

## Science (Or) Fiction : The Science Behind Fiction

### NUMBERS IN ENGLISH

**Can you correct the following sentences?**

We landed at Heathrow at six point forty am.

I got fourteen on twenty on my test this morning.

I was born the two of february.

There was over two thousands people at the concert. It was fun seeing thousands people together.

Look at this number → three hundred and thirty-five If you write it with digital numbers...	<b>335</b>	...and then turn your worksheet upside down, you find an English word! →	<b>SEE</b>
Write the numbers below using digital numbers:	Number	Word	
five hundred and seven thousand, seven hundred and thirty-four			
three hundred and seventy- nine thousand, and nine			
five million three hundred and eighteen thousand, eight hundred and four			

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We landed at Heathrow at **six forty** am.

I got fourteen **out of** twenty on my test this morning.

I was born **on the second** of February.

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Write the numbers below using digital numbers:	Number	Word	
five hundred and seven thousand, seven hundred and thirty-four	<b>507734</b>	hellos	
three hundred and seventy- nine thousand, and nine	<b>379009</b>	google	
five million three hundred and eighteen thousand, eight hundred and four	<b>5318804</b>	hobbies	

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

<p><b>Bulls become angry when they see the color red.</b> Right or Wrong ?</p>	<p><b>Identical twins don't have the same fingerprints.</b> Right or Wrong ?</p>	<p><b>Cracking your knuckles frequently increases your chance of developing arthritis in your hands.</b> Right or Wrong ?</p>	<p><b>The largest piece of fossilised dinosaur poo discovered is over 30cm long and over two litres in volume.</b> Right or Wrong ?</p>
<p><b>A duck's quack does not echo.</b> Right or Wrong ?</p>	<p><b>The north star is the brightest star in the night sky.</b> Right or Wrong ?</p>	<p><b>Toilets flush in opposite directions depending on which side of the equator you find yourself on.</b> Right or Wrong ?</p>	<p><b>The Great Wall of China is the only man-made thing visible from space.</b> Right or Wrong ?</p>
<p><b>A cloud weighs around a million tonnes.</b> Right or Wrong ?</p>	<p><b>If your dad is bald, you'll be bald too.</b> Right or Wrong ?</p>	<p><b>All dinosaurs went extinct by an asteroid hitting earth.</b> Right or Wrong ?</p>	<p><b>Ostriches stick their heads into the ground when threatened.</b> Right or Wrong ?</p>
<p><b>Giraffes are 30 times more likely to get hit by lightning than people.</b> Right or Wrong ?</p>	<p><b>Earth's rotation is changing speed.</b> Right or Wrong ?</p>	<p><b>Animals can experience time differently from humans.</b> Right or Wrong ?</p>	<p><b>Chainsaws were first invented for childbirth.</b> Right or Wrong ?</p>
<p><b>Lightning Never Strikes the Same Place Twice</b> Right or Wrong ?</p>	<p><b>Your brain is constantly eating itself.</b> Right or Wrong ?</p>	<p><b>Most maps of the world are wrong.</b> Right or Wrong ?</p>	<p><b>Mice love cheese.</b> Right or Wrong ?</p>

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



**Choose a spokesperson in the group. The spokesperson will draw a card with a statement on it. They will have to make you guess what statement it is in a couple of sentences, without using the words already mentioned in the statement.**

**If they succeed, both the spokesperson and the guesser get a point for their teams.**

**If the person then correctly guesses whether it's right or false, they score one more point.**

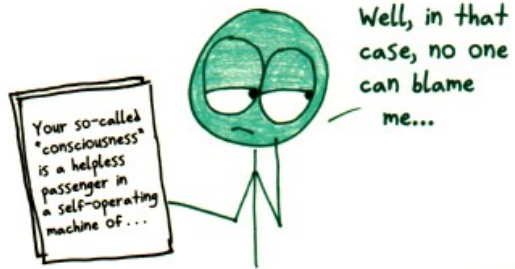
**If they can justify, they earn a final point.**

