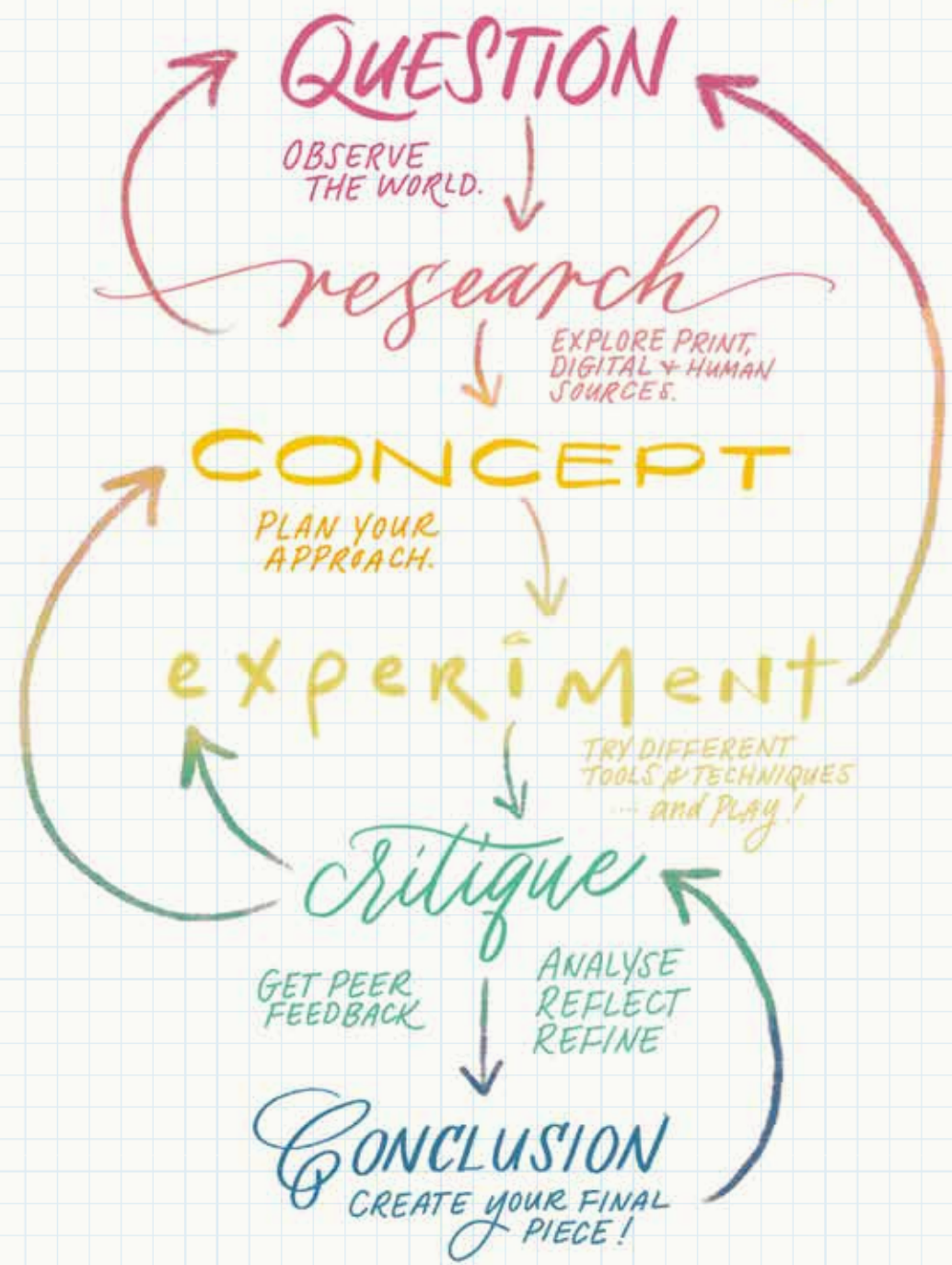




THE SCIENTIFIC METHOD FOR CREATIVITY



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ARTICLE AND LETTERING BY

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Despite our layered personalities and varied predilections, there is a longstanding notion that humans primarily use one side of our brain. The alleged “left-brained” people are logical and mathematical, whereas “right-brained” folks are creative and artistic. I, for one, call hogwash. Neuroscientist Joel Frohlich calls it a “pop psychology concept,” writing that “brain imaging technologies suggest that, on average, we use both sides of our brain equally. We are all ‘brain-ambidextrous.’” We can look to countless scientists who engage in creative problem solving and artistic avocations. There are legions of artists who are highly methodical and analytical in their practices. Given that artists and scientists are driven by inquiry, what if we approach creativity through the framework of the scientific method?

