Advisory ACT Prep Science

Overview of the ACT

1. English—45 minutes
   - 75 questions
2. Math—60 minutes
   - 60 questions
3. Reading—35 minutes
   - 40 questions
4. Science Reasoning—35 minutes
   - 40 questions

What's on the ACT Science Test?

40 Questions; **35 minutes**

There are 3 types of passages:

- **Data Representation: (chart/table) Usually 2 passages** – consist of a few figures, graphs, or charts to analyze without accompanying experiment descriptions.
- **Research Summaries: (experiment) Usually 3 passages**- provide descriptions of one or more related experiments or studies conducted by hypothetical scientists or science students. Students are asked to to understand, evaluate, and interpret the design and procedures of the experiments and analyze the results.
- **Conflicting Viewpoints: (Dualing Scientists) Usually 1 passage**- This passage typically presents two (although sometimes three) alternative viewpoints, hypotheses or theories on a specific scientific phenomenon. Your job is to notice all the similarities and differences between the viewpoints and answer the questions that follow. These questions might ask you to determine which scientists or theories would agree with a certain point, determine how a certain point might strengthen or weaken the different hypotheses, or how new information might affect the viewpoints.

What skills does the science section test?

- The test includes **very little science content**. Only about 4 questions refer to actual science content knowledge.
- Your ability to **read and interpret graphs, charts, and data.**
- Knowledge of **scientific method and data collection**.
- Your **reading skills.**

Time Management

- Pace yourself.
- Use 5 minutes for each of the first 3 passages you complete (these should be your strongest areas) leaving 6+ minutes for each of the other passages.
- Don’t leave any question blank!

Two primary goals when preparing for the Science section:

- Find out your strongest and, more importantly, weakest passage type.
- Develop methods to maximize your score for each type.

Read the Science instructions on page 38.

Step 1: Identify the type of passage

Data Passages

- More figures than the other two passage types and a short 1-2 paragraph passage
- Multiple charts, tables, graphs, and diagrams

Research Summaries (Experiments)

- Tend to contain more text, consisting largely of descriptions of multiple experimental procedures and often feature their own graphs or tables filled with results.
- Look for labels or headings like Experiment 1, Experiment 2, etc.

Conflicting Viewpoints

- An introductory paragraph that defines key terms and provides background information about the phenomenon
- Contain accounts of two or more competing theories/hypotheses on a particular phenomenon, typically featuring more text and fewer figures than the other two passage types.
- Individually labeled viewpoints (often a “scientist” or “student” with a 1-2 paragraph theory to explain the phenomenon.

Identify each type of passage on the practice test.

Passage types – check your work!

- Passage I **Data**
- Passage II **Research Summaries (Experiments)**
- Passage III **Research Summaries (Experiments)**
- Passage IV **Research Summaries (Experiments)**
- Passage V **Conflicting Viewpoints**
- Passage VI **Data**

Step 2: Analyze

Tips for Analyzing Data Passages

Most students find these passages easiest and begin with these.

1. Identify features of figures (headings, units, axis labels, legends etc.)
   - Remember that the independent variable is always on the x-axis and the dependent variable is always on the y-axis
   - Circle relevant data in the figures.
   - Look for relationships (linear, exponential, etc.)
2. Skim the explanation. (OR skip it and come back to it when needed.)
   - Use the answer choices to help guide you through the charts/graphs.
   - You can generally save time by simply reading the question first and then look at the visual (Ex: graph, chart) the question is referring to.
   - Pay close attention when questions say “using table 2” or similar language.

Step 2: Analyze
Tips for Analyzing Research Summaries (Experiment) Passages:

- *Most students find these passages second easiest. Consider doing them second.*
- Do NOT spend time trying to understand or analyze everything!
- DO look for the central idea, underline key words, locate units of measurement, look for trends, identify hypotheses, variables and the control group.

Step 2: Analyze
Tips for Analyzing Research Summaries (Experiment) Passages:

- Reading strategies
  - Skip the passage and read the question first. Try to answer the questions by only using the visuals first and then skim the passage if needed.

  OR

  - Skim the passage looking for key differences between the experiments then reference back to the details as needed to answer questions.

  OR

  - Read the passage carefully absorbing as much info as possible thereby reducing the number of times you reference back to the reading.

  - Which strategy do you think would work best for you?

Step 2: Analyze
Tips for Analyzing Research Summaries (Experiment) Passages:

- Look at the graph
  - What can be inferred?
    - Line graph? Keep drawing the line—what would happen?
  - What can be determined from the data presented
- Be familiar with experimental design and procedures
  - independent variable, dependent variable, hypotheses, controlled variable/constants and control groups

Step 2: Tips for Analyzing Conflicting Viewpoints Passages:

Most students find these passages the most difficult. Consider saving these for last.

- Conflicting Viewpoints Passages always have the same format
  - Introduction
  - Visual (if there is one)
  - Scientist 1 / Student 1
  - Scientist 2 / Student 2
  - If there are more than 2 Scientists / Students, their paragraphs follow in chronological order.
  - 7 Questions

Tips for Analyzing Conflicting Viewpoints Passages:

- There are 2 types of questions:
  - Understanding Viewpoints Questions – these are questions that refer to a "single scientist". **Do these FIRST**
  - Comparing Viewpoints Questions
- For both types,
  - Make sure you're considering the correct point of view and answering the right question.
  - For fact-finding questions, make sure you're reading the right section for both viewpoints.
  - For deeper logic questions, understand the points of view, then use reasoning to find the answer.

Tips for Analyzing Conflicting Viewpoints Passages:

- **Strategy**
  - Save this passage for **LAST**.
  - **Read the whole passage first.**
  - Write yourself **short margin notes** to remember each viewpoint.
  - Answer the questions using these notes and process of elimination.

Step 3: Examine the question stem, predict, and answer.

A few final Science tips:

- Consider starting with the Data Representation and Research Summaries Passages. Save the Conflicting Viewpoints Passage for last.
- Do not read the instructions! Try to use only visuals to answer questions in Data Representation and Research Summary Passages.
- Use Process of Elimination.
- Make sure you read the right figure and pay attention to labels.
- Do not get caught up in the big science terms.

A few final Science tips:

- Figure out where you are getting stuck and don't do it!
  - Skip if you have spent more than 1.5 minutes on it. Use process of elimination, pick your favorite answer to bubble in, mark it to come back to if you have time.
- Give yourself time to fill in the blanks at the end. Never leave blanks. You are giving up free points!
- Keep your energy up to get the best score! Think positively and have confidence!
- Know your goal! See page 53. How many questions do you need to get right to meet your goal?
- Don't actually study science to improve your score. **Practice** ACT science questions instead and then review why you missed the ones you did ☺ **Understand every mistake!**

If you have questions later, come see us!

https://osact.weebly.com/

English, Reading, Writing

Mrs. Gibbens - Room 604

mgibbensos@olatheschools.org

Mr. Gibbens - Room 215

mdgibbensos@olatheschools.org

Math & Science

Mrs. Hastings – Room 1008

ahastingsos@olatheschools.org