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logical reasoning basics

In this lesson, we'll start getting to know Logical Reasoning questions, define our goals and our gauges, and chart a path to success. In just a couple of pages, we'll take a look at four questions that will give you a taste of what various Logical Reasoning questions feel like. Then we'll dig a bit deeper into the underlying design of those questions. We'll do this by discussing the priorities of the test writers, and the specific skills that Logical Reasoning questions require. These skills, and the habits required to apply them successfully, will also help us define the goals of our study process.

Next, we'll start discussing specific ways to *gauge* our progress. Whether or not we get a question correct is the most objective and blunt way to gauge comfort level and ability. However, the reality is that in order to get any one Logical Reasoning question correct, we need to do several things well, and a wrong turn at any one point can steer us toward the wrong answer. To get any one question right, we need *many* skills. Thinking about whether we got questions right or wrong does not give us the type of detailed analysis we need to identify and address specific issues. Maybe we are missing a certain type of question because we don't actually understand exactly what the stem is asking for. Or maybe we misunderstand what we are supposed to be looking for in certain incorrect choices. Maybe there is a reasoning flaw that we consistently have trouble seeing. How, exactly, are we supposed to know?

Hopefully, one of the key benefits of this book will be that it helps you develop a clear, simple, and logical sense of what it is exactly that the exam requires of you at each step along the process. We'll get started on that in this lesson. One way we'll do this is by discussing the specific skills and habits that define top scorers. We'll also, both in this lesson and throughout the book, model the real-time performance of a top scorer, so that you can get a sense of his priorities, and so that you can compare and contrast your experience with his.

Having a clear sense of the end goals, having clear markers that tell you that you are fast on your way, and being able to reliably evaluate your performance on a step-by-step level will help keep you in firm control of your study trajectory. It will not, unfortunately, mean that you will automatically improve at a certain pace; it will mean that you know what you are good at, and what you need to work on, and that you'll have a very good sense of what you need to accomplish in order to get where you want to be.

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We will end this lesson by laying out a three-stage plan for conquering the Logical Reasoning section. We'll plan the work to be done at each stage and also discuss how to incorporate these Logical Reasoning lessons with the work you do in LSAC's Lawhub online question bank or printed books.

details, details

basic facts about logical reasoning

Recently, all Logical Reasoning sections have had twenty-five (most common) or twenty-six (less common) questions.

Twenty-five questions in thirty-five minutes works out to about 1:20 per question. However, keep in mind certain questions should take far less time, and others are designed to take more.

Each question consists of a stimulus (or prompt), a question stem, and five answer choices.

The stimulus will typically be two to three sentences in length.

The question types are clearly defined, and their frequencies are fairly consistent test to test. Question types are listed on page 36.

Each question has one clearly correct right answer and four clearly incorrect wrong answers.

In past years, occasionally there would be two questions related to one stimulus, but this trait has disappeared in recent years.

About two thirds of all questions require a subjective approach from the test taker. All of the stimuli for all subjective questions contain arguments—reasons given to justify a point made. For all questions that require us to think critically, our job will be to evaluate the relationship between the conclusion reached and the support for that conclusion.

About one third of all questions require an objective approach from the test taker. These questions require no evaluation of reasoning and are primarily designed to test reading abilities.

Over the course of a section, the difficulty of questions fluctuates according to somewhat consistent and predictable patterns (to be discussed in later lessons).

The average test taker gets anywhere from ten to twelve wrong per twenty-five-question section.

A 170+ test taker will consistently get anywhere from zero to three wrong per twenty-five-question section.

Sample Questions

Below are four Logical Reasoning questions that have appeared on past LSATs. Set a goal of completing all of them in 6 minutes or less, but take a bit more than that if you need to. We'll return to these questions later in this lesson.