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

<p><b>Bulls become angry when they see the color red.</b></p> <p><b>Wrong</b></p> <p>The popular myths that bulls become angry when they see red, or are unusually violent animals, comes from the tradition of bullfighting, where a matador waves around a red cape, or a muleta, and the bull charges the cape with fervor. However, it's not the color of the cape that angers the bull but it's the movement of the cape. We also know that bulls are actually red-green colorblind and would have a hard time distinguishing red from green, orange, and brown.</p>	<p><b>Identical twins don't have the same fingerprints.</b></p> <p><b>Right</b></p> <p>You can't blame your crimes on your twin, after all. This is because environmental factors during development in the womb (umbilical cord length, position in the womb, and the rate of finger growth) impact your fingerprint.</p>	<p><b>Cracking your knuckles frequently increases your chance of developing arthritis in your hands.</b></p> <p><b>Wrong</b></p> <p>While cracking your knuckles may be annoying for those around you, it has no correlation to arthritis in those joints. This makes sense though - knuckle cracking is a bubble being formed and popped by the liquid that surrounds your knuckle joints. It causes no trauma to these areas that would accelerate the onset of inflammation to these joints, which is what arthritis is.</p>	<p><b>The largest piece of fossilised dinosaur poo discovered is over 30cm long and over two litres in volume.</b></p> <p><b>Right</b></p> <p>Believed to be a Tyrannosaurus Rex turd, the fossilised dung (also named a 'coprolite') is helping scientists better understand what the dinosaur ate.</p>
<p><b>A duck's quack does not echo.</b></p> <p><b>Wrong</b></p> <p>A duck's quack not echoing is a myth that stems from the fact that it is simply very difficult to hear the echo. Using a reverberation chamber is all you need to prove that a duck's quack does indeed echo. But why is it so hard to hear a duck's quack echo without this chamber? Many reasons can contribute to creating an echo in the wild. A duck needs to have a large surface far enough away to reflect off of and the strength behind its quack to reach said surface and make it back to your ears at a volume that is loud enough.</p>	<p><b>The north star is the brightest star in the night sky.</b></p> <p><b>Wrong</b></p> <p>The north star, or Polaris, is the star that is positioned right above the celestial pole. The celestial pole is the axis that the celestial sky rotates around, the point in the night sky that doesn't move as the earth rotates, therefore showing true north. Polaris is not the brightest in the night sky - not even close! Polaris is about 50th in terms of brightness. The brightest is the dog star, Sirius.</p>	<p><b>Toilets flush in opposite directions depending on which side of the equator you find yourself on.</b></p> <p><b>Wrong</b></p> <p>The Coriolis Effect is a pattern of deflection that things that are not firmly connected to the earth but travel long distances across the planet. Since the earth rotates faster at the equator than at the polar poles, objects will appear to rotate to the right in the northern hemisphere and to the left in the southern hemisphere. However, the Coriolis Effect only influences things moving great distances of long periods of time on earth, not a 5 second toilet flush.</p>	<p><b>The Great Wall of China is the only man-made thing visible from space.</b></p> <p><b>Wrong</b></p> <p>The Great Wall of China is certainly large, at 13,171 miles long! However, it is unable to be seen from space with just the unaided eye. From low earth orbit, astronauts have said they can see cities, major roadways, dams, and even airports. So why can't they see the Great Wall? It's all about color. The Great Wall of China is nearly the same color as the area surrounding it, so it's difficult to distinguish the wall from its surroundings.</p>
