"What is the sum of 5 plus 5?"

"What two numbers add up to 10?"

The first question has only one right answer, and the second question has an infinite number of solutions, including negative numbers and fractions. These two problems, which rely on simple addition, differ only in the way they are framed. In fact, all questions are the frame into which the answers fall. And as you can see, by changing the frame, you dramatically change the range of possible solutions. Albert Einstein is quoted as saying, "If I had an hour to solve a problem and my life depended on the solution, I would spend the first fifty-five minutes determining the proper question to ask, for once I know the proper question, I could solve the problem in less than five minutes."

Mastering the ability to reframe problems is an important tool for increasing your imagination because it unlocks a vast array of solutions. With experience it becomes quite natural. Taking photos is a great way to practice this skill. When Forrest Glick, an avid photographer, ran a photography workshop near Fallen Leaf Lake in California, he showed the participants how to see the scene from many different points of view, framing and

reframing their shots each time. He asked them to take a wide-angle picture to capture the entire scene, then to take a photo of the trees close to shore. Forrest then asked them to bring the focus closer and closer, taking pictures of a single wildflower, or a ladybug on that flower. He pointed out that you can change your perspective without even moving your feet. By just shifting your field of view up or down, or panning left or right, you can completely change the image. Of course, if you walk to the other side of the lake, climb up to the top of one of the peaks, or take a boat onto the water, you shift the frame even more.

A classic example of this type of reframing comes from the stunning 1968 documentary film *Powers of Ten,* written and directed by Ray and Charles Eames. The film, which can be seen online, depicts the known universe in factors of ten:

> Starting at a picnic by the lakeside in Chicago, this famous film transports us to the outer edges of the universe. Every ten seconds we view the starting point from ten times farther out until our own galaxy is visible only as a speck of light among many others. Returning to earth with breathtaking speed, we move inward—into the hand of the sleeping picnicker—with ten times more magnification every ten seconds. Our journey ends inside a proton of a carbon atom within a DNA molecule in a white blood cell.[1]

This magnificent example reinforces the fact that you can look at every situation in the world from different angles, from close up, from far away, from upside down, and from behind. We are creating frames for what we see, hear, and experience all day long,

and those frames both inform and limit the way we think. In most cases, we don't even consider the frames—we just assume we are looking at the world with the proper set of lenses. However, being able to question and shift your frame of reference is an important key to enhancing your imagination because it reveals completely different insights. This can also be accomplished by looking at each situation from different individuals' points of view. For example, how would a child or a senior see the situation? What about an expert or a novice, or a local inhabitant versus a visitor? A wealthy person or a poor one? A tall person or a short one? Each angle provides a different perspective and unleashes new insights and ideas.

At the Stanford d.school, students are taught how to empathize with very different types of people, so that they can design products and experiences that match their specific needs. When you empathize, you are, essentially, changing your frame of reference by shifting your perspective to that of the other person. Instead of looking at a problem from your own point of view, you look at it from the point of view of your user. For example, if you are designing anything, from a lunch box to a lunar landing module, you soon discover that different people have very diverse desires and requirements. Students are taught how to uncover these needs by observing, listening, and interviewing and then pulling their insights together to paint a detailed picture from each user's point of view.

Another valuable way to open the frame when you are solving a problem is to ask questions that start with "why." In his need-finding class, Michael Barry uses the following example: If I asked you to build a bridge for me, you could go off and build a bridge. Or you could come back to me with another question:

"*Why* do you need a bridge?" I would likely tell you that I need a bridge to get to the other side of a river. Aha! This response opens up the frame of possible solutions. There are clearly many ways to get across a river besides using a bridge. You could dig a tunnel, take a ferry, paddle a canoe, use a zip line, or fly a hot-air balloon, to name a few.

