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Science Turns Out To Be A Fiction : Myths, Misconceptions, Hoaxes

Université d'ORLÉANS

UFR Sciences & Techniques

TD de L.V. Anglais (maths)

Contrôle continu 2 L2 S3
2026-2027

Prénom/nom : ……

Expression orale en continu et en interaction (présentations en groupes)

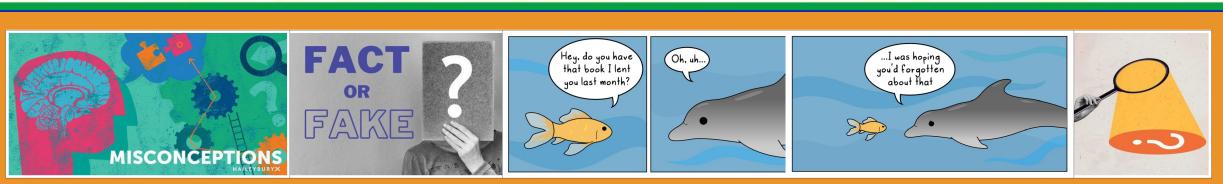
Critères	Commentaires

Rappel :
Le temps de passage attendu est de 15 minutes pour un groupe de 3 personnes (la durée minimum requise pour une présentation est de dix minutes).
Le sujet des candidats doit s'apparenter à l'un de ces quatre cas de figure :

- suivant l'exemple de l'étude sur la cape de Batman (deuxième séance), la plausibilité scientifique d'un objet de la culture populaire peut être interrogée.
- un mythe infirmé ou confirmé de la culture scientifique (exemples de la troisième séance) peut être exposé et commenté.
- un canular scientifique, à l'image de la quarantaine mise en place par la NASA suite au retour des astronautes de 1969 (troisième séance), peut être étudié dans son contexte historique.
- l'instrumentalisation d'une théorie (pseudo)scientifique élaborée à des fins politiques ou idéologiques (quatrième séance) peut être traitée depuis son contexte d'émergence jusqu'à ses conséquences contemporaines.

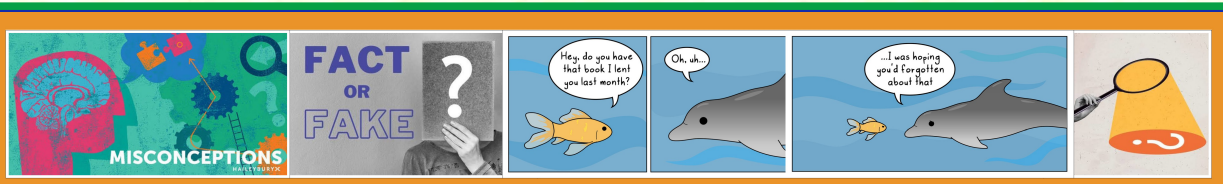
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Big pans make better brownies. **Right or Wrong?**	**Chares, the sculptor of the Colossus of Rhodes, took his own life before his masterpiece was finished.** **Right or Wrong?**
Giants exist. **Right or Wrong?**	**No ant fears heights.** **Right or Wrong?**

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1. Big pans make better brownies. **Right.**	**2. Chares, the sculptor of the Colossus of Rhodes, took his own life before his masterpiece was finished.** **Right.**
3. Giants exist. **Wrong.**	**4. No ant fears heights.** **Right.**

