

The logo for Next Step Test Prep is centered in a blue square. It features the words "Next" and "Step" in a large, white, sans-serif font, stacked vertically. Below them, the words "TEST PREP" are written in a smaller, white, all-caps, sans-serif font.

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PCAT PUBLIC WEBINAR

Today's Agenda

- ▶ **Welcome to Office Hours!**
- ▶ **Introduction**
- ▶ **General PCAT information**
 - ▶ **PCAT structure**
 - ▶ **Practice questions**
 - ▶ **Scoring**
 - ▶ **How to prep**
- ▶ **What Next?**

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Introduction

Hi, I'm Phil!

- ▶ **PCAT Content writer**
 - ▶ **Tutored and taught for 9+ years**
 - ▶ **Score 99th percentile on PCAT**
- ✓ **Next Step is a team of test prep and educational experts committed to excellence.**



Who Is Next Step?

Next
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TEST PREP

- Began in 2009 as a tutoring company
- Focus on graduate admissions tests only
- Team of educational experts
- Helped over 50,000 students in Pre-Health admissions preparation



✓ **We never stop improving our materials!**

STUDENTS HAVE A CHOICE

Introduction to PCAT Webinars

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Thanks for coming to today's webinar!

These sessions are meant to be:

- ▶ Interactive
- ▶ PCAT-focused

✓ **Think of a question after the webinar?**
Post in our forums at forum-nextsteptestprep.com

Getting Started:

If you have any questions, use the question box!

PCAT structure

5 parts to the test:

Topics	Time
Writing	30 min
Biological Processes	45 min
Chemical Processes	45 min
BREAK	15 min
Critical reading	50 min
Quantitative reasoning	50 min

We will go through each of these along with example questions.

Writing section

Writing section is scored on a range from 1-6. Prompt will be a problem on:

- ▶ Health issues
- ▶ Science issues
- ▶ Social, cultural, political issues

Examples:

According to the World Wildlife Federation, many creatures are at risk of extinction due to decades of habitat loss. Discuss a solution to the problem of protecting endangered wildlife.

Aging populations and growing shortages of organ donor supplies result in thousands of deaths each year. Discuss a solution to the problems resulting from insufficient supplies of donated human organs.

Modern workers get much less exercise than their historical counterparts. Discuss a possible solution to this problem.

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End Section

Biological Processes

Topics include:

- ▶ **General Biology**
 - ▶ Cell and molecular
 - ▶ Genetics
 - ▶ Health
- ▶ **Microbiology**
 - ▶ Microorganisms
 - ▶ Immunity
 - ▶ Infectious diseases
- ▶ **Anatomy and Physiology**
 - ▶ Structure (cells/tissues/organs)
 - ▶ Systems

Biological Processes

Biological Processes Objectives	
B1. General Biology	B2. Microbiology
A. Cellular and Molecular Biology <ol style="list-style-type: none">1. Structure and functions of cells2. Gene expression3. Cell division and growth4. Energy transformations5. Metabolism	A. Microorganisms B. Infectious Diseases & Prevention C. Microbial Ecology D. Medical Microbiology E. Immunity
B. Diversity of Life Forms <ol style="list-style-type: none">1. Genetics	B3. Human Anatomy and Physiology
F. Health <ol style="list-style-type: none">1. Nutrition2. Diseases3. Drugs	A. Structure <ol style="list-style-type: none">1. Cells2. Tissues3. Organs B. Systems <ol style="list-style-type: none">1. Skeletal/muscular/nervous2. Circulatory/respiratory3. Excretory/digestive4. Endocrine/reproductive5. Integumentary/immune

Calculator

Mark for Review

Cyclins

Cyclin-dependent kinases (CDKs) are a class of enzymes with many important functions. The role of CDKs in the regulation of the cell cycle in eukaryotes has been widely studied. As their name suggests, CDKs are dependent on proteins called cyclins as activators. Cyclins are so named because their concentrations vary in a cyclic fashion throughout the stages of the cell cycle. At the end of each phase of the cell cycle, certain cyclins are found at higher concentrations and activate CDKs in order for the cell cycle to progress. Figure 1 shows a graph of the concentrations of different cyclins in a human cell.



