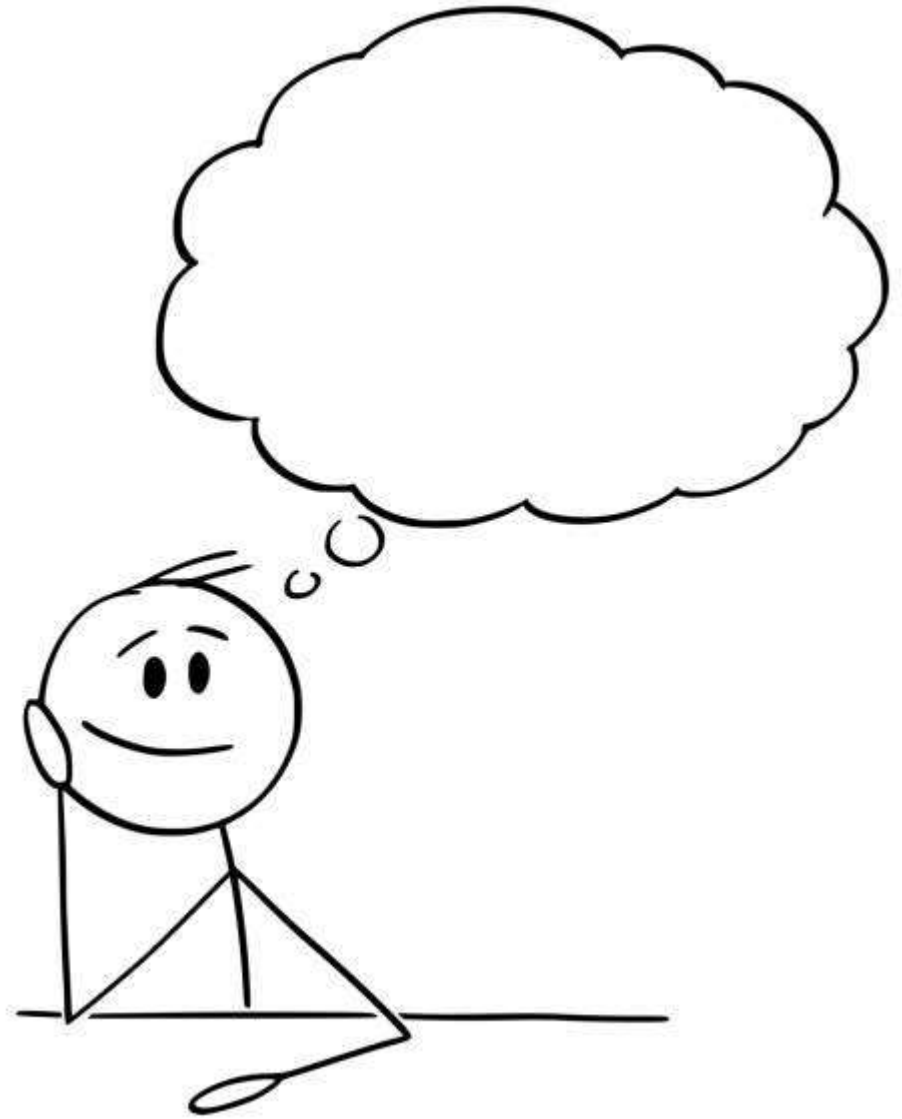


**Tools and techniques to  
keep students engaged**

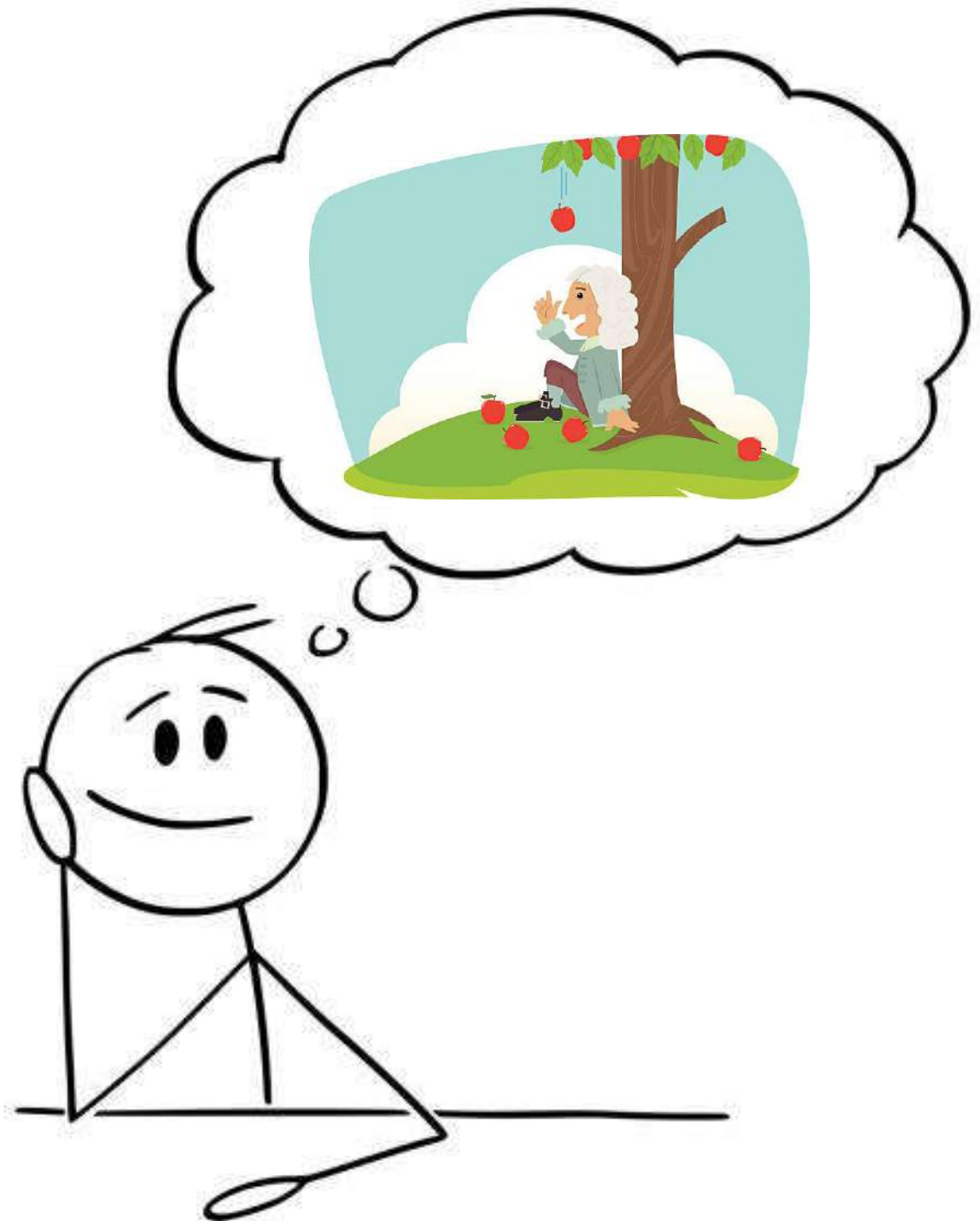
# STORYTELLING



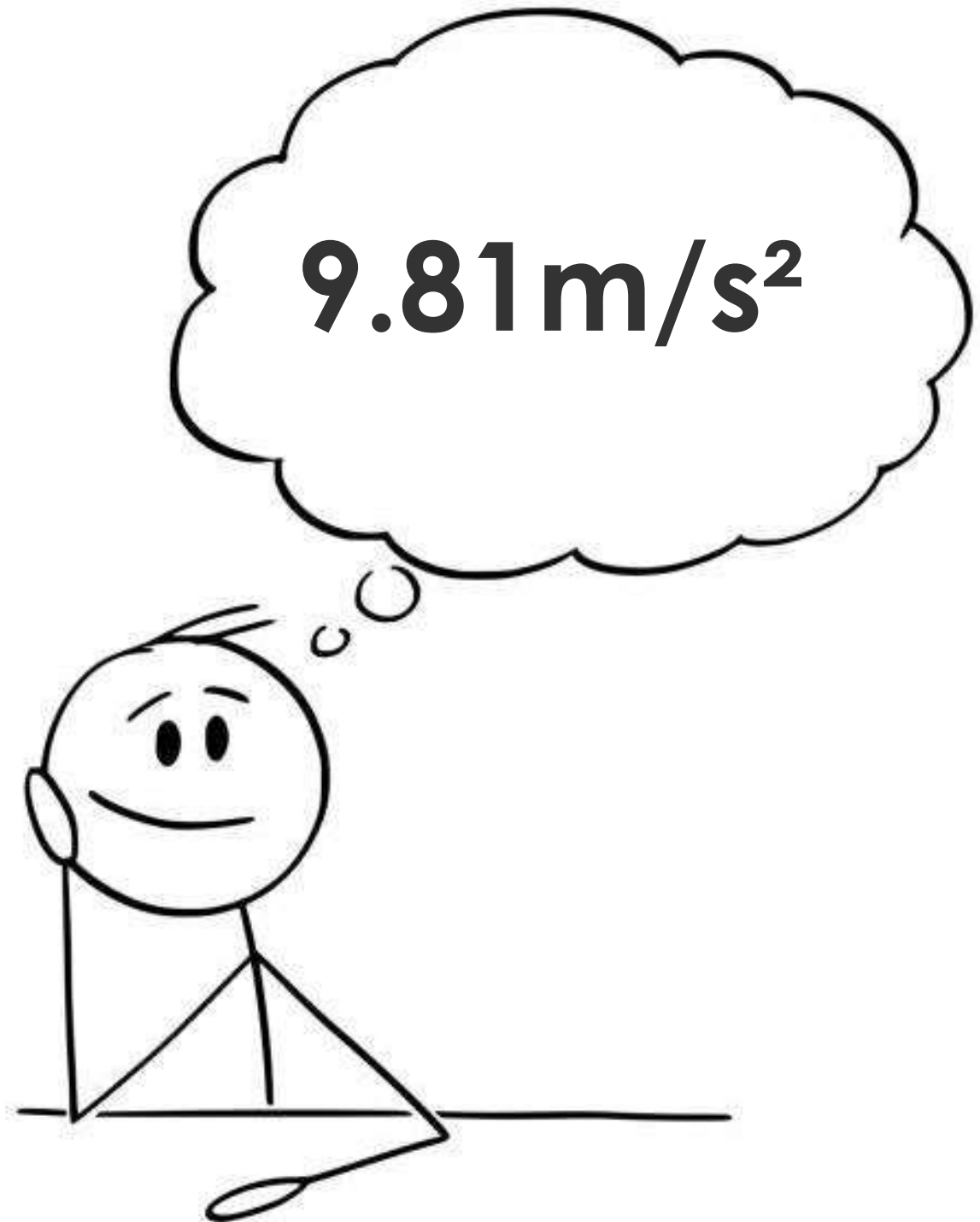