<p><b>A cloud weighs around a million tonnes.</b></p> <p><b>Right</b></p> <p>A cloud typically has a volume of around 1km<sup>3</sup> and a density of around 1.003kg per m<sup>3</sup> - that's a density that's around 0.4 per cent lower than the air surrounding it (this is how they are able to float).</p>	<p><b>If your dad is bald, you'll be bald too.</b></p> <p><b>Wrong</b></p> <p>Male pattern baldness is a trait on the X chromosome, meaning it skips a generation and comes from your mother's side. So, yes, if your dad is bald, there is a chance you might become bald. However, it is only a possibility, and there are other causes of baldness.</p>	<p><b>All dinosaurs went extinct by an asteroid hitting earth.</b></p> <p><b>Wrong</b></p> <p>The asteroid, or the K-T extinction event, that happened 65 million years ago wiped out about 80 percent of all plant and animal life on the planet. The effects of the asteroid and the winter fallout that occurred afterward killed all tetrapods (four-legged animals) that weighed over 50 pounds. However, some small species of dinosaurs survived and evolved into modern-day birds. This event did lead to many mammals evolving into larger and more complex species as, during the time of large meat-eating lizards, mammals tended to become meals.</p>	<p><b>Ostriches stick their heads into the ground when threatened.</b></p> <p><b>Wrong</b></p> <p>Their first instinct is to run, and they are fast! Ostriches can outrun most predators. If they can't run, they aren't afraid to fight. An ostrich can kick with their clawed feet so hard they can easily take out a full-grown lion. However, this myth did have an origin in ostrich behavior. Ostriches will lay down flat to play dead if they feel they can't win the fight, this combined with their lighty colored head and neck makes it look as if the ostrich has buried its head.</p>
<p><b>Giraffes are 30 times more likely to get hit by lightning than people.</b></p> <p><b>Right</b></p> <p>True, there are only five well-documented fatal lightning strikes on giraffes between 1996 and 2010. But due to the population of the species being just 140,000 during this time, it makes for about 0.003 lightning deaths per thousand giraffes each year. This is 30 times the equivalent fatality rate for humans.</p>	<p><b>Earth's rotation is changing speed.</b></p> <p><b>Right</b></p> <p>It's actually slowing. This means that, on average, the length of a day increases by around 1.8 seconds per century. 600 million years ago a day lasted just 21 hours.</p>	<p><b>Animals can experience time differently from humans.</b></p> <p><b>Right</b></p> <p>To smaller animals, the world around them moves more slowly compared to humans. Salamanders and lizards, for example, experience time more slowly than cats and dogs. This is because the perception of time depends on how quickly the brain can process incoming information.</p>	<p><b>Chainsaws were first invented for childbirth.</b></p> <p><b>Right</b></p> <p>It was developed in Scotland in the late 18th Century to help aid and speed up the process of symphysiotomy (widening the pelvic cartilage) and removal of disease-laden bone during childbirth. It wasn't until the start of the 20th Century that we started using chainsaws for woodchopping.</p>
<p><b>Lightning Never Strikes the Same Place Twice</b></p> <p><b>Wrong</b></p> <p>If you have watched a thunderstorm any length of time, you know this is not true. Lightning can strike one place multiple times. The Empire State Building gets struck around 25 times each year. Actually, any tall object is at increased risk of a lightning strike. Some people have been struck by lightning more than once.</p>	<p><b>Your brain is constantly eating itself.</b></p> <p><b>Right</b></p> <p>This process is called phagocytosis, where cells envelop and consume smaller cells or molecules to remove them from the system. Don't worry! Phagocytosis isn't harmful, but actually helps preserve your grey matter.</p>	<p><b>Most maps of the world are wrong.</b></p> <p><b>Right</b></p> <p>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.</p>	<p><b>Mice love cheese.</b></p> <p><b>Wrong</b></p> <p>Mice will eat anything that has some sort of nutritional value. However, given a choice, a mouse would pick a sweeter food choice like fruit or candy over cheese. The popular science myths that mice, or other small animals, love cheese originated in medieval times when families didn't have refrigerators. They hung meat from the ceiling and stored grain in silos, but cheese was simply wrapped in a thin layer of wax or cloth, making it much easier for rodents to find and eat the cheese.</p>