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MATH with Bad Drawings

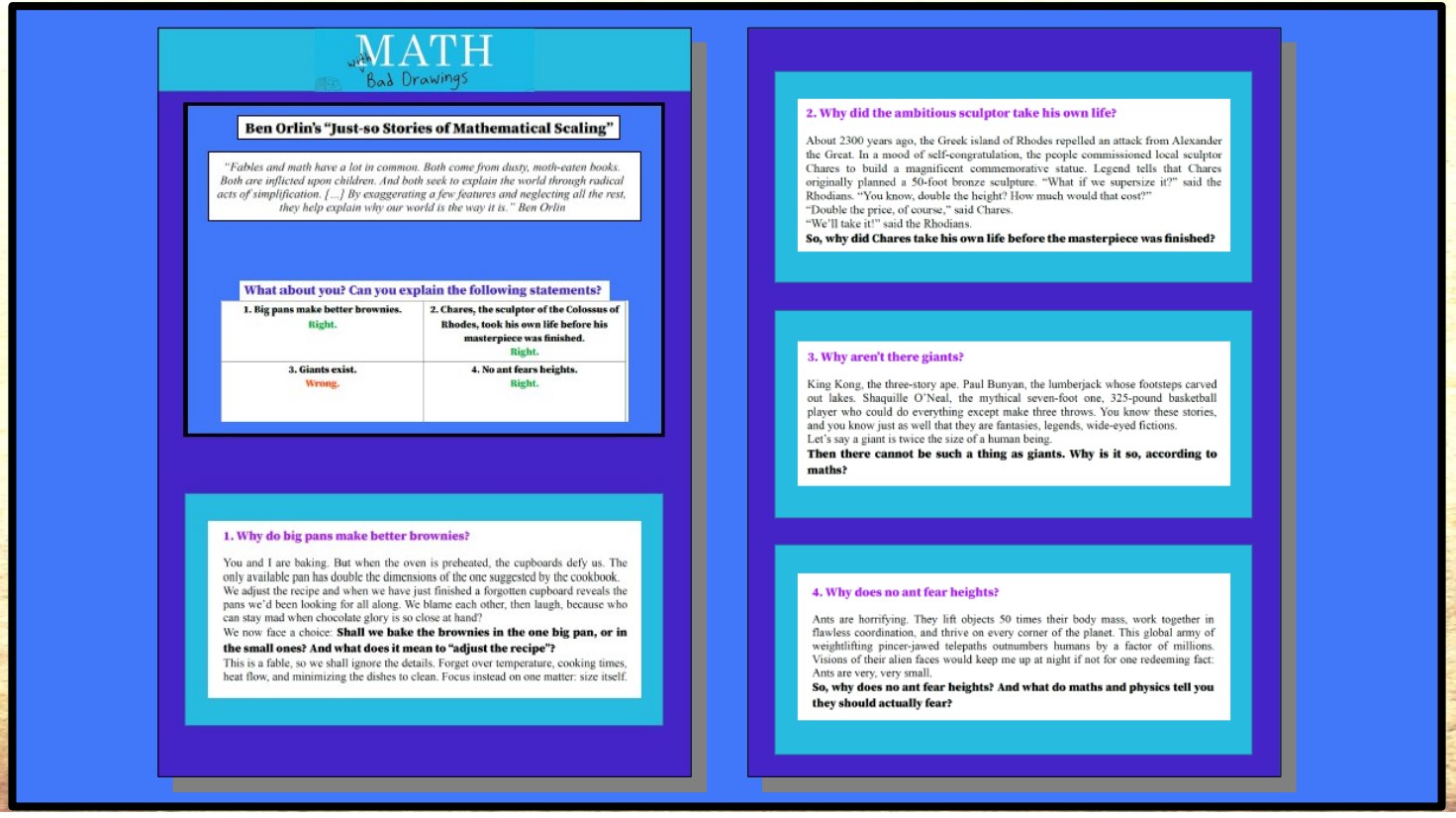
Ben Orlin's "Just-so Stories of Mathematical Scaling"

"Fables and math have a lot in common. Both come from dusty, moth-eaten books. Both are inflicted upon children. And both seek to explain the world through radical acts of simplification. […] By exaggerating a few features and neglecting all the rest, they help explain why our world is the way it is." Ben Orlin

What about you? Can you explain the following statements?

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1. Why do big pans make better brownies?

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We now face a choice: **Shall we bake the brownies in the one big pan, or in the small ones? And what does it mean to "adjust the recipe"?**
This is a fable, so we shall ignore the details. Forget over temperature, cooking times, heat flow, and minimizing the dishes to clean. Focus instead on one matter: size itself.

2. Why did the ambitious sculptor take his own life?

About 2300 years ago, the Greek island of Rhodes repelled an attack from Alexander the Great. In a mood of self-congratulation, the people commissioned local sculptor Chares to build a magnificent commemorative statue. Legend tells that Chares originally planned a 50-foot bronze sculpture. "What if we supersize it?" said the Rhodians. "You know, double the height? How much would that cost?"
"Double the price, of course," said Chares.
"We'll take it!" said the Rhodians.
So, why did Chares take his own life before the masterpiece was finished?

3. Why aren't there giants?

King Kong, the three-story ape. Paul Bunyan, the lumberjack whose footsteps carved out lakes. Shaquille O'Neal, the mythical seven-foot one, 325-pound basketball player who could do everything except make three throws. You know these stories, and you know just as well that they are fantasies, legends, wide-eyed fictions.
Let's say a giant is twice the size of a human being.
Then there cannot be such a thing as giants. Why is it so, according to maths?

4. Why does no ant fear heights?

Ants are horrifying. They lift objects 50 times their body mass, work together in flawless coordination, and thrive on every corner of the planet. This global army of weightlifting pincer-jawed telepaths outnumbers humans by a factor of millions. Visions of their alien faces would keep me up at night if not for one redeeming fact: Ants are very, very small.
So, why does no ant fear heights? And what do maths and physics tell you they should actually fear?