# Earth gravity



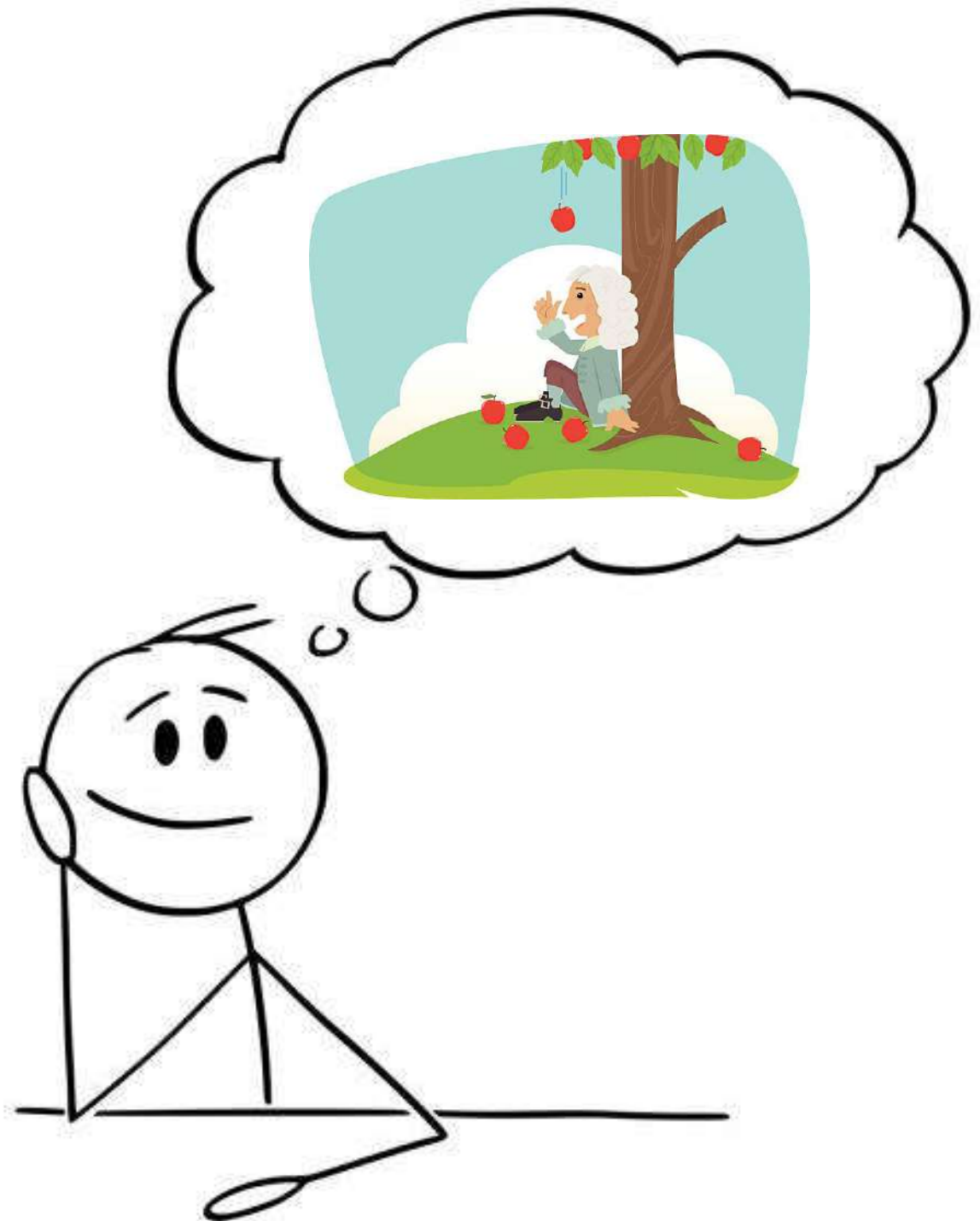
# Earth gravity



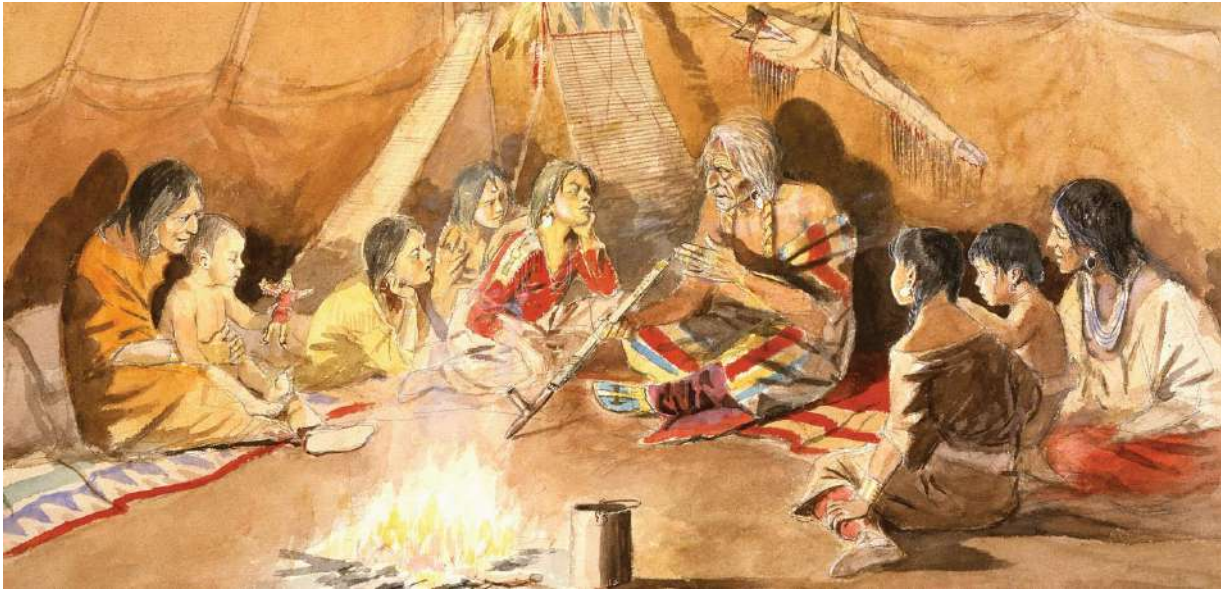
# Earth gravity



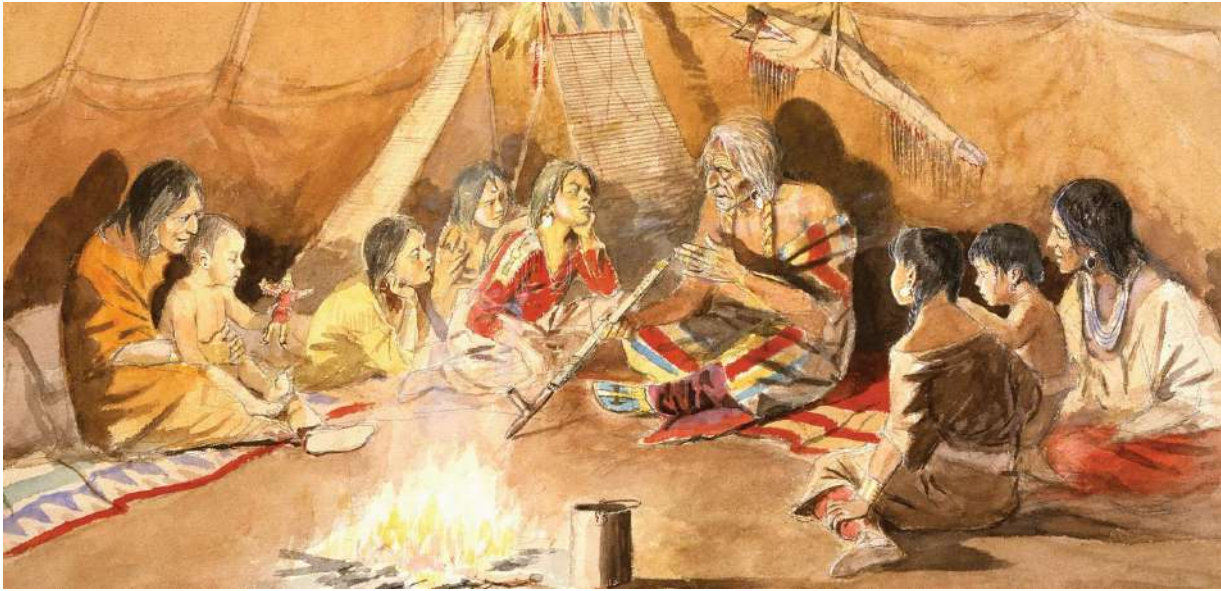