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

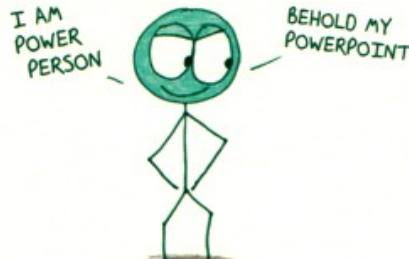
Can you guess what the scientific studies and their conclusions were?



You're more likely to cheat on a test after reading a passage that argues there's no such thing as free will.




After plotting two close-together points on graph paper, you feel emotionally closer to your family members than after plotting two far-apart points.



Adopting certain "power poses" can inhibit stress hormones while boosting testosterone, prompting others to judge you as more confident and impressive.




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



**P-Value**  
*[ˈpē ˈval-(,)yü]*

A statistical measure used to determine the likelihood that an observed outcome is the result of chance.

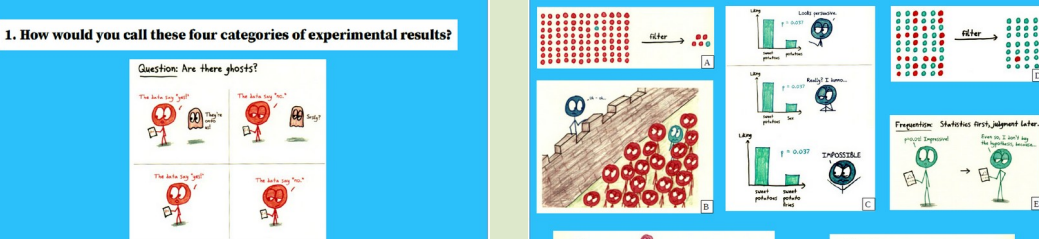
 Investopedia



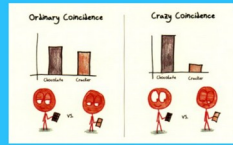
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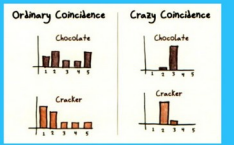
### with MATH Bad Drawings BEN ORLIN


**1. How would you call these four categories of experimental results?**



**2. Look at the following drawings: what are the three fundamental factors the p-value incorporates to avoid flukes and random chance?**

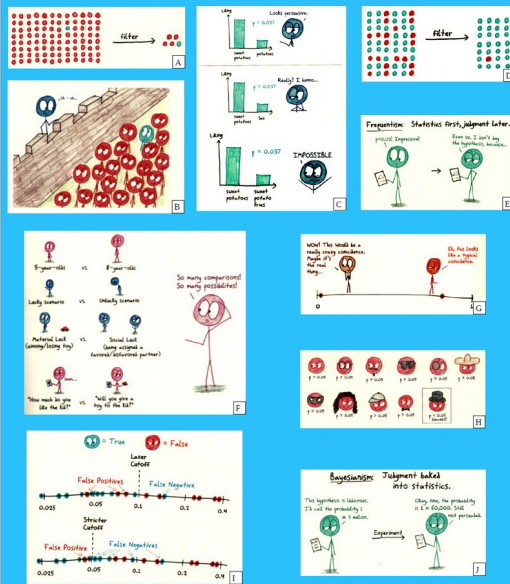






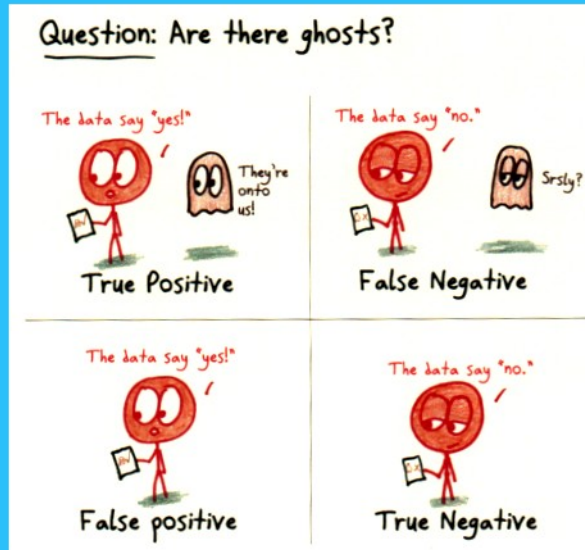
**3. Try and use all the drawings to prepare a presentation about the "p-value crisis."**

- In what order would you put the drawings to create a logical progression?
- How can you explain the ins and outs of the problem in simple terms, resorting to the drawings?
- If need be, you will find clues on Célière to get you started.