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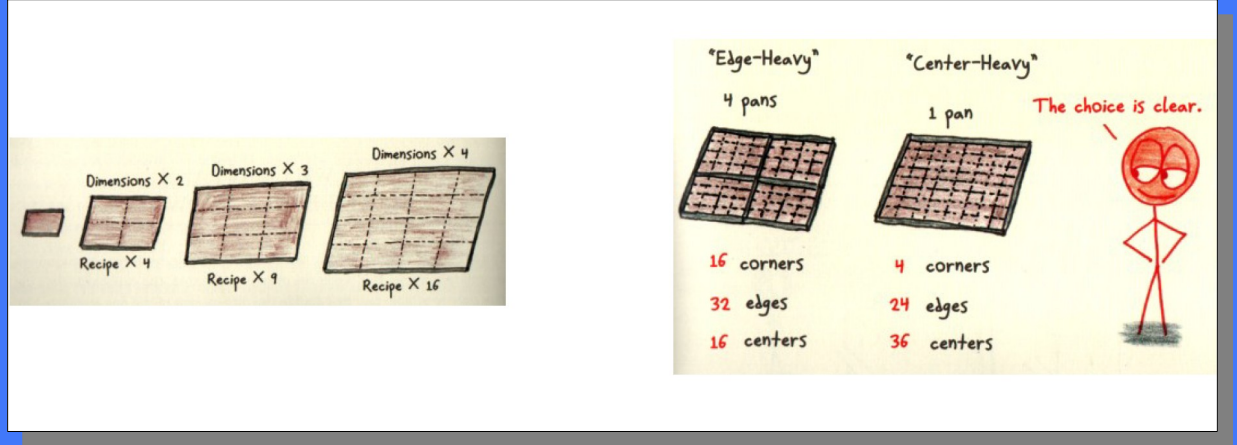
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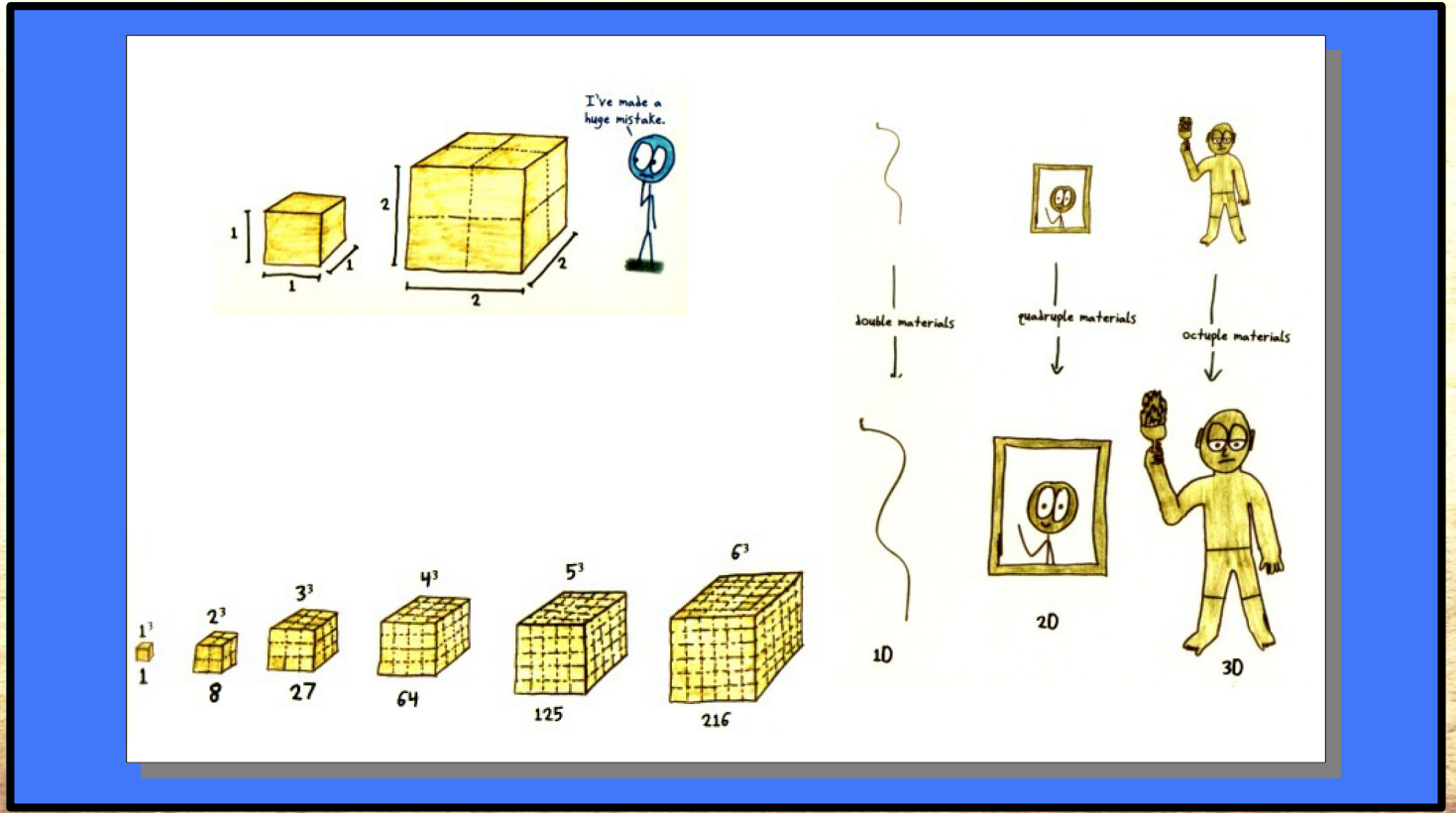
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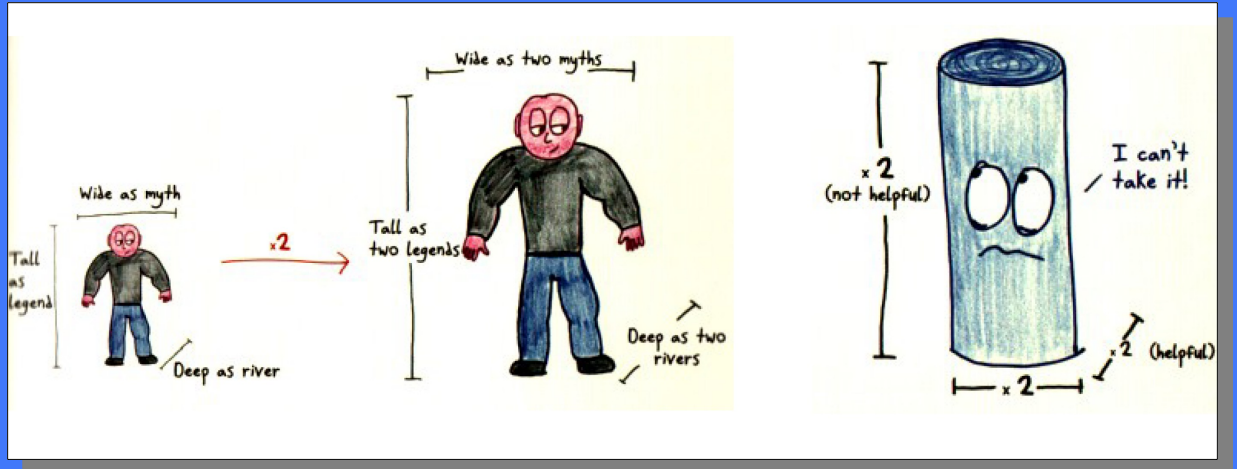
MATH with Bad Drawings

