Recommended Resources:

	Chemistry and Physics	CARS	Biology and Biochem	Psychology & Sociology
Excellent (Assume that all official AAMC materials are Excellent and **necessary** for subject area, with exception to pre-2015 science question packs)	UWorld The Berkeley Review General Chemistry and Physics books (content and passages) ExamKrackers end-of-chapter 30 min passages & full-lengths Altius full-lengths NextStep full-lengths	The Princeton Review Verbal Reasoning Workbook and other Princeton CARS passages Khan Academy CARS passages	UWorld ExamKrackers end-of-chapter 30 min passages & full-lengths Altius full-lengths NextStep full-lengths Kaplan biology and biochemistry content books	Khan Academy Psych/Soc Passages, Videos, and reddit notes (see pg.9) UWorld
Very Good	Khan Academy Chem, Orgo, and Physics passages and videos	TestingSolutions' CARS passages and 30-day CARS guide UWorld CARS passages	The Berkeley Review Biology and Biochemistry books (content)	Altius full-lengths NextStep full-lengths
Good	The Berkeley Review Organic Chemistry books (content and passages)	Kaplan CARS Passages	The Berkeley Review passages Khan Academy Bio/Biochem passages and videos	
Extra Reference Texts & Websites	Chem1 Virtual Textbook (http://www.chem1.com/acad/webtext/virtualtextbook.html)	LSAT reading section passages	Molecular Biology of the Cell, by Alberts Lippincott's Illustrated Biochemistry Review	Master Introductory Psychology, by Corayer DSM-5 Pocket Manual The Brain From Top to Bottom (http://thebrain.mcgill.ca/)

Seven Pieces of General Advice

1. Commit 400 hours total as an absolute minimum for MCAT studying.
2. Tackle experimental design passages with this strategy: "How to Approach MCAT Research-based Passages" https://www.youtube.com/watch?v=mcNbOTAQCG8
3. Dedicate roughly 2/3rds of total study time to passage practice and review of those passages, and 1/3rd to rote content review. Bluntly: **do more passage practice**, and do it from the start alongside content review.
4. Use a flashcard app to practice and retain learned information every day.
5. Practice CARS every day.
6. Take a minimum of six practice tests under test day conditions, with all AAMC exams used.
7. Spend time daily to physically and mentally unwind. Meditation is highly useful.

Assume that, unless otherwise indicated, all of the following FAQs are concerned with ONLY third-party resources. Official AAMC prep resources are the most representative under almost all circumstances. The only exception is the *science question packs*, which are derived from the pre-2015 MCAT and are on the easier side. Leave those Qpacks for **last** in your AAMC review. When in doubt and time is of the essence, always prioritize official AAMC practice.

"Where can I find a definitive list of what's on the MCAT?"
https://aamc-orange.global.ssl.fastly.net/production/media/filer_public/f8/bc/f8bcec72-4ac3-4e5a-8c27-631d2096c569/combined_mcat-content_new.pdf. Download it and print it. This is the official AAMC guide you should be constantly referencing, week after week, as a checklist.

"What should be my approach to improve my chances of scoring well?"
As with everything in life, you must be an informed consumer. What you will read below is merely opinion on what brought MCAT success, and what could have been done better. If you are serious about achieving a 528, you must do further research on your own, experiment with resources, and keep your eye out for materials worth trying. The biggest disservice you can do to yourself is to bet on one set of materials alone. Big-name test prep companies bamboozle students by convincing them that their books are the only ones needed. And while some assets are certainly better than others, the hard truth is that no one gets a 528 without using a variety of resources that work best for them. Also, a diversity of good advice is key. Please DO NOT trust our words alone. Study smarter.

"I want to keep it simple for now. What did you feel was the #1 third-party resource?"
UWorld. Most everything is highly representative of the actual exam, down to the digital format. The caveat is that UWorld serves only as a question and passage bank. However, it does have textbook-worthy, comprehensive explanations to right and wrong answer choices.

"Which third-party exams should I use?"
There are three top choices that all, unfortunately, have dubious CARS sections:

1. Altius
2. ExamKrackers
3. NextStep

A few of NextStep's exams plagiarize mildly from AAMC official exams. Granted, these are not present in all NS exams, but the risk of spoiling a single official AAMC passage may be a deal-breaker for some. On the other hand, many successful students swear by NS.