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

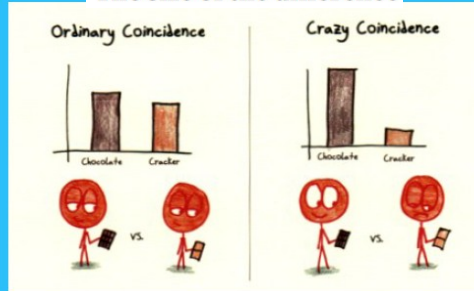
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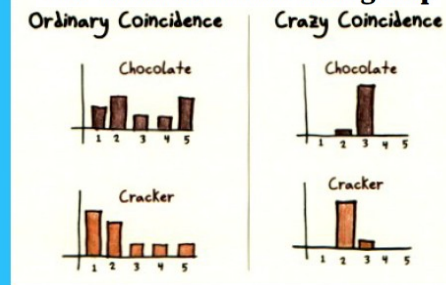
## Science Turns Out To Be A Fiction : Myths, Misconceptions, Hoaxes

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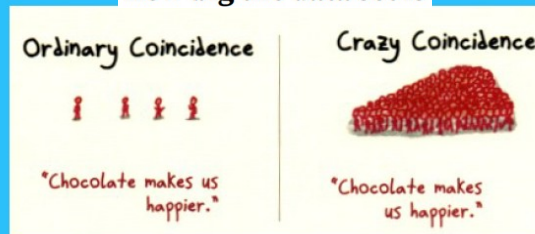
**The size of the difference**



**The variance within each group**



**How big the data set is**

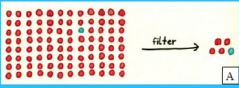
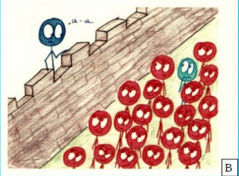
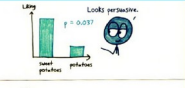
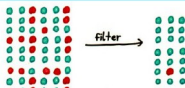
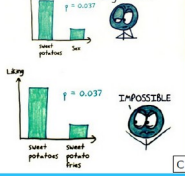
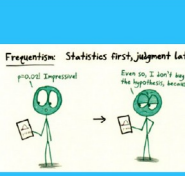
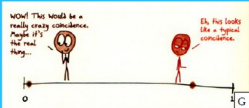

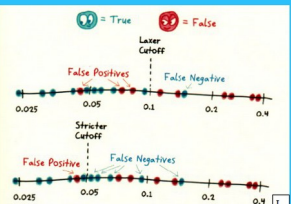
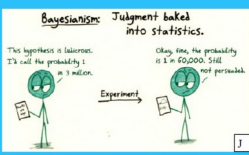


## Science Turns Out To Be A Fiction : Myths, Misconceptions, Hoaxes

### BARBARIANS AT THE GATE OF SCIENCE

THE P-VALUE CRISIS

1. TO CATCH A FLUKE
2. CALIBRATING THE FLUKE FILTER
3. HOW FLUKES BREED
4. THE WAR ON FLUKES

G - I - C - D - B - A - F - H - E - J

**3. Try and use all the drawings to prepare a presentation about the "p-value crisis."**

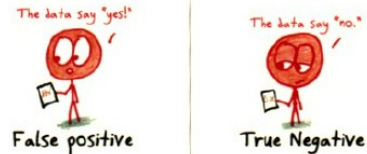
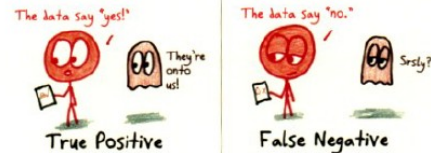
- In what order would you put the drawings to create a logical progression?
- How can you explain the ins and outs of the problem in simple terms, resorting to the drawings?
- If need be, you will find clues on Célène to get you started.

