effect were found to be independent using factorial analytical technology. Jones and Butto - 1983 produced evidence to justify treating scores on their 4 scale instrument for 400 samples. Mahoney (1979) examines the extent which scientists possess objectivity, rationality, open mindedness, integrity and commonality and he speculates that it is the less eminent scientist who comes closest to possessing the qualities of empirical ideal.

Among a sample of 42 students who were actively involved in research related to data obtained through the Apollo Moon missions, Mitroff and Mason (1974) found a similar range of personality as that referred to by other investigators. Cohen (1971) found that agreement among Australia's most eminent scientists concerning traditionally accepted statements of scientific attitude was found to be low. However, he found the following terms to be highly valued honest, trustful, skeptical, creative, innovative and inventive.

Coming to the studies conducted in India, there are very few empirical studies conducted in the area of science education especially related to science achievement and scientific attitude. Some of the researchers have attempted to develop the instrument of scientific attitude to measure the scientific attitude of various sectors of population. For instance, N. Veidya who had developed scientific attitude instrument for school students, Manjula.P.Rao to measure the scientific attitude of rural youth. There are scarcely and Hemalatha Singh who had developed scientific attitude scale to measure the scientific attitude of tribal children, very few studies have been conducted in the direction to find out the relationship between scientific attitude, achievement in science and process skills. Vardhen; and Ravindranath M.J (1982) in their study “effect of multimedia approach in science teaching” have found that there is no relationship between students' achievement in science and their scientific attitude. One may see that their finding contradicts the common theoretical notion that science knowledge influences the scientific attitude. On the contrary, a study conducted by Manjula.P.Rao (1995) to investigate the scientific literacy of neoliterates on a rural population reveal that there is a positive relationship between the science knowledge which was evidenced through achievement test and the scientific attitude of rural sample.

## **2.2 Studies related to gender difference and science achievement:**

Comber and Keever (1973) found that girls underachieve in science when compared to boys. Taylor (1982), Bateson (1986) conducted a study on the students of grade, 4, 7 & 10. For each grade, a set of back ground questions with general information, a set of affective measures and 120 knowledge items and also processes and skills, knowledge and higher level thinking of British Columbia curriculum were given. The tests were validated and each test was for 1 hour. Results show that boys show better achievement than girls in knowledge and application areas at all grades. In critical, rational thinking area, girls and boys were very equal at 4th grade, but by 10th, boys significantly outperform girls

Sharon.M. Haggerty (1987) tried to study the gender difference and science achievement. The study showed that boy's achievement was significantly higher than that of girls and that most of the boys participated in classroom discussions, when compared to girls.

Agarwal (1973) tried to investigate the factors which contribute to the success in science and found that a general factor the interest factor and the reasoning factor contribute to the pupil achievement in various, science subjects. Shahi (1973) established the hypothesis of no sex differences in mental structure of boys and girls. Singh (1974) analyzed the scholastic aptitude for learning geography and reported that the understanding of physical

phenomenon, recall of facts and figures and comprehension of descriptive matter were the main abilities in the case of boys, whereas, finger dexterity, drawing ability, recall of facts and comprehension of descriptive matter were the main abilities in the case of girls for learning geography.

### 2.3 Studies related to socioeconomic status and science achievement:

Sudama (1973) and Reddy (1973) found no significant correlation between socio economic status and achievement. But Menon (1976) found over and under achievement as highly influenced by social status. Satyanandam (1969) highlighted two sub-subjects of socio economic status - educational qualifications of parents and economic status of parents. He says that children of graduate parents performed for better than the children of matriculate parents.

Chaterji (1971) studied the effect of parents' income, parental education, family size and general condition upon scholastic achievement, controlling level of intelligence. -

Jha.V. in his study "An investigation into some factors related to achievement in science by students in secondary schools" (1970) found that there was no relationship between achievement in science and socio economic status.

Pathak (1970) in his study on "factors differentiating high and low achievers in science" Found that the overall socio economic status of high achievers were significantly higher than that of low achievers and the high achievers were mostly from the top 3 occupational categories in professional, some - professional, clerical.

Satyanandan (1969) highlighted two sub-aspects of socio-economic status namely educational level of parents and economic status of parents. According to this research, the result shows that, the children of graduate parents performed far better than the children of matriculate parents. Children of upper and lower, and upper and middle economic strata only differed significantly as the variable of achievement.

Anand. C.L in his study "a study of effect of socio economic environment and medium of instruction on the mental ability and the academic achievement of children in Mysore state found that the impact of, socio economic environment was found to influence mental abilities and academic achievement.

Menon.S.K in his study on "a comparative study of the personality characteristics of over achievers and under achievers of high ability" found that over achievement and under achievement was found to be influenced by socio economic and demographic characteristics.

From the review of above studies, one may see that most of the studies are related to the teaching strategies and the classroom climate which help in achievement in science. Studies seem to have been also conducted emphasizing upon development of scientific attitude. Very few studies seemed to have been carried out in knowing the relationship between the scientific attitude and achievement in science. Though generally studies

seemed to have been done in knowing the gender differences in science achievement, there are hardly any studies in knowing about gender difference in scientific attitude.

Hence, based on the review of studies as mentioned above, a direction was obtained to study the relationship of achievement in science and scientific attitude which is the main focus of the present study. The study also intends to find out the gender difference related to the variables mentioned. Along with this, influence of social status of the students on achievement in science, and scientific attitude is also studied.

## CHAPTER III

### METHODOLOGY

This chapter involves details about the various aspects of methodology adopted in the present investigation under four sections mainly, 3.1. The design of the study, 3.2 sampling, 3.3 development and validation of the instruments related to the study and 3.4 administration and scoring of the instruments.

#### 3.1 DESIGN OF THE STUDY:

The present study is a correlation study which tries to investigate into the relationship between achievement in science and scientific attitude by determining correlation values. The study also intends to find out the difference between girls and boys, achievement in science and scientific attitude.

The study is of survey in nature where in the above mentioned variable like achievement in science and scientific attitude of students are surveyed and relationship between these variable are studied later.

#### 3.2 SAMPLE AND SAMPLING PROCEDURE:

For the present study, samples of 260 students from 5 different schools were taken. The sample comprised of boys and girls studying in IX Standard belonged to various schools of Mysore city.

