“Thought” and “thinking” could be many things. Even a unique and definite thought, say of one's grandmother, is still many things since different people have different grandmothers and none of what they mean corresponds to some measurable objective observation in the way that an electron, molecule, planet or galaxy does. “Thought” as a process is likewise elusive. For what people mean when they speak of “thought” has to do with their own internal, subjective experience and, necessarily, their lack of access to such internal, subjective experiences of others. So it is nearly impossible, or at the least not meaningful, to ask “what is thought” as if it had some specific essence or defining property. Like many other things – like religion! – thought is best understood by considering how it seems to people who say they think. To do otherwise is to get bogged down in endless, pointless and inconclusive disputes over semantics.

The subjective experience of thought and thinking is, often, the thought or thinking of or about something. Importantly, this sort of thought is more or less static. More interesting is thought and thinking as cognitive processes. Perhaps the most familiar example is of being carried along by a series of related ideas that lead to one or more conclusions in the course of reading, listening to or watching a lecture or film/video or direct interaction with others. The sequence of ideas may include facts, observations, explicit or implicit assumptions and appeals to emotion. A very important element of this process is the degree to which it is passive and accepting of what is presented or active and critical of it. When passive, people are apt to accept the conclusions to which they are led. They may as a consequence form very strong convictions that they feel are certain and beyond doubt. When this happens, it tends to get reinforced by confirmation bias, the tendency to pay greater attention to and give greater weight to things that support the already-held belief and ignore or minimize the significance of what might call it into question. No one is immune to this bias. Even scientists look more often for ways to confirm their hypotheses than for ways to refute them.

Skepticism and doubt are important additions to thinking. Are the facts established? Do they apply? Are they logically connected? Has anything been left out that is relevant? Such are the elements of critical thinking. In science and academia, it is accepted and expected that people self-criticize themselves in this way, acknowledging the defects and drawbacks of their work, addressing possible criticisms and disclosing possible bias. In a famous Commencement address at Caltech in 1974, the 20th Century American physicist Richard Feynman (1918-1988) described it as:

“a kind of utter honesty — a kind of leaning over backwards. For example, if you're doing an experiment, you should report everything that you think might make it invalid — not only what you think is right about it; other causes that could possibly explain your results; and things you thought of that you've eliminated by some other experiment, and how they worked — to make sure the other fellow can tell they have been eliminated. Details that could throw doubt on your interpretation must be given, if you know them. You must do the best you can — if you know anything at all wrong, or possibly wrong — to explain it. If you make a theory, for example, and advertise it, or put it out, then you must also put down all the facts that disagree with it, as well as those that agree with it. There is also a more subtle problem. When you have put a lot of ideas together to make an elaborate theory, you want to make sure, when explaining what it fits, that those things it fits are not just the things that gave you the idea
for the theory; but that the finished theory makes something else come out right, in addition. In summary, the idea is to try to give all of the information to help others to judge the value of your contribution; not just the information that leads to judgment in one particular direction or another.”

Such integrity is uncommon in the everyday world. In the “marketplace of ideas,” and especially personalities, politics and partisan opinions, it can be very difficult to sort facts from fiction and sincerity from spin. It is good reason to maintain skepticism, to believe little or nothing while being aware of what is more or less consistent with reliable facts.

What about being carried along by ones own ideas? How does that happen? If the problem is how to persuade others, then one starts with the desired conclusions. But it is far better to begin with questions without knowing the answers. The greatest benefactors of humanity have done just that. It is a real puzzle as to how it happens. Subjectively, when one wonders about something, related ideas simply “come to mind.” These are followed by other related ideas and questions. But all of it can be recognized as having originally come from one’s education and other life experiences.

Both Charles Darwin and Alfred Russell Wallace, the co-discovers of biological evolution, were influenced by the work of the late 18th Century economist Thomas Malthus, who observed that while food supplies only increased arithmetically, population growth is geometric. It is a small step to the idea of a struggle for survival involving competition for limited resources. Another famous discovery, the structure of benzene by the German chemist Friedrich August Kekule in 1865, had its origins in a dream. Kekule had been struggling to think of what the structure of benzene might be knowing only the chemical formula of the molecule until, from some unconscious corner of his brain, the image of a snake biting its own tail was dredged up, suggesting that benzene is a ring structure.

Thus, “thinking skills” are like other activities learned with practice and experience. Once one “gets the hang of it” it is somewhat automatic while at the same time requiring close attention. Almost anyone should be able to learn to think, though many apparently never learn to do it well or habitually. The deficiency of critical thinking is a serious problem that increasingly affects us all, one that we must learn to deal with effectively.