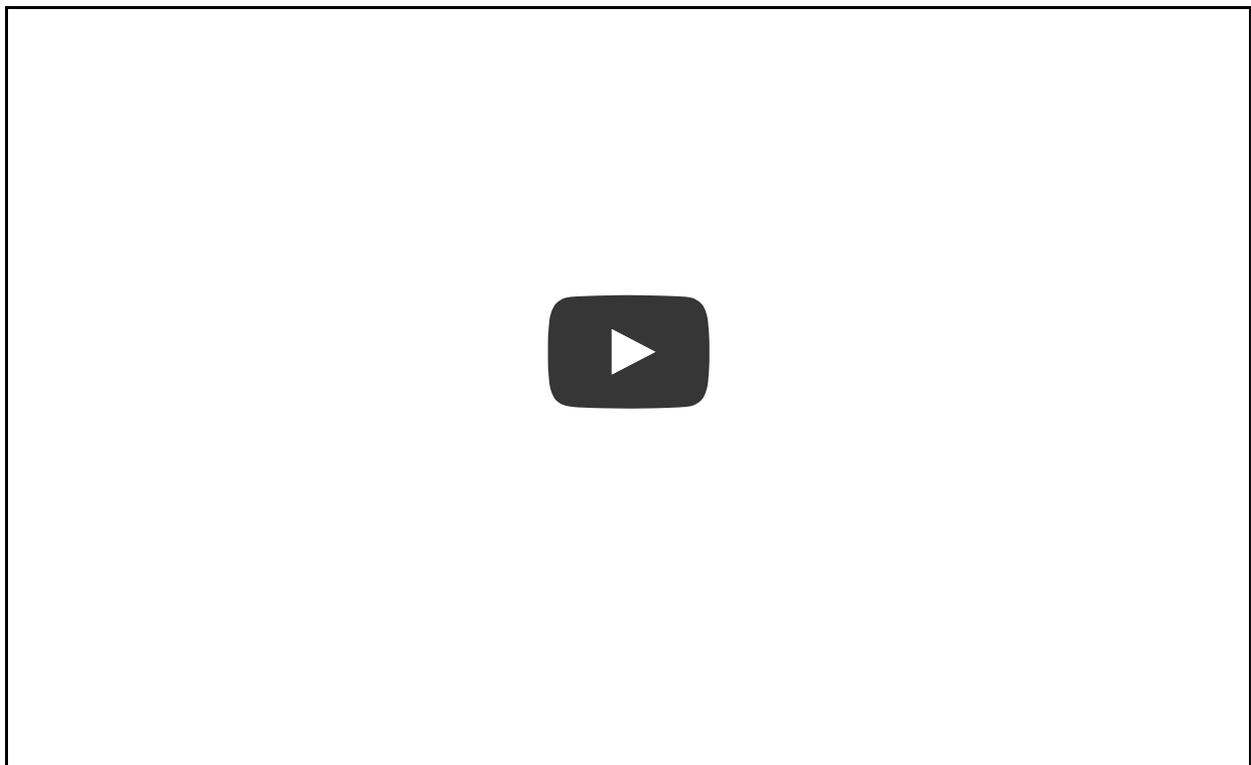


Science > TED-Ed

Myths and misconceptions about evolution: A TED-Ed lesson about the subtleties

📍 Posted by: [Emmie Le Marchand](#) July 11, 2013 at 5:30 pm EDT



Evolution. The concept surrounds us — it's a standard part of science class, it's routinely thrown out as explaining our actions in relationships, business and behavior — and yet, so many people hold subtle misunderstandings of what Darwin's theory actually means.

In [this animated TED-Ed lesson](#), educator Alex Gendler gives a primer on the

hard-to-grasp vocabulary of evolution, explaining what is really meant by the terms “survival of the fittest,” “genetic mutation” and “evolutionary purpose.” Overall, Gendler reminds us that evolution is not about us as individuals: natural selection occurs at the cellular, genetic level, not the organism level. She also gives assurance that animals are not evolutionary useless if they die before reproducing — and explains the evolutionary reasoning behind why humans crave pizza and doughnuts over vegetables.

Ultimately, what Gendler’s lesson teaches is that evolution is not controlled by some higher mechanism — there is no predetermined plan of progression. “Evolution proceeds blindly,” she says, “creating all of the diversity we see in the natural world.”