Altius, like NextStep, has exams on par with most AAMC passages both in difficulty and style (save for all of CARS and some of the Psych/Soc). If you have a weakness in C/P or B/B these offer substantial ability to practice and improve. There is an occasional typo or odd question, and a few questions are repeated across later tests.

EK C/P and Bio/Biochem are the hardest out of all three test companies, providing a time challenge that will prepare you for the worst of test day. Psych/Soc and CARS are, however, both unrepresentative. As of early 2018, ExamKrackers still has a cumbersome feature for reviewing tests post-submission where you have to scroll back through the entire test to check answers. No section divisions when reviewing, nor can you organize it based on "incorrect". Also, the user interface is more representative of the 2015-2017 MCAT (long story short: AAMC switched contracts for testing centers in the fourth quarter of 2017, which changed UI slightly. Not a big deal, but Altius and NS have updated UIs and far better presentation as products given the money you pay).

All of the above give hard passages, but they are well-designed *experimental* passages. All three companies offer excellent practice for the hard science sections. None are perfect overall, though, so it comes down to personal preference. Mix and match as funds allow.

"When should I take full lengths, how many full lengths, and in what order?"
Do not waste your time and resources on a cold-turkey diagnostic exam. You're going to do poorly, and doing poorly after consuming 6.5 hrs will make you feel terrible.

Save your first exam for after you've covered 80% of the AAMC content outline. By "covered," that means you've had BOTH independent practice passages and content review of at least 80% of the content in the outline.

The first full length should be AAMC unscored exam. Why? You need to encounter the AAMC style ASAP. Next two exams will be third-party. Your final exams should be the remaining scored AAMC official full lengths. This is a MINIMUM test total recommendation -- six exams in sum. In an ideal world, one should take 8-12 practice tests **under test-day conditions each**

time. It also goes without saying that you should not take the real MCAT until you have completed ALL AAMC practice tests.

There's also some merit to taking more than just one type of third party exam. For example, it would be beneficial to try two ExamKracker tests and two Altius tests to balance out differing styles. From the testimonies of online commenters, many high scorers have used 2-3 different third party test companies for added full length practice.

You can count the AAMC official guide questions as a "half-test" which you can take anytime in the middle of your exam schedule.

Consider saving the science section banks and CARS question packs for after you've taken the first scored AAMC official exam.

"What resources should I use for Chem/Orgo/Physics?"
General Chem, Physics, and Orgo, more so than any other science topics, are best learned through constant practice rather than content review.

For independent practice passages, in this order of usefulness to prep:
1. UWorld
2. The Berkeley Review (Content review for Chem and Orgo is good too)
3. ExamKrackers
4. Khan Academy practice passages

For content, Brooklyn College's assigned Gen Chem textbook and Orgo book are solid. For physics, most has been covered or will be covered in class with exception to fluids and sound. MCAT expects more detail here given their physiological implications, so study them especially in-depth using online resources like Khan Academy in addition to passage practice. Use the AAMC content outline to ensure you have all the expected concepts understood for those two.

A fantastic online reference for General Chem:
http://www.chem1.com/acad/webtext/virtualtextbook.html

"What should I use for CARS?"
Princeton Review's CARS workbook has some of the most accurate CARS that isn't AAMC official. TestingSolutions' passages and questions are especially difficult, but can be very useful if employed strategically. Try Princeton for full-length practice, and TestingSolutions for daily passage practice (e.g. two timed passages consecutively). Khan Academy has official, AAMC-approved passages, but the interface can be irritating. If you search for Jack Westin (a CARS tutor some students like), you can find reformatted Khan Academy CARS practice passages with the AAMC interface. UWorld CARS is effective as well, being harder than KA. If you've exhausted all those resources, forum posters on the internet cite LSAT reading comprehension passages as decent practice at a high volume.

Keep in mind that the official AAMC has a total of 200 CARS question pack questions *in addition* to the practice exams. CARS is the section that most requires a WELL SPREAD study routine. Best to do an absolute minimum of one passage a day, and to review your mistakes thoroughly after, rather than complete one full length CARS practice in one day and do nothing CARS-wise the rest of the week

"What is one way of reviewing CARS?"
As described in Testing Solutions' 30-day guide, when you get a CARS question wrong, you actually make two mistakes:
1. You missed the right answer
2. You picked a wrong answer

There is a pretty simple way to address this. Draw up a T-chart for yourself, and in the top of the left column column label "correct choice" and in the right column label it "wrong choice." For each CARS mistake, reflect upon your MENTALITY during the process of answering the passage questions. This is why you should always review CARS *right after* scoring it.

