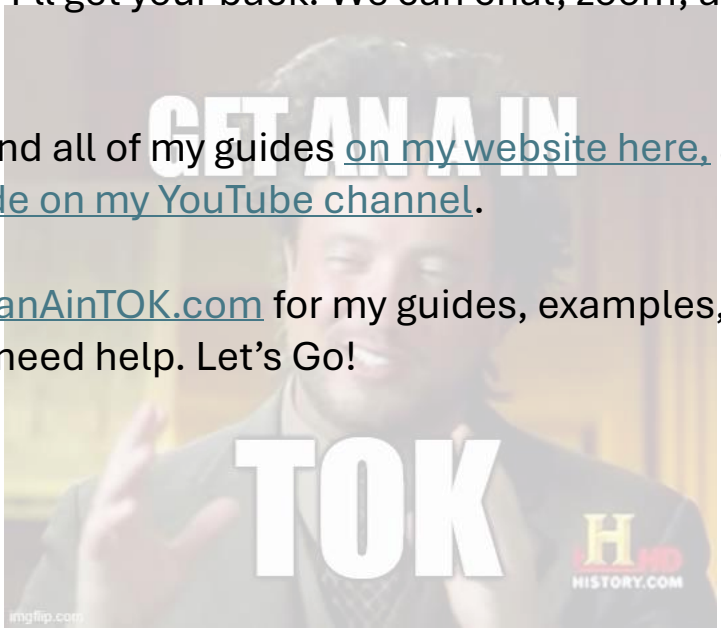
Get an A in TOK Essay Title #5 Guide

Thanks for checking out my channel and resources. You can do this!

If you need extra help (and I know you do!) click here to send me your essay and I'll get your back! We can chat, zoom, and work together!

Make sure to find all of my guides on my website here, and every title will have a guide on my YouTube channel.

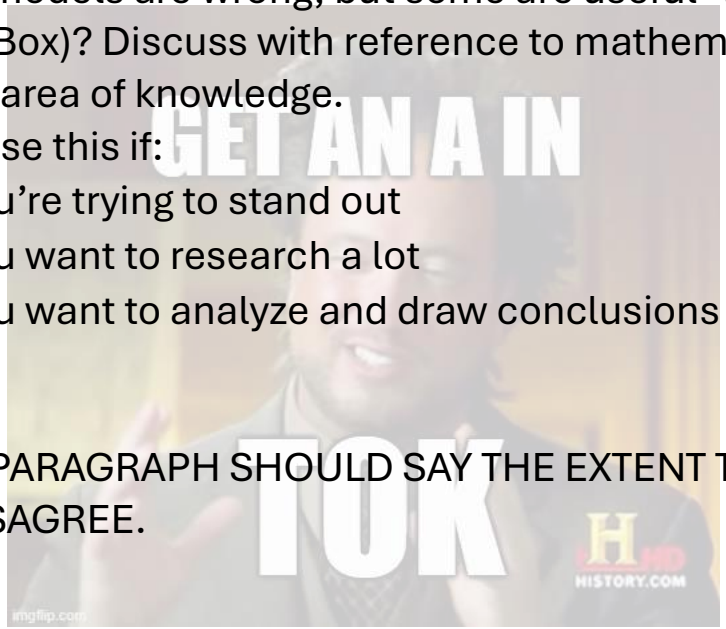
Check out GetanAinTOK.com for my guides, examples, and sample outlines if you need help. Let's Go!



5. **Teh CoNfUsInG One:** To what extent do you agree with the claim “all models are wrong, but some are useful” (attributed to George Box)? Discuss with reference to mathematics **and one other** area of knowledge.

   Choose this if:

   - You’re trying to stand out
   - You want to research a lot
   - You want to analyze and draw conclusions



EVERY SINGLE PARAGRAPH SHOULD SAY THE EXTENT TO WHICH YOU AGREE/DISAGREE.

Maths

The Original Quote – This article breaks down what is meant by the quote, which is helpful for understanding what you should be talking about. Remember that you're being asked how much you agree with it. But understanding the original meaning gives you a good perspective.

It's About Utility – From the above article: Yuval Noah Harari - "Scientists generally agree that no theory is 100 percent correct. Thus, the real test of knowledge is not truth, but utility. Science gives us power. The more useful that power, the better the science." This is implying that if something is helpful, it's good/TRUE-ISH. We don't have to prove something if it helps us figure something out.

The Mathematical Axioms – The foundations of maths are called axioms, which are assumptions, or models, that we hold to be true. We can't prove that they're true, but by making the assumption that they *are*, we are able to do much more complicated things.