# Earth gravity

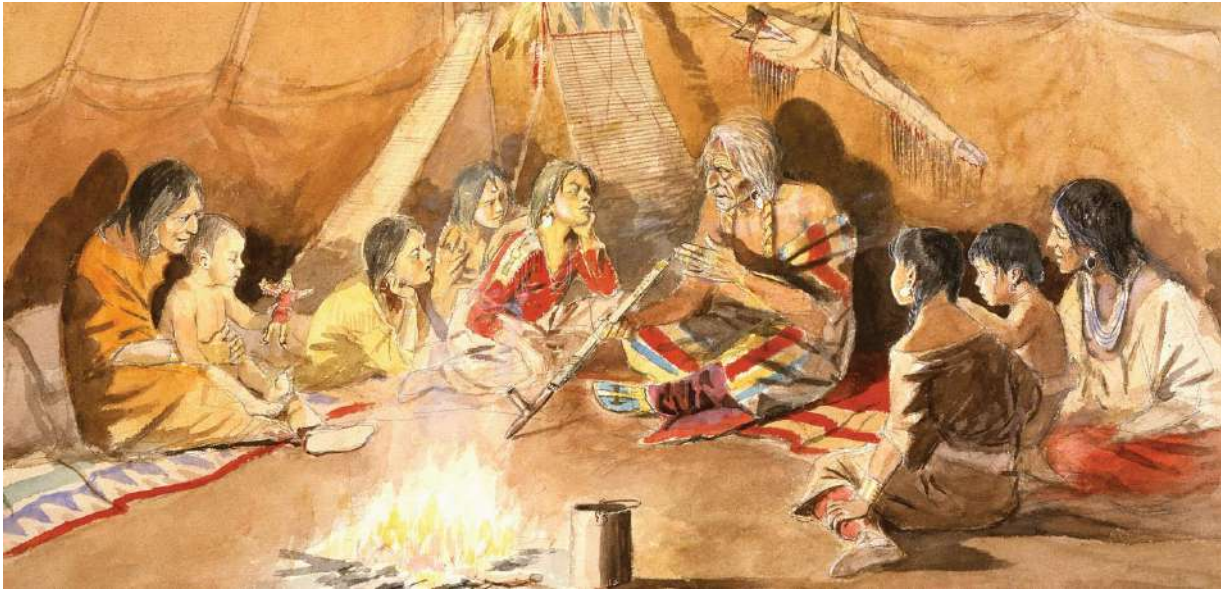




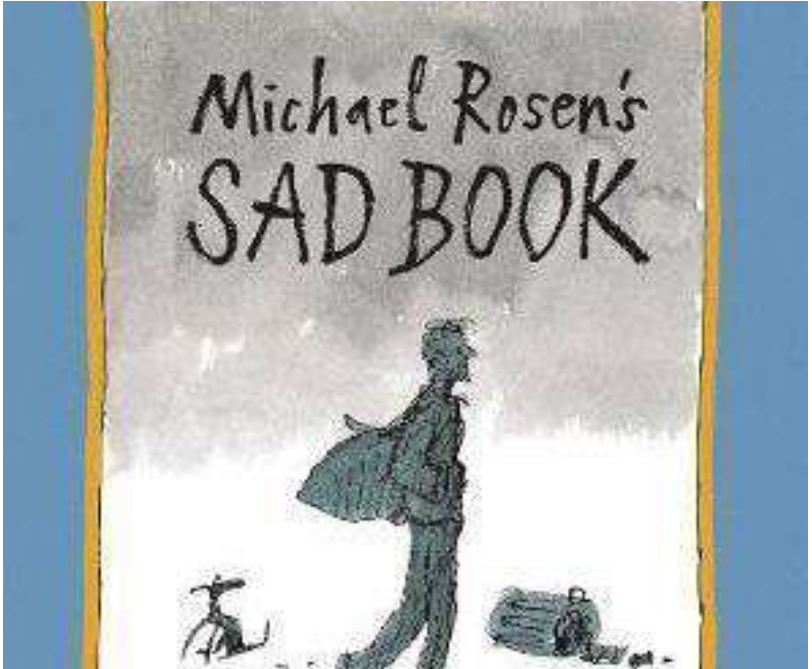
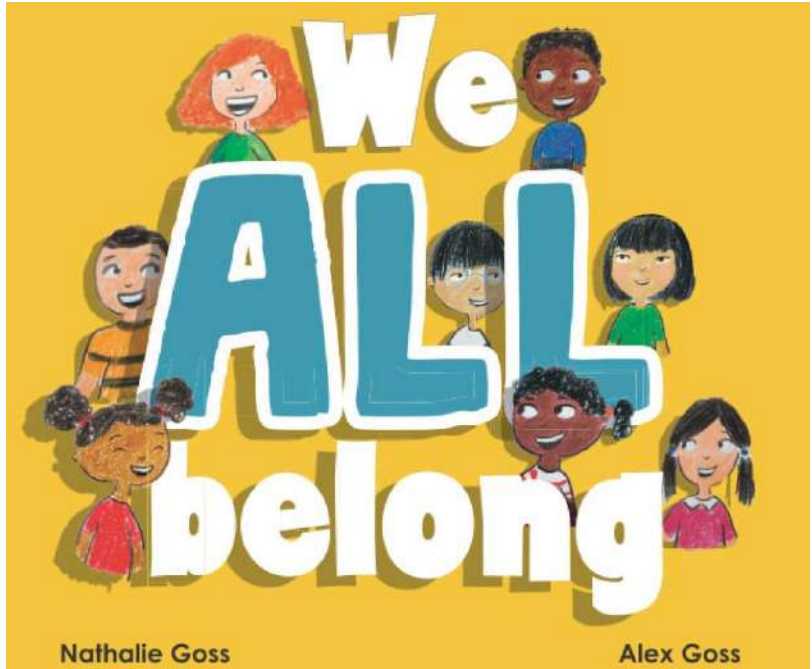
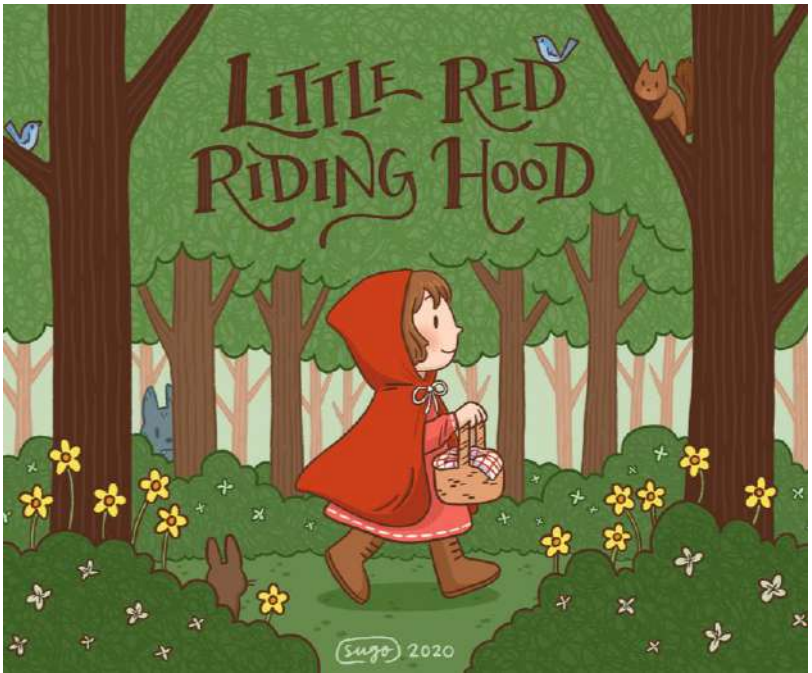
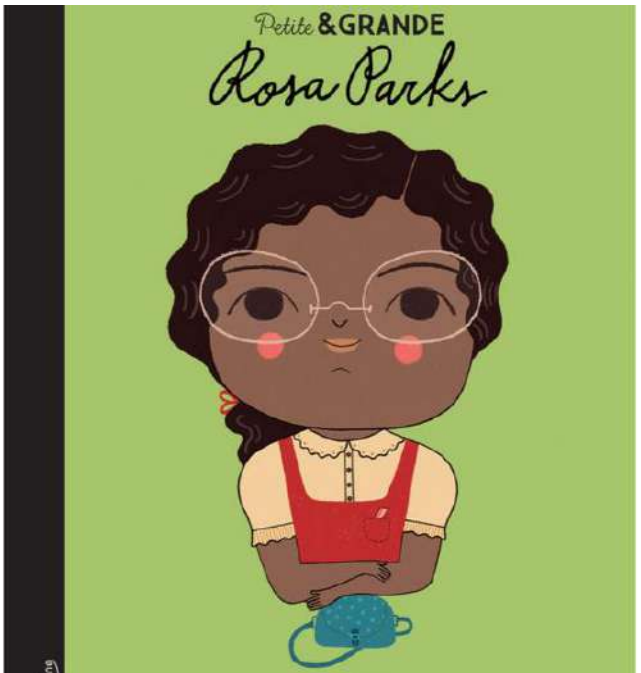