[Charles Darwin](#)
[evolution](#)
[TED-Ed](#)
[Books](#)
[Most Popular](#)
[Most Shared](#)

What happened after my TED Talk? I quit my job, wrote a book, grew my organization, and promoted a US postage stamp in Times Square



Your summer reading list: Rashida Jones, Elizabeth Gilbert, Bill and Melinda Gates and many more share their book recommendations



BJ Novak on his short story, “The Impatient Billionaire and the Mirror for the Earth,” which pivots on a misunderstood TED Talk

Books to get you ready for TED2014



[View more »](#)



Contributors





[View all Contributors »](#)

Follow TED



[Other ways to follow TED](#)

Archives

[Tags](#) [By Month](#) [Topics](#) [Contributors](#)

[View the full Archive »](#)

Related Stories

Science

Required watching for any TED speaker: The science of stage fright

By Kate Torgovnick May on Oct 16, 2013

One thing can strike fear into the heart of the fiercest warrior, the most powerful CEO and the smartest person in any given room: having to speak in public. The thought of it makes the palms sweat, the heart beat faster and the limbs start to shake. An estimated 75% of people have a fear [...]



*Education***Head back to school with TED-Ed**

By Kate Torgovnick May on Sep 3, 2013

Back to school brings with it a slew of emotions. On the one hand, there's the promise of seeing friends daily and the buying of new school supplies — new possibilities encapsulated in shrink-wrapped blank notebooks. But on the other hand, there's the end of summer and the transition back to structured days, not to [...]



Comments (23)

[Sign in to add comments](#) or [Join \(It's free and fast!\)](#)



renata chen commented on May 5 2014

Awesome, this is very useful for me, i think darwin concept for evolutions is wrong.

No offense

[Jas Kulit Pria](#)



Annisa Lala commented on Apr 1 2014

A great post!

[Pulau Tidung](#)

Airul Airul commented on Mar 29 2014



A great post!

Pakar SEO



Airul Airul commented on Mar 29 2014

A great experience!

Cap Kaki Tiga, Setia, Manfaat



Tito Fuente commented on Feb 12 2014

@Michael

If you're interested in concepts like this, I would recommend reading up on the evolution of the feather or the eye. There are bountiful sources on these that help shed some light on how structures can be co-opted to perform novel functions (e.g. feathers) or how complex systems can slowly develop over very long periods of time with intermediate stages still functioning (e.g. eyes).



Estela Estela commented on Feb 12 2014

I'd like to see something added about epigenetics. Inheritance is affected more than just by the DNA our parents transfer to us via the reproductive process.



Michael Alexander commented on Feb 12 2014

This still doesn't address any of the debatable issues that I've come across. If on a fundamental level natural selection progresses "step by step by step." How does that

really make the huge jumps that we see from cells to molecules to organisms. For that matter, specially adapted equipment. I'm sure one animal wasn't just born with a tail one day and used it to swim. (In other words, irreducible complexity) How can one account for the complex equipment that at a very basic level has many inter-working parts? Not that I don't believe evolutionary principals exist within a species sub-set, but I see too many holes to convince me that evolution can be responsible from getting from molecules to man...



C W commented on Feb 14 2014

Irreducible complexity has been thoroughly debunked, the idea as a whole purposely exempts itself from recognizing well established and proven evolutionary mechanisms.

Not one example that has been brought forth of something that has been claimed as "irreducibly complex" has been able to maintain that claim – commonly cited examples are: eyes and the bacterial flagellum.

Creationism (or its ridiculous attempt at re-branding itself as "Intelligent" Design) has nothing going for it other the zealot like fervor of religious peoples support. No evidence supports it and all hypothesis that try to latch themselves onto it have been thoroughly debunked. Its a pipe dream of those trying to push religious ideology in schools, and when they cannot accomplish it by doing science – you know because science has to work – its attempted through the political process.



Michael Alexander commented on Feb 14 2014

Hmm... Thanks for the info, however you didn't really say much. The example I was thinking of was the bacterial flagellum. So I'll research that more and I'd rather not just take your word for it that it has been "de-bunked". I also did not mention any type of religious ideology for the very reason that you spent about half your reply arguing against it. Nor intelligent design or creationism. Let's leave that out of the thread because I'd rather not get someone else's agenda's involved.

So I'm still contending that the evolutionary processes makes perfect sense within the subspecies. I'm willing to even go as far out on a limb as to concede that man and chimp may have had common ancestry. However the fossil record still has very many holes when it comes to intermediary evolution. Also even Darwin had trouble fitting in certain fossil evidence into his theory (see Cambrian Explosion). The time span just doesn't fit the evolutionary model. Why in just one

isolated era did we all of the sudden find so much diversity?



