Summary of Conclusions and Suggestions for Further Work.

The level of attainment in school subjects is satisfactorily assessed by Standardized Achievement Tests. In our country such tests are not available. Very few attempts have been made so far in this direction. The present study is a humble attempt to satisfy this need to a little extent in the subject of General Science.

A. Summary of Conclusions.

1. In this standardised test of achievement the distribution of the scores of the entire group as well as the subgroups almost fit in the normal probability curve. This proves that the technique adopted in this measurement is correct and objective.

2. The efficiency of the test is determined in terms of its reliability and validity.

a) The Reliability of the Test:—

1) By split-half method .. 0.91
2) By Rational Equivalence Method. 0.91
   Index of Reliability .. 0.95

Hence the test is highly reliable.

b) The validity of the test:—

1) Comparing test marks with class marks .. 0.587
2) Finding the significance of difference between 50 best and 50 worst students as per the teachers' ratings estimate.

a) Difference between their means .. 30.50
b) Critical Ratio .. .. 14.00

The difference is highly significant.

3) The biserial coefficient of correlation between the best and worst students .. 0.9875 as estimated by the subject teachers.

S.E. of \( r_{bis} \) .. .. 0.053

Hence the test is valid.

3 NORMS: - These have been established in two forms:

(1) Mean Norms, (2) Percentile Norms.

1) Mean Norms.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Entire sample</td>
<td>47.28</td>
<td>17.34</td>
</tr>
<tr>
<td>b) Rural Group</td>
<td>47.17</td>
<td>16.91</td>
</tr>
<tr>
<td>c) Urban Group</td>
<td>47.17</td>
<td>17.49</td>
</tr>
<tr>
<td>d) Industrial Group</td>
<td>48.03</td>
<td>17.55</td>
</tr>
<tr>
<td>e) Kannada Medium</td>
<td>49.47</td>
<td>15.50</td>
</tr>
<tr>
<td>f) English Medium</td>
<td>44.23</td>
<td>19.20</td>
</tr>
<tr>
<td>g) Boys</td>
<td>49.31</td>
<td>17.71</td>
</tr>
<tr>
<td>h) Girls</td>
<td>43.25</td>
<td>15.56</td>
</tr>
</tbody>
</table>
2) Percentile Norms.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>a)</td>
<td>$P_5$</td>
<td>19.63</td>
</tr>
<tr>
<td>b)</td>
<td>$P_{10}$</td>
<td>23.64</td>
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<tr>
<td>c)</td>
<td>$P_{20}$</td>
<td>31.10</td>
</tr>
<tr>
<td>d)</td>
<td>$P_{25}$</td>
<td>34.10</td>
</tr>
<tr>
<td>e)</td>
<td>$P_{30}$</td>
<td>36.09</td>
</tr>
<tr>
<td>f)</td>
<td>$P_{40}$</td>
<td>42.40</td>
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<td>g)</td>
<td>$P_{50}$</td>
<td>47.23</td>
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<tr>
<td>h)</td>
<td>$P_{60}$</td>
<td>52.30</td>
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<td>i)</td>
<td>$P_{70}$</td>
<td>57.50</td>
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<td>j)</td>
<td>$P_{75}$</td>
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<td>k)</td>
<td>$P_{80}$</td>
<td>63.50</td>
</tr>
<tr>
<td>l)</td>
<td>$P_{90}$</td>
<td>70.40</td>
</tr>
<tr>
<td>m)</td>
<td>$P_{95}$</td>
<td>76.30</td>
</tr>
</tbody>
</table>

**Comparison of Groups.**

(1) **Rural and Urban:** There is no difference between the performance of the Rural and Urban students.

(2) **Industrial and Urban:** There is a slight difference of 0.86 between the performance of the Industrial and Urban students. But it is not significant.

(3) **Industrial and Rural:** There is a slight difference of 0.86 between the performance of the Industrial and Rural students. But it is not significant.
(4) **Kannada Medium and English Medium.** There is a significant difference of 5.24 between the performance of Kannada Medium and English Medium students. The performance of Kannada Medium pupils is superior to that of English Medium ones.

(5) **Boys and Girls.** There is a difference of 5.80 between the performance of boys and girls. The difference is highly significant. The performance of the boys is superior to that of the girls.