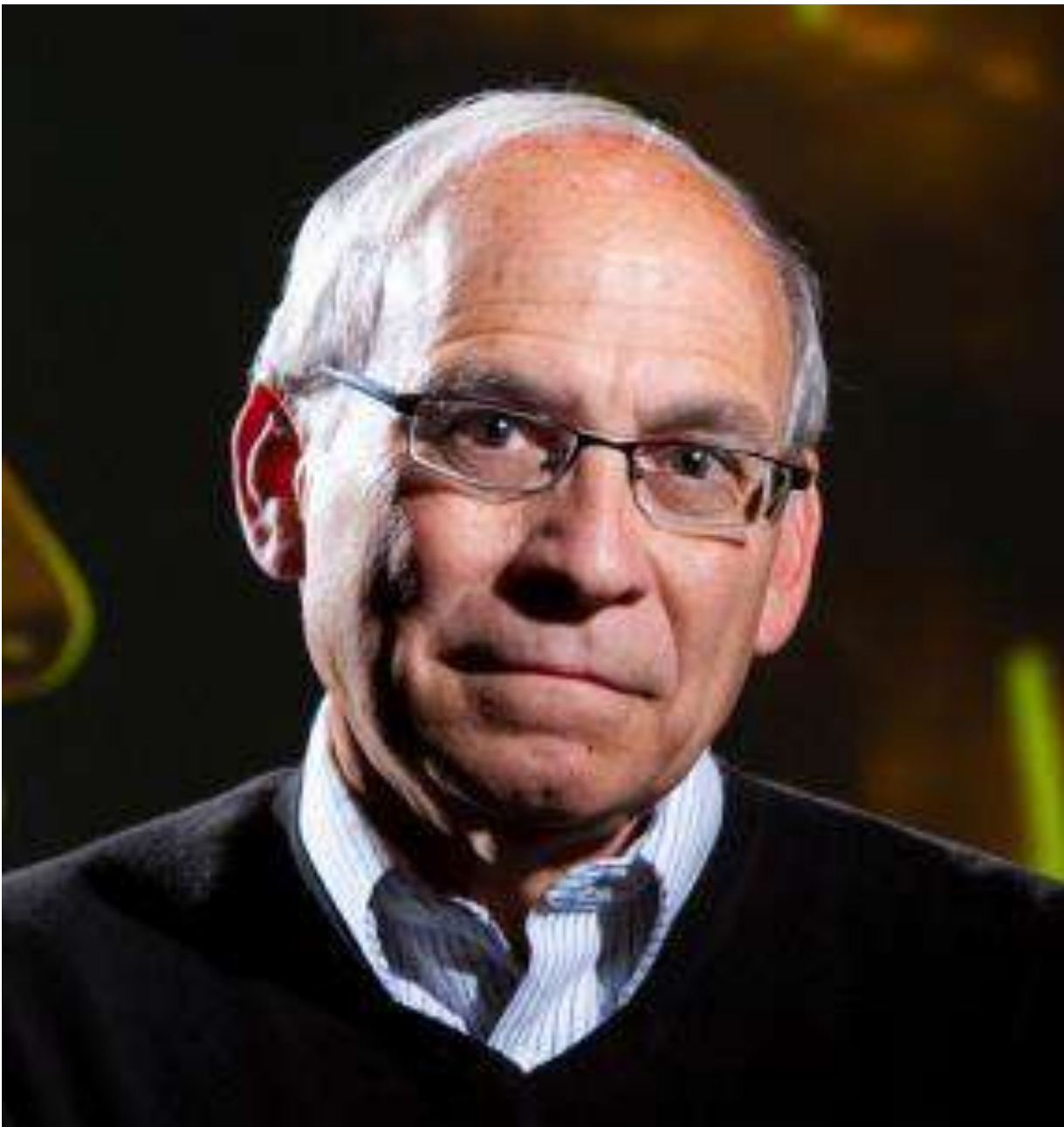












Richard E. Mayer



PLANE

SUN

BIKE

GLASSES

GLOVES

KITE

PLANE

GLASSES

SUN

GLOVES

BIKE

KITE





Stories flow, and it is this flow that  
captures our attention.  
**Stories flow and have twists and  
turns**

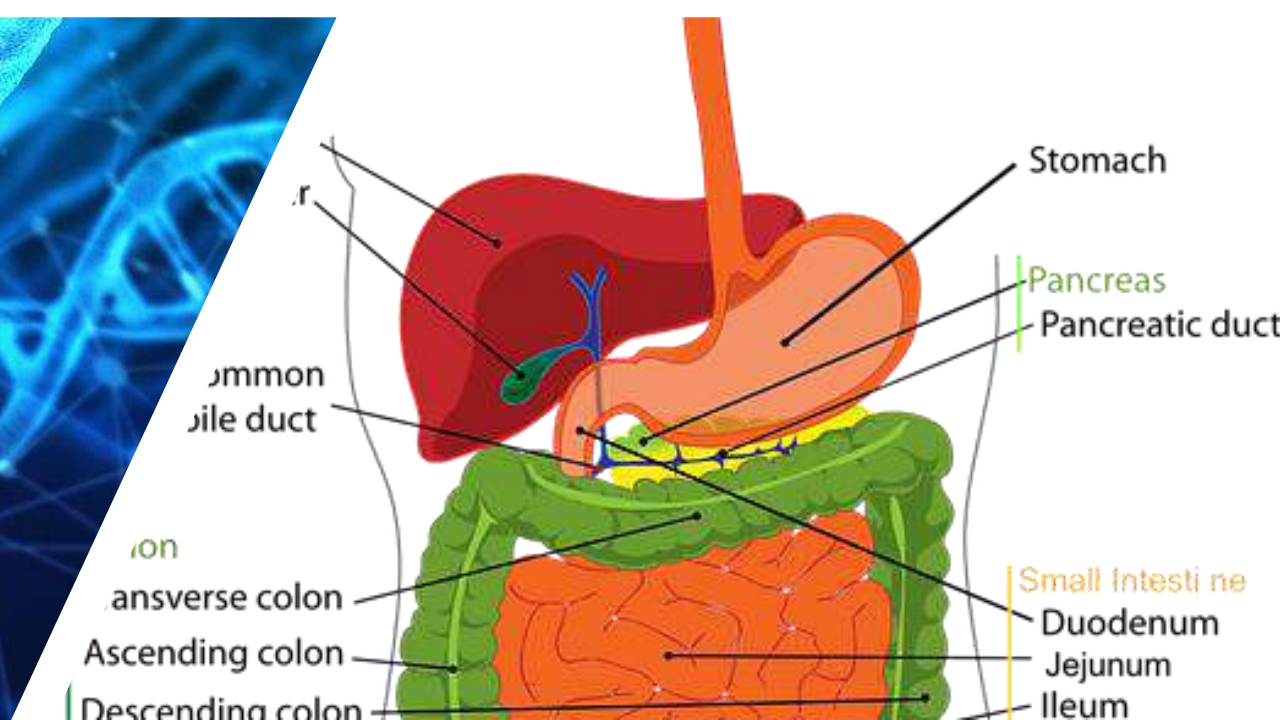
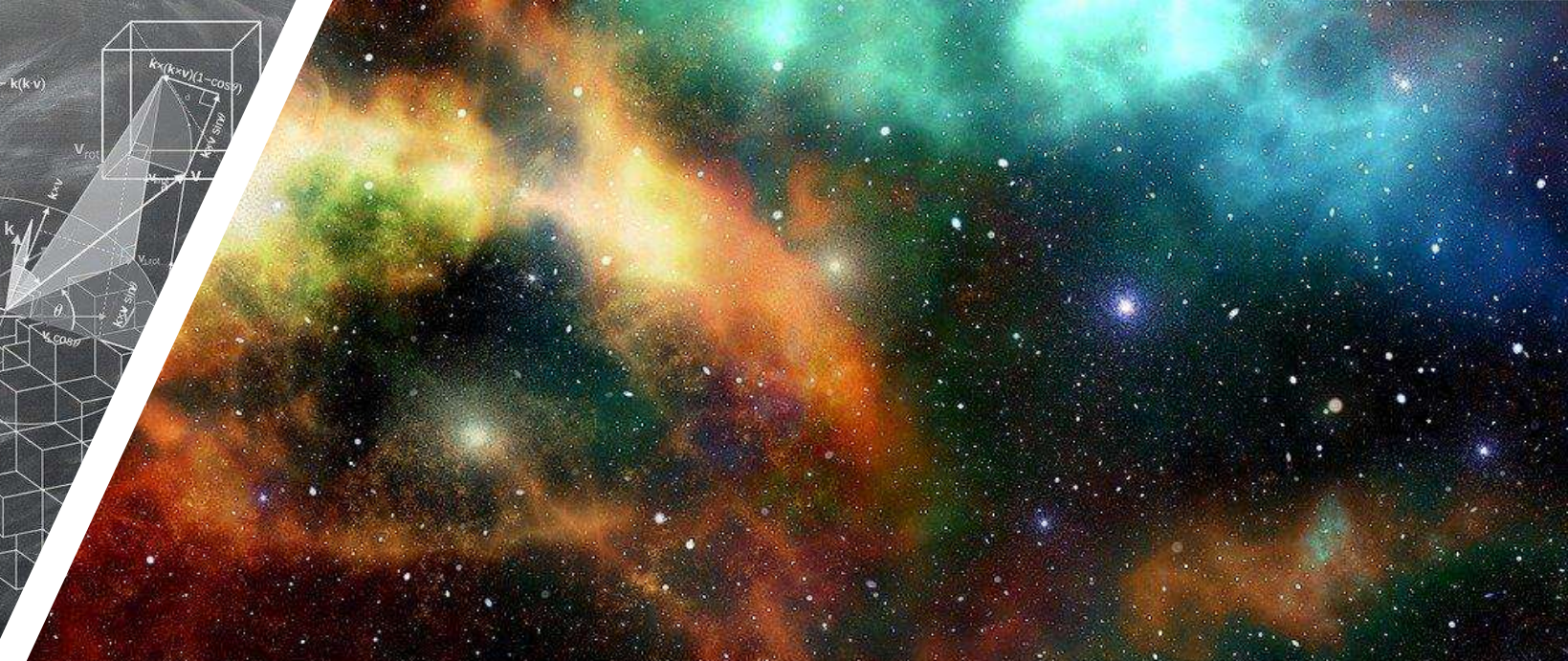
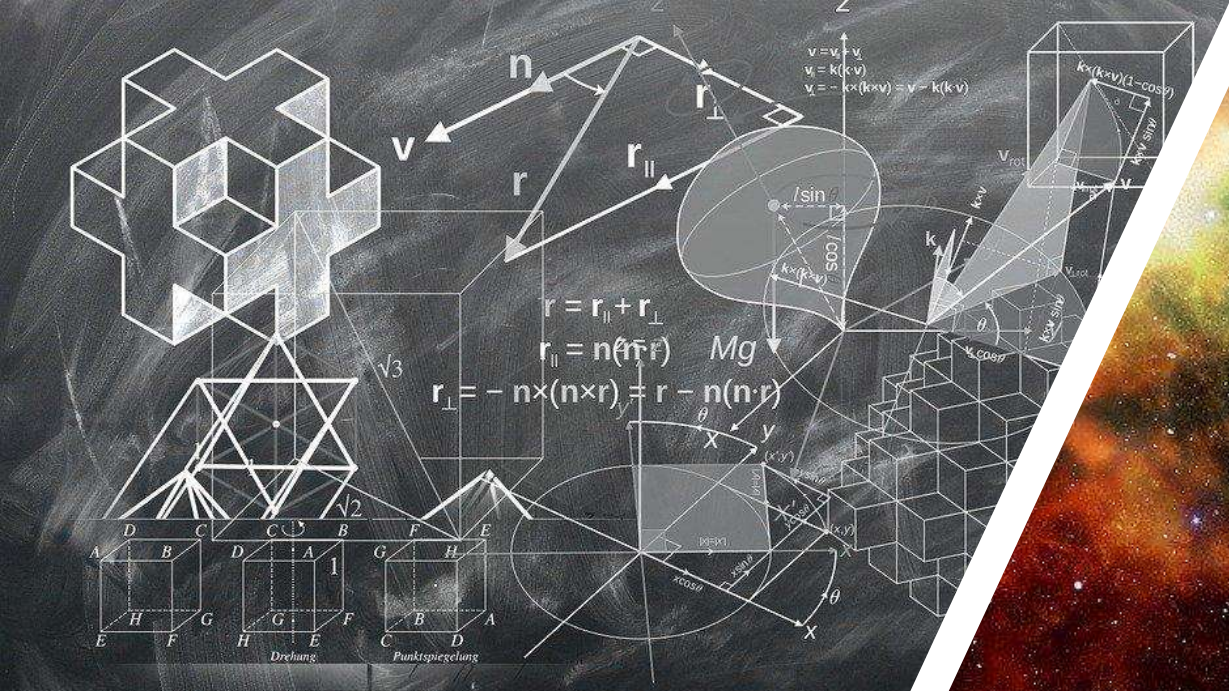
Good storytelling focuses on this flow.