Regarding sampling technique, the purposive sampling technique was used. The criteria considered while selecting sample included the common state syllabus and English medium instruction. More advanced and scientific techniques like stratified, random sampling could not be used as most of the schools were engaged in preparation period for public exams. So, permission could not be obtained for some of the schools. So, the schools were considered where permission was got. The following table 3.1 shows the schools considered and the sample taken for the study including boys and girls

**Table 3.1****THE SAMPLE OF THE SCHOOLS AND THE NUMBER OF STUDENTS**

Sl No	Name of the School	No of Sample		
		Boys	Girls	Total
1	S.C.U.B.ENGLISH MEDIUM SCHOOL	16	18	34
2	K.P.ENGLISH MEDIUM SCHOOL	46	56	102
3	VAISHALI CONVENT	24	18	42
4	MARY'S ENGLISH MEDIUM SCHOOL	24	10	34
5	SRI CHIKKAMMA ENGLISH MEDIUM SCHOOL	28	20	48
	<b>Total</b>	<b>138</b>	<b>122</b>	<b>260</b>

**3.3 DEVELOPMENT AND VALIDATION OF INSTRUMENTS FOR THE STUDY:**

Certain instruments were developed by the investigator to study the major objectives. The tests developed were

1. Achievement test in science and scientific attitude scale.
2. The tests were validated for specificity and objectivity.

**DEVELOPMENT OF ACHIEVEMENT TEST IN SCIENCE:**

In order to study the achievement of students in science, those units which have taught by the science teacher already were considered for constructing achievement test. Objective type questions which are mainly multiple choices and some of drawing skills were constructed on 14 units. While constructing the test items, the following behavioral objectives were kept in mind.

Knowledge

Understanding

Application and skills (Bloom - 1956)

Around 60 items were constructed and were given to subject experts of different schools. Modifications were made based on the suggestions given by the subject experts and 50 items were selected.

**VALIDATION OF THE TEST:**

Item analysis was done in order to validate the test. 3.2 tables shows the finalized items considered. The finalized item are given separately (for the study).

**TABLE 3.2 NUMBER OF ITEMS FOR THE STUDY**

Units	K	U	A	S	Items before item analysis	Items after item analysis
1	1		1		2	2
2	2	1			3	3
3	2	1	1		4	1
4	1		1		2	2
5	2				2	1
6	1				1	1
7	2	1	1		4	3
8	2	1			3	7
9	4	3	1		8	4
10	3	1			4	6
11	1	2	1	2	6	9
12	2	1	1		4	3
13	1			2	3	2
14	3			1	4	1
	Total				50	45

For item analysis, discriminative index was calculated for each item to know how well each item can discriminate between low and high achievers.

After calculating the discriminative index and difficulty level, items ranging from 0.20 to 0.93 and 0.21 to 0.87 were retained respectively. Finally, 45 items were retained and considered for final test. Table 3.3 shows discriminative index and difficulty level of ems in the achievement test.

**TABLE 3.3 DISCRIMINATIVE INDEX AND DIFFICULTY LEVEL OF EACH ITEM IN THE ACHIEVEMENT TEST OF SCIENCE.**

Item number	Discriminative Index	Difficulty Level	Item number	Discriminative Index	Difficulty Level
1	0.21	0.96*	26	0.43	0.65
2	0.62	0.56	27	0.50	0.25
3	0.50	0.75	28	0.25	0.25
4	0.56	0.65	29	0.43	0.65
5	0.68	0.65	30	0.43	0.78
6	0.31	0.65	31	0.37	0.37
7	0.81	0.46	32	0.56	0.71
8	0.50	0.75	33	0.87	0.56
9	0.06*	0.40	34	0.50	0.75
10	0.13	0.81	35	0.62	0.68
11	0.43	0.21	36	0.25	0.37
12	0.25	0.87	37	0.62	0.31
13	0.31	0.34	38	0.37	0.37
14	0.50	0.25	39	0.62	0.43
15	0.31	0.84	40	0.25	0.25
16	0.25	0.87	41	0.56	0.71
17	0.25	0.87	42	0.31	0.28
18	0.12*	0.75	43	0.37	0.43

19	0.12*	0.93*	44	0.31	0.84
20	0.50	0.62	45	0.56	0.65
21	0.81	0.59	46	0.31	0.71
22	0.93	0.46	47	0.31	0.46
23	0.62	0.46	48	0.56	0.34
24	0.31	0.50	49	0.31	0.71
25	0.62	0.50	50	0.50	0.56

\* Indicates the items eliminated.

### RELIABILITY OF THE TEST:

Kudher and Richardson have shown that an estimate of test reliability may be made from the variance of the total score on a test and the sum of the item variances.

### 2. Scientific attitude Scale:

The scientific attitude scale developed and used by Manjula P Rao (1995) was modified according to the nature of the present study. The Likert's method of summing ratings (1932) was used. This method consists of a considerable number of favorable or unfavorable statements regarding scientific attitude. Each item has a continuum of 5 point scale which ranges from “Strongly agree” to “strongly disagree”. These are measured by assigning a numerical index to 1-5 range or 5-1. The students' score is the sum of the weights of responses he has checked. A high score indicates high scientific attitude. These were 22. The other 8 items were contributed different statements with 4 choices. Right responses carry marks while wrong ones 0. This Likert method eliminates the sorting by judges and it requires less time to prepare. 5

### 3. Social Status:

In order to get information about students' social status a profile was prepared which included father's educational qualification, occupation, students name, father name, mother name etc., weightage was given according to Manjula.P.Rao (1985) socio economic scale for educational qualification and occupation.

### 3.4 Administration and scoring of the instruments:

All the two tests were developed and validated and administered to a student population of 260 belonging to 5 different schools. The achievement test was 50 minutes, scientific attitude of 35 minutes. And students took 5 minutes for filling the “Student Profile”. All the two tests were given consecutively on a single day, in each school. Clear instructions and directions were given to the students before the test as to how they should proceed on each test.

#### a) Achievement test.

Nature of test was objective type with 4 choices and students were asked to write correct answer in the space provided for each item. Key scores were prepared before scoring of items. The responses were scored according to key answers by allotting 1 mark to each of the correct answer. The final score was calculated by summing up all the individual scores.