B. **Suggestions for Further Work.**

1. The present test is constructed and standardised for High School I Year class (ex-Mysore area) based upon the syllabus of 1956. This syllabus has since been revised. As a consequence the test has to be modified to suit the new syllabus and then standardised on a larger scale drawing a more representative sample from the several parts of new Mysore State. Considering the magnitude of the work, this has to be taken up by the Bureau of Research of the Department of Public Instruction, Mysore.

2. This is the first standardized test in General Science. It is desirable to have parallel forms of the test and standardised them. Hence other tests in general science for the same standard may be devised and standardized.

3. On the same lines achievement tests in General Science for the remaining two standards of the High School may be constructed and standardised.

4. The present investigation reveals that there is a
significant difference between the achievement of boys and that of the girls in general science. Before any definite conclusions can be drawn this has to be further verified by administering the test on an intensive scale to larger samples of boys and girls.

5. A significant difference is also found in the performance of the Kannada Medium pupils and the English Medium pupils. This again is a finding of great importance in the field of education. Hence this aspect has also to be measured on an intensive measure.

6. The present investigation has tried to find out in a general way, if there is any difference between the performance of children of Urban, Rural and Industrial areas. But it would be of interest to obtain further details about the occupation of the parents and find out the relative performance of children coming from different occupational homes.

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1) Study of the general properties of matter:

Occupies space, transfers motion, offers resistance, has weight; divisibility, porosity, compressibility, elasticity. The three states of matter.

Special properties of solids: rigidity, tenacity, ductility, malleability, hardness.

Special properties of liquids: Definite size and no definite shape; find their level; communicate pressure equally in all directions; Water supply in rural and urban areas.

Special properties of gases: occupy all the space; have weight; exert pressure in all directions syringe, penfiller, cycle pump, inflator. Measuring the pressure of the atmosphere with a barometer.

ii) Length, units in British and Metric systems and the relations between them.

Area: Units.

Volume: units, capacity, measuring jar, pipette. Measurement of volume by displacement. (Use of graduated jar).

iii) Mass, Weight and Density: Units, measurement
of mass by the common balance; measurement of weight by the spring balance. Difference between mass and weight. Meaning of density. Determination of the density of common substances.


Transference of heat; conduction, good and bad conductors; thermos flask, convection, ventilation in buildings; radiation. Simple steam engine and internal combustion engine.

3 (b) CHEMISTRY.

Chemical changes - (melting of ice or sulphur).

Chemical changes -

a) Chemical combination - (burning of sulphur, union between iron and sulphur).

b) Chemical decomposition - (Action of heat on red oxide of mercury) - Elements and compounds.

Separation of mixtures using common laboratory methods.

Decantation, filtration, solution, evaporation and crystallisation as applied to mixtures of sand and common
2. **Air.** - Air contains oxygen and nitrogen; a burning candle uses up oxygen; nitrogen does not support combustion; oxygen is necessary for breathing; metals heated in air increase in weight; iron rusts in moist air; composition of air by volume (burning of phosphorus in a bell jar).

3. **Oxygen.** - Discovery of oxygen; action of heat on potassium chlorate; preparation of oxygen by heating a mixture of potassium chlorate and manganese dioxide; properties and uses of oxygen.

4. **Water.** - Natural sources of water; common impurities in water; water purification; distillation of water; water is a chemical compound; action of sodium on water; decomposition of water by an electric current; composition of water by volume (composition of water by weight is to be indicated).

5. **Hydrogen.** - Preparation of hydrogen by the action of dilute-sulphuric acid on zinc; properties of hydrogen; water is formed when hydrogen burns in air.

6. **Carbon.** - Preparation, properties and uses of charcoal; mention of the other forms of carbon (graphite and diamond) and their uses. When a candle burns in air, the products formed are water and carbon dioxide.

Revision of portions taught in the I Year *(6 periods).*
I YEAR - Two periods a week.

The parts of a typical plant like the bean: - Root, Stem, Bud, Leaf, Flower, Fruit and Seed.

The structure and germination of the bean seed.


Storage organs in plants. Vegetative reproduction. Cuttings, bulbs, tubers, rhizomes.

The external features, habits, food and life history of (1) the butterfly or moth and (2) the frog.

The parts of the human body and a simple account of the functions of the chief organs.

The circulation of blood in man.