**FOR SALE:  
BABY SHOES,  
NEVER WORN.**



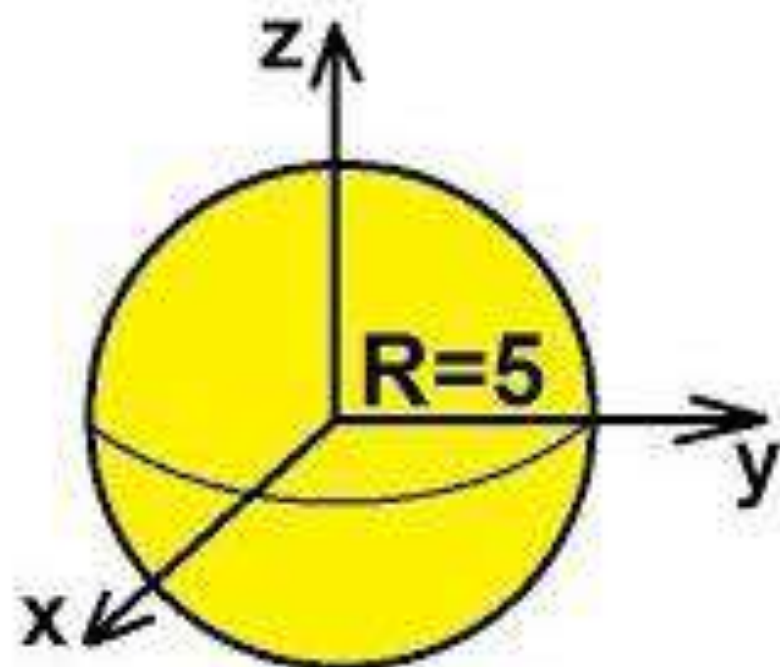


## Finding the Triple Integral: Ex. 2

$$\int \int \int (x^2 + y^2 + z^2)^2 dV$$
$$= \int_{\phi=0}^{\pi} \int_{\theta=0}^{2\pi} \int_{\rho=0}^5 \rho^4 \rho^2 \sin\phi d\rho d\theta d\phi$$

...

$$= \frac{312,500\pi}{7}$$



$$\rho = x^2 + y^2 + z^2$$

$$dV = dx dy dz$$

$$dV = \rho^2 \sin\phi d\rho d\phi d\theta$$

# Numberphile





Real-world situations

Concrete context

# Stories can

introduce the origin of a problem

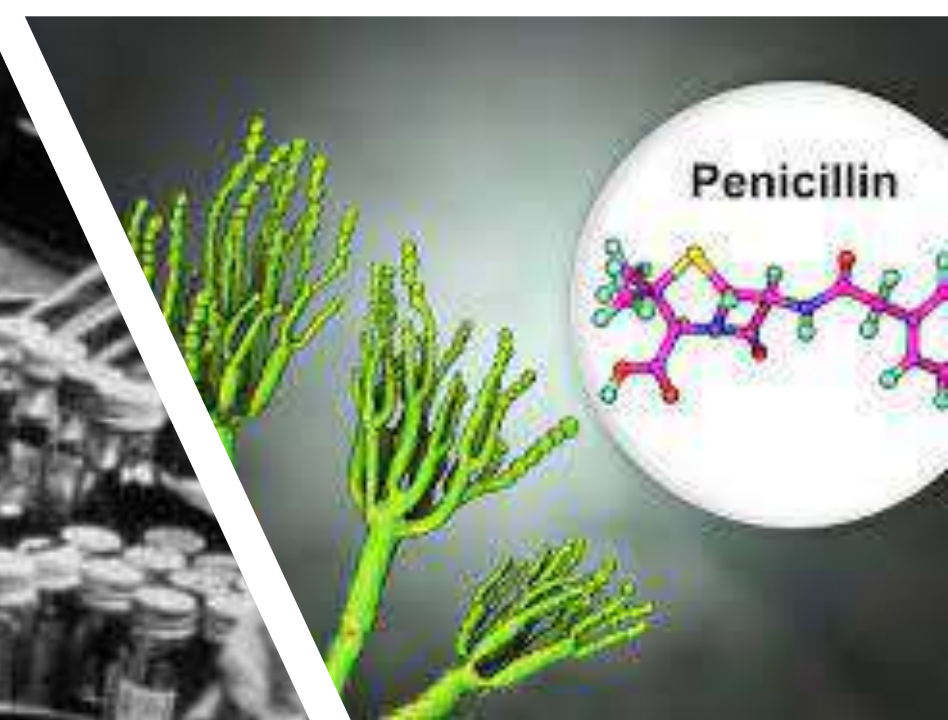
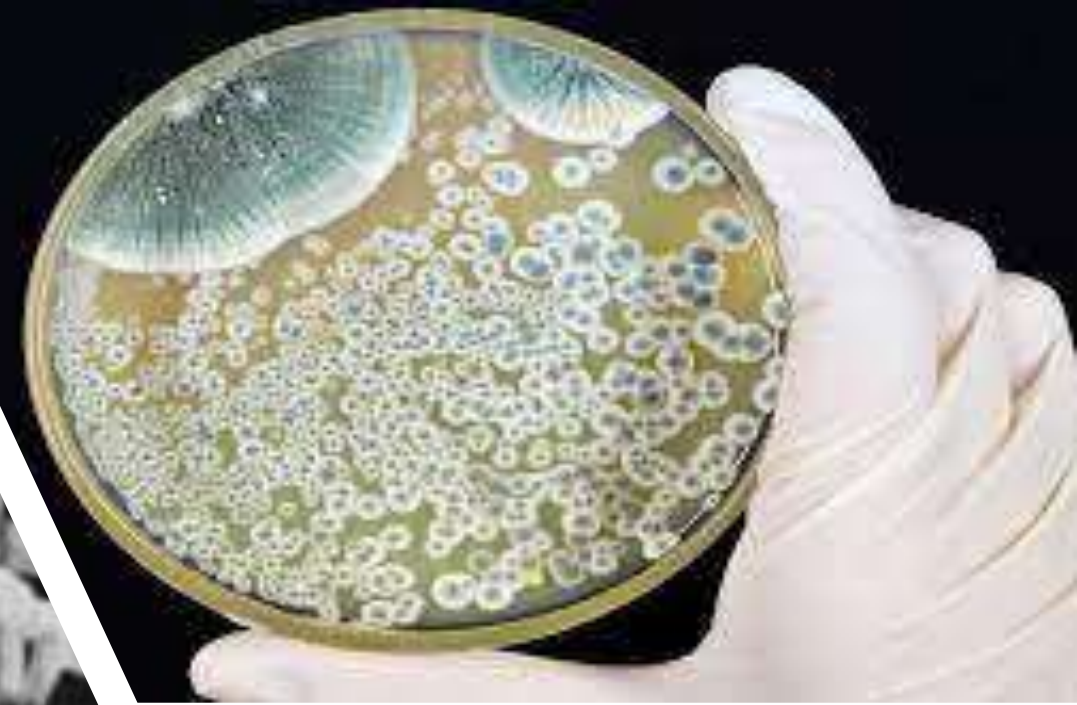
give background information

say how something has developed

give concrete examples







**Stories provide  
a motif**





# Set your motifs

- refer to them
- build on them
- remind your students where their focus should be