Question for "Cyclins"

Mutations in the gene encoding which of the following proteins would most likely cause cancer?

- A. Cyclin B
- B. CDK7
- C. Cyclin H
- D. p53

Review Questions

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Calculator

Mark for Review 

Which of these processes occurs in the nucleolus?

- A. Transcription of genes that code for ribosomal components
- B. Compaction of DNA that is not actively being transcribed
- C. Translation of proteins that function in the nucleus
- D. Transcription of genes that code for histone proteins

Review Questions

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Chemical Processes

Topics include:

- ▶ **General Chemistry**
 - ▶ Atomic theory
 - ▶ Bonding
 - ▶ Reactions
 - ▶ Kinetics
 - ▶ Solutions
- ▶ **Organic Chemistry**
 - ▶ Structures and properties
 - ▶ Reactions
- ▶ **Basic Biochemistry**

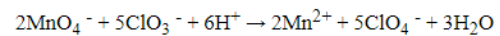
Chemical Processes

Chemical Processes Objectives	
C2. General Chemistry	C3. Organic Chemistry
A. Atomic Theory <ol style="list-style-type: none">1. Structure2. Ions3. Periodicity	A. Structure and Properties <ol style="list-style-type: none">1. Structural formulas and bonding2. Properties of organic compounds
B. Chemical Bonding <ol style="list-style-type: none">1. Nomenclature/formulas2. Bonding	B. Reactions of Organic Compounds <ol style="list-style-type: none">1. Oxidation–reduction reactions2. Hydration and dehydration3. Hydrolysis4. Addition/substitution/elimination
C. Reactions and Reaction Mechanisms <ol style="list-style-type: none">1. Types of reactions2. Balancing equations3. Equilibrium4. Stoichiometry	C4. Basic Biochemistry Processes
D. Kinetic Theory <ol style="list-style-type: none">1. States of matter2. Gas laws3. Causes and effects of changes in states	A. DNA and RNA
E. Solutions <ol style="list-style-type: none">1. Concentration (pH)2. Solubility3. Acid–base theories	B. Lipids
G. Nuclear Chemistry: Radioisotopes	C. Proteins

Calculator

Mark for Review

Given the following experimental data, what is the rate law for the following reaction?



Exp #	[MnO ₄ ⁻]	[ClO ₃ ⁻]	[H ⁺]	Rate
1	0.10 M	0.10 M	0.10 M	5.1×10^{-3}
2	0.20 M	0.10 M	0.10 M	1.0×10^{-2}
3	0.10 M	0.30 M	0.10 M	4.5×10^{-2}
4	0.10 M	0.30 M	0.20 M	9.1×10^{-2}

- A. rate = $k[\text{MnO}_4^-][\text{ClO}_3^-][\text{H}^+]^2$
- B. rate = $k[\text{MnO}_4^-][\text{ClO}_3^-]^3[\text{H}^+]^2$
- C. rate = $k[\text{MnO}_4^-][\text{ClO}_3^-]^2[\text{H}^+]$
- D. rate = $k[\text{MnO}_4^-]^2[\text{ClO}_3^-]^3[\text{H}^+]^2$

Review Questions

Periodic Table

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Critical Reading

Topics include:

- ▶ **Comprehension**
- ▶ **Analysis**
- ▶ **Evaluation**

Critical Reading

Critical Reading Content Objectives
R1. Comprehension (recognition, understanding)
A. Words in Context (defining a term used in the passage)
B. Main Ideas (identifying or inferring the main idea of a paragraph or group of paragraphs)
C. Supporting Details (identifying facts or ideas explicitly stated in the passage)
D. Drawing Conclusions (making inferences from statements in the passage)
R2. Analysis (inference, interpretation)
A. Relationships Between Ideas (identifying relationships between ideas in different parts of a paragraph or in different paragraphs)
B. Author's Purpose (inferring the author's purpose for writing the entire passage or for including a statement in part of the passage)
C. Author's Tone (inferring author's attitude in the entire passage or in a specific statement in part of the passage)
D. Facts/Opinions (distinguishing between statements of fact and expressions of opinion)
E. Rhetorical Strategies (identifying methods used by the author for effect, to persuade, or to make a point)
R3. Evaluation (reasoned judgment)
A. Bias (inferring author's viewpoint, preference, or position in entire passage or in a specific statement in part of the passage)
B. Support in an Argument (evaluating the effectiveness of elements of support used by the author in the passage)
C. Author's Conclusion/Thesis (identifying or inferring the author's overall point in the passage, or evaluating how well the author's overall point follows from the support provided)