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The Method

The scientific method is a multistep and often cyclical procedure, much like the creative process. In his *Novum Organum*, 17th century philosopher Francis Bacon wrote of a process that “by slow and faithful toil gathers information from things and brings it into understanding.” The scientific method involves observation, questioning, conducting experiments to test one’s hypothesis and drawing a conclusion after thorough analysis. In his book *Exploring the Scientific Method*, Steven Gimbel writes about inductive reasoning and explains that “to describe how the world behaves and the details of how its systems work, one needs to start with the world. Step one in science, according to inductivists, is to look at the world.” As for the first step in creativity, I’d argue that it is not only to look at the world but to also look within.

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STEP 1

Question

What are you curious about? Like science, creativity is fuelled by curiosity. As you observe the world around you, a simple question has the potential to set you off on an exciting and sometimes uncharted path, which you can approach as a series of steps.

Take a moment to reflect on recent observations or journal entries. Write down questions that are currently rattling around in your mind, especially those persistent ones. Maybe an observation in nature or during a social situation causes you to wonder why something is the way that it is. Perhaps you have questions related to your own experiences or those of your ancestors. Or it could be that you want to find a way to express something abstract, like a feeling, a philosophy or a set of values. Phrase your question so it is open-ended and can’t be answered with a simple yes or no. These big questions often begin with what, why and how, for example:

“What if...?”

“Why is...?”

“How did...?”

“How can...?”

Let your questions marinate. You may find that these questions now look quite different than they would have in a previous season of your life. You may even have been carrying certain questions for a very long time.

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STEP 2

Research

The research phase is the time to delve into the heart of your question, to investigate, discover and gather information. Research will look different depending upon your question. Look for a mix of print, digital and human sources. Dig into the past, and seek out information and images that haven’t been widely circulated on social media. Visit your local library or city archives, or take advantage of a virtual museum tour on the other side of the world. Find an expert to interview. Ask an elder if they would be open to sharing their stories and reflections. Your research may generate new questions (back to step one), or you may feel ready to move forward and synthesize.

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STEP 3

Concept

We can compare this next step to a scientific hypothesis, which can be defined as an educated guess or a tentative assumption. Ronald Pine writes that a hypothesis is a “reasoned, sensible, knowledge-informed explanation.” While creativity may not always be “sensible,” your research can help inform how you wish to approach your question and subject matter. Which senses do you want to engage? What medium do you want to use? Do you have time restraints and a budget to consider, when it comes to materials and planning? Can you distill your concept down to a sentence or two?

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STEP 4

Experiment

Just as scientific experiments are designed to test a hypothesis, creative experiments aim to flesh out and develop a creative concept. You might begin with a rough sketch, a mockup or a stream of consciousness writing



Title page for *Novum organum scientiarum*, 1645, by Francis Bacon (1561-1626)

session and then transition into a set of specific tests, to visualize and work through your ideas.

After you have worked through initial drafts, what elements of your concept can you explore through multiple iterations? A painter or illustrator may do a series of tests with different colour palettes or perspectives, whereas a sculptor might create a variety of maquettes (or miniature prototypes). A composer might experiment with tempo, instrumentation and tonality.

The experimentation phase is also an excellent opportunity to try out different tools and techniques. If you composed your piece on the piano, could you perform it with another instrument? If you normally work with a brush, see what happens if you recreate the same concept with a dip pen, a charcoal stick or spray paint. Experiment working both in digital and non-digital formats, and be sure to allow time to simply play.

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STEP 5

Critique

Once your experiments are complete, it’s advisable to set your work aside, so you can come back with fresh eyes. Asking for feedback from a trusted peer can be enormously helpful, to talk through ideas out loud. Depending on your medium, critique key elements such as composition, colour, contrast, scale, harmony, mood, rhythm, pacing and tension. Which elements are the strongest, and which need to be refined? Does something need to be eliminated entirely? Are there technical errors to be corrected?

As you critique your experiments and drafts, some areas for revision may be immediately clear. You could realize that you need to do more experiments. You might opt to revise your concept or create an entirely new one. Just as creativity is non-linear, the same can be said of scientific discovery.

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STEP 6

Conclusion

As you refine and finalize your work, you will likely find yourself alternating between periods of creation and critique. Ultimately, your conclusion will be marked by the completion of a final piece, regardless of whether you choose to share it publicly or not. You may have found the answer to your initial question in the form of an illustration, sculpture, novel, garment or piece of music. And you very well may have opened the door to more questions to ponder and more ideas to explore. **U**

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