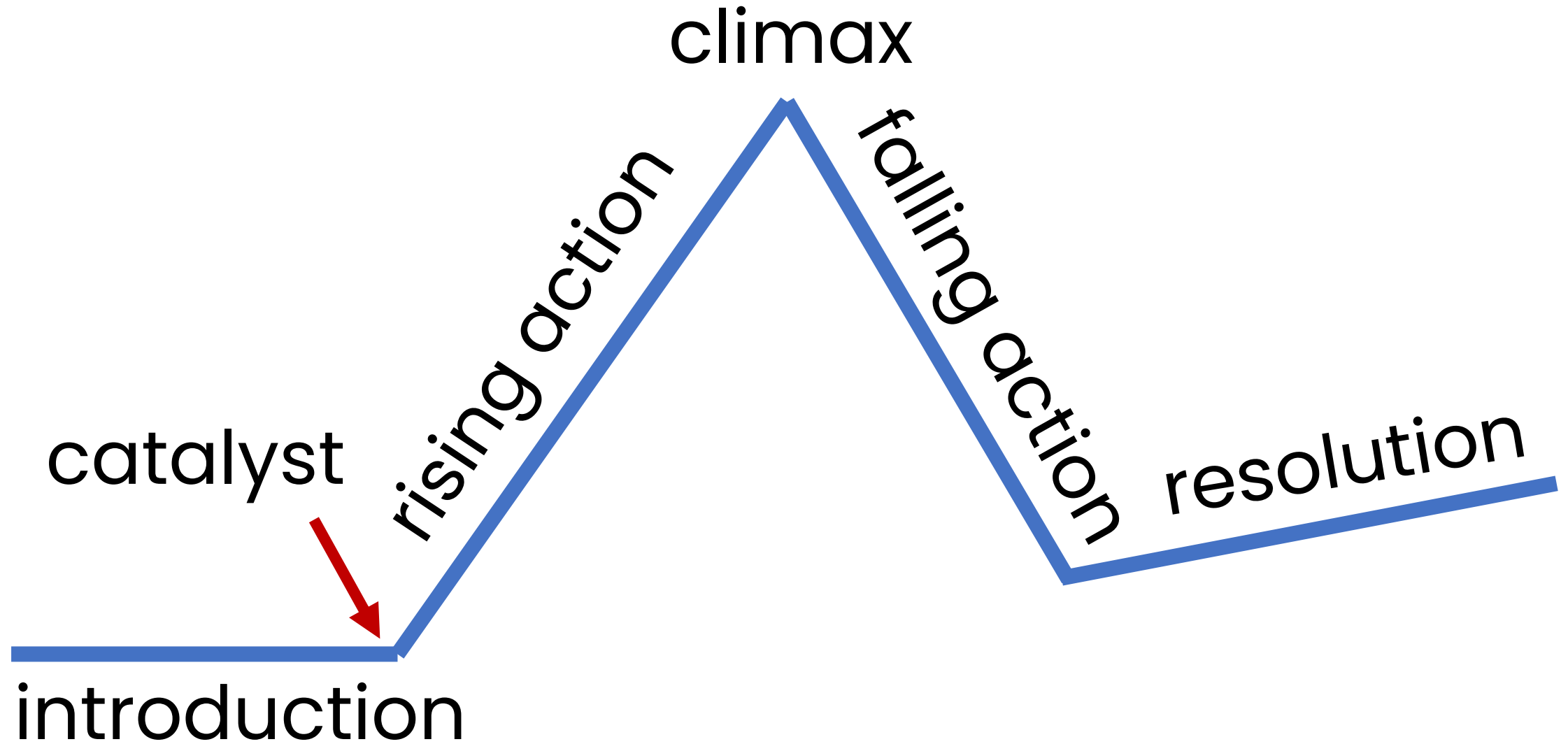


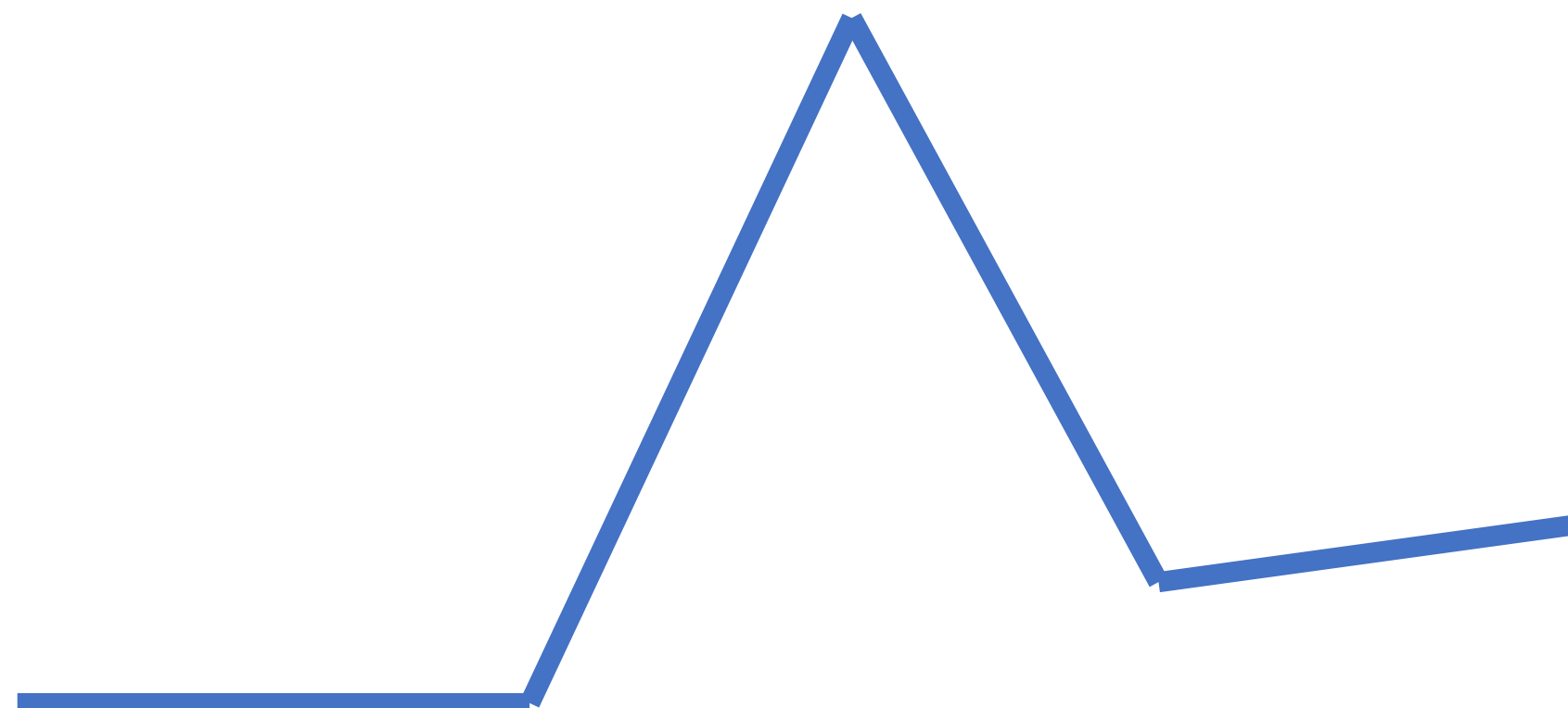
# **Gustav Freytag**

German novelist and playwright

1816 –1895

# Freytag's Pyramid