The Black-Scholes Model (also HS) – this is a mathematical formula used for calculating the value of an options contract. It is based on some assumptions that don't totally work out, but its utility is in helping us make a prediction, rather than giving a confirmed answer. Read this article and try to figure it out.

Euclidian Geometry – This makes the assumption that space is flat. But we know that space is round. With that said, we still follow many rules (especially in high school) that apply to this model. All engineering, for example, operates according to Euclidian geometry.

Rational & Irrational Numbers – We use rational numbers to model or symbolize irrational ones. For example, pi and $\sqrt{2}$ are used,

though this is not perfect. This is because irrational numbers are infinite. With that said these imperfect representations of irrational numbers are used in computer processing. Here's how irrational numbers are used in many different applications. And architecture!

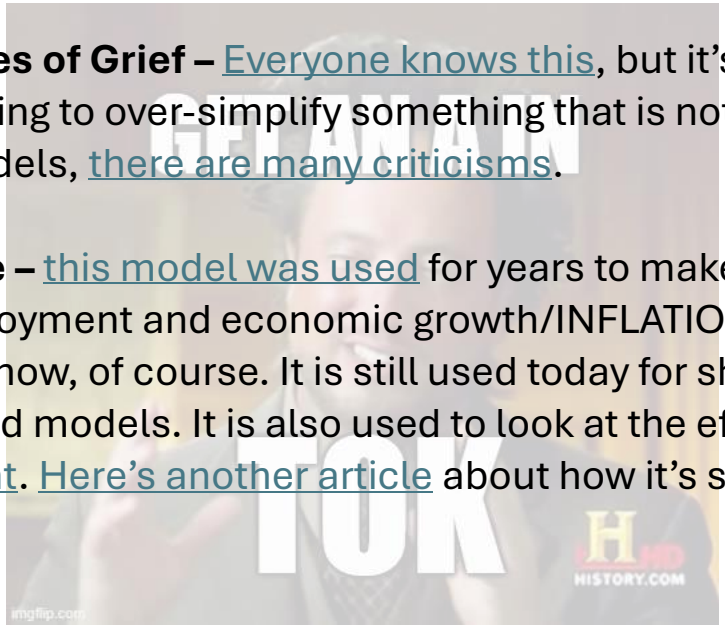
Human Sciences

Rational Choice Theory – once a foundation of economics, it is now considered too simple and out of date. With that said, it can still be useful, despite being "wrong." It can be used in politics, politics again, law/criminology, and economics.

Maslow's Hierarchy of Needs – This is a foundational model and concept for beginning psychology that explains how people grow socially and psychology. But, like all models, it can be criticized for being too simple, when progress and growth is rarely linear. This article finds a more foundational flaw with the model.

The Five Stages of Grief – Everyone knows this, but it's another example of trying to over-simplify something that is not linear. As with other models, there are many criticisms.

Phillips Curve – this model was used for years to make predictions about unemployment and economic growth/INFLATION. It has been proven wrong now, of course. It is still used today for short-term predictions and models. It is also used to look at the effects of unemployment. Here's another article about how it's still used.



Natural Sciences

Simplicity – though some models may be inaccurate our outdated, they are still used for educational purposes. For example, because of its utility, the Bohr model of the atom is still taught, despite it being out of date because of the understanding of quantum mechanical models.

Newtonian Physics – We understand that Newtonian physics do not totally work at the near-light and quantum level, but we still apply this model daily. Read this thread to understand it better. Newtonian physics are used in many different ways on a daily basis that show how an "incomplete" model is still useful. Additionally, it's useful in educational settings, as you can't learn quantum physics until you understand Newtonian physics.

Einstein & GPS – GPS is helpful and works, and it uses the theory of general relativity. With that said, there are problems with this theory and some people are skeptical about it. This theory is also used in X-Rays.

Logistic Population Growth – this curved model is how scientists predict population growth and stagnation. Similar to the Black-Scholes Model, it is based on assumptions rather than every factor that can contribute to population growth, stagnation, or decline. Things like environmental changes, resource availability, climate change, and migration can all affect the real growth of a population. But it is useful for making predictions, too. This article brings up multiple reasons why it's wrong, but they're super confusing.

Exponential Decay – This is another model that is useful because it helps us make predictions, though it will most likely never give a certain answer. It makes assumptions about the size of isotopes,

environmental factors, and the nature of radiation in general, but provides scientists with the ability to make predictions, which is useful.

if you're still reading this I'll give you a 15% discount on fiverr. Just mention this note ☺