#### b) Scientific attitude scale:

As mentioned earlier, Likert's method of summing rating was used. The test with 30 items was administered to 260 students of different schools. The students had to respond for each item (22) according to the 5 - point scale. The numerical values ranging from 1 to 5 and 5 to 1 for negative and positive statements respectively were given. For 8 items, 5 marks were given for correct response and 0 for wrong. The total score obtained by the student was taken as the final scientific attitude score.

#### c) Social status:

For social status, according to Manjula P Rao (1985), Weightage from 7 to 1 for educational qualifications of parents and occupation of parents was taken as the final score. Then, the students were classified according to scores as higher class, middle class and lower class students.

In this way, 2 different total scores on each of the 2 tests and for social status were obtained for each student which was used for further analysis and interpretation.

## CHAPTER IV

### Analysis and Interpretation of Data

#### 4.1 Introduction

This chapter deals with analysis of data by keeping in view the objectives and hypotheses of the study as mentioned in the earlier chapter. The analyses have been carried out descriptively and inferentially and are presented section wise. Section one deals with the descriptive analysis and section two deals with the inferential analysis of the data.

#### 4.2 Section I: Descriptive analysis of data:

In this section the data obtained through the tools administered is analyzed descriptively in terms of percentiles, mean and standard deviation. The analysis is also represented through histogram. The data is presented descriptively pertaining to student.

##### 1. Achievement in science.

##### 2. Scientific attitude.

#### 4.2.1 Study of the students: achievement in Science

In this section, the students. Achievement in science is analyzed descriptively in terms of mean, standard deviation and percentiles for 4 different behavioral objectives.

**Table 4.2.1 Mean S.D and percentiles for achievement Test in Science**

	Knowledge	Understanding	Application	Skill	Total
P10	54	83.0	---	45	18
P25	35.5	53.50	94.5	---	24
P75	64	33.83	74.5	---	33.5
Mean	20.21	15.52	18.15	12.45	28.34
S D	8.07	10.70	9.12	5.04	7.25

In making the interpretations relating to students. Achievement in science, the pass percentage namely 35% has been fixed as a minimum to be obtained and the scores below this have been considered as low

performance. Between 36 and 50, the scores have been considered as average and between 60 and 80 as good performance and above 80% have been considered to be outstanding performance.

The table 4.2.1 shows mean, S.D and percentiles obtained in knowledge, understanding, application and skill and also in total from table, one can see that on the whole, no student has exhibited low performance. Almost 30% of the students have shown an average performance whereas 50% of the students have shown a good performance; only 10% of the students have shown an outstanding performance.

Under objective knowledge, 10% of students have shown average performance and 75% of the students, good performance. Under understanding, 10% of the students have shown good performance and 25% of the students' average. Under application, 25% of the students have shown outstanding performance and 75% of the students, have shown good performance. Under skill, 10% of the students have shown below average performance. The total mean 28.34 indicates a good performance of the students. the dispersion value is found to be 7.25 which indicates that no sudden spurts were observed at different points of percentiles. The mean of knowledge is 20.21 which is less than that of understanding. The SD for knowledge is 8.07 and for understanding are 10.70.

The analysis of the data is also represented through histogram which is given in Figure 4.2.1

#### 4.2.2 Study of scientific attitude of the students.

Here, the students. Scientific attitude is analyzed descriptively in terms of percentiles, mean and standard deviation. As stated in chapter III, the total marks allotted for scientific attitude scale is 150 marks. In order to analyze the data obtained on scientific attitude scale, the following criteria has been stipulated.

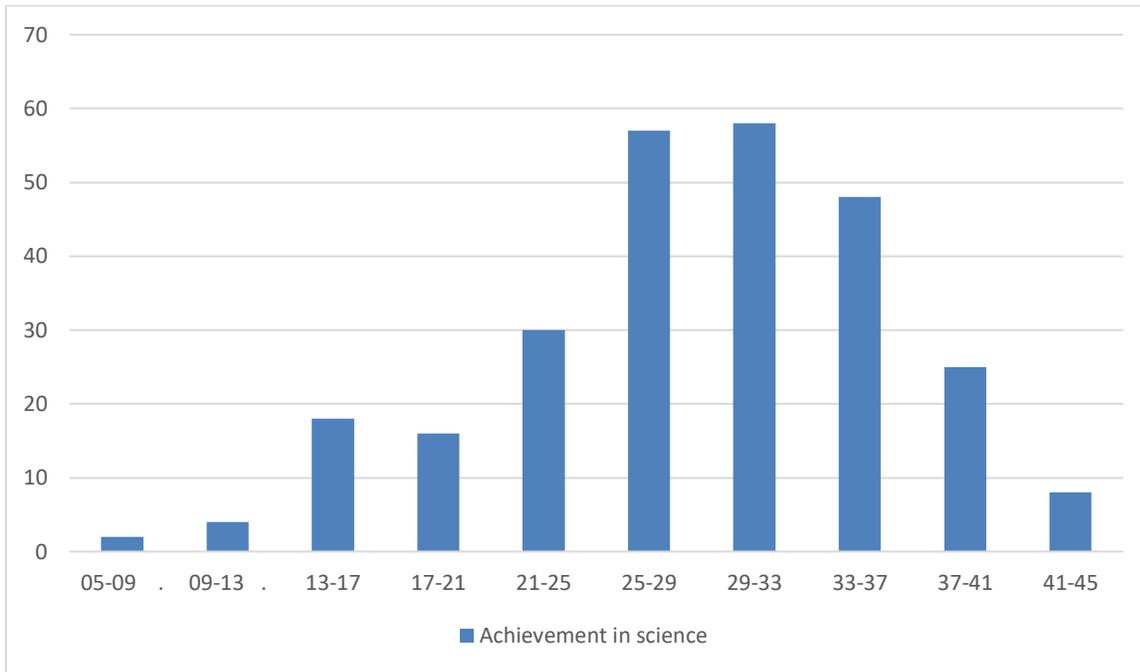
Below 25%	No scientific attitude	Marks - 37
50%	Average scientific attitude	Marks - 75
75%	High scientific attitude	Marks 113
100% -	Outstanding scientific attitude.	Marks – 150