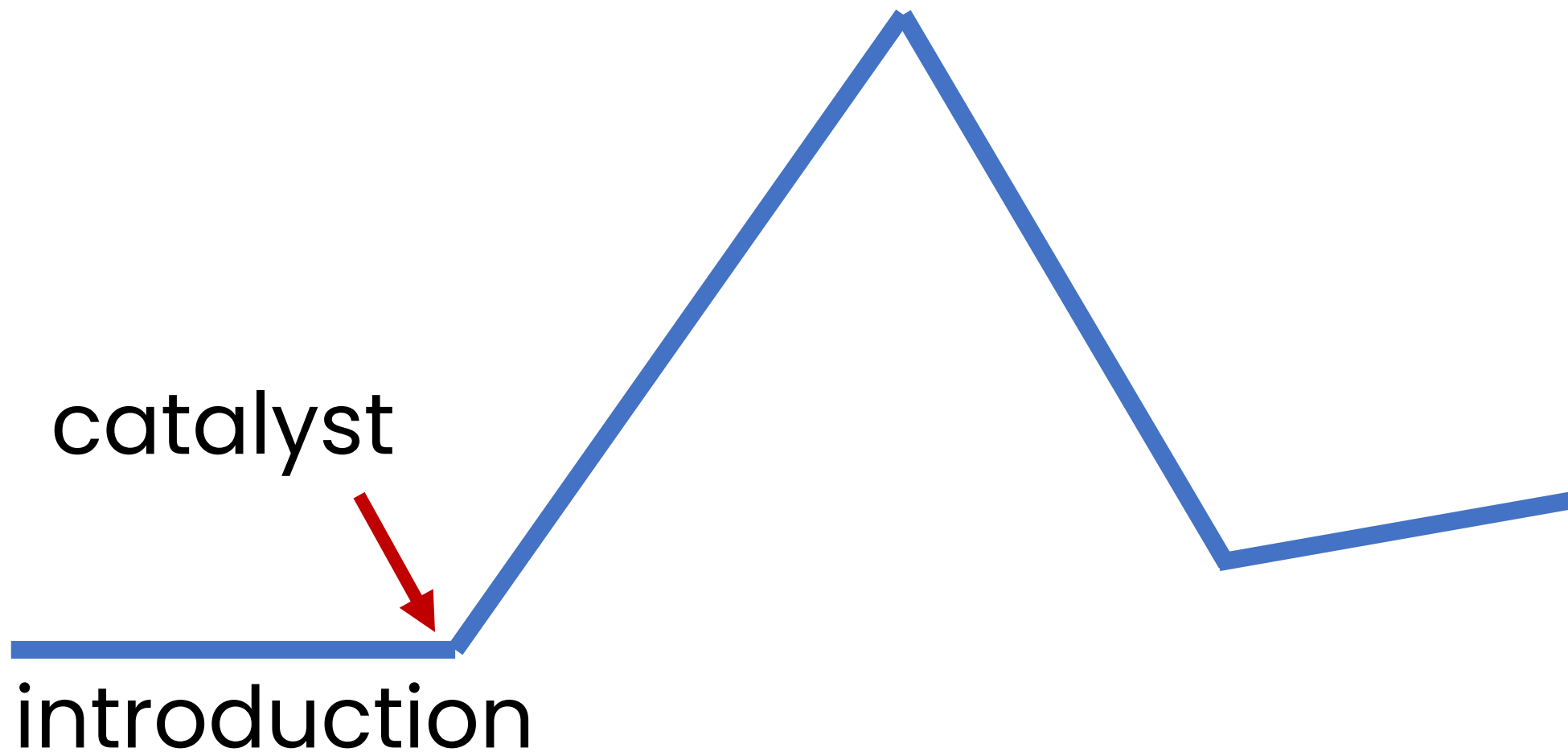


Introduction

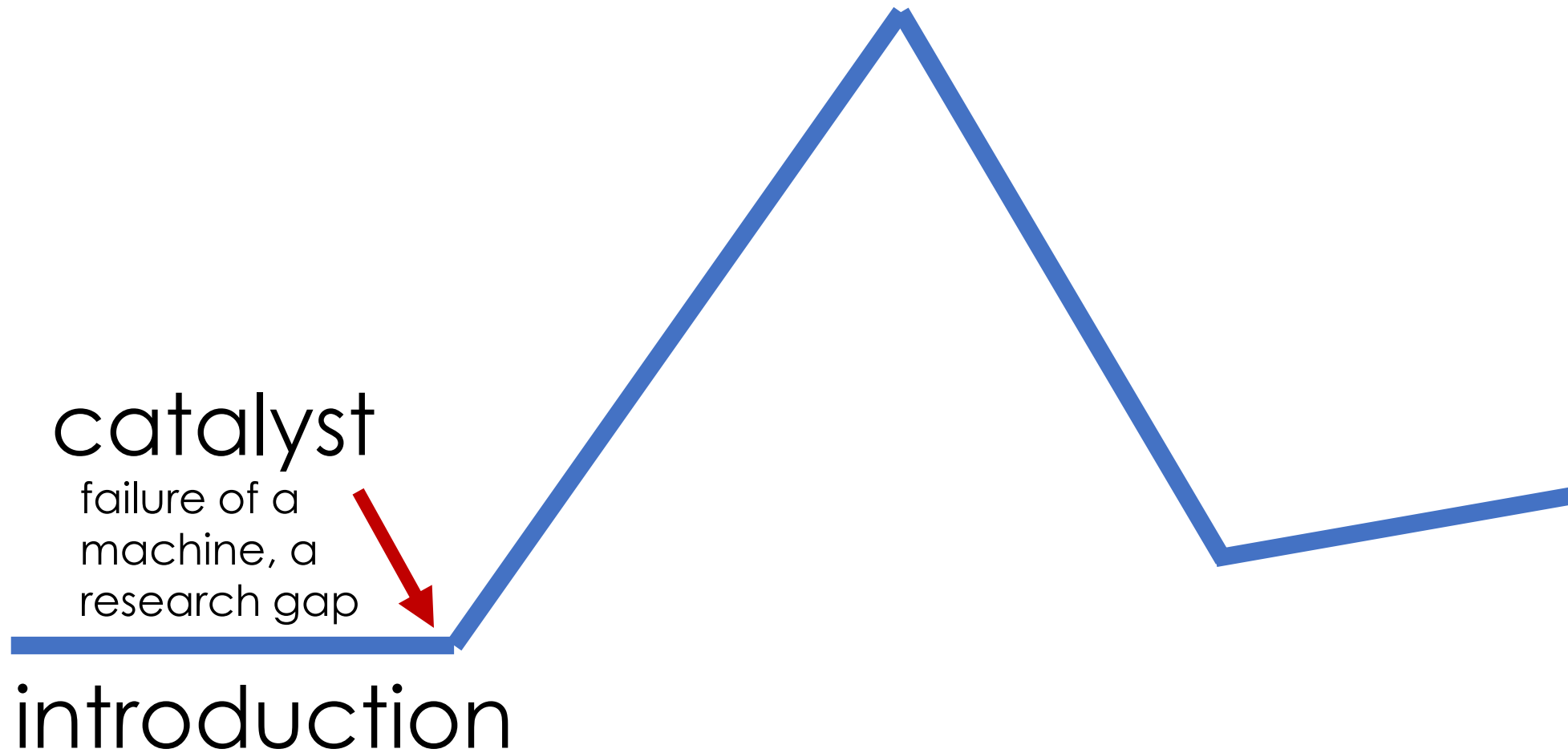


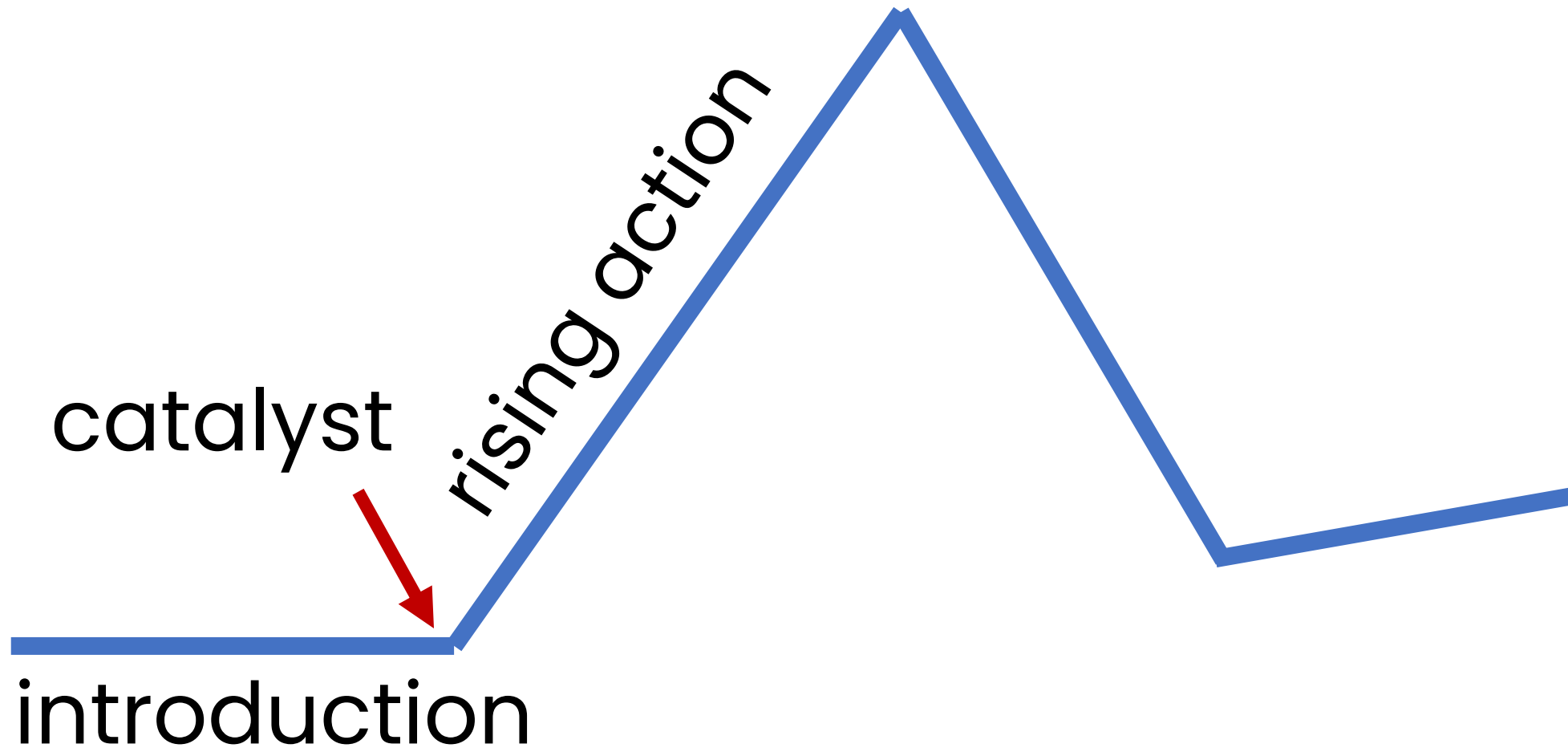
# Introduction

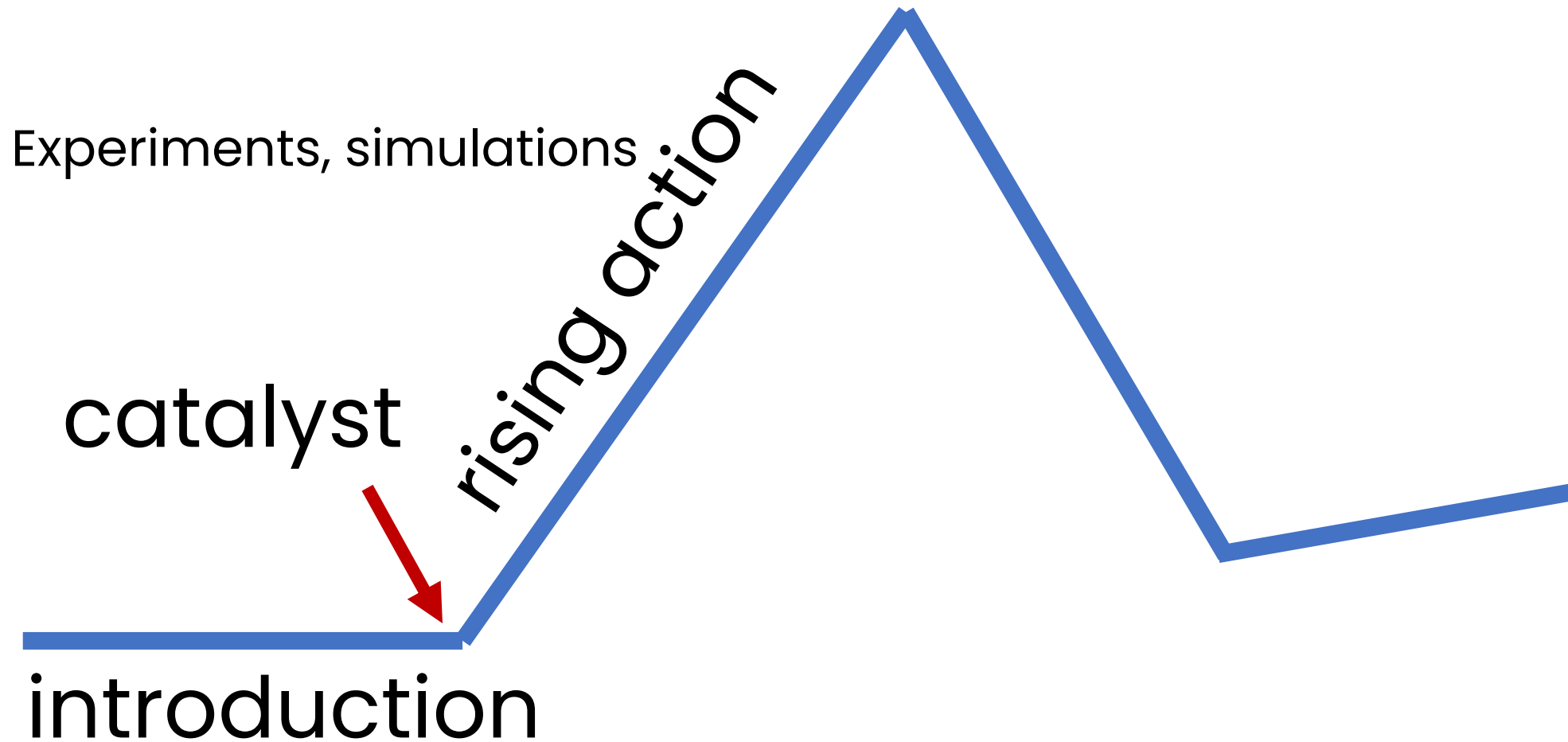
