The facts, ideas, and concepts we find in textbooks have all been put through this process. The knowledge in textbooks is really only one part of science – it's essentially the explanation part with some observations usually thrown in here and there. Rarely do we read about the rigorous testing the explanations went through. Nor do we hear much about those wrong explanations given earlier, and how testing, or experimentation, was used to eliminate them and home in on what now lies within science textbooks.

1.1.2 Science is Self-Correcting

You see, science is self-correcting.

The vast majority of the knowledge found in today's textbooks was all hard won, with multiple wrong explanations being proposed and then discarded until arriving at the current version. This may yet be undone if some new test of that understanding reveals it's lacking in some way.

This testing and refinement of our knowledge and understanding is the nature of Scientific Inquiry, the main topic of this course. The best way to understand scientific inquiry is through examples and application. The topic we've chosen to look at to gain an understanding of scientific inquiry is perhaps the single most important problem facing our species today – that is, climate change and loss of biodiversity. It is science that offers us our best chance at figuring out how we can get out of this mess – and what all of us need to do to get there.

OK, before we get into this serious problem, we need to get a good understanding of this "**observe, explain, test**" approach to knowledge discovery.

Did you know that any time you troubleshoot something you're actually applying the scientific method? For example, let's take a look at troubleshooting a laptop that doesn't bootup in our next video.

1.2 A PC Won't Work

1.2.1 Troubleshooting a Laptop

We find that our laptop doesn't boot, so we troubleshoot it, which is an example of a straightforward application of the scientific method.

Observation	Laptop doesn't boot
Explanation	Battery dead
Test the explanation	Plug in external power
Result of test	Laptop seems to boot, so the battery must have been dead

But now there's a new problem.

Re-running through our "observe, explain, test" steps again we find:

Observation	Laptop seems to boot, but there's nothing on the screen
Explanation	Laptop monitor not working
Test the explanation	Try connecting the external monitor with HDMI cable 1
Result of test	Laptop seems to boot, but there's nothing on the screen. (a) Either the graphics card or motherboard has issues, or (b) Something was wrong with our test.