Passage 1

Sociologists have long been keenly interested in group dynamics. Collecting data on group behavior is thought to shed light on some internal dynamics of the group or groups in question. In order to analyze such data, researchers employ categorization to divide group members into subgroups.

A recent study examined pizza delivery drivers. An interesting aspect of this group has to do with dangers of their work, such as risky driving and violent attacks. The study tracked the number of attacks and traffic accidents that the drivers experienced during the research period. However, it also delved deeper – it studied the social interactions that the drivers had with each other in and out of work.

Within this category, the scientists identified five subcategories into which they divided the drivers. One category, dubbed “comedians,” attempted to use humor to diffuse the reality of the risks that they faced. A second category of “adventurers” actually pursued dangerous situations. A third category, “deniers,” acted as though the risks were nonexistent or exaggerated. A fourth category, characterized as “fatalists,” accepted the risks and dangers of the job without any attempt to neutralize them using the coping skills seen in some of the other groups. Finally, a category of “pros” had been in this particular line of work for a long time, and often had resumes of extensive length.

One questionable choice was the characterization of the five groups as exclusive. Other experts in social science or the humanities may feel that human beings are so complex that they defy easy categorization. In the study in question, for example, the authors did not allow for the possibility that those in the “fatalist” group, who accepted the risks of their job, might also belong to the “adventurer” group, who also made no attempt to lessen possible anxiety about risks. Additionally, some of the “comedians” who made jokes about the dangers ahead might also have been “adventurers,” who embraced risky situations. And what about the subjects who might have denied the risks, but used comedy to do so?

As another example of the risks inherent in trying to pigeonhole observed subjects, consider the pre-existing sociological categories known as “primary group” and “secondary group.” Characteristics of a primary group include being generally small, having a relatively long period of interaction, face-to-face association, some emotional depth, and friendly behavior. Pizza delivery drivers – who seem like a small group if one only includes those who interact within the same company, who see each other both on the job and after work, who associate face-to-face, and who could be expected to be on friendly terms – could certainly be characterized as a primary group. But arguments for characterizing them as a secondary group might be almost as strong, or more so – the drivers might socialize with a larger group encompassing multiple companies, creating superficial relationships that avoid social intimacy by “putting on airs” that hide their true feelings. Yet many researchers would not publish a study without firmly identifying this group as either one or the other, either primary or secondary.

What might be a possible counterargument to the author’s implication that the researchers have put together a flawed scheme for analyzing the data they collected?

- A. The researchers who designed the study allowed for the possibility that pizza delivery drivers could represent either a “primary group” or a “secondary group.”
- B. Sociological practice has been applied in this way for decades.
- C. The definition of “adventurers” used in the study would seem to exclude those who need coping mechanisms to diffuse anxiety about risk.
- D. The definition of “adventurers” used in the study would seem to exclude those who deny the reality of the risks they face.

Quantitative Reasoning

Quantitative Reasoning Content Objectives
Q1. Basic Math
A. Fractions, Percentages, & Decimals
B. Unit Conversions
C. Log Base 10
Q3. Algebra
G. Expressions, Equations, and Inequalities <ol style="list-style-type: none">1. Evaluate algebraic expressions for given values2. Represent verbal quantitative situations as algebraic expressions or equations3. Solve problems using linear equations and inequalities4. Solve problems using equations and inequalities involving absolute value5. Solve problems using equations and inequalities involving rational expressions6. Solve quadratic equations and inequalities7. Solve equations and inequalities involving 1 or 2 radicals8. Solve systems of equations or inequalities involving 2 or 3 variables
I. Functions <ol style="list-style-type: none">1. Perform algebraic operations on functions2. Determine compositions of functions3. Determine inverses of functions4. Determine and use maximum and minimum points
Q4. Probability & Statistics
A. Measures of Central Tendency
B. Variation
C. Graphical
D. Probability
E. Statistical Concepts

Of all the sections of the PCAT, timing is crucial here.