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1: PT 36, S 1, Q 4; 2: PT 35, S 1, Q 23; 3: PT 35, S 4, Q 19; 4: PT 35, S 4, Q 23

Logical Reasoning Questions Are Hard

Maybe not for you—maybe you found the four questions on the previous page to be a walk in the park. But keep in mind that, in order to get a 170+ score, you need to consistently be able to get about nine out of every ten of these questions correct, and you need to be able to do so in an extremely time-efficient manner.

Before we go further, let's just vent for a bit about why Logical Reasoning questions can be difficult:

- (1) The stimulus, or statement, contains a significant volume of information—information that seems connected but is also often disorganized. It can be too much information for us to retain all at once.
- (2) This volume of information contains an unusual number of specific details. You can't keep track of them all, but at the same time, it's tough to know which ones are more important, and which ones less so.
- (3) The question stems seem simple enough, but the test writers are actually asking you to do very specific things, and it's tough for you to know, at this point, exactly what they are going for.
- (4) The answer choices are often written in a way that makes it difficult to understand what they actually mean.
- (5) Finally, most of the answer choices are attractive in some way. Most answer choices are such that they could be correct if you thought about the stimulus or your task in a slightly different, slightly incorrect, way.

The worst part of it is that these issues compound one another. If, by the time you get to the answer choices, you have a good but not great understanding of the argument, and a good but not great understanding of the task presented to you in the question stem, it'll be next to impossible for you to anticipate the characteristics of the right and wrong answer choices. Without some sort of compass, your task of selecting the right answer becomes monumentally more difficult. Several answers may look attractive. The question may seem arbitrary, and right and wrong answers somewhat subjective.

How Do Questions Feel for Top Scorers?

They feel hard. However, the difference is that top scorers have the skills and habits necessary to meet the challenges.

Of course, in order to develop these skills and habits, it helps to know exactly what we are up against. Let's take a macro look at exactly what it is that Logical Reasoning questions are designed to test, and discuss how the questions test these issues. We'll return to the questions you've just solved and discuss them in more detail later in this lesson.

Know What Matters

Do you remember first learning how to solve word problems in your elementary school math class? Neither do I, but I do know this: if told a story about adding three dogs to two dogs, some children will naturally think about what types of dogs they are, and others will naturally think about what $3 + 2$ is. Guess which ones will have an easier time learning how to solve word problems.

Logical Reasoning questions are very much like mathematical word problems. The math word problem has within it some specific underlying mathematical issue, and the purpose of the word problem is to gauge your mastery over this issue. To the writer of the word problem, the subject matter and the situation are secondary in importance or, at best, a tool to distract students from the math issues that are important.

Logical Reasoning problems have, buried within them, specific reading and reasoning issues, and the purpose of Logical Reasoning problems is to gauge your mastery over these issues. To the writers of these questions, the subject matter is secondary or, at best, a tool used to distract.

It is, of course, to your advantage to be able to see questions in terms of what is important to the test writers—to be able to see the questions with the “covers off.” If you are consistently able to do so, you will find that the Logical Reasoning section becomes far more understandable and predictable. With that in mind, let’s talk in a basic and fundamental way about the three issues that Logical Reasoning questions are designed to test: your reading ability, your reasoning ability, and your mental discipline.

Logical Reading Questions Test Reading Ability

Reading is fundamental to daily modern human existence—we are all excellent readers, and we all read countless things every day. No standardized exam, certainly not one that only takes a few hours, can gauge something as varied and significant as general reading ability.

Why do I mention that? Because it leads us to something that is really important to understand, something most test takers do not: the LSAT does not test a broad range of reading skills—no standardized test of its type can. The LSAT is designed to gauge very specific reading skills—two such skills, to be exact: your ability to read for reasoning structure, and your ability to understand the correct meaning of words that are used in common reasoning and discussion.

The *reasoning structure* of a statement is simply the relationship among the parts of that statement. We all naturally read for reasoning structure—always. When we see two sentences next to each other, without telling ourselves to, we think about and, in general, easily understand how they are meant to go together.

