



**AP ENGLISH LANGUAGE AND COMPOSITION**  
**AP EXAM CRAM<sup>®</sup> SPRING 2022**

# CONTENTS

<b>CONTENTS</b>	<b>1</b>
<b>Exam Overview</b>	<b>3</b>
<b>Some Words of Advice...</b>	<b>4</b>
<b>Terms to be Familiar With</b>	<b>5</b>
<b>Rhetoric and Composition...a Brief Review</b>	<b>7</b>
<b>Practice</b>	<b>7</b>
Answers to Practice Problems	8
<b>Satire and Humor</b>	<b>9</b>
<b>Practice</b>	<b>9</b>
Answers to Practice Problems	11
<b>Synthesis of Evidence</b>	<b>11</b>
<b>Practice</b>	<b>12</b>
Answers to Practice Problems	13
<b>Theses and Refining Synthesis</b>	<b>14</b>
<b>Practice</b>	<b>14</b>
Answers to Practice Problems	16
<b>Coherence</b>	<b>16</b>
<b>Practice</b>	<b>17</b>
Answers to Practice Problems	19
<b>Bias, Polemics, and Reliability</b>	<b>19</b>
<b>Practice</b>	<b>20</b>
Answers to Practice Problems	22
<b>Revising to Strengthen Your Work</b>	<b>22</b>
<b>Practice</b>	<b>23</b>
Answers to Practice Problems	25
<b>The Audience, Argument, and Counterargument</b>	<b>25</b>
<b>Practice</b>	<b>26</b>



## EXAM OVERVIEW

### AP English Language and Composition Exam 2021: 3hrs 15mins

*The 2021 administrations of this exam will occur in both digital and traditional pen and paper modalities. The pen and paper format of the exam will only be administered in person, but the new digital version will be administered both in person and remotely, from home. Please be sure you know your exam date and the modality you expect to be administered.*

The AP English Language and Composition Exam assesses students' ability to analyze texts and mastery of a variety of literary concepts and devices, culminating in effective argument development driven by interpretation. The exam will measure your skills in identifying techniques used, in various texts, to persuade an audience, and your own proficiency in crafting a persuasive argument. The exam has only two sections: a multiple-choice section with 45 questions and a 3 question free response section.

### Section I: Multiple-Choice ♦ 45 Questions ♦ 1 hour ♦ 45% of Score

- ❖ This section includes excerpts from various texts accompanied by a number of multiple-choice questions which will ask you to...
  - Read actively and analyze effectively
  - Read to revise: identify possible revisions to a text

### Section II: Free Response ♦ 3 Questions ♦ 2hrs 15min ♦ 55% of Score

- ❖ This section includes two text based written responses and one evidence based response to a provided topic
  - Synthesis: 6-7 sources will be provided, including visual (cartoon, poster, artifact, etc.) and quantitative (data table, graph, chart, etc.) sources, which you will use to develop and synthesize an effective argument. At least 3 of the provided sources *must* be cited in your composition.
  - Rhetorical Analysis: You will read and analyze a provided text, assessing the writer's choices (vocabulary, structure, voice, style, etc.) and the consequence of those decisions on the text's meaning and aim.
  - Argument: Responding to a provided topic, you will craft an argument using evidence to support your claims.

## SOME WORDS OF ADVICE...

### **Read Thoroughly, Write Clearly**

Just as the questions posed to you in the multiple choice sections should be read thoroughly to ensure you know what you are being asked, you must write clearly in the essay section, so that the essay graders can understand your argument. Introduce pertinent information, don't just throw it out there assuming the reader will know what you're arguing. The more concisely you can hone your argument, while still providing the necessary information and context within your essay responses, the better off you are. Read questions thoroughly, more than once if you must, such that you provide the best possible answer. Remember: possible answers may have factual truth in them, but are not the answer of best fit to a given question. Read thoroughly and respond appropriately.

### **Write Argumentatively!**

An argument is exactly that: a defence of a given stance. You must take a position, whether to the affirmative or to the contrary of a given notion. Your prose, mechanics, and grammar may be top notch, but if you've failed to take a stance, you could be in hot water. Citing information from the provided sources can really make your use of evidence a dynamic force in constructing a believable and convincing argument.

### **Take your Time**

Yes it's a timed exam, and no there's not a lot of time to spare, but it will do you wonders to be an efficient time manager. Think about what strategies work best for you. Read the questions before the excerpts if that helps. Outline with as much or as little detail as is helpful to you. You don't want to get caught short on time because you were spending too much time weighing your options for argument synthesis. You can get stuck, but at a certain point, you have to move on. Grammar is not graded very heavily in the writing portion since the course itself is not overly invested in mechanics of written English, but don't allow yourself to view this as a free pass to be negligent with your writing.