Quantitative Reasoning Content Objectives (continued)

Q5. Precalculus
A. Functions <ol style="list-style-type: none">1. Graph and identify domains, ranges, intercepts, and zeros of exponential functions2. Logarithms (natural or other base with multiple operations)3. Solve problems related to exponential and logarithmic functions4. Graph and identify domains, ranges, intercepts, zeros, and inverses of the circular functions5. Perform algebraic operations on functions6. Identify and use composite functions
B. Complex Numbers
C. Vectors <ol style="list-style-type: none">1. Add vectors graphically and algebraically2. Perform scalar multiplications3. Represent and/or recognize vector equations of lines and planes
Q6. Calculus
A. Limits (Find: Limits of functions, One-sided limits, Infinite limits)
B. Continuity (Interpret graphs of continuous and discontinuous functions)
C. Derivatives <ol style="list-style-type: none">1. Find derivatives of algebraic functions by means of the Sum and product, Power rule, apply the Mean Value Theorem2. Use the Chain Rule to find derivatives of composite functions3. Solve problems by differentiation (e.g., velocity and acceleration)4. Use and/or interpret derivative tests to find extrema, points of inflection, intervals5. Interpret and/or use the derivatives of circular functions and their inverses6. Interpret and/or use the derivatives of transcendental functions7. Determine the derivatives of composite functions involving the circular and transcendental functions8. Use implicit differentiation9. Determine related rates
D. Integrals <ol style="list-style-type: none">1. Find antiderivatives, and interpret C2. Understand and use sigma notation for simplifying sums3. Approximate areas bounded by curves
E. Integration

Calculator

Mark for Review 

Simplify the following:

$$3\log(4\sqrt[3]{y}) - 2\log 4x^2$$

- A. $\log \frac{y}{x^4}$
- B. $\log \frac{4y}{x^4}$
- C. $\log(4\sqrt[3]{y} - 4x^2)$
- D. $\log(16x^2y^{1/3})$

Review Questions

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Calculator

Mark for Review 

Two men are pulling on an object simultaneously in different directions, causing it to move. The vector for movement can be expressed as 14.2 m/s and 7.1 m/s in the north and west directions, respectively. If the magnitude of each vector is increased to 28.4 m/s and 14.2 m/s, then how has the speed of the object changed?

- A. One-quarter of the speed of the original vector
- B. Two times the speed of the original vector
- C. Four times the speed of the original vector
- D. Eight times the speed of the original vector