The writers of Logical Reasoning questions are very interested in gauging exactly how good you are at being able to see how phrases are meant to go together. Most of the time the pieces will come together in order to service an **argument**, which, for the purposes of the LSAT, we can think of simply as a point made and reasons given for that point. If you are consistently able to see arguments clearly, the test writers will offer up reward after reward; for many questions, just seeing the argument clearly is *the* key to making your work far easier and faster.

The LSAT is designed to gauge two specific reading skills: your ability to read for reasoning structure, and your ability to understand the correct meaning of a few commonly used words

An argument consists of a point and reasons given to support that point

We will be discussing reasoning structure quite a bit in both the Logical Reasoning and Reading Comprehension sections. This is because I believe almost anyone can become extremely good at recognizing reasoning structure correctly, and I've seen time and time again that the ability to do so serves as a vital characteristic of all top scorers.

The other reading skill you will be tested on is your ability to correctly understand the meaning of certain words commonly used in general reasoning and discussion, words like *must*, *because of*, *most likely*, *some*, and *or*. We will discuss all of these important terms in depth in future lessons.

As we briefly discussed in the initial lesson, the challenge of these words is that they are words we use every day without thinking, and in real life, even if we don't realize it, they are words that *change* in meaning per the context. If a waitress asks, "Would you like soup or salad?" it's generally rude for you to respond, "Both," but if you see a sign that says, "To get in the movie you must be over 17 or with an adult," you understand that in this instance being *both* over 17 *and* with an adult is perfectly fine.

Lawyers have to be very careful about the exact meaning of words. The LSAT, as you might imagine, requires that you utilize a specific and consistent (that is, *not* contextual) understanding of words—such as *or*—that define specific reasoning relationships. The word *or* on the LSAT has just one meaning, and it does not change whether we are talking about soup or movies. For LSAT problems, it is essential that you pay the most attention to the words that define reasoning relationships, and that you have a specific and consistent understanding of what these words mean.

Many Logical Reasoning questions are about random or little-known subjects, and they often include terminology that you will not be totally comfortable with. But your attitude toward this should be as it would be toward the subjects in a tough math word problem—you should see the challenging topics and terminology as a distraction, not as keys to your success. The test writers don't expect you to know anything about these subjects, and even if you did know something, it wouldn't matter. They don't care how expansive your vocabulary is, and they don't care about your ability to guess at the meanings of words you don't know. The fact that an LSAT question is about some strange philosophical stance or some new scientific theory is of little consequence; going back to elementary school, whether the dogs in question were greyhounds or pink puppies, your focus should be on more important issues.

Logical Reasoning Tests Reasoning Ability

Logical Reasoning questions are also designed to test your reasoning ability—that is, your ability to judge or form an opinion about the information you are given in the stimulus. By far the most important reasoning relationships for us to judge are those that exist between a point and the support given for that point in an argument.

Let's imagine some different ways they could test our ability to evaluate this relationship within arguments. Perhaps they could sometimes give us arguments that are valid—arguments for which the reasoning does justify the conclusion—and sometimes give us arguments that are not valid, and they could test our ability to decipher which ones are valid and which ones are not. Other questions could be set up much as a case is presented to a jury—we would be given a set of facts, and it would be up to us to determine whether the information proves the conclusion, doesn't prove it, or presents some sort of deadlock.

When we are asked to critically evaluate reasoning in an argument, our job will always be to see why reasons *don't* justify a point

It's important to know that neither of these scenarios actually represent what will be asked of you on the LSAT.

When we are asked to evaluate the reasoning in an argument, it is always in terms of a very specific task: our job is *always* to evaluate and understand why the reasons given *do not* justify the point that is made. For every one of these questions, your understanding of why the support doesn't justify the conclusion will be your primary gauge for evaluating right and wrong answers.

Logical Reasoning problems do not ever require you to differentiate between valid and invalid reasoning within arguments. Instead, they test your ability to see, in a very specific way, why arguments are not valid. If you are good at this, you will be good at solving Logical Reasoning problems.