**Table 4.2.2 Percentiles, mean and S.D of students scientific attitude.**

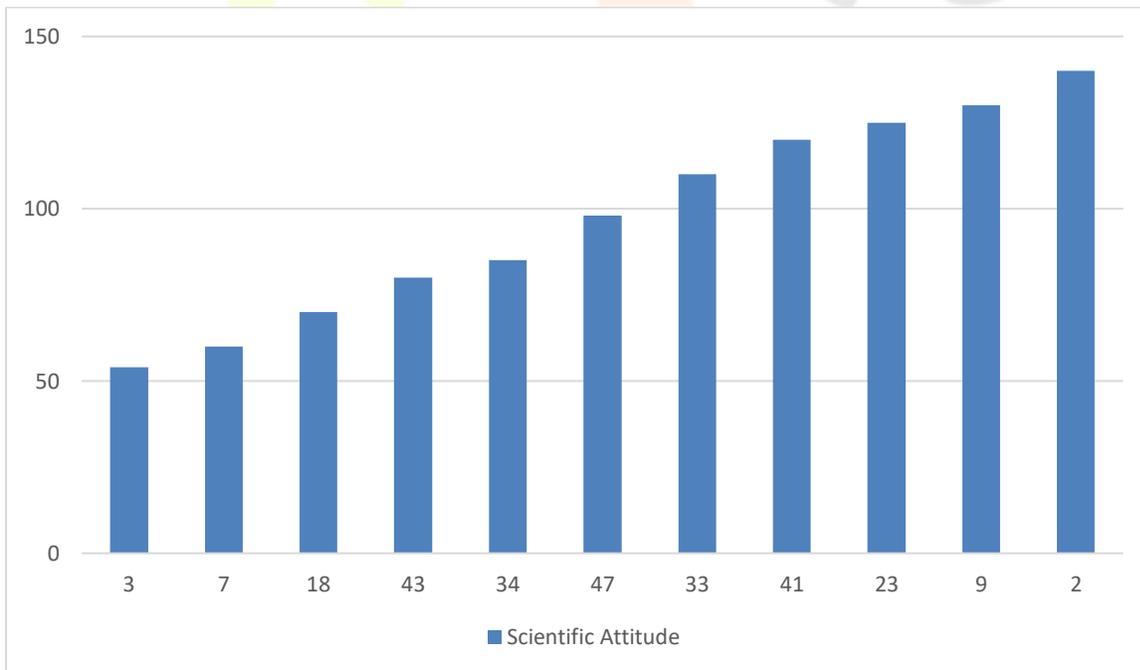
Percentile	Value
P10	74
P20	82
P30	85
P40	92
P50	97
P60	102
P70	110
P80	115.6
P90	121.9
Mean	97.35
SD	18.69

As the table 4.2.2 shows, only 10% of the students have shown an average performance on S.A. scale which indicates that, they either have low or high scientific attitude and other 30% of the students show a very outstanding performance on scientific attitude scale, which rather indicates a very high scientific attitude. Even the mean value obtained on the total score reveals that the students have a high scientific attitude. The S.D value of 18.69 obtained on the data reveal the range of scores from 74 to 121 with frequent spurts occurring at various points. This indicates that, though there is a frequent spurt observed, there is no wide scatter of scores from the mean obtained.

The histogram for students Achievement in science is given in figure 4.2.3.



The histogram for student's scientific attitude is given in figure 4.2.4



## Section 2

### Inferential analysis of data

In previous section, descriptive analysis regarding the data of achievement in science and scientific attitude has been given. This section deals with inferential analysis of data pertaining to the study of relationship between achievement in science, scientific attitude and social status.

#### 4.2.3.1 Study of relationship between the achievement in science and scientific attitude.

For this, the major hypothesis 1 is stated as follows.

“There is a significant relationship between achievement in science and scientific attitude”.

The analyzed data is represented in the table 4.2.3.1

Variables	R- value	Level of 0.05	Significance
Scientific attitude & science achievement	0.44	0.11	0.15

The above table 4.2.3.1 indicates that, the calculated, 'I' value between the variables more than the value obtained at 0.01 level of significance. (Garrett. Table - 25. 1958). this shows that there is high relationship between achievement in science and scientific attitude. Hence, the above stated hypothesis which states that there is a significant relationship between 1. Achievement in science and scientific attitude is accepted.

#### 4.2.3.2 Study of the influence of social status of students on the achievement in science and scientific attitude.

For this, the major hypothesis 2 is stated as follows.

\*There is an influence of social status on students' Achievement in science and scientific attitude.

The social status of the students based on the parents Educational qualifications and occupations can be categorized into three namely, lower class, middle class, and higher class and are given the number 1, 2, and 3 respectively. The value, frequency and percentage are given below.

**Table 4.2.3.2 calculation of the percentage of number of students.**

Categories	No of Students	Percentage
1	84	32.3
2	105	40.4
3	71	27.3

In order to test the above mentioned hypothesis, ANOVA was used.

**Table 4.2.3.3 Calculation of ANOVA with respect to influence of social status and achievement in science.**

Variable	D F	Sum of Square	Mean Square	Calculated F	Level of 0.05	Significance 0.01
Social Status	2	269.81	134.90	2.59*	3.03	4.68
Error	257	133356.39	51.97			
Total	259	13626.21				

\*F-value 2.59 is not significant at 0.05 level.

The above table 4.2.3.3 indicates that F value for influence of social status on achievement in science that is 2.59 is less than the levels of significance, i.e. 3.03 and 4.68 at 0.05 and 0.01 for 2, 257 degrees of freedom. So, there is an influence of social status on students' Achievement in science. Hence, the sub-hypothesis 1 is accepted.

**Table 4.2.3.4 Calculation of ANOVA with respect to influence of social status and scientific attitude.**

Variable	D F	Sum of Square	Mean Square	Calculated F	Level of 0.05	Significance 0.01
Social Status	2	3520.79	1760.39	5.2026**	3.03	4.68
Error	257	86910.04	338.17			
Total	259	90430.84				

\*\* F - Value 5.2026 is significant at 0.05 levels. -

The above table 4.2.3.5 indicates F value obtained on the influence social status on scientific attitude that is 5.2026 which is more than the levels of significance, i.e. 3.03 and 4.68 at 0.05 and 0.01 for 2, 257 degrees of freedom. So, there is no influence of social status of students on scientific attitude. Hence, hypothesis 3 is rejected and an alternate hypothesis is presented as follows.