Tito Fuente commented on Feb 20 2014

The Cambrian Explosion diversification is indeed still a puzzle to be solved. I don't think it's accurate to say that it "doesn't fit the evolutionary model," just that it is not a well understood period of time. As an analogy, I hardly think one would call into question cell theory because we haven't yet discovered the "cure for cancer." Unknowns are a part of the scientific process. We have to look at the big picture. The evidence from multiple, independent sources (fossils, geographic distribution, genetic relatedness, etc.) all converge on support for the evolution of life.



Katie G commented on Feb 12 2014

Watching this, I felt like it was a little condescending. Yeah, I know "natural selection" doesn't mean any force is actively selecting genes. It's just a figure of speech that's convenient to use. These are all facts we learned by 9th grade. It's certainly still educational and helpful to those who need it, though.



Tito Fuente commented on Jan 31 2014

In response to a couple of the comments here: we DID evolve from apes. Humans ARE apes. I don't think saying something analogous like "sharks evolved from fish" would have elicited the same response. I think what the comments were hyper-correcting for is the misconception that we evolved from chimpanzees or any other modern species, which indeed is not the case. But I don't think the author of the video suggests that at all.

Pingback: [5 Tall Tales from 1 Small Mind | Science of Dogs](#)



Jason Vandehey commented on Jul 12 2013

Great video right up towards the end where the non-scientific stuff was thrown in as “fact” or maybe “examples”.

I love the pictures of the Giraffes. Maybe it needs a large disclaimer “Not to scale, did NOT happen this way”.

And the last few seconds showing Ape -> Caveman -> Modern Man. Also fictional. No scientist believes that Apes are a descendant of Man. Even modern “Evolutionary Scientists” will tell you that “Apes and Man had common ancestors”, but are not in series. Maybe a chimpanzee would have been better?

My point: A fun animation is not science if it is not scientific.

What gives???



commented on Jul 12 2013

The video is great because it is very clear, but there is one thing... At the end, — and I know this is very likely unintended — there is a progression from dark ape to light-skinned modern man. I have two problems with that.

1) We did not ‘evolve from apes’ but had common ancestors.

And 2) (and this is the BIG one) — even if the creator of the video did not have any racist intentions, portraying evolution as a progression from dark & primitive to light & civilized is problematic because it reinforces an old, common stereotype. AND another misconception (which this video might want to clear up).



commented on Jul 12 2013

Republicou isso em [Curiosidades na internet](#).



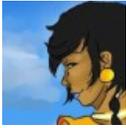
commented on Jul 11 2013

Reblogged this on [JeanClaudePitre](#).



commented on Jul 11 2013

Republicou isso em [Mundo da Pesquisa](#).



commented on Jul 11 2013

Reblogged this on [Meandering Student](#) and commented:

Here's a ted talk which accurately depicts the general misconception of evolution theory. How many of you out there know these too, and what misconceptions in science do you encounter on a daily basis?



commented on Jul 11 2013

Reblogged this on [Gabriel Rega](#) and commented:

Desvendando os mitos da evolução.



commented on Jul 11 2013

A reblogué ceci sur [Tsukiinu se fait une nouvelle vie](#).

commented on Jul 11 2013

Reblogged this on [living for science](#) and commented:

Had an extremely arduous debate not long ago about evolution vs adaptation. I love the breakdown that this video provides...and I love the heck out of TED.



commented on Jul 11 2013

Reblogged this on [The gifts you love to get...](#)

Ways to get TED

[TED Radio Hour on NPR](#)

[TED TV programs](#)

[Order a DVD](#)

[More ways to get TED](#)

[For developers / API](#)

Programs & initiatives

[TEDx](#)

[TED Prize](#)

[TED Fellows](#)

[TED-Ed](#)

[Open Translation Project](#)

[TED Books](#)

[TED Institute](#)

[Ads Worth Spreading](#)

Our community

[TED Speakers](#)

[TED Fellows](#)

[TED Translators](#)

[TEDx Organizers](#)

[TED.com member profiles](#)

Follow TED

[Facebook](#)

[Twitter](#)

[Google+](#)

[Pinterest](#)

[Instagram](#)

[YouTube](#)

[TED Blog](#)

Sign up for TED email updates

Sign up for our daily or weekly emails to receive notifications whenever new talks are published.

Daily Weekly

Sign up for TED email updates

[Sign Up](#)

Powered by WordPress.com VIP

[TED Talks Usage Policy](#)

[Privacy Policy](#)

[Advertising / Partnership](#)

[TED.com Terms of Use](#)

[Contact](#)

[Jobs](#)

[Staff](#)

[Press](#)

[Help](#)

© TED Conferences, LLC