### **Think broadly and openly, don't force yourself into a box**

On the written portion it is very easy to rush and find some quotes that sound good and can help you craft an argument. Don't set yourself up to get stuck in a box of static and flat writing, whether it's analytical or argumentative. Think about all the sources at your disposal, all the rhetorical devices, all the perspectives, and the positions. This packet can help guide you through what these devices and terms mean and why they're important, but it's up to you to utilize them to generate thought provoking and effective pieces of writing. A dynamic argument that uses different sources, perspectives, and positions is a more difficult one to make, but always a much more interesting and effective one.



**AP Physics 2**  
**AP EXAM CRAM<sup>®</sup> SPRING 2022**

## CONTENTS

Fluids .....	3
Buoyant Force.....	3
Conservation of Energy in Fluid Flow .....	3
Thermodynamics .....	5
Heat Transfer .....	5
First Law of Thermodynamics.....	5
Second Law of Thermodynamics .....	6
Electric Force, Field, and Potential .....	8
Electric Forces and Fields.....	8
Electric Potential Energy and Potential .....	9
Electric Circuits.....	11
Capacitors.....	11
Ohm's Law.....	11
Kirchhoff.....	12
Magnetism and Electromagnetic Induction .....	14
Right-Hand Rule .....	14
Magnetic flux .....	15
Geometric and Physical Optics .....	17
Waves .....	17
Refraction.....	17
Lenses and Mirrors .....	18
Interference and Diffraction .....	20
Quantum, Atomic and Nuclear Physics.....	22
Mass Energy Equivalence .....	22
Photoelectric Effect .....	22
Bohr's Model of the Atom.....	23
de Broglie.....	23
Answer .....	25

## FLUIDS

**Density:**  $\rho = \frac{m}{V}$ , always measure in  $\text{kg/m}^3$ .

Pressure exerted by a fluid  $P = \frac{F}{A}$  measured in Pa.

## BUOYANT FORCE

Since pressure increases the deeper an object is, the force on the bottom of it will always be larger than the top.

Rather than add up all the forces, just calculate the buoyant force

$$F_b = \rho_{fluid} V_{displaced} g$$

When the buoyant force appears in any FRQ problem, they will always ask for a free body diagram.

## CONSERVATION OF ENERGY IN FLUID FLOW

Bernoulli's principle

Where velocity of a fluid is high, the pressure is low.

Where velocity of a fluid is low, the pressure is high.

$$P_1 + \frac{1}{2} \rho v_1^2 + \rho g y_1 = P_2 + \frac{1}{2} \rho v_2^2 + \rho g y_2 = \text{constant}$$

Conservation of mass flow rate (Continuity of Flow)

Use to find the new flow rate, and only use Bernoulli's if you need to find the pressure.

$$A_1 v_1 = A_2 v_2$$

## PRACTICE PROBLEMS

- I. A sluice at the bottom of a dam has been sealed with a square gate that has a force  $F$  exerted on it by the water in the dam. If the gate is replaced by one that has dimensions that are four times longer than the original, what will be the new force exerted by the water?
  - A.  $F/16$
  - B.  $F/4$
  - C.  $4F$
  - D.  $16F$

2. What percent of a piece of aluminum will be submerged when it floats in mercury?

$$\rho_{Al} = 3 \times 10^3 \text{ kg/m}^3 \text{ and } \rho_{Hg} = 12 \times 10^3 \text{ kg/m}^3$$

- A. 15%
  - B. 20%
  - C. 25%
  - D. 30%
3. How fast does water flow from a hole at the bottom of a very wide 2.5 m deep storage tank filled with water? Ignore viscosity.
- A. 4.9 m/s
  - B. 7 m/s
  - C. 19.6 m/s
  - D. 49 m/s

Questions 4 and 5 refer to the following material,

Water circulates throughout a house in a hot-water heating system. The water is pumped at a speed of 0.5 m/s through a 4.0 cm diameter pipe in the basement under a pressure of 3.0 atm and flows to a 2 cm diameter pipe 5.0 m above.

4. What is the flow speed of water in the upper pipe?
- A. 0.25 m/s
  - B. 0.5 m/s
  - C. 1.0 m/s
  - D. 2.0 m/s
5. What is the pressure in the upper pipe?
- A. 2.5 atm
  - B. 2.6 atm
  - C. 2.7 atm
  - D. 2.8 atm