Review Questions

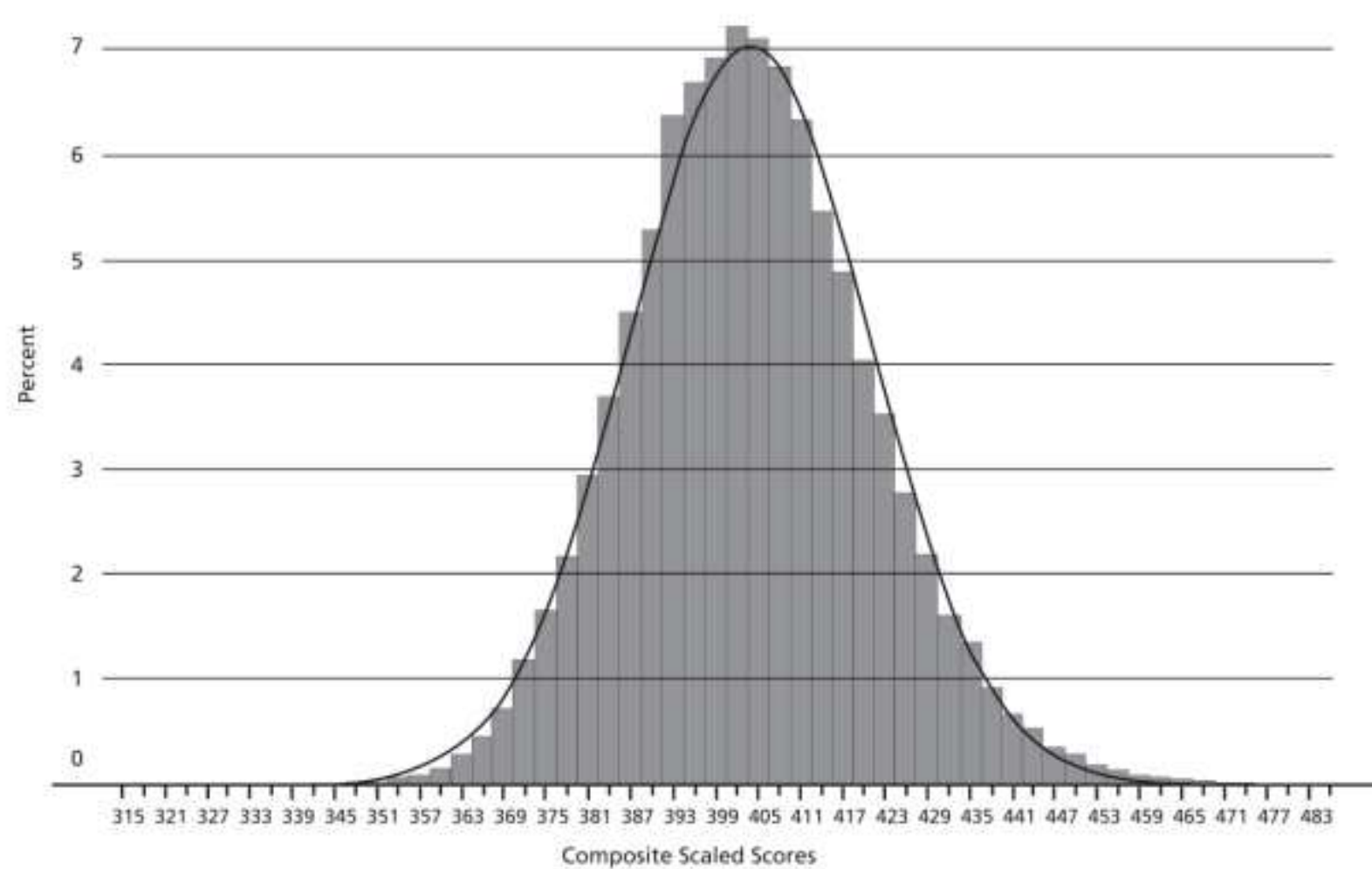
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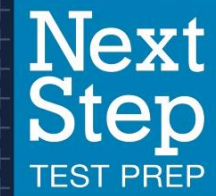
Scoring

You will get a:

- ▶ Writing score (1-6)
- ▶ Scaled score (200-600) and percentile score for each of the other sections
- ▶ A composite scaled and percentage score



Scoring



You will get a:

- ▶ **Writing score (1-6)**
- ▶ **Scaled score and percentile score for each of the other sections**
- ▶ **A composite scaled and percentage score**

Test Date: July 18, 2016

Multiple-Choice	SS	PR
Biological Processes	405	49
Critical Reading	405	62
Quantitative Reasoning	400	55
Chemical Processes	415	63
Composite	406	56

Scoring

You will get a:

- ▶ Writing score (1-6)
- ▶ Scaled score and percentile score for each of the other sections
- ▶ A composite scaled and percentage score

Test Date: July 18, 2016

Multiple-Choice	SS	PR
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Q&A

Next Step Core Values

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Educate Daily



Approachability



Authenticity



Professionalism



Ownership

We are dedicated to providing personalized support, advice, and prep options that match each student's individual needs.

2 parts to the PCAT

▶ Content!

- ▶ Know your equations, amino acids, metabolic reactions, organic chemistry rules....
- ▶ What stuff is higher yield?

