

C1-C2 English Worksheet

The Lizard Brain Myth: What Modern Neuroscience Says About the Human Brain

6 October 2026

Article

A recent Guardian feature revisited the "lizard brain", one of neuroscience's most durable metaphors. It can be traced back to Paul MacLean's mid-20th-century triune brain model, which portrayed the human brain as a hierarchical stack: a reptilian core for instinct, a mammalian limbic system for emotion and a newer neocortex for rational thought. The story took hold because it was intuitive, memorable and seductive. It also fit neatly into self-help, management and popular psychology, where complicated behaviour could be explained as a struggle between primitive impulses and higher reasoning.

Modern comparative neuroscience does not support that evolutionary ladder. When researchers pick apart the model, its clean boundaries do not hold up. Brain regions did not simply appear one after another as complete new layers. Many structures are homologous across vertebrates, while evolution has modified proportions, connections and functions within an interdependent system. Emotion and cognition also feed into one another rather than operating as rival departments. None of this means every brain area does the same job; specialisation is real. The problem is the oversimplified claim that a reptilian module survives inside us and periodically seizes control.

The myth nevertheless continues to crop up in classrooms, advertising, leadership training and online explanations. Repetition can make an entrenched idea sound credible, especially when a metaphor is easier to remember than a nuanced correction. Search engines and AI summaries can also reproduce familiar claims unless users check the evidence behind them. That raises a broader question about knowledge: when should we move on from a useful but inaccurate story? Scientific models are tools, not sacred facts. A good explanation should square with new evidence, and when it does not, we should be willing to brush aside the appealing story rather than preserve it because everyone already knows it.

True/False

Decide if each statement is True (T) or False (F).

No.	Statement	T / F
1	The triune brain model is associated with Paul MacLean and a layered view of brain evolution.	
2	The article says the model became popular because it was difficult to understand and remember.	
3	Modern comparative neuroscience supports a clean ladder from reptilian to mammalian to human brain.	
4	Related versions of many brain structures can be found in different vertebrate groups.	
5	The writer argues that all brain regions perform essentially the same functions.	
6	The lizard brain idea still appears in areas such as education, advertising and leadership training.	
7	Hearing the same claim repeatedly can make people regard it as more trustworthy.	
8	The article argues that familiar scientific models should be preserved even when evidence changes.	

Phrase Match

Match the phrases (1-10) to the correct definitions (A-J).

Phrases (1-10)	Definitions (A-J)
1. can be traced back to	A. contribute to or influence a larger process
2. took hold	B. match a framework or category easily
3. fit neatly into	C. leave an idea behind and stop relying on it
4. pick apart	D. have its origins in an earlier source or period
5. hold up	E. dismiss or reject something without giving it much weight
6. feed into	F. remain valid or convincing when examined
7. crop up	G. be consistent or compatible with something
8. move on from	H. become established or influential
9. square with	I. appear unexpectedly or repeatedly
10. brush aside	J. analyse something critically in detail to expose weaknesses

Synonym Match

Match the words (1-10) to the correct synonyms (A-J).

Words (1-10)	Synonyms (A-J)
1. durable	A. instinctive
2. hierarchical	B. deep-rooted
3. intuitive	C. corresponding
4. seductive	D. reductive
5. homologous	E. subtle
6. interdependent	F. enduring
7. oversimplified	G. plausible
8. entrenched	H. alluring
9. credible	I. ranked
10. nuanced	J. mutually dependent

Use the New Language

Choose 5 words or phrases from the worksheet and write your own sentences.

No.	Your sentence
1	
2	
3	
4	
5	

Discussion Questions

Student A	Student B
1. Which explanation of human behaviour did you later discover did not hold up particularly well?	1. Does the usefulness of a scientific metaphor justify keeping it once its literal claims no longer hold up?
2. Have you ever repeated a scientific claim and later discovered that the evidence behind it was weak?	2. Can oversimplified scientific stories distort how people understand human behaviour even when they are presented as metaphors?
3. Which scientific terms crop up most often in advertising or wellness marketing where you live?	3. When advertisers borrow the language of neuroscience, should they have to show evidence for the implied claim?
4. When a search result or AI summary sounds authoritative, what do you do to see whether it squares with reliable evidence?	4. Why does popularity so often feed into perceptions of credibility, even when popularity is not evidence?
5. What piece of school knowledge have you had to move on from because the accepted explanation changed?	5. Could search engines and AI systems reinforce entrenched myths simply because inaccurate claims are widely repeated online?
6. Which popular scientific myth do you still hear even though it has been challenged repeatedly?	6. How should schools balance stable foundational knowledge with the need to move on from outdated models?
7. Do memorable metaphors help you understand complex subjects, or do they sometimes take hold too strongly?	7. Why are oversimplified scientific stories often harder to brush aside than more accurate, nuanced explanations?
8. When have you deliberately changed your view after someone picked apart the evidence behind it?	8. What standards should an explanation meet before we regard it as credible enough to teach, publish or build decisions around?

Answer Key

True/False	1=T, 2=F, 3=F, 4=T, 5=F, 6=T, 7=T, 8=F
Phrase Match	1=D, 2=H, 3=B, 4=J, 5=F, 6=A, 7=I, 8=C, 9=G, 10=E
Synonym Match	1=F, 2=I, 3=A, 4=H, 5=C, 6=J, 7=D, 8=B, 9=G, 10=E

Example Sentences With the Phrases

No.	Example sentence
1	The modern myth can be traced back to an influential mid-20th-century model.
2	The explanation took hold because it reduced a complicated subject to a memorable story.
3	The idea fit neatly into training programmes that divided behaviour into emotion and reason.
4	Researchers can pick apart a theory by comparing its predictions with new evidence.
5	A scientific model should hold up when different methods are used to test it.
6	Repeated headlines can feed into the impression that a disputed claim is settled fact.
7	Old brain myths still crop up in presentations, adverts and online discussions.
8	Education has to move on from models that no longer reflect the best evidence.
9	A popular claim should square with the findings it is supposed to explain.
10	We should not brush aside a correction simply because the older story is more appealing.