

## What is the purpose of science?

**1. “This is the fascination of science really, I think, to uncover so much that is not apparent in everyday life.”**

(Francis Crick on doing science. *DNA Episode 1: The Secret of Life*, Dir. David Glover, Perf. Francis Crick, Windfall Films Production, 2003, Documentary.)

**2. “I thought the problem would last me a whole lifetime. I had no idea it would be solved in 20 years. I mean, it was embarrassing, almost...one had to look around for another problem to solve.”**

(Francis Crick, on cracking DNA’s structure. *DNA Episode 1: The Secret of Life*.)

**5. “Basically, science is the way to uncover valid, trustworthy information about how nature works, about things about the natural world.”**

(Francis Collins after he led the Human Genome Project. Begley, S. Dec. 2010. Francis Collins Talks About Science and Faith; *Newsweek*, <http://www.newsweek.com/francis-collins-talks-about-science-and-faith-68851>.)

**9. “People who knew her (Rosalyn Franklin) say that what she cared about most was that her work moved science forward.”**

(Narrator, DNA Series: The Secret of Life. *DNA Episode 1: The Secret of Life*.)

**13. “Science, to me, gives a partial explanation of life. In so far as it goes, it’s based on fact, experience, and experiment. Your views are those which you and many other people find easiest and most pleasant to believe. But as far as I can see they have no foundation other than that they lead to a pleasant view of life and an exaggerated view of our importance. Anyone able to believe in what religion implies obviously must have such faith. But I maintain that faith in this world is perfectly possible without faith in another world.”**

(From Rosalyn Franklin’s letters to her religious father. *DNA Episode 1: The Secret of Life*.)

## What are the personal rewards of doing science?

**6. “You have to remember that I’d been up before and seen the model that was wrong and that gave us a buzz and a high. And then you got there and you see this thing and it looked right when you saw it. It was so brilliantly, elegantly simple. I thought, ‘Oh my, we got scooped,’ because I really thought we were going to come up with something like that ourselves.”**

(Raymond Gosling on seeing the corrected model from the rival DNA research group of Watson and Crick. *DNA Episode 1: The Secret of Life.*)

**7. “I like to understand the world. I like to learn about new ideas. But I also like, very much, having new ideas myself or making discoveries myself. This pleases me immensely.”**

(Linus Pauling on doing science. *DNA Episode 1: The Secret of Life.*)

**8. “Looking back on it, I think I was very privileged to have been there. I only wish I had known at the time that it was that important. I might have remembered more or worked harder. Who knows, I might have tried building a few models secretly (laughs).”**

(Raymond Gosling on being associated with the discovery of DNA’s structure. *DNA Episode 1: The Secret of Life.*)

**10. “I got a big high. It was the most beautiful photograph. It was like you had seen the most beautiful girl in the world and you were going to see her again. It was great! It would have been impossible not to build models after seeing that picture.”**

(Jim Watson on his feelings after Maurice Wilkins showed him Rosalyn Franklin’s X-ray photograph of DNA revealing the double helix pattern. *DNA Episode 1: The Secret of Life.*)

## How should we do science?

**4. “I don’t know if we behaved right or wrong, if we were good guys or bad guys... it depends on your values and the set of facts you have.”**

(Jim Watson after being asked about the ethics of using Franklin’s unpublished X-ray photograph without her consent. *DNA Episode 1: The Secret of Life.*)

**11. “I don’t think science ought to be kept in bags...no more than cats. Science ought to be an open activity so you can work as a community.”**

(Maurice Wilkins, who is said to have let the proverbial “cat out of the bag” upon showing Jim Watson an unpublished X-ray picture of DNA, taken by Rosalyn Franklin but shown without her knowledge, that Watson and Crick were then able to use to help deduce the structure of DNA. *DNA Episode 1: The Secret of Life.*)

**15. “Her (Franklin’s) view was: ‘You could build models all day but how did you prove if it was right? On the other hand, if you made the measurements and did the corrective geometry and you put them into the equations, you would let the data speak for itself.’”**

(Raymond Gosling, referring to Rosalyn Franklyn’s view of Watson and Crick’s approach to solving the DNA structure by modeling, which involved more guessing than data collection. *DNA Episode 1: The Secret of Life.*)

## **Does science have a limit? Who determines it?**

**3. “We thought...there was no God and humans had to make their own rules.”**

(Jim Watson reflecting back on his attitude to science while at Cambridge. *DNA Episode 1: The Secret of Life.*)

**12. “If you limit yourself to the kinds of questions that science can ask, you’re leaving out some other things that I think are also pretty important, like why are we here and what’s the meaning of life and is there a God? Those are not scientific questions. I simply would argue you need to be thoughtful when you’re asking a question—is this a faith question or a science question? As long as one keeps that distinction clearly in mind, then I don’t see a conflict.”**

(Francis Collins on whether being a scientist and being a Christian conflict. Begley, S. Dec. 2010. Francis Collins Talks About Science and Faith; *Newsweek*, <http://www.newsweek.com/francis-collins-talks-about-science-and-faith-68851>.)

**14. “People say that we’re playing God. Well, I have a straight-forward answer. If we don’t play God, who will?”**

(Jim Watson speaking about genetic science to employees of Monsanto Corporation - the world’s largest genetic modifier of agricultural plants. *DNA Episode 1: The Secret of Life.*)