“There is no influence of social status of students on scientific attitude”.

#### 4.2.3.6 Study of difference between boys. And girls. Achievement in science and scientific attitude.

For this, the major hypothesis 3 is stated as follows.

“There is a significant difference between boys' And girls' Achievement in science and scientific attitude.

The sub – hypotheses for this major hypothesis 3 are given as follows.

1. There is a significant difference between boys and girls achievement in science.
2. There is a significant difference between boys and girls in scientific attitude.

For the above hypotheses, the mean and standard deviation values for both boys and girls on all the these variables namely, achievement in science, scientific attitude were calculated.

In order to know whether the difference between the two means obtained on the two variables are significant, the 't' test was used and the 't' values were calculated by using the formula.

**Table 4.2.3.5 Mean, S.D and't' value obtained in respect of boys' and girls' on the achievement test in science.**

Sex	N	Mean	S D	't' Value	Level of 0.05	Significance
Girls	122	28.63	7.92	0.63	1.96	2.576
Boys	138	28.07	6.62			

df = 258

\* not significant at 0.05 level.

Here, the t-value i.e., 0.63 for df 258 is less than 1.96 and 2.576 at 0.05 and 0.01 levels of significance respectively. Therefore, there is no significant difference between boys and girls achievement in science. Hence, the above stated sub-hypothesis 1 is rejected and on alternated hypothesis is stated as follows.

“There is no significant difference between boys and girls achievement in science.”

**Table 4.2.3.6 Mean, S.D and 't' value obtained in respect of boys and girls on the scientific attitude.**

Sex	N	Mean	S D	't' Value	Level of 0.05	Significance
Girls	122	99.16	19.37	1.48*	1.96	2.576
Boys	138	95.73	95.73			

\* Not significant at 0.05 level

Here, the t-value i.e. 1.48 for  $df = 258$  is less than 1.96 and 2.576 at 0.05 and 0.01 levels of significance respectively. Therefore, there is no significant difference between boys and girls scientific attitude. Hence, the above stated sub - hypothesis is rejected and an alternate hypothesis is stated as follows.

“There is no significant difference between boys and girls scientific attitude.

From the above statistical analysis and interpretations presented, certain findings about the study which presented in the next chapter V.

## CHAPTER V

### SUMMARY AND FINDINGS OF THE STUDY

In the present study, investigator attempted to find the relationship between achievement in science and scientific attitude of VII standard students.

#### 5.1 Objectives

5.1.1 To study the relationship between achievement in science and scientific attitude.

5.1.2 To study the influence of social status on achievement in science and scientific attitude.

5.1.3 To study the difference between boys and girls achievement in science and scientific attitude.

#### 5.2 Hypotheses:

5.2.1 There is a significant relationship between achievement in science and scientific attitude.

5.2.2 There is an influence of social status on achievement in science and scientific attitude.

5.2.3 There is a significant difference between boys and girls' achievement in science and scientific attitude.

### 5.3 Sample

The subjects for the present study were 260 students of VII class from 5 purposive, cluster sampling. The students were from English Medium schools who studied state syllabus,

### 5.4 Design of the Study

The study was survey in nature and it was a correlation study which was intended to see the relationship between achievement in science and scientific attitude.

The instruments used for the study were, achievement test in science and scientific attitude scale. For achievement test, the units which were taught by the science teachers i.e. 14 units were considered for construction of the test. The behavioral objectives knowledge, understanding, application and skills were taken into consideration. For validation of the test, item analysis was done. Kuder Richardson formula was used to find the reliability. For scientific attitude scale, the scale was modified which was used by Manjula. P.Rao social status information was obtained by using student profile. After validation, the tests were administered for present sample. This collected data was used for analysis and interpretation.

### 5.5 Analysis:

The data was analyzed descriptively by finding percentiles, mean and standard deviation and also statistically by using coefficient of correlation formula, ANOVA and t-tests for finding relationship between achievement in science and scientific attitude, influence of social status on achievement in science and scientific attitude, difference between boys and girls achievement in science and scientific attitude respectively.

### 5.6 Major findings of the study

The major findings are,

#### 5.6.2 “There is an influence of social status on achievement in science.

This study is in agreement with the research findings revealed by Satyanandan (1989) and Anand C.L. which say that the socio- economic environment have an influence over the mental abilities and the academic achievement. In contradiction to this finding, study conducted by Jha. V (1970) shows that there is no relationship between achievement in science and SES.

### 5.6.2.1 “Social status of the students does not influence the scientific attitude.

The study reveals that, the social status of the students does not influence the scientific attitude. It is not possible to compare this finding with the other research studies since, a study of this kind was not found however, this finding cannot be generalized based on the small section of the sample which was considered for the study.

### 5.6.3 “There is no significant difference between boys and girls achievement in science and scientific attitude.

Comber and keever (1973) found that girls underachieve in science when compared for boys Sharon M.H. (1987) revealed that boys' achievement was significantly higher than girls. But the finding of the present study reveals that there is no significant difference between boys and girls achievement in science and scientific attitude, 50% of the students have shown good performance in science achievement. 50% of the students exhibit a high scientific attitude and 30% of them, outstanding performance.

To put in a nut shell, the main aim of science instruction should not only be to improve the students' achievement, but attempts should be made to develop cognitive skills. So more importance should be given for developing process skills during science instruction, which has an impact on achievement in science and scientific attitude. Many commissions say that the objective of science education is to develop scientific attitude. NPE-1986 has emphasized major goals of the science instruction as development of the scientific attitude. This can be done only if science instruction is changed. The pre-service trained programme should include in curriculum not the conventional method of science education. They should give importance for “activity method”, “project method”, “heuristic method” etc. Since ages, it is a common observation that science instruction has remained stagnant, just restricting to few conventional method. There is also a great need to improve upon the in-service programme to train the teachers in modern method of teaching science, which will help in developing scientific attitude along with the improvement of science achievement. Till recently, the emphasis in science teaching has been about giving exhaustive information in the form of scientific facts, concepts and principles, but what is more important is how children learn rather than what they learn. The emphasis is shifted now to “Learning how to learn. “Hence our class room science instruction should provide avenue for the processing the information rather than simply providing information.