Logical Reasoning Tests Mental Discipline

We can define mental discipline as the ability to stay focused on the specific task at hand. Success on the LSAT requires extreme mental discipline, and the test is downright cruel to those who don't have it.

In terms of developing mental discipline, we give ourselves a huge head start when we have a clear understanding of the job, and of the best way to achieve it. But mental discipline takes far more than knowing. It requires sticking to that task—focusing on the argument, rather than the confusing background information, strengthening or weakening that argument, rather than just the point being made, not jumping to conclusions or forming opinions when the questions specifically ask for you not to judge, and remembering exactly what you are looking for in the right answer as you eliminate the wrong ones.

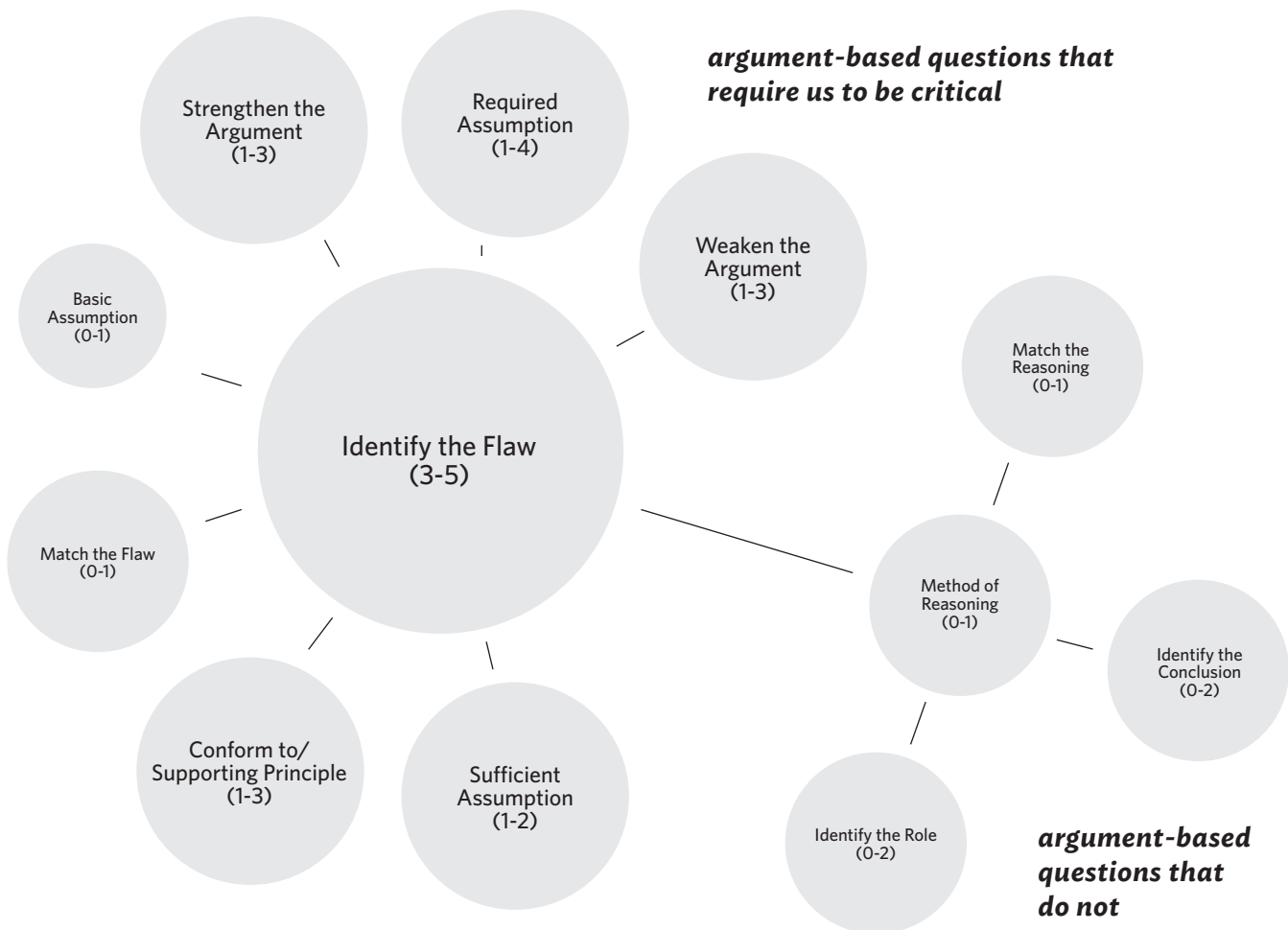
Your mental discipline is a fairly good representation of the power of your brain, just like the ability to lift a certain amount of weight is a fairly good representation of the power in your arms. Exercising those arm muscles is the best way to develop their strength; working questions correctly, over and over again, is the best way to develop mental discipline.

