<table>
<thead>
<tr>
<th>Question</th>
<th>Descriptor</th>
<th>Competency</th>
<th>Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identify a feature of the chemical reactions used in fireworks.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>2</td>
<td>Explain why fireworks in the distance can be seen before they are heard.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>3</td>
<td>Describe safety measures needed for people in close proximity to a fireworks display.</td>
<td>I</td>
<td>En</td>
</tr>
<tr>
<td>4</td>
<td>Identify a feature of fireworks that causes distress for animals.</td>
<td>E</td>
<td>L</td>
</tr>
<tr>
<td>5</td>
<td>Identify question that can be investigated scientifically.</td>
<td>I</td>
<td>Ex</td>
</tr>
<tr>
<td>6</td>
<td>Identify effect of frozen water trapped in rocks on the rate of breakdown of rocks.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>7</td>
<td>Identify explanation for presence of fossilised marine life in an inland area.</td>
<td>E</td>
<td>ES</td>
</tr>
<tr>
<td>8</td>
<td>Identify claims that can be tested scientifically.</td>
<td>I</td>
<td>En</td>
</tr>
<tr>
<td>9</td>
<td>Identify a laboratory instrument suitable for measuring electrical conductivity.</td>
<td>E</td>
<td>T</td>
</tr>
<tr>
<td>10</td>
<td>Identify reason for change in tree ring width.</td>
<td>U</td>
<td>Ex</td>
</tr>
<tr>
<td>11</td>
<td>Identify advantages of regular physical exercise.</td>
<td>E</td>
<td>L</td>
</tr>
<tr>
<td>12</td>
<td>Identify effect of physical exercise on muscles.</td>
<td>E</td>
<td>L</td>
</tr>
<tr>
<td>13</td>
<td>Explain why respiration increases after exercise.</td>
<td>E</td>
<td>L</td>
</tr>
<tr>
<td>14</td>
<td>Recognise a fact that disproves a given hypothesis.</td>
<td>U</td>
<td>Ex</td>
</tr>
<tr>
<td>15</td>
<td>Identify why ice forms on the surface of objects exposed to cold air.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>16</td>
<td>Identify why frost causes permanent cell damage in plants.</td>
<td>E</td>
<td>L</td>
</tr>
<tr>
<td>17</td>
<td>Identify an inconsistent result in a table of data.</td>
<td>U</td>
<td>En</td>
</tr>
<tr>
<td>18</td>
<td>Identify control variables in an experimental design.</td>
<td>I</td>
<td>En</td>
</tr>
<tr>
<td>19</td>
<td>Identify advantage of producing food locally.</td>
<td>I</td>
<td>Ex</td>
</tr>
<tr>
<td>20</td>
<td>Give reasons that prevent food from being grown locally.</td>
<td>E</td>
<td>ES</td>
</tr>
<tr>
<td>21</td>
<td>Apply knowledge about the role of colour in reflection and absorption of heat in a system.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>22</td>
<td>Use principles of convection to explain the location of a component in a system.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>23</td>
<td>Identify other criteria, apart from heat capacity, that would determine the choice of fluid in a convective heating system.</td>
<td>E</td>
<td>T</td>
</tr>
<tr>
<td>24</td>
<td>Interpret the chemical formula for ammonia.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>25</td>
<td>Identify the advantage that an odour would give a gas used as a fuel source over an odourless one.</td>
<td>I</td>
<td>Ex</td>
</tr>
<tr>
<td>26</td>
<td>Describe a graphically presented relationship.</td>
<td>U</td>
<td>En</td>
</tr>
<tr>
<td>27</td>
<td>Identify a disadvantage of planting crops for fuel production.</td>
<td>I</td>
<td>En</td>
</tr>
<tr>
<td>28.1</td>
<td>Display a general understanding of where sulfur and nitrous oxides in the air come from.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>28.2</td>
<td>Identify specific sources for sulfur and nitrous oxides in the air.</td>
<td>E</td>
<td>P</td>
</tr>
<tr>
<td>29</td>
<td>Identify likely change in mass when a marble chip is immersed in an acid solution.</td>
<td>U</td>
<td>Ex</td>
</tr>
<tr>
<td>30.1</td>
<td>Recognise the role of a control in a given experimental procedure.</td>
<td>I</td>
<td>En</td>
</tr>
<tr>
<td>30.2</td>
<td>Recognise and clearly explain the purpose of a control in an experiment.</td>
<td>I</td>
<td>En</td>
</tr>
</tbody>
</table>