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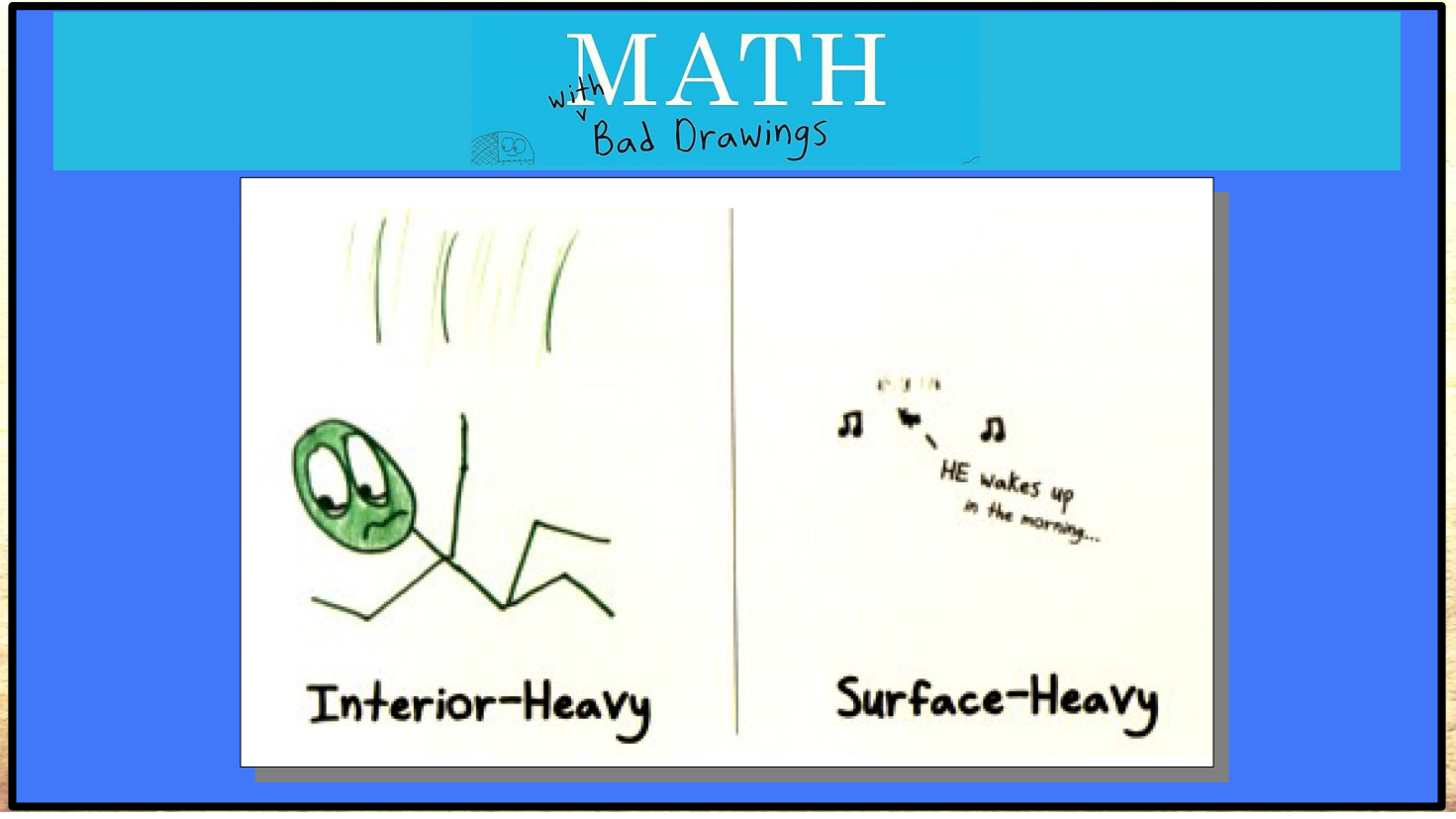
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Multiply the length by r, and you multiply the volume by r^3.