**Logical Reasoning
tests reading
ability, reasoning
ability, and
mental discipline**

**We can define
mental discipline
as the ability to stay
focused on the
specific task at hand**

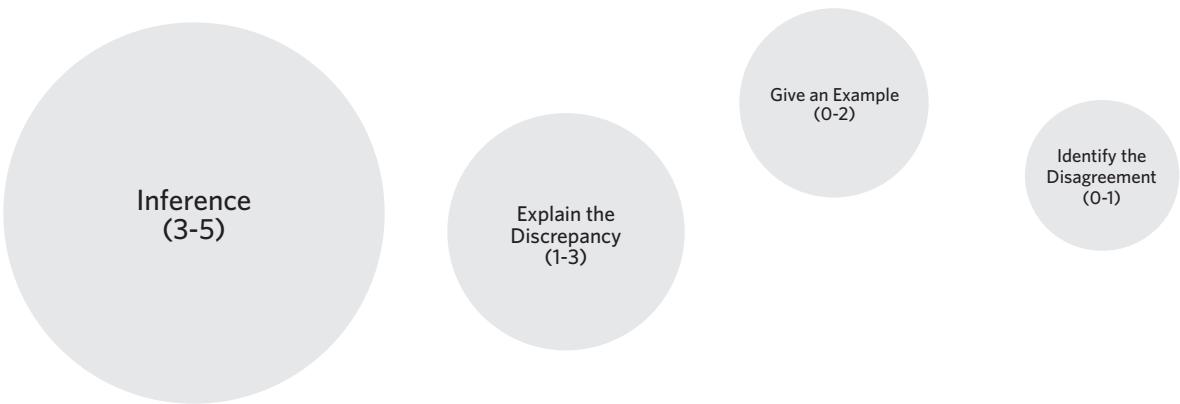
The Constellation of Questions

Here is a visual representation of the various types of questions that you are likely to see on the Logical Reasoning section of the exam. We'll discuss these using more formal language later. Each type of question is unique, but, as you can see, they are related. The numbers represent the total of that question type that you are likely to see in a Logical Reasoning section.



outliers

A minority of questions are not about arguments.



Sample Question Solutions

Next to each of the four questions from before are the hypothetical real-time thoughts of a top-scoring test taker. Keep in mind that many of these thoughts would likely not be as conscious and explicit as I've made them here. In real time, many of these thoughts—for example, how to approach each of the different question types—would be automatic and intuitive, rather than explicitly laid out. Also note that the solutions I write are not meant to be “absolute” ways of thinking. No two test takers will think of every question the same way, and I won't even think of the same question exactly the same way if I happen to look at it on two different days. Take these solutions to be examples of effective problem-solving. You don't have to solve problems the same way they are solved here, but you should be able to use these solutions to reflect on and gauge your own experience.

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Looking at the question stem: need to figure out what's wrong with the argument. Start by finding the conclusion.

Point: claim that surest way to increase correctness of beliefs is to cut out wrong ones and not add new ones is mistaken.

Why? Because it would leave us with fewer and fewer beliefs, and we need many beliefs to survive.

