

I have seen many swans, and all of them have been white.
I use this experience to hypothesize that all swans are white.

This is inductive reasoning.

In the philosophy of knowledge, there is the “problem with induction.”

>> In a sentence or two, what is the problem with induction?

On to science:

When you see something that brings about a desire to explain what you see, I want you to think about how you observe, how you come up with an explanation, and what you do with this. So, when you observe something that catches your interest,

>> what is it about this that catches your interest?

If possible, you may make sure that what you saw was right or confirm that it was not just a fluke. If you are scientifically inclined, you may try to make a tentative explanation and evaluate the explanation by seeing if it successfully predicts behavior in other situations (either real cases or thought experiments). If it works, you gain some confidence in your explanation. If not, you may have an idea on how to modify the explanation so that it also fits the test. And so on, until your explanation may be working pretty well with a variety of tests. And you may be so bold as to try it in ever more demanding tests (to see if it still works, or find the limits of the explanation). This is how investigation usually proceeds. In doing this, you are relying on *faith* in
(1) an *explanation* as capturing some sort of underlying essence of the behavior, and
(2) the successful *predictive* power of the explanation.

You are behaving as a scientist. You are doing much more than simply seeing if many swans are white, you are creating an explanation that can be tested in diverse situations and can be examined for its intrinsic structure (is it simple and nicely structured, or messy and clumsy?).

>> Are you being an inductionist?