"What was I thinking or not thinking that caused me to miss the patently correct answer?" *Put that in the left column*.

"What is obviously wrong about the wrong answer I chose that can apply to other wrong answers in the future?" *Put that in the right column*

"How do I approach CARS questions?"
To help improve CARS steadily, it can be beneficial to take a consistent strategy. So first, consider some basic DO NOTS:

- Highlighting is a waste of time. Most critically, it breaks up your focus from the passage, interrupting the "rhythm" of reading. Rhythm is everything in concentration, and makes the difference between panic and insight.
- Reading with the sole intent of getting to the questions as fast as possible is self-destructive. Don't even think about time mid-paragraph; focus on "getting it," understanding the passage fundamentally. The time will be recouped when you grasp the passage well enough to answer comprehension and main idea questions within seconds. The only times you should ever look at the clock are before you start a passage and after you finish it.
- Never factor in outside information into picking the answer to a CARS question. Even for "Reasoning Beyond the Text" style questions, the logic the question expects you to employ is solely the logic of the passage alone. This sounds simple, but it is still a very tempting and common error.
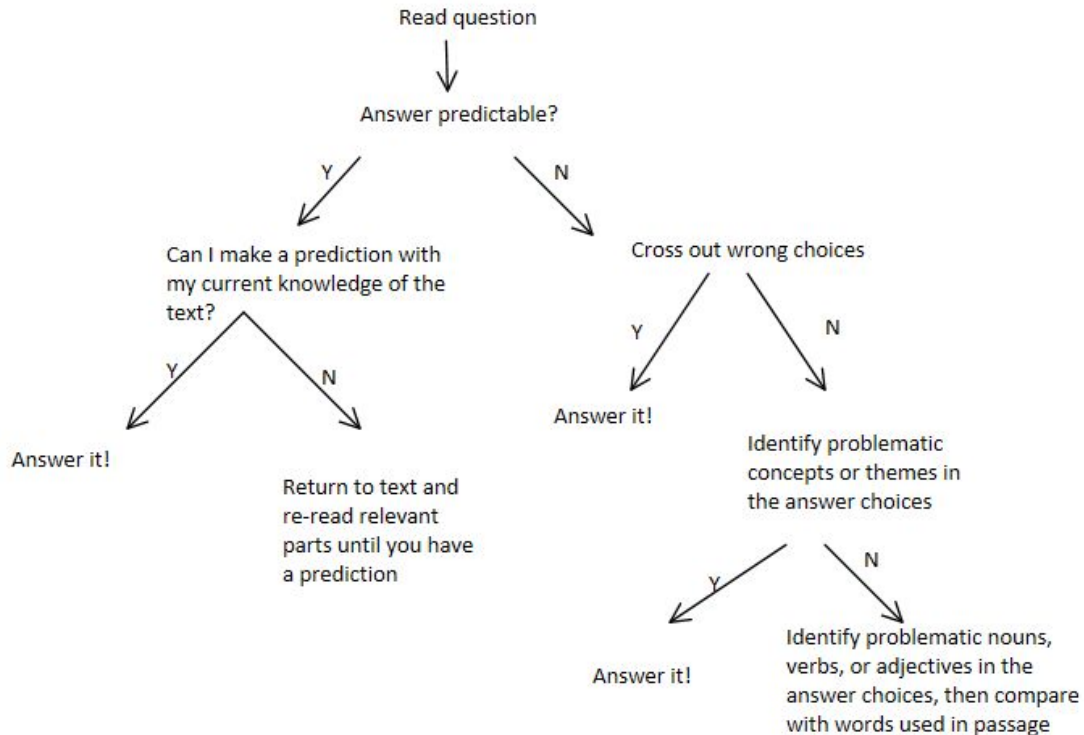
Now, for the DOs:

The most important verb in CARS: PREDICT. For almost every CARS question, the answer is often predictable. How? Simple. You read the passage thoroughly, look at the question being asked, DO NOT LOOK AT THE ANSWER CHOICES, and ask yourself: "What, based on my reading of the text, would be my short-answer response to this question?" After making that prediction, pick the answer choice that most matches what you predict and trust your choice.