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

### 1. TO CATCH A FLUKE

Every science experiment asks a question. Are gravitational waves real? Do millennials hate solvency? Can this new drug cure antivax paranoia? No matter the question, there are two possible truths ("yes" and "no") and, given the inherent unreliability of evidence, two possible outcomes ("you get it right" and "you get it wrong"). Thus, experimental results can fall into four categories:

Question: Are there ghosts?

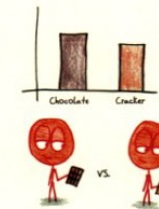


Scientists want **true positives**. They are known as "discoveries" and can win you things like Nobel Prizes, smooches from your romantic partner, and continued funding.

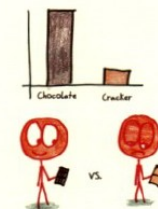
To weed out flukes, the p-value incorporates three fundamental factors:

1. **The size of the difference.** A razor-thin margin (say, 3.3 vs. 3.2) is much likelier to occur by coincidence than a substantial gap is (say, 4.9 vs. 1.2).

Ordinary Coincidence



Crazy Coincidence



2. **How big the data set is.** A two-person sample inspires little confidence. Maybe I happened to give the chocolate to an enthusiastic lover of life, and the graham cracker to an ungrateful nihilist. But in a randomly divided sample of two *thousand* people, individual differences should wash out. Even a smallish gap (3.08 vs. 3.01) is unlikely to happen by fluke.

Ordinary Coincidence



"Chocolate makes us happier."

Crazy Coincidence



"Chocolate makes us happier."

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

**NASA genuinely faked part of the Moon landing.**



**True.** While Neil Armstrong's first steps on the lunar surface were categorically not faked, the astronaut quarantine protocol when the astronauts arrived back on Earth was largely just one big show.

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

### The Apollo moon landing was real, but NASA's quarantine procedure was not



President Richard Nixon welcomes the Apollo 11 astronauts back to Earth after their historic voyage to the moon. The astronauts were confined within one of NASA's Mobile Quarantine Facilities for 21 days to ensure they would not contaminate Earth with any potential lunar bacteria after their short lunar sojourns. (Image credit: NASA)

In a small desert town, dozens of unsuspecting people suddenly drop dead from a mysterious plague. The infectious agent has come from outer space; it has no known cure, and the U.S. government must scramble to contain it before it destroys the world.

This is the plot of "The Andromeda Strain," a 1969 novel by author Michael Crichton. The book was published just two months before humans first set foot on the moon, and it sparked widespread panic about what the Apollo 11 astronauts might bring back. Luckily, NASA had a quarantine protocol in place for the mission. But those measures might have been largely for show, according to new research published in the science history journal *Istis*. [...]

NASA set up a quarantine facility in Houston known as the Lunar Receiving Laboratory in order to counteract the possibility of any hitchhiking alien germs escaping onto Earth. When the Apollo 11 crew returned from their mission, they were immediately ushered into this state-of-the-art, multimillion dollar facility, where they spent three weeks. Twenty-four NASA employees who were exposed to lunar material as they helped the astronauts disembark were quarantined as well, the *New York Times* reported.

On its face, the quarantine protocol looked sensible. But the new research suggests that despite the money and resources invested in it, NASA's "planetary protection" efforts were largely for show. "The quarantine protocol looked like a success only because it was not needed," study author Dagomar Degroot, a historian at Georgetown University, wrote in the new paper.