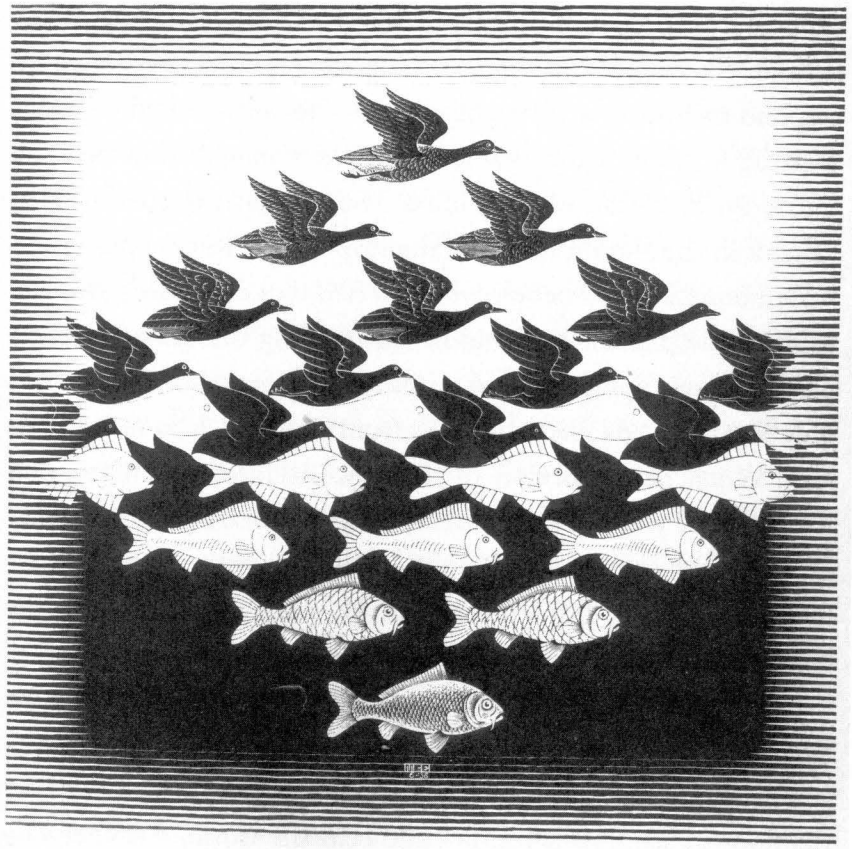
You can open the frame even farther by asking *why* I want to get to the other side of the river. Imagine I told you that I work on the other side. This, again, provides valuable information and broadens the range of possible solutions even more. There are probably viable ways for me to earn a living without ever going across the river.

The simple process of asking "why" questions provides an incredibly useful tool for expanding the landscape of solutions for a problem. The story in the introduction of this book, on name tags, reinforces this concept. When I asked *why* we use name tags, the scope of solutions expanded exponentially.

Being able to look at situations using different frames is critically important when tackling all types of challenges. Consider the fact that before 1543 people believed that the sun and all the planets revolve around the earth. To all those who looked to the sky, it seemed obvious that the earth was the center of the universe. But in 1543, Copernicus changed all of that by proposing that the sun is actually at the center of the solar system. This was a radical change in perspective—or frame—that resulted in what we now call the Copernican Revolution. This shift in point of view, in which the earth is seen as but one of many planets circling the sun, dramatically changed the way individuals thought about the universe and their individual roles within it. It opened

up the world of astronomy and provided a new platform for inquiry. You, too, can spark a revolution by looking at the problems you face from different perspectives.

Some artists and musicians specialize in shifting our frame of reference to encourage us to see the world with fresh eyes. M. C. Escher, for example, is famous for graphic art in which he plays with perception, challenging us to see the foreground as the background and vice versa. In one of his famous works, the foreground and background consist of fish and birds. As you view the image from top to bottom, the birds in the foreground recede into the background as the fish in the background emerge.



Another example comes from the composer John Cage, who created a work called *4'33"* (pronounced "four minutes, thirty-three seconds"). It was composed in 1952 for any instrument or combination of instruments. The score instructs the performers to sit quietly, *not* playing their instruments for the entire duration of the piece. The goal is for the audience to focus on the ambient sounds in the auditorium rather than performed music. This controversial piece is provocative in that it shifts our attention to the sounds with which we are surrounded all the time.