The most important noun for CARS: WORDS. For the few questions where predictions are impossible, or you have to split hairs between two choices, engage in a practice awkwardly named *word alignment*. Look at the words of the competing answer choices. Which answer choice contains individual words that are most similar to the words of the passage? Which answer choice contains words that aren't mentioned in the passage, or are potentially contrary to the passage? Often, it makes a difference even to isolate single adjectives to focus upon and perform such analyses individually. This is a last-resort method that should only be employed when predictions and initial conceptual reasoning fail, given that it is so time-consuming.

In sum, here's a **sample** decision-making flowchart that you can use for every CARS question. Be aware that you should create your own diagram when you figure out what works especially well for you:

Read question

↓

Answer predictable?

Y / N

Y branch: Can I make a prediction with my current knowledge of the text?

- Y → Answer it!
- N → Return to text and re-read relevant parts until you have a prediction

N branch: Cross out wrong choices

- Y → Answer it!
- N → Identify problematic concepts or themes in the answer choices
  - Y → Answer it!
  - N → Identify problematic nouns, verbs, or adjectives in the answer choices, then compare with words used in passage

"How do I approach dense passages with elaborate graphs and tables?"
Watch this video: https://www.youtube.com/watch?v=mcNbOTAQCG8, and practice with its strategies. You will be in good shape with that mentality and enough practice.

A few anecdotal additions:
- Use arrows and abbreviations religiously when recording relationships articulated in the passage. For instance, if enzyme 42 activity positively correlated with cancer, write down: "^42 ^cancer"
- Take mental note of the experimental techniques mentioned in the passage. For example, did the experiment use PCR? Why did it use PCR?
- Keep an eye out for the preparations that were made prior to the execution of the actual experiment. For example, what was the composition of the gatorade solution? What was our mouse treated with before being fed radioactive McNuggets? How were participants pre-screened? Think about the procedures.
- Pay attention to the variables and/or parts of experimental design that are kept constant throughout the experiment, and understand why they are constant/controlled.

"What resources do you recommend for general biology?"
Here are third-party resources recommended for non-lab techniques content review:

1. Kaplan Bio book. Weak only in genetics, everything else is very solid. Especially comprehensive physiology review.
2. NCBI "Molecular Biology of the Cell." Open access textbook you can find by searching online. Excellent reference for the harder concepts, and does a good job at explaining genetics more in depth.

Even with bio, practice is well worth it and still higher yield per time invested. Recommended practice passages:

1. UWorld
2. ExamKrackers
3. The Berkeley Review
4. Khan Academy (challenging genetics questions in particular)

"What about laboratory techniques?"
Very high yield. Unfortunately, no test prep company resources cover techniques all that well in depth, so it is best to look up sites and watch videos on the techniques covered in the content guide. If you must use a single source for an overview, ExamKrackers covers lab techniques in a manner that will net you some, but not all, points.

Brooklyn College's recommended Biochemistry textbook covers methods like isoelectric focusing, and provides substantial details for the various "Tools of Biochemistry".

There are also many online resources (e.g. YouTube videos) out there covering the likes of PCR, mass spectrometry, and beyond. Lab techniques are not particularly hard to understand once you find the right video. What matters is making the time to pick apart these techniques sooner rather than later. Again: use the AAMC guide to ensure you research every technique.

"Biochemistry?"
The hardest part of biochem is not the content, but the passages themselves. Biochem passages are among the most dense, dry, and technique-heavy, yet in reality the content tested is all fundamentals. What's involved are basic biochem and pathways, but applied to novel situations. The only way to improve passage-based reasoning? PRACTICE, PRACTICE, PRACTICE. Over time, you will come to see that biochem questions are actually fairly repetitive in style-of-asking and thus among the most desireable of topics to have on test day.

Two high-priority concepts:
1. Memorize all amino acids. Structure, names, properties, letter abbreviations.
2. Learn Michaelis-Menten kinetics formulas, the lineweaver-burk plot, how things change with various types of inhibitors, what the variables mean, and the conditions under which these kinetics rules apply. Don't worry about deriving the formulas. Many online articles and videos cover this topic well. It is worth spending a whole day researching and learning it.

How to handle learning content of metabolic pathways if you aren't taking biochem 2:
● Kaplan biochemistry has a very solid overview that covers most of the core pathway concepts in a clear fashion.
● To absolutely maximize the extent to which you learn the pathways, consider renting "Lippincott's Illustrated Biochemistry Review." The drawings are even better than Kaplan's and allow for quicker learning as a reference.

And of course, third party biochem passage practice:
1. UWorld
2. ExamKrackers
3. The Berkeley Review (Not enough graphs in passages, but some stellar conceptual questions. TBR gained renown as the earliest test prep company to emphasize biochem).