**KEY**

**Competency:** I=Identifying scientific issues, E=Explaining phenomena scientifically, U=Using scientific evidence;

**Knowledge of Science:** ES=Earth and space systems, L=Living systems, P=Physical systems, T=Technological systems;

**Knowledge about Science:** En=Scientific enquiry, Ex=Scientific explanation.

See also Guidelines to ISA Online Science Reports.
# Class Report
## ISA Grade 8 Science

### Class grade-8 1

<table>
<thead>
<tr>
<th>Question No.</th>
<th>Competency</th>
<th>Knowledge</th>
<th>% All Grade 8</th>
<th>% This Class</th>
<th>Raw Score</th>
<th>Scale Score</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
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- **Competency**: E=Identifying scientific issues, I=Explaining phenomena scientifically, U=Using scientific evidence;
- **Knowledge of Science**: ES=Earth and space systems, L=Living systems, P=Physical systems, T=Technological systems;
- **Knowledge about Science**: En=Scientific enquiry, Ex=Scientific explanation.

### Key
- **Language Background:**
  - E = English Speaking Background
  - N = Non-English Speaking Background
- **Gender:**
  - M = Male
  - F = Female
- **Scores:**
  - a = Absent
  - m = Missing

---

**Student 1001**
- **Gender:** N
- **Knowledge:** M
- **Score:** 6
- **Scale Score:** 368
- **Level:** 0

**Student 1002**
- **Gender:** E
- **Knowledge:** M
- **Score:** 15
- **Scale Score:** 511
- **Level:** 3

**Student 1003**
- **Gender:** N
- **Knowledge:** F
- **Score:** 12
- **Scale Score:** 469
- **Level:** 2

**Student 1004**
- **Gender:** N
- **Knowledge:** F
- **Score:** 18
- **Scale Score:** 553
- **Level:** 3

**Student 1005**
- **Gender:** E
- **Knowledge:** N
- **Score:** 15
- **Scale Score:** 511
- **Level:** 3

**Student 1006**
- **Gender:** E
- **Knowledge:** N
- **Score:** 21
- **Scale Score:** 598
- **Level:** 4

**Student 1007**
- **Gender:** N
- **Knowledge:** F
- **Score:** 9
- **Scale Score:** 423
- **Level:** 1

**Student 1008**
- **Gender:** E
- **Knowledge:** F
- **Score:** 12
- **Scale Score:** 469
- **Level:** 2

**Student 1009**
- **Gender:** E
- **Knowledge:** F
- **Score:** 17
- **Scale Score:** 539
- **Level:** 3

**Student 1010**
- **Gender:** E
- **Knowledge:** F
- **Score:** 19
- **Scale Score:** 568
- **Level:** 3

**Student 1011**
- **Gender:** E
- **Knowledge:** F
- **Score:** 14
- **Scale Score:** 497
- **Level:** 2

**Student 1012**
- **Gender:** E
- **Knowledge:** F
- **Score:** 14
- **Scale Score:** 497
- **Level:** 2

**Student 1013**
- **Gender:** N
- **Knowledge:** F
- **Score:** 8
- **Scale Score:** 406
- **Level:** 1

**Student 1014**
- **Gender:** E
- **Knowledge:** M
- **Score:** 27
- **Scale Score:** 714
- **Level:** 5

**Student 1015**
- **Gender:** N
- **Knowledge:** M
- **Score:** 14
- **Scale Score:** 497
- **Level:** 2

**Student 1016**
- **Gender:** E
- **Knowledge:** F
- **Score:** 21
- **Scale Score:** 598
- **Level:** 4

**Student 1017**
- **Gender:** N
- **Knowledge:** M
- **Score:** 13
- **Scale Score:** 483
- **Level:** 2

**Student 1018**
- **Gender:** E
- **Knowledge:** F
- **Score:** 21
- **Scale Score:** 598
- **Level:** 4

**Student 1019**
- **Gender:** N
- **Knowledge:** F
- **Score:** 6
- **Scale Score:** 368
- **Level:** 0

**Student 1020**
- **Gender:** N
- **Knowledge:** M
- **Score:** 13
- **Scale Score:** 483
- **Level:** 2

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* This is the average Scale Score.