## 5.7 Educational implications

Achievement of science depends upon the scientific attitude of child, even the results have shown that there is a significant relationship between achievement in science and scientific attitude. Hence it is important to develop the scientific attitude of a child by conducting many numbers of activities like science fair, organizing science club, science quiz.

It is also found that there is no influence of social status of a child in achievement of science and also in developing scientific attitude. So the teachers should consider that all the children are capable of achieving in science and are able to develop scientific attitude. Teacher should teach to children irrespective of their background.

## 5.8 limitations of the study

1. This study was restricted only to IX standard and to Mysore city alone. The sample was not random in selection due to few reasons cited in chapter III
2. The Study was confined only to the English Medium schools where state syllabus is practices.
3. Intelligence of children was not considered for the study.
4. It does not cut across various cross cultural population of students.
5. Though scientific attitude scale was adapted from the source mentioned. As in Chapter III and modified to suit present need of the study the items included were not categorized in order to conduct a detailed analysis of the components involved. Because of this, the data could be analyzed on the whole only descriptively.

## 5.9 Suggestions for further research

1. The study of this kind may be conducted on a larger student population taken from difference parts of the country so that a cross cultural data may be obtained from which one can infer the effect of social, cultural influence on students achievement in science, and scientific attitude.
2. The instruments pertaining to achievement in science and scientific attitude may be developed exhaustively and standardized on a larger student population.
3. As already mentioned, the present study has considered only the influence of social status on the two variables chosen or the study. It may be interesting to explore into other extraneous variable which might have influence on each of these variables.

4. Though the study shows there is no gender difference in respect of two variables under study. One cannot come to generalization based on this. Hence a larger population of girls and boys may be drawn from various sections of socio-cultural settings to study the differences in the achievement in science and scientific attitude.
5. As statistical results reveal certain limitations, it is desirable to develop the tests having a large number of items under each component so that the results may be yielded in a more scientific manner.

## **BIBLIOGRAPHY**

- Benny Joseph - effect of objective based teaching on attainment of cognitive skills – 1988.
- Clifford T. Morgan Introduction to Psychology II Edition P.6651961.
- Colin Gauld Issues and Trends-James R.Okey- Section editor. Scientific attitude and science education. A critical approach 1982 vol 86.
- International Journal of science education vol 9 P. 271-1987.
- Eugenia Poporad, John J.M 14(I) 1977. The effect of two science programs on student classification skills science achievement and attitudes.
- Ferguson G A Statistical analysis in Psychology and education New Delhi - 1976.
- Manjula P.Rao Scientific literacy of Neoliterates of Mysore city - 1995 - ERIC Project.
- Garrett.H.E.-Descriptive statistics P 143 1966.
- Garrett.H.E-statistics in psychology and education Indian edition P.201 1958.
- Hankos and Penick-The influence of classroom climate on science process and content achievement of community college students. Journal of Research in science teaching p.629-637 1983.
- Howe C and Mierzwa Janice promoting the development of logical thinking in the classroom. Journal of Research in science teaching 1977. 467-472.
- Jacqueline spears, Dean Zollaman. The influence of structured V/S unstructured lab on students understanding of the process of science science education-14 (i) 1977.
- Joseph Lafordia, the affective domain related to science education and its relation.
- Jyothi R. Ugru Effect of inquiry training on process skills and achievement in biology - 1990.

Menon S.K A comparative study of the personality characteristics of over achievers and underachievers of high ability P.350-351.

Prakash.V.Kulkarni-Relationship between self concept and its correlates among the grade IX students of Mysore City-M.ed. Dissertation.P.64 1991-92

Vardhen and Ravindranath M.J. Effects of multimedia approach I science teaching - 1982 .

Purushotama Rao T Classroom teaching of effective science teachers An analytical study - Ph.D Thesis 1985.

Tom Haladyna Robertolsen and Toan Science Education vol 66 1982. outcomes for science. A process approach and traditional science teaching for 3,4,5 and 6th grades. -A product evaluation Journal of Research in science teaching.P 31-319 1975.

Widen Malwin F-Comparison of students Wilson A.H. and J.M Wilson, The development of formal thought during pretertiary science courses in papua New Guirea. - Journal of Research in science teaching P.527-535 1984.



1. Example/s for elements are

- a) Iron      b) Tin      c) Lead      d) All these

2. H<sub>2</sub>SO<sub>4</sub> is the chemical formula for

- a) Hydrochloric acid      b) Nitric acid      c) Sulphuric acid      d) Sodium chloride

3. Hydrochloric acid is an example for

- a) Acid      b) Base      c) Oxide      d) Neutral compound

4. An oxide is a compound of an element with

- a) Oxygen      b) Hydrogen      c) Nitrogen      d) Carbon

5. Example for the base is

- a) Potassium hydroxide      b) Sulphuric acid      b) Hydrochloric acid      d) Tartaric acid

6. Sulphuric acid is used in preparing

- a) Explosives      b) Dyes      c) TNT      d) a and b

7. When we heat a substance, the temperature

- a) Raises      b) Falls      c) Remains constant      d) None

8. Expansion takes place in

- a) Solids      b) Liquids      c) Gases      d) all these

9. Angle of incidence is

- a) Equal to angle of reflection      b) Less than angle of reflection  
c) More than angle of reflection      d) None

10. Object at infinity, the image at F is

- a) Real      b) Inverted      c) Diminished      d) All these

11. Plane mirrors can be used

- a) as dressing mirror      b) as reflection      c) in periscopes      d) all these