A good video resource for biochem learning is the "AK Lectures" Youtube channel. Purposeful visuals with crisp narration.

"Psych/Sociology has a lot of content. How should I delve in?"
Khan Academy is the gold standard here. Everything from their videos to their practice passages are excellent. Members of reddit r/mcat created a 100 page document and a 300 page document summarizing the contents of said KA videos. People have accomplished 132s

by using either as their primary P/S content source. Here's a link:
https://www.dropbox.com/sh/y4ancipr305f001/AACwrHVVVP9pHEzr2g3_9doxa?dl=0

Other than KA, UWorld and Altius have the best overall practice for psych/soc. ExamKrackers have decent psych/sociology questions on experimental design, but are lacking in good discrete P/S questions. Psych has some of the most obscure and disparate material to be tested on the exam, so for the gaps in content knowledge you'll have to search independently and fill in from the AAMC official content outline itself.

Here are some online resources that you may find useful for concept solidification:
- http://thebrain.mcgill.ca/
- https://www.simplypsychology.org/
- http://www.psywww.com/intropsych/index.html
- http://www.cogsci.ucsd.edu/~pineda/COGS107A/studyguide/COGS107ALocationterminology.pdf
- http://nobaproject.com/browse-content
- https://en.wikipedia.org/wiki/List_of_cognitive_biases
- https://socialresearchmethods.net/
- YouTube channel "PsychExamReview": https://www.youtube.com/channel/UCjbEShquzC7RPDYdzyOIjKQ/featured

KEY NOTE: When looking up psych terms online, make sure you type in EXAMPLES. Go straight to google images and find manifestations of the psych term in question. The MCAT manifests terms through examples, so you should be able to recognize every psych definition based on real-world cases and not textbook definitions.

Here are some added print resources that serve as good references:
- David G Myer's Psychology textbook
- Gazzaniga's Psychology textbook
- DSM-5 Pocket Manual
- Master Introductory Psychology: Complete Edition by Michael Corayer

"How should I plan out my study time?"
It is generally better to spread out study time over an extended period, rather than cramming in more hours per day. 3-6 months is the perfect window for most people. Under 3, and most will be pressed for time. Over 6, and the rate of memory decay will start eating into your studying returns.

You may hear some mythical tales of individuals who studied 8 or more hours every day for only a month. Those people are one of three things, if not all of the above: 1) Underselling how much they actually practiced, 2) Naturally gifted with overwhelming test-taking aptitude, and

3) Exceptionally well prepared by advanced high school or college science courses. Be confident in yourself, but don't mortgage the farm by rushing.

"How do I learn and retain the copious amounts of knowledge?"
Consider the Anki flashcard app. The web app is free, while the phone app costs money but is more than worth it. You can review cards while commuting, eating, using the facilities, waiting in line, etc. That's what makes it great -- you gain study time that would have gone unused otherwise.

In Anki for desktop, you can use a tool called Image Occlusion to cover over parts of images (i.e. body part names, graphs) to test yourself visually. You should also make separate decks based on the MCAT subject area. For example, you can have different decks for chem, physics, bio, biochem, and psych (5 separate decks).

Other people swear by quizlet, so go with that if it fits you better. The point is you need some way to constantly review content and in a manner that identifies your weaknesses. Such apps, with their card-sorting algorithms, accomplish exactly that.

If you are struggling specifically with physics formula memorization, try writing down every physics formula that's MCAT-relevant onto a blank sheet of printer paper. Review that sheet every day and you will not forget those formulas.

Assorted tips:
- ❖ When in doubt, return to the passage. Even in science sections, most answers can in some way be informed by passage information.
- ❖ For math questions in physics and chem, look at the units for the answer choices. Often, the right units give away the right answer.
- ❖ For psych passages, pay close attention to ALL aspects of experimental design. Psych passages are easy to read enough (less technical jargon) that you can and should be more comprehensive in checking off every variable and control, as well as more context-specific factors like how the particular sample was chosen.
- ❖ Keep an eye out for "fishy things" in passages, such as a small or biased sample. All research is susceptible to design flaws, and the MCAT can ask about them.
- ❖ Choose classes that directly pertain to MCAT content areas when possible. For example, human physiology courses will directly improve your knowledge of MCAT-relevant biological systems, saving you time and effort. Research design courses (such as Psychological Statistics and Biostatistics) may also help you become more familiar with critiquing methods and biases in passages.