

PCAT Test Blueprint for 2018–19

PCAT Subtest	Operational Items / Passages	Experimental Items / Passages	Time Allowed
Part 1: Writing	1 Prompt (operational)		30 min.
Part 2: Biological Processes (20–30% of items with passages)	40 Items / 2–3 Passages	8 Items / 2 Passages	45 min.
General Biology	20–22	4	
Microbiology	7–8	1–2	
Anatomy & Physiology	12–13	2–3	
Part 3: Chemical Processes (20–30% of items with passages)	40 Items / 2–3 Passages	8 Items / 2 Passages	45 min.
General Chemistry	20–22	5–6	
Organic Chemistry	12–13	2–3	
Basic Biochemistry Processes	7–8	1–2	
Rest Break			15 min.
Part 4: Critical Reading (20–40% of items with humanities or social science passages)	40 Items / 5 Passages	8 Items / 1 Passage	50 min.
Comprehension	12–13	2–3	
Analysis	15	3–4	
Evaluation	12–13	2–3	
Part 5: Quantitative Reasoning (20–40% of items with stem text set-up)	40	8	50 min.
Basic Math	9–10	1–2	
Algebra	9–10	1–2	
Probability & Statistics	7–8	1–2	
Pre-Calculus	7–8	1–2	
Calculus	5–6	1	
Total Test	160 multiple- choice items + 1 writing prompt	32 multiple- choice items	220 min. = 3 hrs. 40 min. + Rest Break

- For 2016–17, 30% of the core items for Biological Processes and Chemical Processes were associated with passages, 40% of the Critical Reading core items included a passage with humanities or social science content, and 50% of the core items for Quantitative Reasoning contained a scenario-type stem.
- Beginning with the July 2016 administration, the testing platform includes a periodic table for Chemical Processes, and a calculator for Biological Processes, Chemical Processes, and Quantitative Reasoning.
- For the 2018–19 testing cycle, the proportions of core items associated with passages for Biological Processes and Chemical Processes increased to 50%, the Critical Reading core items on a passage with humanities or social science content increased to 55–65%, and the core items for Quantitative Reasoning contain a scenario-type stem remained at least 50%; also, the time limits for Biological Processes, Chemical Processes, and Quantitative Reasoning were increased by 5 minutes each.
- Subtest time limits are reasonable estimates based on analyses of candidate response time data and may change if further analyses suggest that adjustments are necessary.

Part 1: Writing
E2. Problem Solving Writing Prompts
A. Health Issues
B. Science Issues
C. Social, Cultural, & Political Issues

Part 2: Biological Processes (40 Core Items)	Number of Core Items
B1. General Biology	20–22
A. Cellular and Molecular Biology	5–7
1. Structure and function of cells	1–2
2. Gene expression	1–2
3. Cell division and growth	1–2
4. Energy transformations	1–2
5. Metabolism	1–2
B. Diversity of Life Forms	4–6
1. Genetics	4–6
F. Health	6–8
1. Nutrition	2–3
2. Diseases	2–3
3. Drugs	2–3
B2. Microbiology	7–8
A. Microorganisms	1–2
B. Infectious Diseases & Prevention	1–2
C. Microbial Ecology	1–2
D. Medical Microbiology	1–2
E. Immunity	1–2
B3. Human Anatomy and Physiology	12–13
A. Structure	4–6
1. Cells	1–2
2. Tissues	1–2
3. Organs	1–2
B. Systems	6–8
1. Skeletal/Muscular/Nervous	1–2
2. Circulatory/Respiratory	1–2
3. Excretory/Digestive	1–2
4. Endocrine/Reproductive	1–2
5. Integumentary/Immune	1–2

Part 3: Chemical Processes (40 Core items)	Number of Core Items
C2. General Chemistry	20–22
A. Atomic Theory	3–4
1. Structure	0–1
2. Ions	0–1
3. Periodicity	1–2
B. Chemical Bonding	3–4
1. Nomenclature/formulas	1–2
2. Bonding	1–2
C. Reactions and Reaction Mechanisms	6–7
1. Types of Reactions	2–3
2. Balancing Equations	0–1
3. Equilibrium	0–1
4. Stoichiometry	1–2
D. Kinetic Theory	3–4
1. States of matter	1–2
2. Gas laws	1–2
3. Causes and effects of changes in states	1–2
E. Solutions	3–4
1. Concentration (pH)	1–2
2. Solubility	1–2
3. Acid base theories	1–2
G. Nuclear Chemistry: Radioisotopes	1–2
C3. Organic Chemistry	12–13
A. Structure and Properties	6–7
1. Structural formulas and bonding	2–4
2. Properties of organic compounds	2–4
B. Reactions of Organic Compounds	6–7
1. Oxidation-reduction reactions	1–2
2. Hydration and dehydration	1–2
3. Hydrolysis	1–2
4. Addition/substitution/elimination	1–2
C4. Basic Biochemistry Processes	7–8
A. DNA and RNA	2–3
B. Lipids	2–3
C. Proteins	2–3