What does survival have to do with correctness of beliefs? That's the main problem. The author is using a premise about what we need to survive to try to prove a point about what does or doesn't lead to overall correctness, whatever that is. Okay, ready to eliminate choices.

(A) looks similar to what I thought about—leave it. Confused as to what impact (B) would have, but know that it's not the flaw—has little to do with the point and support. (C) also has very little to do with the point/support. (D) is about “beliefs related to survival”—that's different from needing a lot of beliefs to survive, and it doesn't relate directly to the issue of increasing correctness of beliefs. And (E) is not what is wrong with the argument either—he's not saying the beliefs we need must be correct.

(A) is the only possibility—time to take a careful look. The author is saying something isn't the surest way to increase correctness because it hinders one's ability to survive, and he's wrong for thinking that. (A) is it.

Looking at the question stem: need to use stimulus to justify an answer choice.

Stimulus is about relationship between antidepressant drugs and weight gain. Antidepressant drugs cause weight gain, and you can try to do some stuff to combat the weight gain, but sometimes you can't avoid it. Okay, ready for the answers. Going to look for reasons why four answers are not supported by the text in the stimulus.

The stimulus says nothing about what a physician should or should not do (who says weight is more important than emotional health anyway?), so (A) is obviously not provable. (B) is not provable for pretty much the same reason—we're told of a relationship between antidepressants and weight gain, but the stimulus doesn't say anything about what anyone should do. (C) seems easy to justify—keep. (D) can't be proved by the text—dieting helps reduce weight gain, but it's not the sole contributing factor. (E) is clearly wrong for the same reasons (A) and (B) were—we don't know what people should do. “All” patients taking such drugs? Maybe weight is not their main priority.

I've only got (C)—let's make sure I can justify it. Most drugs cause weight gain, and some of this gain is unlikely to be preventable. So, yes, it does seem that at least some patients taking the drugs gain weight as a result of them. (C) is correct.

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Need to fix the hole in the argument and make the argument airtight. First, need to find the point.

Point: It's false to think writing any formal poetry is a conservative act.

Why? Two poets who do so are progressive feminists.

So what if they are feminists? Maybe they are feminists, but they happen to write poems about flowers and fairies. I need an answer that specifically shows formal poetry not being a conservative act.

(A) doesn't give us anything about the poetry. (B) is about other types of poets—doesn't matter here. (C) is interesting—would mean these progressive feminists can't write conservative stuff—leave it. (D) is a bit tricky, but we don't need to prove that these feminists would never write politically conservative poetry, just that they could write some that isn't conservative. (E) does not do nearly enough to make our conclusion airtight.

That leaves only (C)—time to take a careful look. If (C) is true, since these two poets are progressive, that means they cannot write conservative poetry. That means the formal poetry they write is not conservative, and that is what I need to prove the point. (C) is correct.

Need to match arguments.

Argument: Higher = thinner. X higher, therefore thinner. Got it. Time to eliminate mismatches.

(A) has a similar structure—leave it. (B)'s got two conditions—more egg whites and longer beaten. That's different from original—cut. (C) doesn't seem right, but can't quite figure out why—leave it. (D) looks good too—leave it. (E) reverses characteristic and consequence—cut.

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Have to look carefully at (A), (C), and (D). (C) looked worst, so start there. The part about Charles getting faster is suspicious—original is about comparing two different places, not same place at different moments. Other problems with (C) too, like I don't know if Charles is one of the fastest runners. (A) actually has a similar problem—the premise is about changes within one person, not differences between people. Both (A) and (C) are actually not great matches.

Okay, down to (D)—older = more rings. That matches. X older, therefore, more rings. That's a good match. It's (D).

The Signs of Mastery

Now that you've gotten a little sample of the problem-solving process, let's broaden things out and define, in general, the characteristics of a top scorer in the Logical Reasoning section.

A top scorer...