3. Why aren't there giants?

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There's no such thing as giants. Why?

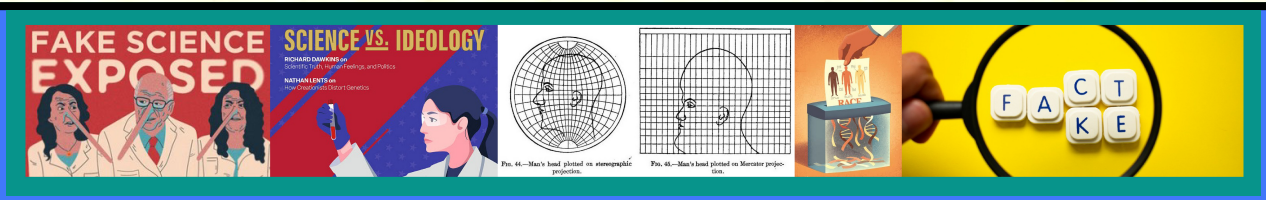
Suppose we take exemplary human specimen Dwayne Johnson and double his dimensions. Now with double the height, double the width, and double the depth, Dwayne's total body mass has grown by a factor of eight. But take a glance at his legs. To keep our man standing, his bones will need eight times the strength. Can they muster it?

They've undergone two helpful doublings (in width and depth) but one useless doubling: length. Just as you don't reinforce a column by making it taller, you can't bolster a leg by making it longer. Extra length confers no extra strength, just extra strain, as the bone's base must now support the greater mass above. Dwayne's leg bones won't keep pace with the demands placed on them: A factor of four can't match a factor of eight. Eventually, Dwayne Johnson will reach a critical breaking point. His limbs will buckle and splinter beneath the overwhelming weight of his torso.

We're dealing with a process called *isometric scaling*: growing a shape while preserving its proportions. It's a lousy method for making big animals. Instead, we need *allometric scaling*: growing a shape while altering its proportions accordingly.

When an animal's height grows by 50%, its legs can keep pace with the strain only by growing 83% thicker. That's why cats can survive on slender limbs, whereas elephants need pillars to stand on.

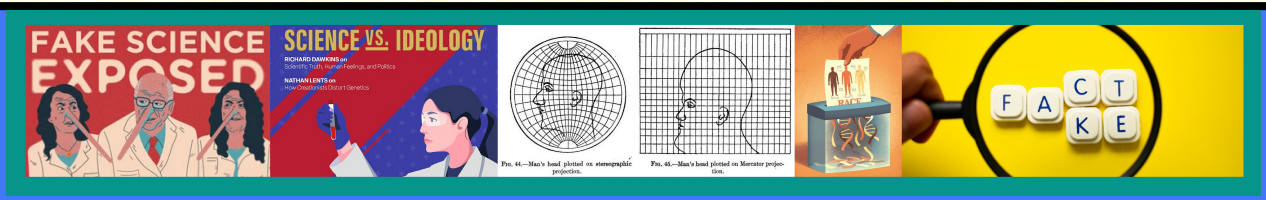
Science Turns Out To Be A Fiction : Damaging consequences



Science (OED):

- the intellectual and practical activity encompassing the systematic study of the structure and behaviour of the physical and natural world through observation and experiment
- a systematically organized body of knowledge on any subject
- knowledge