What's more, Degroot's work shows that NASA knew that its quarantine protocol was probably inadequate. For example, the Apollo spacecraft hadn't been designed to prevent potential lunar contaminants from being exposed to Earth's environment; once it splashed down in the Pacific Ocean, the capsule's cabin had to be fully opened in order to let astronauts Neil Armstrong, Buzz Aldrin and Michael Collins out. The air inside the module was also vented into Earth's atmosphere as the craft reentered, ensuring that the crew wouldn't suffer carbon dioxide poisoning.

But NASA also knew that the risk of the Apollo 11 astronauts bringing home a space plague was extremely low. They played up their ability to contain a microbial threat so as not to panic the public. [...]

Ultimately, the probable failure of Apollo 11's quarantine protocol could be a valuable lesson for future missions, which aim to return samples (and humans) from Mars and beyond. Given its atmosphere and geology, Mars is far more likely to harbor microbial life than the moon.

In 2020, NASA issued an updated procedure for containing alien microbes, though the document hasn't been used yet. But even with these standards in place, it may prove impossible to fully contain a runaway space microorganism. We'll just have to hope that they come in peace — or are vulnerable to Lysol.

By Joanna Thompson, June 15, 2023.  
<https://www.space.com/apollo-11-moon-landing-nasa-quarantine-procedures>

### The Apollo moon landing was real, but NASA's quarantine procedure was not



#### 1. Right or Wrong?

- Citizens mysteriously died when Apollo 11 astronauts landed back on earth. ....
- The astronauts' return inspired a sci-fi novel about the probable consequences of the moonlanding. ....
- The design of the spacecraft entailed security issues. ....
- The protocol was designed this particular way exclusively to avoid public panic. ....

#### 2. Rephrase in your own words:

"On its face, the quarantine protocol looked sensible?" .....

#### 3. Find in the text, and in that particular order, the words corresponding to the following definitions.

A contagious bacterial disease characterized by fever and delirium, typically with the formation of buboes: .....

Act in a hurried, disorderly or undignified manner: .....

To provide the stimulus for: .....

To travel by getting free lifts in passing vehicles: .....

To provide the stimulus for: .....

To travel by getting free lifts in passing vehicles: .....

#### 4. Do you know about other similar hoaxes in science?

#### 5. Grammar.

##### a. Names.

Pay attention to the particular way people's names are used in combination with their jobs and draw conclusions.

.....

##### b. Preterit vs. Present perfect

Look at the following excerpt from the text and draw conclusions about when to use the present perfect and when to use the preterit.

.....

In 2020, NASA **issued** an updated procedure for containing alien microbes, though the document **hasn't been** used yet.

.....

Conclusions: .....

.....

.....

#### Now fill in the text with the verb in the right tense.

I suppose they (arrive) ..... by now. It is not really the first time I (feel) ..... that way. Indeed, since the very first tourists (come) ..... I can say I (feel) ..... this pang inside me. Actually it (grow) .....

..... bigger over the past few years. I remember 1986. In those days, I (have) ..... the beach all to myself. Once, I even (spend) .....

..... one full day alone, gazing at the horizon line. Then the invaders (take over) .....

.....

Sylvie Pérec, Jean-Claude Burgat, *Grammaire raisonnée* 2.

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

### 5. Grammar.

#### a. Names.

Pay attention to the particular way people's names are used in combination with their jobs and draw conclusions.

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Conclusions:

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.....

.....

#### Now fill in the text with the verb in the right tense.

I suppose they (arrive) ..... by now. It is not really the first time I (feel) ..... that way. Indeed, since the very first tourists (come) ....., I can say I (feel) ..... this pang inside me. Actually it (grow) ..... bigger over the past few years. I remember 1986. In those days, I (have) ..... the beach all to myself. Once, I even (spend) ..... one full day alone, gazing at the horizon line. Then the invaders (take over) .....

Sylvie Persec, Jean-Claude Burgué, *Grammaire raisonnée 2*.



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



### 1. Right or Wrong?

- a. Citizens mysteriously died when Apollo 11 astronauts landed back on earth. ....
- b. The astronauts' return inspired a sci-fi novel about the probable consequences of the moonlanding. ....
- c. The design of the spacecraft entailed security issues. ....
- d. The protocol was designed this particular way exclusively to avoid public panic. ....