▶ Application

- ▶ Data interpretation
- ▶ What do I focus on the passages?
- ▶ timing

**We can help
with all of this!**

Students Have a Choice

✓ **Over 50,000 students have used Next Step Test Prep in their prep journey**

- **Always up-to-date content, strategy and tests**
- **Guaranteed Satisfaction**
- **No call center – Academic Managers guide you all the way!**
- **Always updating our content based on announced changes and student feedback**
- **Are ensured the most up-to-date, realistic experience...always**
- **Access to Online Forum for additional live support from fellow students and NSTP Content Team**

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Personalized Options

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- ✓ **No matter your study style, subject expertise, or PCAT goal, Next Step has an option for your personal needs and lifestyle.**
- **Free Practice Bundle Materials**
- **Self-Prep Materials and Planning**
- **Guided Online Study with Free Extra Help**
- **One-on-One Tutoring**



One-on-One Tutoring

- ✓ No matter your study style, subject expertise, or PCAT goal, Next Step's Tutoring is personalized for YOU
- Tailored Study Plan
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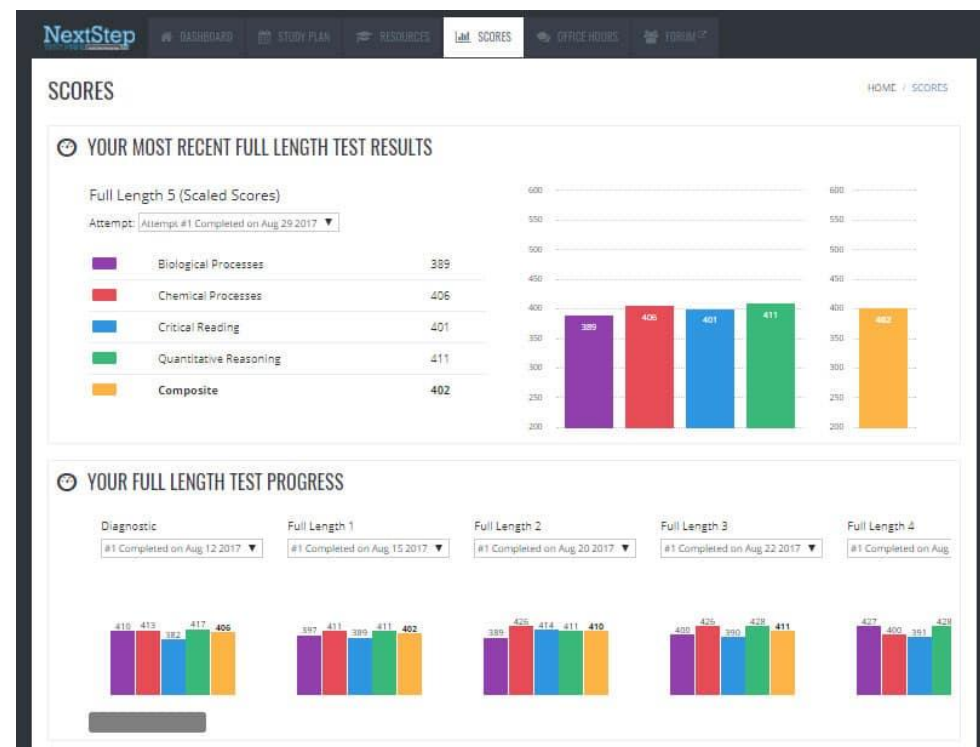


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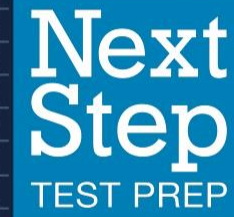
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- PDF Sample: Review Book for Chapters 1-3
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 - Scientific Method and Data Interpretation
 - Quantitative Reasoning: Math Skills I
 - Chemistry: Substitution and Elimination
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Take the Best Next Step



Meet with an Academic Manager and build a strategy

- Discuss what works for you, from self-study to tutoring
- Personalize a Study Plan for YOU
- Plan around your study style and class/work schedule
- Speak with educational pros, not a call center

Attend free webinars

- Download the FREE PCAT BUNDLE and take the Diagnostic
- Take advantage of the free webinars and open Office Hours with a focus on PCAT subject reviews and strategy sessions

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