Science Turns Out To Be A Fiction : Damaging consequences

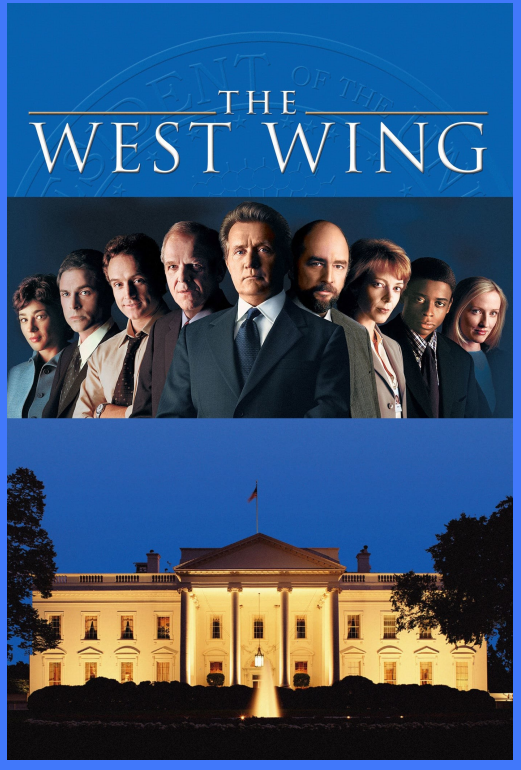


Most maps of the world are wrong.

Right

On most maps, the Mercator projection – first developed in 1569 – is still used. This method is wildly inaccurate and makes Alaska appear as large as Brazil and Greenland 14 times larger than it actually is. For a map to be completely accurate, it would need to be life-size and round, not flat.

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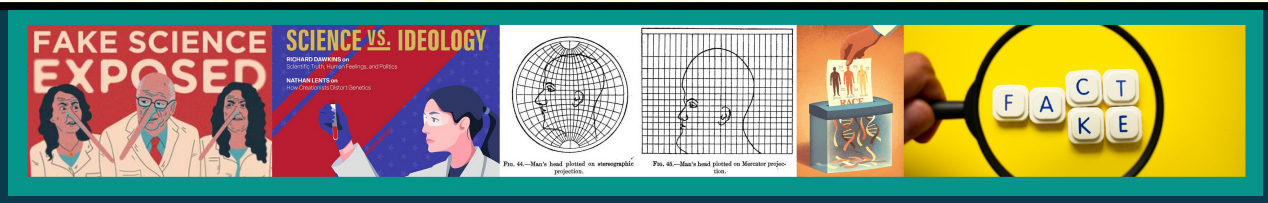








Science Turns Out To Be A Fiction : Damaging consequences





..... members of the Organization of Cartographers for Social Equality
..... dues for the newsletter of the OCSE
..... price to pass the legislation
..... Mercator designed his map as a navigation tool
..... Africa in comparison with Greenland
..... size of South America
..... size of Europe
..... how Alaska appears in relation to Mexico
..... in reality Mexico in relation to Alaska

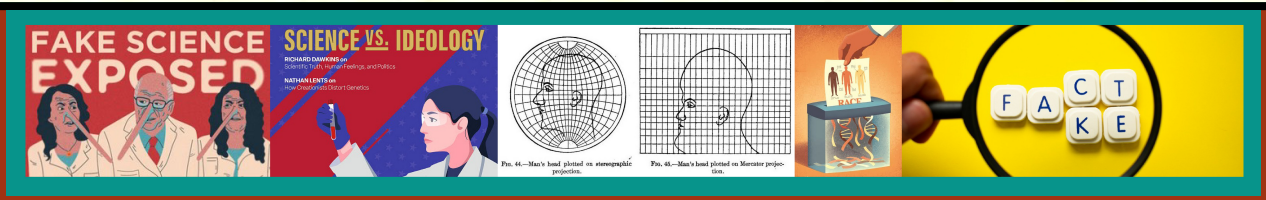
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Asian (OED)

Usage : In Britain Asian is used to refer to people who come from (or whose parents came from) the Indian subcontinent, while in North America it is used to refer to people from the Far East.

Science Turns Out To Be A Fiction : Damaging consequences



The damaging consequences of discourses: Construction of *The Sheik* and the Other

I. FIRST PART: What to expect from *The Sheik*?

In groups, carefully study the posters for the 1921 American silent movie *The Sheik* starring Rudolph Valentino and Agnes Ayres and get ready to discuss the following questions.



1.Paying close attention to clothes and gestures, imagine the plot of the movie.
2.What would you say about the presentation of the cultural setting in general, and more specifically of the male character?
3.Do you think a love story can be expected between the female and male characters? Why or why not?

II. SECOND PART: Edward Said's *Orientalism* (1978)



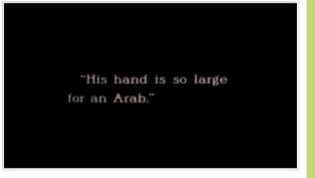
4.Get more familiar with the concept of "orientalism" by watching and taking notes about the *BBC* video available here: https://www.youtube.com/watch?v=ZST6qnRR1mY.

