ACT Math and Science - Core Concept Cheat Sheet

24: The Guide to ACT Science Reasoning

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<tr>
<th>ACT Science Exam</th>
<th>Research Summaries</th>
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<td><strong>Multiple Choice</strong></td>
<td><strong>Each passage will have:</strong></td>
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<tr>
<td><strong>35 minutes</strong></td>
<td>o Describe one or more related experiments or studies.</td>
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<td><strong>40 questions</strong></td>
<td>o 5-7 multiple choice questions.</td>
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<td><strong>Seven Passages</strong></td>
<td><strong>Strategies:</strong></td>
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<tr>
<td>o Data representation (2-3 passages)</td>
<td>o Understand the design of the experiment.</td>
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<td>o Research summaries (3-4 passages)</td>
<td>o Know the variables of the experiment.</td>
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<td>o Conflicting viewpoints (1 passage)</td>
<td>o Be familiar with definitions of scientific processes terms such as observation, hypothesis, experiment, etc. (See Tutorial 23).</td>
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<td><strong>No Calculators</strong></td>
<td>o Be able to recognize assumptions, controls and variables, similarities and differences, strengths and weaknesses.</td>
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### Data Representation Passages

- **Each passage will have:**
  - o One or more chart, table, diagram or figure(s).
  - o 5-7 multiple choice questions.

- **Strategies:**
  - o Read the graphs and tables.
  - o Identify the variables and units.
  - o Understand the meanings and trends of the data.
  - o Familiarize yourself with the common graph types.

- **Reading graphs, tables and figures:**
  - o Read the intro paragraph or description.
  - o Read the title.
  - o Read the legend.
  - o Read the axis or column/row headings (including units).
  - o Get a general feel for the data.
  - o Be sure you’re looking at the right line or section of the graph for complex graphs.
  - o Be sure you’re using the correct axis for graphs with more than one x or more than one y axis.
  - o Interpolation – always read from the trendline, even if there is a data point corresponding to your question.

- **Direct relationships:** When “x” increases, so does “y”

- **Inverse relationships:** When “x” increases, “y” decreases

### Research Summaries

- **Each passage will have:**
  - o Describe one or more related experiments or studies.
  - o 5-7 multiple choice questions.

- **Strategies:**
  - o Understand the design of the experiment.
  - o Know the variables of the experiment.
  - o Be familiar with definitions of scientific processes terms such as observation, hypothesis, experiment, etc. (See Tutorial 23).
  - o Be able to recognize assumptions, controls and variables, similarities and differences, strengths and weaknesses.

### Conflicting Viewpoints

- **Each passage will have:**
  - o Describe alternate (opposing) theories, hypothesis or viewpoints.
  - o 5-7 multiple choice questions.

- **Strategies:**
  - o Skim the passage and understand the main idea of the passage.
  - o Identify and highlight the key points of disagreement.
  - o Identify points of agreement.
  - o Mark down the supporting data in the passages.
  - o Answer the questions – All of them.

### ACT Science Exam Tips

- Write down the starting time for that passage at the top of the page.
- Read the intro paragraph to get an idea of what the topic is.
- Look quickly at each data table/graph (read title, axis, legends and labels) or briefly skim to see the differences between different studies or viewpoints.
- Read question 1 – the WHOLE question.
- Go to the graph, figure, data table or study that it discusses. Read and study it in more depth, looking for information for the question.
- Read EACH of the answer choices.
- Choose the best choice.
- After 5 minutes on that passage – move on to the next one.
- There are easier questions on each passage, so don’t get stuck on one.
- Make educated guesses.
- Estimate, don’t calculate.
- Use the passage.
- Familiarize yourself with common scientific terms (see Tutorial 23).

How to Use This Cheat Sheet: These are the keys related this topic. Try to read through it carefully twice then rewrite it out on a blank sheet of paper. Review it again before the exams.