General Information

The Science section of the ACT contains **40 questions**, which are timed for **40 minutes**. Answering these questions correctly requires an understanding of basic concepts you should have covered in high school **biology**, **physics**, **chemistry**, and **Earth science** classes. The questions do not stand alone but will test your understanding of written passages and visual information like graphs and charts. You will need to combine your **understanding of science terms and concepts** with **reading comprehension of scientific material**.

Since it is not necessary to memorize hundreds of science definitions or practice science concepts in order to do well on this test, we will focus primarily on **test-taking practices** in this study guide. The way in which you deal with the material presented is far more important than your specific scientific knowledge.

Note: The **2025 enhancements** to the ACT affected the Science section in these ways:

- There are more test items that require knowledge of Disciplinary Core Ideas (DCIs) or scientific background knowledge.
- At least one passage in the Science section will concern the topic of engineering and design.

This is what your **score report** will show in terms of the Science section: a total section score and three subscores in the following areas of scientific skill. The percentages shown indicate the approximate amount of emphasis placed on that particular skill among the questions on the test. Some questions are used to evaluate more than one skill, so the percentages do not add up to 100.

- **Interpretation of Data** (36 to 47%): This subscore will tell how well you understand different forms of data (graphs, tables, and diagrams) and how well you can use them to reason.
- **Scientific Investigation** (17 to 31%): From procedures to tools, you need to be able to use given experimental results to reason and create other things, such as modifications and additional trials.
- **Evaluation of Models, Inferences, and Experimental Results** (22 to 36%): Whatever the data or its source, it will be up to you to determine the validity of the stated results.

This section involves **three passage types**: data representation (25 to 35%), research summaries (45 to 60%), and conflicting viewpoints (15 to 20%). Like the other sections on the ACT, there is no penalty for incorrect responses, so answer every question, even if you're

unsure of the answer.

Understanding Your Task

The name of this section is somewhat of a misnomer. While each passage will directly relate to a science concept, doing well on this section **requires very little scientific background knowledge**. This section is much more like a reading comprehension test than a science test. To do well on this section, you must primarily utilize your **close reading and analysis skills**.

The same general approach can be used for each of the passage types in this section. You will first articulate the **main idea** (What is this passage about?) before carefully making sense of any **graphics** provided (What are the axes titles? Do the figures display any trends?) and then moving on to the **questions**. You must carefully examine every piece of information in the graphics provided; many errors are due to misreading a question or piece of information.

When reading through the passages and graphs, jot down **notes** to help keep track of the information presented and give yourself visual markers that make it easier to find important information when you start working through the questions. Practice taking notes while analyzing passages so that you can avoid spending time rereading information you've already examined. Remember, the real challenge in doing well on this test is **accurately analyzing** the information presented while **managing your time** wisely.

The Challenge

The Science section of the ACT is **always the final section** of the test. The ACT makers know that students do not have infinite stamina and focus. They also understand the metrics used to gauge a student's likelihood of success during their first year of college. They place the Science section at the end because it requires the greatest amount of **focus and concentration**, and they want you to face this section after you've already been drained by all of the other sections. Being aware of this, you should know what's required to overcome this obstacle.

Practice taking the ACT under the same conditions as the actual test. Set a timer for the allotted amount, work through the section, and stop when the time is over. You may have trouble finishing every section on time during your first practice exams. This just means you need more practice and your strategies should be refined.

Interpretation of Data

The ability to look at different data presentations and draw conclusions from them is one of the primary skills tested on the Science section of the ACT. There are many types of data and many ways to present them. Being able to **understand what information is being represented and why** is an important aspect of critical thinking and learning from the work of

others.

Find Data in a Graph, Table, or Diagram

Many questions on the ACT require locating specific, relevant data in an attached graph, table, or diagram. To find data in a graph, table, or diagram in the Science section of the ACT, you should start by looking for the title or labels that describe what the data represents. This will give you an idea of **what the data is measuring** and **how it is being displayed**. Then, you should look at the axes or other labels to see what the units of measurement are, which can be important for making comparisons and drawing conclusions.

Use the Parts of a Data Presentation

The first step in using the parts of a data presentation is identifying the **type of presentation** (e.g., table, graph, or diagram) that contains the data. From there, reading the **title** gives a clue about what information is being displayed and measured. Next, the **axes** or **labels** should be examined to determine what **units of measurement** are used and what types of data are being compared. This information will give you insights into the **trends** or patterns being displayed. Finally, you can **draw conclusions** about the data's overall message and why it is important.