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III. THIRD PART: The Other in *The Sheik*

5.It has been polemically suggested recently, notably because of the historical, racial context in Victor Fleming's 1939 movie *Gone with the Wind*, that warning labels and disclaimers should accompany works of art.
Given the conceptual framework provided here, can you try and explain to viewers it might (legitimately) offend that line from *The Sheik*, uttered by the female character sitting at the bedside of the Sheik after he has been wounded in battle? How does it relate to Orientalism?





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6.In this light, can you comment upon the closely linked gender and racial issues raised by the movie as far as Rudolph Valentino's character is concerned?

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7.In this context, what would you see as one of the reasons Rudolph Valentino, who became Hollywood's first male sex symbol, was chosen for the part?

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8.At the end of the day, given everything that has been said, do you believe a love story between the characters is still possible? Why or why not?

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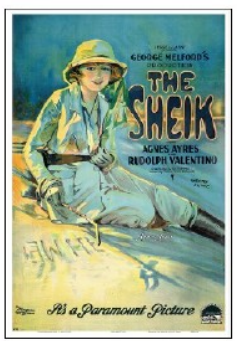
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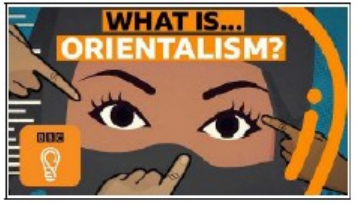




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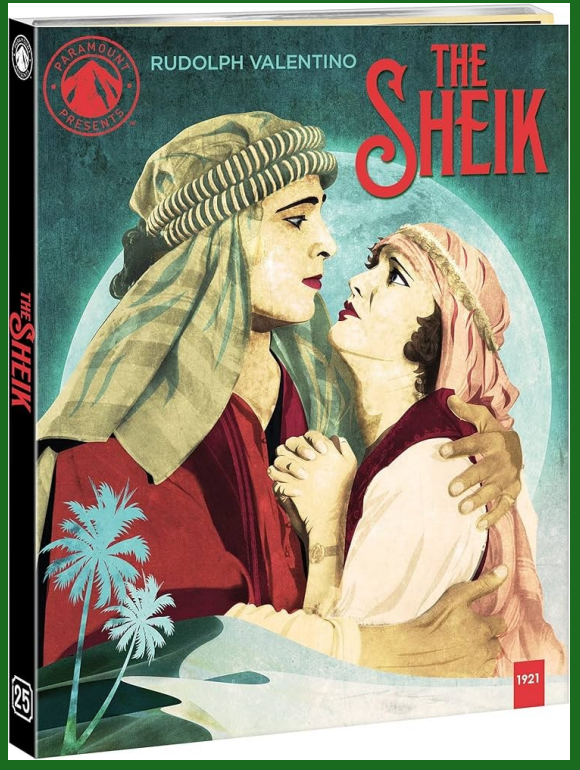
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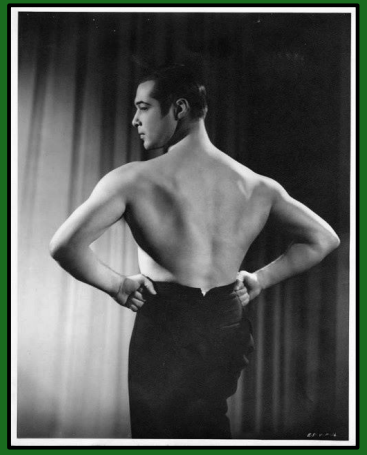
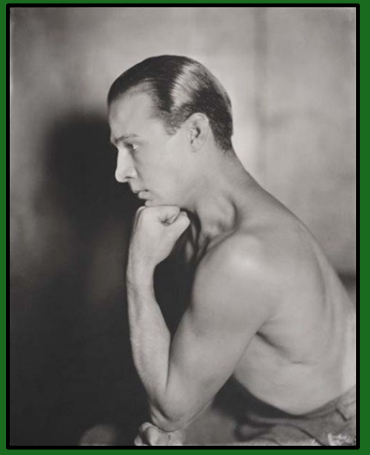
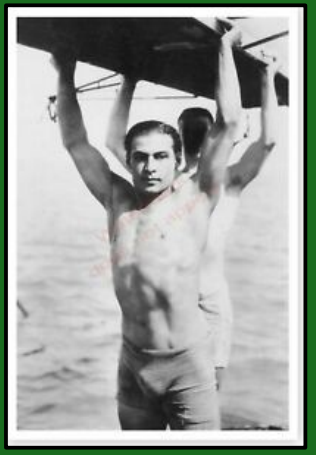
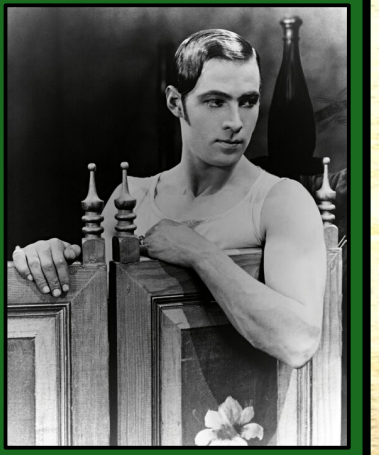
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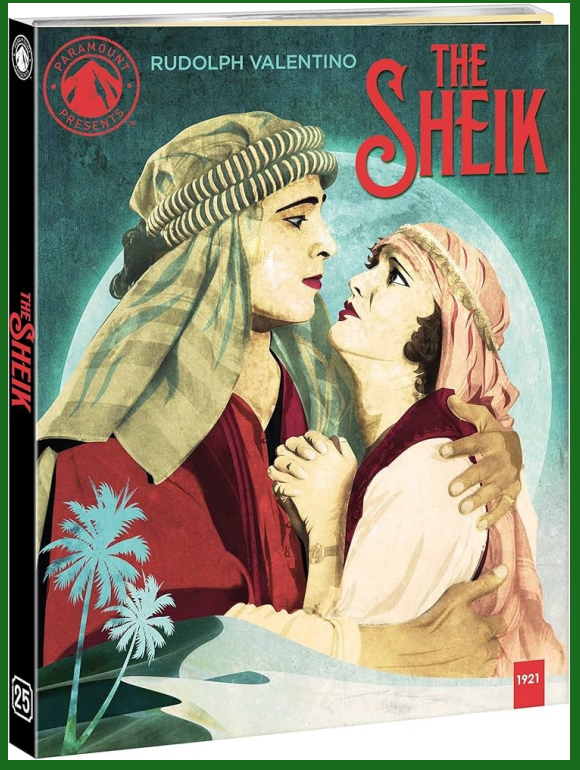
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Orientalism at 45: Why Edward Said's seminal book still matters