12. For the transmission of sound, air is

- a) Needed    b) Not needed    c) Sometimes needed    d) None

13. Speed of sound per hour is

- a) 1200 Km    b) 1300 Km    c) 500 Km    d) 600 Km

14. Sudden and irregular vibrations produce

- a) Music    b) Noise    c) Nothing    d) None

15. Example for a good conductor is

- a) Glass    b) Wood    c) Iron    d) Paper

16. like charges always

- a) Repel    b) Attract    c) Do not attract    d) None

17. Electric energy can be converted into

- a) Heat energy    b) Light energy    c) Both a & b    d) all the above

18. The energy can

- a) Not be created    b) Not be destroyed    c) Be transformed    d) All these

19. Example for renewal sources of energy is

- a) Petroleum    b) Kerosene    c) Solar energy    d) Coal

20. Part which controls the cell's life activity is

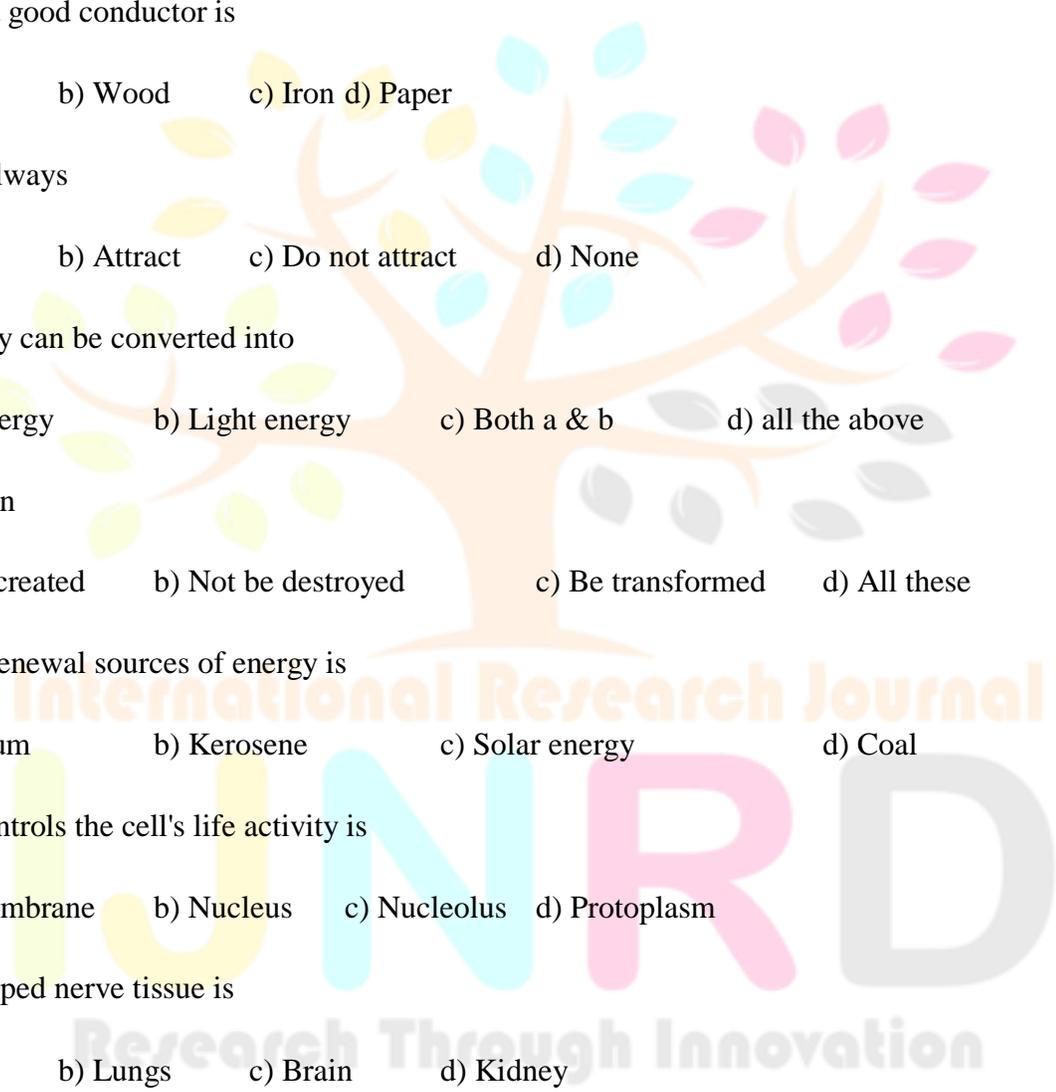
- a) Cell membrane    b) Nucleus    c) Nucleolus    d) Protoplasm

21. Highly developed nerve tissue is

- a) Heart    b) Lungs    c) Brain    d) Kidney

22. Draw a figure of nerve cell.

23. Draw a figure of ciliated cuboidal epithelium.



24. Water is a compound of

- a) Hydrogen, Oxygen
- b) Hydrogen, Carbon
- c) Hydrogen, Carbon and Oxygen
- d) Carbon and Oxygen.

25. Density of ice is

- a) Less than water
- b) More than water
- c) Equal to water
- d) None

26. Example/s for water borne diseases are

- a) Typhoid
- b) Cholera
- c) Jaundice
- d) All these

27. Example for inert gases is

- a) Helium
- b) Carbon dioxide
- c) Nitrogen
- d) Oxygen

28. Air contains

- a) Water vapor
- b) Oxygen
- c) Nitrogen
- d) all these

29. The percentage of nitrogen in air is

- a) 78
- b) 0.03
- c) 21
- d) 11

30. Building materials of all living things are

- a) Sunlight
- b) Proteins
- c) Water
- d) Oxygen

31. Enzyme amylase is present in

- a) Saliva
- b) Gastric juice
- c) Pancreatic juice
- d) Blood

32. Draw internal structure of heart and label it.

33. The product of food and oxygen is

- a) CO<sub>2</sub> & H<sub>2</sub>O
- b) CO<sub>2</sub>
- c) H<sub>2</sub>O
- d) None

34. With the help of diagram, show binary fission in amoeba.

35. Energy sources are

- a) Carbohydrates
- b) Fats
- c) Proteins
- d) Vitamins

36. Cause for the night blindness is deficiency of

- a) Vitamin. A b) Vitamin. B c) Vitamin C d) Vitamin D

37. Anemia is

- a) Communicable disease b) Non Communicable c) Not a disease d) None

38. Top soil can be named as

- a) Humus b) Subsoil c) Rocky layer d) None

39. Suitable soil for crops is

- a) Sandy b) Clay c) Loamy d) None

40. Manure consists of

- a) Animal waste b) Dead plants c) Decaying matter d) all these

41. Farmers use insecticides to kill the

- a) Insects b) Plants c) Germs d) Birds

42. Keep two cans in sunlight filled with water, one of which is coated with black paint. After some time, the water in black can will be warmer than other one. Give your reason for this.