Match Text Information to a Graphic Presentation

Matching text information to graphical presentations requires careful attention to detail and a solid understanding of scientific principles. Before looking at the graphical presentation, you should carefully **read the text information** that accompanies it. This text information will provide important context for the presented data and help you understand what to look for in the graphical presentation. Once you understand what the text is asking for, you can **examine the graphical presentation**. Identify **key features** that correspond to text information and **compare and contrast** them to the text in order to draw conclusions. Sometimes you will be asked if the information in the text accurately describes the graphical presentation it accompanies. If not you will have to find the discrepancies between the two.

Use Scientific Terms

Scientific terms are the language of science and are used to communicate complex scientific concepts precisely and concisely. By properly utilizing scientific terminology on the ACT, you can demonstrate your understanding of key scientific concepts and increase your chances of success on the Science section of the exam. Additionally, mastering scientific terminology can help prepare you for success in future science classes and scientific careers.

To utilize scientific terms successfully, it is important to understand their **definitions** and the **scientific concept they relate to**. It is also vital to understand **how to appropriately use** the terms; throwing around jargon incorrectly to appear knowledgeable is counterproductive.

Understand Changes in Variables

Understanding changes in variables in a data presentation is an invaluable scientific skill that allows you to gain a deeper understanding of relationships between the presented data.

- The first step is looking at the **variables** being measured and the **scales** of their axes. This will give you an idea of the measurements' significance and range. A variable is a factor or quantity that can vary or change within a study, experiment, or observation.
- Next, look for **changes in the measurements** to identify trends or patterns. This will allow you to establish potential relationships between the variables.
- Once you understand how the variables relate to one another, you can draw **conclusions** and predict future **trends**.

Compare and Combine Data

Comparing and combining data is essential for gaining a deeper understanding of scientific concepts. By **comparing** data from different sources or experiments, you can identify patterns and relationships that may not be apparent from a single source of data. Additionally, by **combining** data from multiple sources, you can increase the accuracy and reliability of your results and draw more robust conclusions about the scientific concepts being studied.

Construct a Graphic from Information

Creating a graphic requires a thorough understanding of the information being presented, as well as the ability to choose an **appropriate format**, **organize** the data, and **design** a visually appealing representation. By mastering these skills, you will be able to effectively communicate scientific information.

Categorize Data

Categorization involves grouping data based on certain criteria or characteristics and can be useful for identifying trends and making predictions about future outcomes.

To categorize data effectively, it is important to clearly understand the **types of data** being collected and to identify appropriate categories based on the **research question or hypothesis** being tested. Categorization can be done using various methods, including sorting, ranking, and clustering.

In the ACT Science section, you will be presented with questions that require the categorization and analysis of data sets. To prepare for this section, it is important to practice identifying patterns in data, categorizing data using appropriate criteria, and analyzing the resulting categories to draw meaningful conclusions.

Interpolation

Interpolation is an important technique used in the categorization of scientific data. Interpolation involves **estimating values of a variable** within a range of known data points based on the pattern or trend observed in the data. This technique is particularly useful when working with **continuous data**, such as temperature or pressure, and can be used to estimate values between data points to fill in the missing information.

Extrapolation

Extrapolation, on the other hand, involves using data to estimate values outside the range of known data points. This technique can be useful for making predictions about **future outcomes** or for identifying trends over time. However, it is important to **use caution** when extrapolating data, as it can be difficult to accurately predict values outside of the observed range.

Mathematical Relationships

Mathematical relationships can be expressed in various forms, including equations, graphs, and tables. Understanding these relationships is important for making predictions and drawing conclusions based on scientific data.

To succeed in this section, it is important to have a strong understanding of mathematical concepts such as **algebra**, **geometry**, and **trigonometry** as well as the ability to apply these concepts to scientific problems. You should also be able to interpret mathematical models and recognize when a mathematical model is appropriate for representing a scientific phenomenon.

Use Additional Information

In scientific research, new information can often change the interpretation or significance of previously collected data. Therefore, it is important to be able to evaluate and incorporate new information into scientific analysis.

You may be presented with scientific data that requires incorporating new information to analyze or interpret. To prepare for this section, it is important to practice analyzing and interpreting scientific data in the context of new information and to be able to evaluate the **reliability** and **relevance** of sources of information.