- ...has a correct and usable understanding of the task that each type of question presents.
- ...intuitively prioritizes and correctly orders issues that most directly relate to that task.
- ...wastes little time on thoughts and decisions that do not directly relate to the task.
- ...knows when to look for an argument, and when not to.
- ...knows when to critique the argument, and when not to.
- ...is always able to identify the main point.
- ...is always able to identify the support.
- ...is almost always able to figure out why the support doesn't justify the conclusion.
- ...knows how much he's supposed to be able to anticipate about the right answer.
- ...is often able to predict the right answer.
- ...is always able to predict the characteristics of wrong answers.
- ...is able to readjust when an answer tips her off that she's missed something.
- ...has question-type-specific systems for eliminating wrong choices.
- ...has question-type-specific systems for confirming the right choice.
- ...expects a high level of certainty before pulling the trigger on an answer. That generally means knowing at least one absolute reason why each wrong answer is wrong, and having a very strong sense of why the right answer is right.

A top scorer does not need...

- ...the ability to retain a huge volume of information. This is a common misconception, understandable because at first you don't know where to focus your efforts. It seems you have to be accountable for every random bit of information in the stimulus. You don't. There are clues everywhere that help you prioritize the few things you need to focus on.
- ...familiarity with a wide range of random and technical subject matter. As discussed, the subject matter generally serves as the background for more important issues.
- ...random bouts of creativity. Logical Reasoning questions reward flexibility, but they do not reward creativity. Questions require a very specific and literal understanding of the text and your task, and they reward organized and disciplined thinking. They do not require you to have moments of brilliance, and they do not require you to come up with unexpected ideas.

The Road Map to Mastery

Do you have it in you to gain Logical Reasoning mastery?

I firmly believe, based on what I know about this exam, and based on what I've experienced with students, that almost anyone who has a fairly strong command of the English language, and a good amount of common sense, can get to a high level of mastery with Logical Reasoning questions. The design of these questions has stayed extremely consistent over time, and they are all simple enough to be learnable. They make clear sense, and with practice you can get good at solving them.

Natural aptitude can affect the pace of improvement, but drive and work ethic are of far more importance to overall outcome

Natural aptitude does play a part in how long the learning process takes—for some of you, the design of the exam will just naturally better align with how you think, and so it will be easier to develop and habitualize skills. For others, the strategies and habits we discuss will butt against other instincts you have (instincts that may serve you well in other parts of your life), and the path to improvement will be steeper and less direct.

However, in my experience, natural aptitude does not have as significant an impact on the overall outcome of the study process as you might think. Of far more importance are drive and work ethic. If you want it badly enough, and if you know how to work, you can get there.

We can think of our path to Logical Reasoning mastery in terms of three major stages:

Stage One

We are going to start our Logical Reasoning preparation by focusing on the reasoning and reading issues and strategies that are most critical to the most questions.

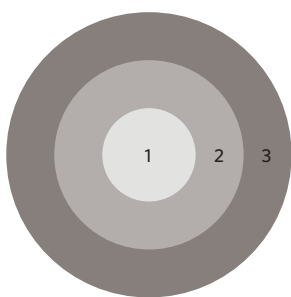
As we just discussed, the primary way in which the Logical Reasoning section tests your reasoning ability is by presenting arguments for which the support given does *not* justify the conclusion reached. The most significant job that your “elephant” must do, again and again, is to figure out exactly why the support given does not justify the conclusion reached. If your elephant is great at doing this, you will have the key skill necessary for Logical Reasoning success.

Getting good at seeing flaws will be the primary goal of our first stage. We will introduce and get experience with all of the different types of flaws that can appear in arguments, and we will work on systems of thought that will help us catch these flaws more consistently and accurately.

And what you will find along the way is that when you are focused on finding the flaw in the argument, you end up naturally *reading* the stimulus the way that you are supposed to—in a way that best matches the design of the questions. Therefore, as we learn more about reasoning flaws and become better at recognizing them, we will also be working on habitualizing the reading strategies that best align with the design of this exam.

Stage Two

The goal of this stage is to round out and solidify our understanding of all important issues, to develop a very clear understanding of the specific tasks that different questions present, and to start to habitualize question-specific approaches.