Anonymous Venetian orientalist painting titled The Reception of the Ambassadors in Damascus, 1511, at the Louvre (Public domain)

Orientalism is a critique of European essentialist representations of the "Orient", which tend to describe other cultures as static and monolithic, rather than ever-changing negotiation processes whose fluidity is enhanced by globalisation. It is also an analysis of the ambivalent relationship between knowledge and power, or the institutional orientalist tradition and imperialism, with the first applied in the service of the latter. […]

Discourse is produced by establishing a collective understanding of social facts developed in a particular historical period. These facts are established by systems of power that create rules for truth and legitimacy in knowledge production.
As power shifted westwards in the 17th century, Orientalist discourse premised on cultural "otherness" and "the basic distinction between east and west" spread, reflecting attitudes of European colonialism. The "Oriental" is therefore always analysed through the western scholar's "Occidental" lens and regarded as ontologically unequal. As Said explains, "the essence of Orientalism is the ineradicable distinction between western superiority and Oriental inferiority."
Orientalist discourse is based on binary logic, supported by an imaginative geography: there is an "Us" (the West) and there is a "Them" (the East). It is a static definition of the other that helps in defining ourselves: the "Orient" is everything the West is not.

Between 1815 and 1914, worldwide territories under European colonial rule increased from 30 to 85 percent of the earth's landmass. In the same period, almost 50,000 books on the Near East were published. After Napoleon's invasion of Egypt in 1798, Orientalism entered its modern global phase and even took on a scientific character in *Description de l'Egypte*, a massive volume published between 1809 and 1828. Abd al-Rahman al-Jabarti, a chronicler of those times, witnessed the Napoleonic invasion and was the first to describe it as an "epistemological conquest, other than military".

Morgane AUGRIS

Science Turns Out To Be A Fiction : Damaging consequences

Université d'ORLÉANS

UFR Sciences & Techniques

TD de L.V. Anglais (maths)

Contrôle continu 2 L2 S3
2026-2027

Prénom/nom : ……

Expression orale en continu et en interaction (présentations en groupes)

Critères	Commentaires

Rappel :
Le temps de passage attendu est de 15 minutes pour un groupe de 3 personnes (la durée minimum requise pour une présentation est de dix minutes).
Le sujet des candidats doit s'apparenter à l'un de ces quatre cas de figure :

- suivant l'exemple de l'étude sur la cape de Batman (deuxième séance), la plausibilité scientifique d'un objet de la culture populaire peut être interrogée.
- un mythe infirmé ou confirmé de la culture scientifique (exemples de la troisième séance) peut être exposé et commenté.
- un canular scientifique, à l'image de la quarantaine mise en place par la NASA suite au retour des astronautes de 1969 (troisième séance), peut être étudié dans son contexte historique.
- l'instrumentalisation d'une théorie (pseudo)scientifique élaborée à des fins politiques ou idéologiques (quatrième séance) peut être traitée depuis son contexte d'émergence jusqu'à ses conséquences contemporaines.