43. You are given a mixture of salt, sand and iron fillings. How will you separate all these substances?

44. Following are given some examples for acids and bases identify acids and bases.

Gooseberry, Lemon, Quicklime, Tamarind, Soap, Baking Soda, Washing Soda

Acids: Bases:

45. If a person met with an accident with blood group 'o' is in need of blood and four persons volunteered to donate blood with blood groups of A, B, O and AB, respectively, which blood group will match with the patient's blood group?

**SCORING KEY FOR ACHIEVEMENT TEST IN SCIENCE**

Question No	Answer	Question No	Answer
1	B	24	A
2	C	25	A
3	A	26	D
4	A	27	A
5	A	28	D
6	D	29	A
7	A	30	B
8	D	31	A
9	A	32	Diagram
10	D	33	A
11	D	34	Diagram
12	A	35	A
13	A	36	A
14	D	37	D
15	C	38	A
16	A	39	C
17	C	40	D
18	D	41	A
19	C	42	Black color absorbs heat
20	B	43	Magnet, solvent and filter method
21	C	44	Acid-tamarind-lemon-gooseberry- base-rest those
22	Diagram	45	0+ve
23	Diagram		

**SCIENTIFIC ATTITUDE SCALE**

Name :  
 Class:  
 School:  
 Date:  
 Girl/Boy:

**INTRODUCTION:****PART-I**

This Part-I consists of certain statements. If you strongly agree with the statement, you have to put X on S.A. If you only agree with the statement, you are supposed to cross A and if you cannot decide, cross UD, If you disagree with the statement, put cross X on D and if you strongly disagree put X on SD. Ex: The statement is “Hell and heaven are there in the sky”. If you strongly disagree with the statement, you should put X as shown below:

1. If somebody is going out, we should not ask. “Where are you going?. SAA/UD/D/SD.
2. It is a bad omen if a cat crosses the way when we are going somewhere. SA/A/UD/D/SD.
3. We should accept and follow whatever our customs and traditions say without questioning SA/A/UD/D/SD.
4. There is nothing wrong in cooking and eating food when eclipse is taking place. SA/A/UD/D/SD.
5. We should not see the falling of meteorites (falling of stars) SA/A/UD/D/SD.
6. Ganga water cures the illness of a person if he drinks it. SA/A/UD/D/SD
7. We can lead a good and successful life only by performing pooja. SA/A/UD/D/SD.
8. We should not see the moon on Ganesha Festival night, we will be blamed for everything throughout the year SA/A/UD/D/SD.
9. We get chickenpox due to the curse of goddess. SA/A/UD/D/SD.
10. Our happiness depends upon God's grace. SA/A/UD/D/SD.
11. Ghosts are nothing but an imaginary phenomenon. SA/A/UD/D/SD.
12. Our success depends upon our own efforts and abilities.SA/A/UD/D/SD.
13. Natural calamities like floods, storm, take place according God's wish SA/A/UD/D/SD.
14. Whenever success or failure that we face in life is because of certain planets that rule our zodiac sign.SA/A/UD/D/SD.
15. The appearance of comet indicates that bad event may take place. SA A/UD/D/SD.
16. We should not jump into hasty conclusions about anything or anybody without proper evidence. SA/A/UD/D/SD.

17. Whenever extraordinary phenomenon happens for which there is explanation, we should immediately attribute it to being a miraculous. SA/A/UD/D/SD.
18. Something disastrous would happen if we travel by bus or any other transport during Rahukala. SA/A/UD/D/SD.
19. The elder children should not go out of the house during lighting. SA/A/UD/D/SD.
20. There is nothing wrong in accepting new ideas, which would benefit human beings, provided the new ideas have sound reason and proof. SA/A/UD/D/SD.
21. We should not accept the things blindly just because they are followed by most of the people. SA/A/UD/D/SD
22. Becoming successful is a matter of hard work. The luck has little or nothing to do with it. SA/A/UD/D/SD

## **PART-II**

This part consists of certain statements. Read it carefully and select your answer and encircle your choice.

E.g.: We should not pluck the leaves in the evening. Because,

- a) It will affect out health.
- b) The God will curse us.
- c) Snakes and other animals will be there.
- d) The plant wilts away.

If your answer is C then encircle it as shown above.

Seeing your Zodiac sign, an astrologer predicts that you would fails in the examination this year. Knowing this, you will

- a) Not appear for the exams.
  - b) Not believe what astrologer said.
  - c) Confirm it from some other astrologer.
2. Suppose, your parents are admitting your brother or sister in school. For that, you will
- a) Support choosing an auspicious day.
  - b) Support consulting panchangam to see the good time.
  - c) Support consulting an astrologer to see good time.
  - d) Not support anything of above sort.

3. You came to know from your other friends that one of your closest friends is a cheat. You would
  - a) Not believe till you get direct evidence.
  - b) Cut friendship suddenly.
  - c) Not care about others opinions.
  - d) Directly ask friend and quarrel.
  
4. Suppose, your friend or family member is bitten by a snake you would,
  - a) Take the person to the hospital however far it may be.
  - b) Make a cut on place where snake has bitten and provide first aid treatment and then take the person to the hospital.
  - c) Take him to tantrik to get venom out through the mantras.
  - d) Not take any action as you are certain, that the person is going to die.
  
5. A bus hits a person while you are going on the road. You found that the person is in pool of blood. You would
  - a) Wait till the policemen come.
  - b) Take him to the hospital as soon as possible.
  - c) Get scared and run away.
  - d) Not bother about the accident.
  
6. A Palmist on reading your palm that you are to win a lucky draw in the following week. You would
  - a) Immediately buy a lottery draw
  - b) Not buy any lottery ticket you do not believe
  - c) Go to the another Palmist and confirm and then buy
  - d) Buy many lottery tickets
  
7. Lunar Eclipse occurs when
  - a) Snake swallows the moon
  - b) Something bad is going to happen
  - c) Sun comes between moon and earth
  - d) Earth comes between sun and moon
  
8. Suppose, blood bank authorities come and ask you to donate the blood, if you are healthy person, you would
  - a) Directly go and donate blood
  - b) Ask your parents and then donate
  - c) Not bother about it
  - d) Think that you will become weak