Another musical example involves the renowned violinist Joshua Bell. He normally plays to packed houses of patrons who pay hundreds of dollars to see him perform. In 2007, *Washington Post* columnist Gene Weingarten asked Bell to play in the Metro subway station in Washington, D.C., to see how people would respond to him in a different context. He was dressed casually, wearing a baseball cap, while he played a magnificent piece of music on his Stradivarius violin. Weingarten placed a hidden camera in the station to watch the response of those who passed by. Among the 1,097 people who saw Bell that day, only 7 stopped to listen, despite the fact that he was playing the same music he plays on stage. For his forty-five-minute performance, Bell earned only $32.17 in tips, including $20 from someone who recognized him. When he performed in this unconventional context, and the audience was not seated in an auditorium, despite the beauty of his music, listeners barely noticed his existence. In these new frames, passersby didn't see Bell in the same light that they saw him when illuminated on stage.[2]

We can practice shifting frames every day. For instance, turn a rock or piece of driftwood into art by placing it on display. Look at the young assistant in your office as a future CEO. Or, sit on the floor to see how a young child sees the world. Another way

to shake up your frame of reference is to change your environment altogether. A wonderful example is described by Derek Sivers, founder of CD Baby, in his TED talk called "Weird, or Just Different?" He describes the way cities in Japan are organized. Instead of naming the streets and numbering the buildings as we do in the United States, in Japan the city blocks are numbered. The streets are seen as the spaces in between the blocks. In addition, on each block buildings are numbered in the order of when they were constructed rather than where they are located.[3] This appears to be intuitive for those who have grown up in the neighborhood and have watched all the buildings go up over time. This example points to the fact that the way we do most things is arbitrary. It is up to you to see the discretionary nature of many of your choices and to find a way to shift your point of view so that you can uncover alternative approaches.

We make the mistake of assuming that the way we do things is the one right way. For example, we believe that specific types of clothing are appropriate for different occasions, we have preconceived ideas about how to greet someone, and we have fixed ideas about what should be eaten at each meal of the day. However, a quick trip to China, Mexico, Pakistan, or Korea reveals completely different norms in all of these areas. If you go to a restaurant for breakfast in China, for instance, you will be served rice porridge flavored with shrimp or "thousand-year-old" eggs; in Mexico you might be served an omelet with *huitlacoche,* a delicacy made from corn smut; in Pakistan you could get soup made from the head and feet of a goat; and in Korea you will certainly be served fermented vegetables.

On the topic of food, some innovative chefs are completely reframing what a restaurant is and what it could be. Instead of places that will attract customers for a long time and build a loyal

following, some chefs are setting up "pop-up" restaurants that are designed to exist for a short period of time and then disappear. These flash restaurants are more like theater performances.[4] This reframing shifts the possibilities for restaurant decor, menu, serving staff, and advertising strategy.

This type of thinking can be applied to any industry anywhere in the world. For example, the directors of the Tesco food-marketing business in South Korea set a goal to increase market share substantially and needed to find a creative way to do so. They looked at their customers and realized that their lives are so busy that it is actually quite stressful to find time to go to the store. So they decided to bring their store to the shoppers. They completely reframed the shopping experience by taking photos of the food aisles and putting up full-sized images in the subway stations. People can literally shop while they wait for the train, using their smartphones to buy items via photos of the QR codes and paying by credit card. The items are then delivered to them when they get home. This new approach to shopping boosted Tesco's sales significantly.[5]

Reframing problems is not a luxury. On the contrary, all companies need to continually reframe their businesses in order to survive as the market and technology change. For example, Kodak defined its business as making cameras and film. When digital cameras made film photography obsolete, the company lost out badly, because it wasn't able to open its frame early enough to see its business as including this new technology. On the other hand, Netflix began delivering DVDs of movies by mail. It framed its goals much more broadly, however, seeing itself as in the movie-delivery business, not just the DVD-delivery business. When technology allowed online delivery of movies, it

was poised to dominate in this new arena, too. We are also seeing the same thing happen with books. Amazon was originally set up to deliver hard copies of books, but it has enthusiastically reframed its business and embraced the sale of electronic books, and even designed its own digital book reader.