Stages to Mastery

one: get good at reading and critiquing LSAT arguments

two: get good at answering different types of questions

three: habitualize effective processes

Because the LSAT is largely a test of reading ability, it's understandable that the test writers are not casual with the language that they use—the entire exam is worded in a very specific and careful way. Nowhere is their attention to wording detail more evident than in the construction of their question stems. Each type of question presents a unique type of challenge, and the question stem lays out that challenge very specifically. No words are wasted, and every bit of information in that stem is critical to answering the question as efficiently and effectively as possible.

What complicates the challenge is that these various questions require skills and strategies that in some ways overlap, and in other ways don't. The way you solve a “strengthen” question is similar to how you solve a “required assumption” question, and, to put arbitrary numbers on it, 80 percent of the work you do for the two types of questions will be pretty much the same, and 20 percent of the work you do on the questions will be different. In order to develop general mastery, you need to have a very firm sense of that which is common to these questions—the 80 percent. At the same time, in order to reach the upper echelon of scorers, you also need to have a very clear sense of the *specific* challenges that questions present—the other 20 percent—and you need strategies that best align with these unique challenges.

Unfortunately, the vast majority of test takers go into the exam without a very clear sense of what each question requires, and consequently, they go in without strategies that best align with the design of each question. Perhaps, without even being conscious of it, they end up solving a Required Assumption question in pretty much the same way they might a Strengthen question. That can work out most of the time, but that lack of specification will prevent them from getting beyond a certain level of accuracy.

The LSAT is designed to reward a specific understanding of task, and it punishes a fuzzy one. Evidence of this, as always, comes in the differentiation between right and wrong choices. The most attractive wrong answer for a Required Assumption question is commonly something that would strengthen the argument, but isn't an assumption that is required. The right answer might be tough to identify, even though it is required, because it doesn't impact or strengthen the conclusion as significantly as we would like.

In this second stage, we will carefully break down and discuss the specific tasks that the different question types present. We will do so with an eye toward how they are similar and how they are unique. We will also lay out and practice specific strategies that best align with the different types of questions.

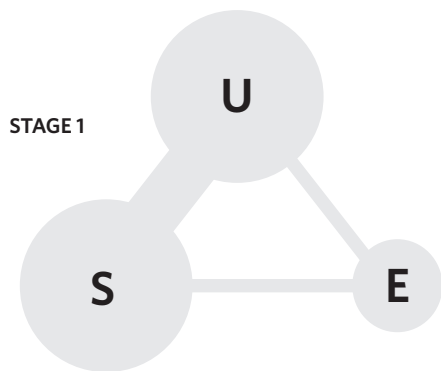
Each type of question presents a unique type of challenge, and the question stem lays out that challenge very specifically

Stage Three

The final stage will consist of a significant amount of practice that will help solidify all of the skills that we've been working on, and help form them into effective problem-solving habits. This work will mostly take place using official problems from LSAC's Lawhub online question bank or in their printed books.

If you develop habits that align with the exam, you can focus on the questions rather than how to solve them

Imagine an expert surgeon in the midst of surgery. This surgeon does not have to worry that she understands something correctly, and she doesn't have to consciously remind herself of the strategies she needs to use. Her complete focus is on the needs of that specific patient, and she is naturally able to utilize her understanding and skills to the best of her ability. For us, the goal is that by the time you go into your LSAT, you won't have any concerns about what you know about the exam, and you won't have to consciously remind yourself of how to approach questions. You will be able to put your complete focus into understanding and getting correct the specific question in front of you, and you will naturally be able to use your understanding and skills to the best of your abilities.



U.S.E. (or S.U.E.)

Here is a visual representation of how our priorities evolve at different stages of our Logical Reasoning training. At first we want to pay extra attention to developing our understanding and strategies. As we get deeper in our process, the emphasis will shift toward gaining more and more real test experience.

U = Understanding
S = Strategies
E = Experience