### 2. Rephrase in your own words:

"On its face, the quarantine protocol looked sensible": .....

### 3. Find in the text, and in that particular order, the words corresponding to the following definitions.

A contagious bacterial disease characterized by fever and delirium, typically with the formation of buboes: .....

Act in a hurried, disorderly or undignified manner: .....

To provide the stimulus for: .....

To travel by getting free lifts in passing vehicles: .....

### 4. Do you know about other similar hoaxes in science?

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

### The Apollo moon landing was real, but NASA's quarantine procedure was not



#### 1. Right or Wrong?

- Citizens mysteriously died when Apollo 11 astronauts landed back on earth. **Wrong**
- The astronauts' return inspired a sci-fi novel about the probable consequences of the moonlanding. **Wrong**
- The design of the spacecraft entailed security issues. **Right**
- The protocol was designed this particular way exclusively to avoid public panic. **Wrong**

#### 2. Rephrase in your own words:

"On its face, the quarantine protocol looked sensible": At first glance, the quarantine protocol seemed reasonable/wise and prudent/practical and functional rather than decorative.

#### 3. Find in the text, and in that particular order, the words corresponding to the following definitions.

A contagious bacterial disease characterized by fever and delirium, typically with the formation of buboes:

**plague**

Act in a hurried, disorderly or undignified manner: **to scramble**

To provide the stimulus for: **to spark**

To travel by getting free lifts in passing vehicles: **to hitchhike**

#### 4. Do you know about other similar hoaxes in science?

#### 5. Grammar.

##### a. Names.

Pay attention to the particular way people's names are used in combination with their jobs and draw conclusions.

"President Richard Nixon", "Author Michael Crichton", "Astronauts Neil Armstrong etc"

##### b. Preterit vs. Present perfect

Look at the following excerpt from the text and draw conclusions about when to use the present perfect and when to use the preterit.

In 2020, NASA **issued** an updated procedure for containing alien microbes, though the document **hasn't been** used yet.

#### Conclusions:

Le **present perfect** se forme avec l'auxiliaire Have et le participe passé du verbe. L'auxiliaire Have est au présent : le present perfect n'est pas un temps du passé, c'est un temps du présent. En effet, le procès est vu comme accompli par rapport au présent. C'est le résultat du procès qui est mis en évidence, dans le présent.

Le present perfect permet de faire le « bilan » d'une situation dans le présent.

On emploie le present perfect avec les adverbes exprimant un **lien temporel avec le présent** (now, by now, up to now, so far (jusqu'à présent), since (depuis), over the past few months/years (depuis ces derniers mois/ces dernières années)) et avec les adverbes exprimant le **bilan dans le présent** (always, never, ever, before, already, yet, still, just (passé immédiat), recently, it's the first time).

Le **preterit simple** est un temps du passé : il est utilisé pour des actions passées qui n'ont aucun lien avec le présent. La présence d'adverbes de temps précis (once, ago, when) entraîne le preterit. On emploie le preterit

avec des expressions situant l'action dans le passé (once, ago, when, in those days, last week, on Sunday, etc.) et avec les termes exprimant la succession dans le temps (first, and then, later, next).

Pour plus de détails, se référer à : Sylvie Percec, Jean-Claude Burgat, *Grammaire raisonnée 2*.

#### Now fill in the text with the verb in the right tense.

I suppose they (arrive) **have arrived** by now. It is not really the first time I (feel) **have felt** that way. Indeed, since the very first tourists (come) **came**, I can say I (feel) **have felt** this pang inside me. Actually it (grow) **has grown** bigger over the past few years. I remember 1986. In those days, I (have) **had** the beach all to myself. Once, I even (spend) **spent** one full day alone, gazing at the horizon line. Then the invaders (take over) **took over**.

Sylvie Percec, Jean-Claude Burgat, *Grammaire raisonnée 2*.