Part 4: Critical Reading (40 Core items / 5 passages)	Number of Core Items
R1. Comprehension	12–13
A. Words in Context	2–4
B. Main Ideas	2–4
C. Supporting Details	2–4
D. Drawing Conclusions	2–4
R2. Analysis	15
A. Relationship Between Ideas	2–4
B. Author’s Purpose	2–4
C. Author’s tone	2–4
D. Facts/Opinions	2–4
E. Rhetorical Strategies	2–4
R3. Evaluation	12–13
A. Bias	2–5
B. Support in an Argument	2–5
C. Author’s Conclusion/Thesis	2–5

Critical Reading Passage Content Areas
H. Humanities
1. Art (visual, performance, or media; modern, medieval, classical, or ancient)
2. Language and Literature (English or other language; modern, medieval, or classical)
3. History (U.S. or world; modern, medieval, classical, or ancient)
4. Philosophy (western or eastern; modern, medieval, classical, or ancient)
N. Natural Science
1. Applied Sciences and Technology (public health, medicine, pharmacy, technology, etc.)
2. Basic Sciences (basic sciences of biology, chemistry, physics, astronomy, etc.)
S. Social Science
1. Anthropology/Linguistics (cultural, biological, archeological, linguistic, etc.)
2. Economics/Law/Political Science (any)
3. Psychology (behavioral, developmental, evolutionary, personality, educational, etc.)
4. Sociology (general, political, medical, criminology, demography, etc.)

Part 5: Quantitative Reasoning (40 Core items)	Number of Core Items
Q1. Basic Math	9–10
A. Fractions, Percentages, & Decimals	2–3
B. Unit Conversions	2–3
C. Log base 10 (or other base without multiple operations)	2–3
D. Ratios	2–3
Q3. Algebra	9–10
G. Expressions, equations, and inequalities	5–6
1. Evaluate algebraic expressions for given values	0–1
2. Represent verbal quantitative situations as algebraic expressions or equations	0–1
3. Solve problems using linear equations and inequalities	0–1
4. Solve problems using equations and inequalities involving absolute value	0–1
5. Solve problems using equations and inequalities involving rational expressions	0–1
6. Solve quadratic equations and inequalities	0–1
7. Solve equations and inequalities involving 1 or 2 radicals	0–1
8. Solve systems of equations or inequalities involving 2 or 3 variables	0–1
I. Functions	3–4
1. Perform algebraic operations on functions	0–1
2. Determine compositions of functions	0–1
3. Determine inverses of functions	0–1
4. Determine and use maximum and minimum points	0–1
Q4. Probability & Statistics	7–8
A. Measure of central tendency	1–3
B. Variation	0–1
C. Graphical	1–3
D. Probability	0–1
E. Statistical Concepts	0–1

Part 5: Quantitative Reasoning (continued)	Number of Core Items
Q5. Precalculus	7–8
A. Functions	4–5
1. Graph and identify domains, ranges, intercepts, and zeros of exponential functions	0–1
2. Logarithms (natural or other base with multiple operations)	1
3. Solve problems related to exponential and logarithmic functions	1
4. Graph and identify domains, ranges, intercepts, zeros, and inverses of the circular functions	0–1
5. Perform algebraic operations on functions	0–1
6. Identify and use composite functions	0–1
B. Complex numbers	0–1
C. Vectors	1–2
1. Add vectors graphically and algebraically	0–1
2. Perform scalar multiplications	0–1
3. Represent and/or recognize vector equations of lines and planes	0–1
Q6. Calculus	5–6
A. Limits (Find: Limits of functions, One-sided limits, Infinite limits)	0–1
B. Continuity (Interpret graphs of continuous and discontinuous functions)	0–1
C. Derivatives	3–4
1. Find derivatives of algebraic functions by means of the Sum and product, Power rule, apply the Mean Value Theorem	0–1
2. Use the Chain Rule to find derivatives of composite functions	0–1
3. Solve problems by differentiation; e.g. velocity and acceleration	0–1
4. Use and/or interpret derivative tests to find extrema, points of inflection, intervals	0–1
5. Interpret and/or use the derivatives of circular functions and their inverses	0–1
6. Interpret and/or use the derivatives of transcendental functions	0–1
7. Determine the derivatives of composite functions involving the circular and transcendental functions	0–1
8. Use implicit differentiation	0–1
9. Determine related rates	0–1
D. Integrals	1
1. Find anti-derivatives, and interpret C	0–1
2. Understand and use sigma notation for simplifying sums	0–1
3. Approximate areas bounded by curves	0–1
E. Integration	0–1