Framing and reframing of problems also opens up the door to innovative new ventures. Scott Summit, the founder of Bespoke, created a brand-new way to envision prosthetics for people who have lost a limb.[6] The word "bespoke" comes from Old English and means "custom-tailored." That is exactly what his company does: it makes custom-tailored limbs for those who have lost them. Scott's biggest insight was that some people with artificial limbs are embarrassed by their disability and want to hide their unsightly artificial limbs as much as possible. He reframed the problem by looking at an artificial limb not just as a functional medical device, but as a fashion accessory. Essentially, he decided to make prosthetics that are *cooler* than normal limbs.

Bespoke makes its customized limbs using a brand-new technique for 3D printing. Its designers first do a 3D scan of the surviving limb to make sure that the new limb is completely symmetrical with the surviving one. After they print the new limb, they cover it with materials that match the user's lifestyle. For example, a new leg can be designed to look like a leather cowboy boot, or it can be covered in brushed chrome to match the user's motorcycle, or it can be cut out to look like lace to match a fashionable dress. Not only is the leg functional, but the wearer is actually proud to display it publicly. Essentially, the prosthetic was transformed from a medical device into a fashion statement.

Innovative educators are also reframing what it means to be a teacher and to be a student. In a standard history class, for example, students are traditionally given textbooks that are filled with facts and dates, and they are charged with memorizing the information. But if you step back and reconsider the goal, you might design the classroom experience completely differently. This is exactly what was done in the San Francisco Unified School District. Faculty from the Stanford University School of Education designed a brand-new history curriculum that dramatically changes the students' point of view. Instead of being passive students, they become active historians.

According to Deborah Stipek, the dean of the School of Education at Stanford, instead of textbooks, high-school students are now given original sources to study, such as copies of letters from a wide range of people who lived during the period being studied, historical maps of the region, and local newspaper articles that covered the story from different perspectives. In the new "Reading like a Historian" project, led by Abby Reisman and Sam Wineburg, the students get to study the information from all different points of view and come up with their own opinion about what really happened during that period. They discuss and debate the issues with their classmates. Not only does this approach provide a much deeper understanding of the material, but the students also make insightful connections and discoveries, which propels them to discover even more.[7]

When evaluated on the mastery of the factual material, the students in the history classes that used original sources did better than those who were in standard classes using textbooks. Beyond the test scores, there were many other benefits. These students were more engaged and much more enthusiastic about

history. They viewed themselves as historical investigators and gained critical-thinking skills that they would never have learned had they merely memorized a list of facts. By redesigning the way history is taught, giving students diverse and often contradictory information, we help students learn how to look at the world with different frames of reference.

There are some entertaining ways to practice changing your perspective. One of my favorites is to analyze jokes. Most are funny because they change the frame of the story when we least expect it. Here is an example:

> Two men are playing golf on a lovely day. As the first man is about to tee off, a funeral procession goes by in the cemetery next door. He stops, takes off his hat, and bows his head.
>
> The second man says, "Wow, you are incredibly thoughtful."
>
> The first man says, "It's the least I could do. She and I were married for twenty-five years."

As you can see, the frame shifts in the last line. At first the golfer appears thoughtful, but he instantly turns into a jerk when you learn that the deceased person was his wife.

Another classic example comes from one of the Pink Panther movies:

> INSPECTOR CLOUSEAU: Does your dog bite?
> HOTEL CLERK: No.

CLOUSEAU: [bowing down to pet the dog] Nice doggie.
[The dog bites Clouseau's hand.]
CLOUSEAU: I thought you said your dog did not bite!
HOTEL CLERK: That is not my dog.

Again, the frame shifts at the end of the joke when you realize they are talking about two different dogs. Take a careful look at jokes, and you will find that the creativity and humor usually come from shifting the frame.

Reframing problems takes effort, attention, and practice, and allows you to see the world around you in a brand-new light. You can practice reframing by physically or mentally changing your point of view, by seeing the world from others' perspectives, and by asking questions that begin with "why." Together, these approaches enhance your ability to generate imaginative responses to the problems that come your way.

TWO

BRING IN THE BEES