molecule, process, device, algorithm

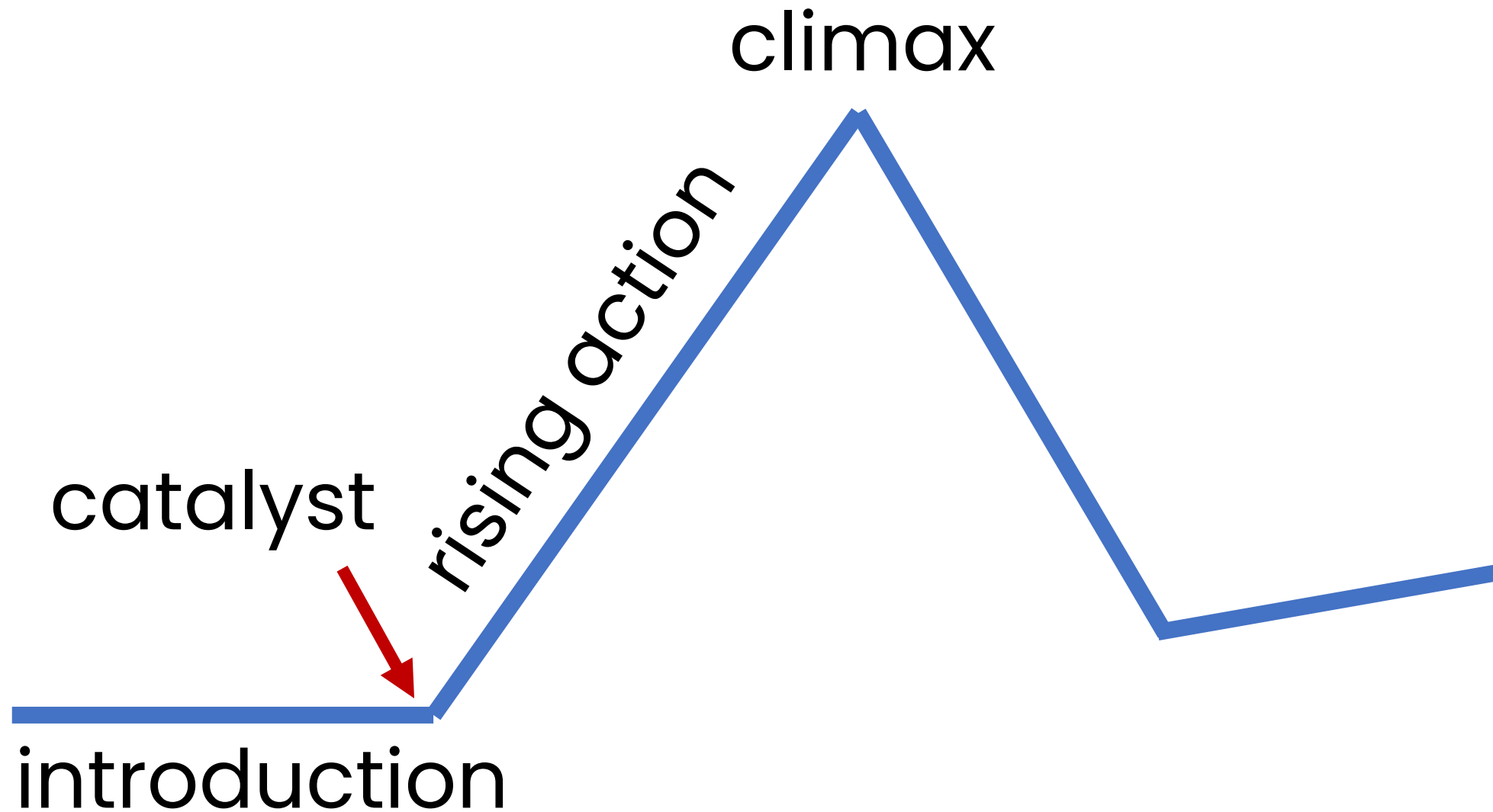






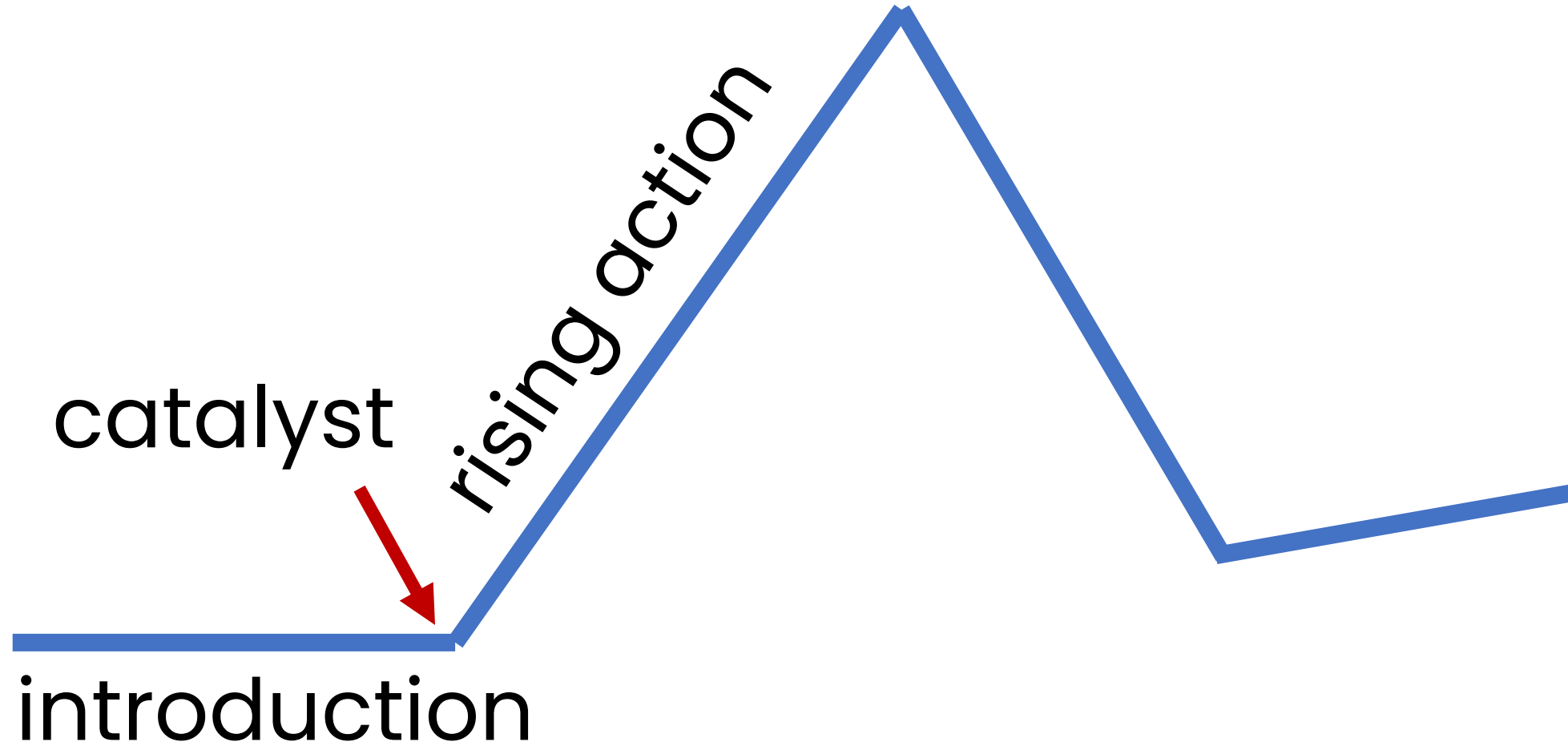


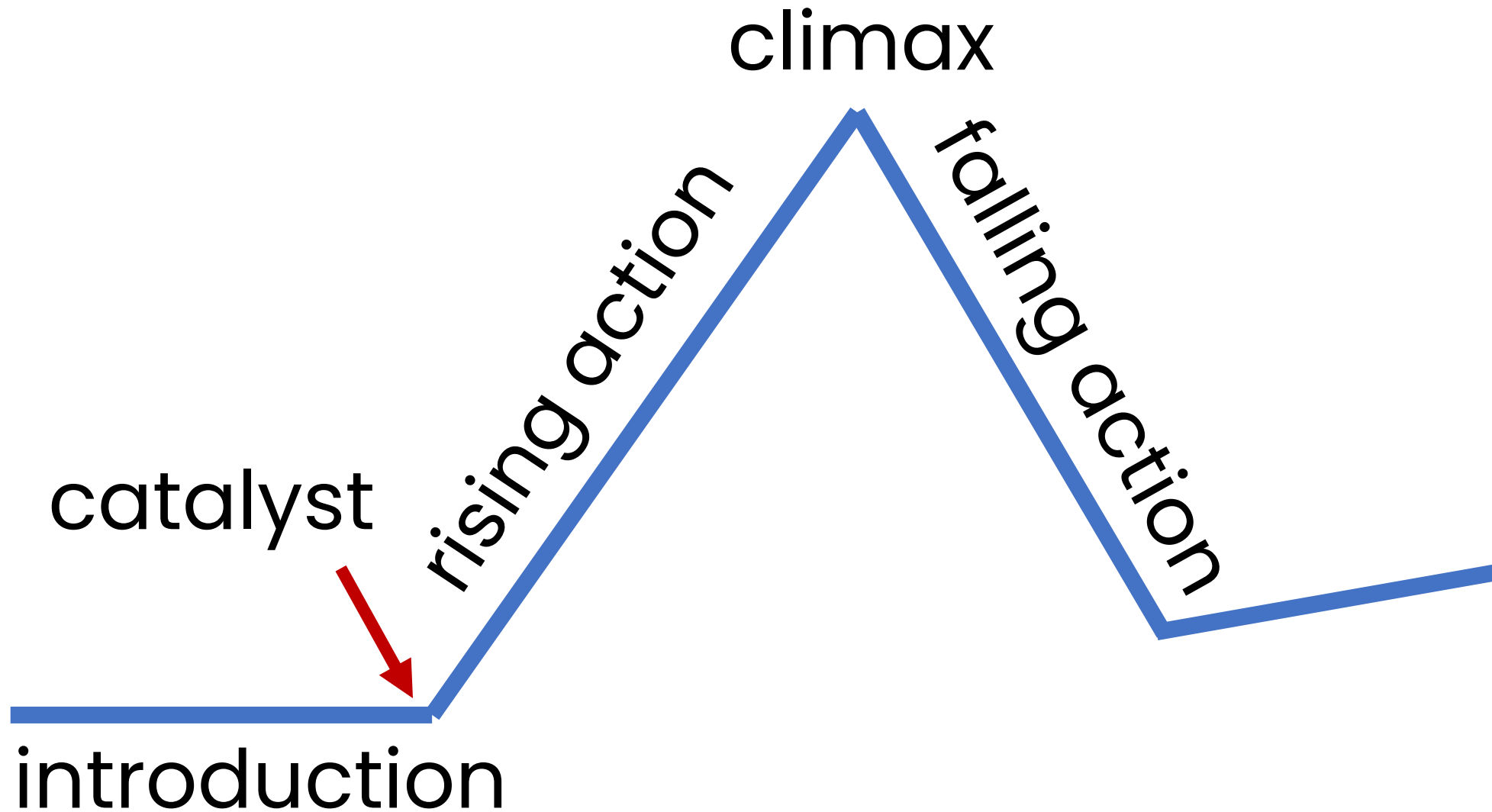


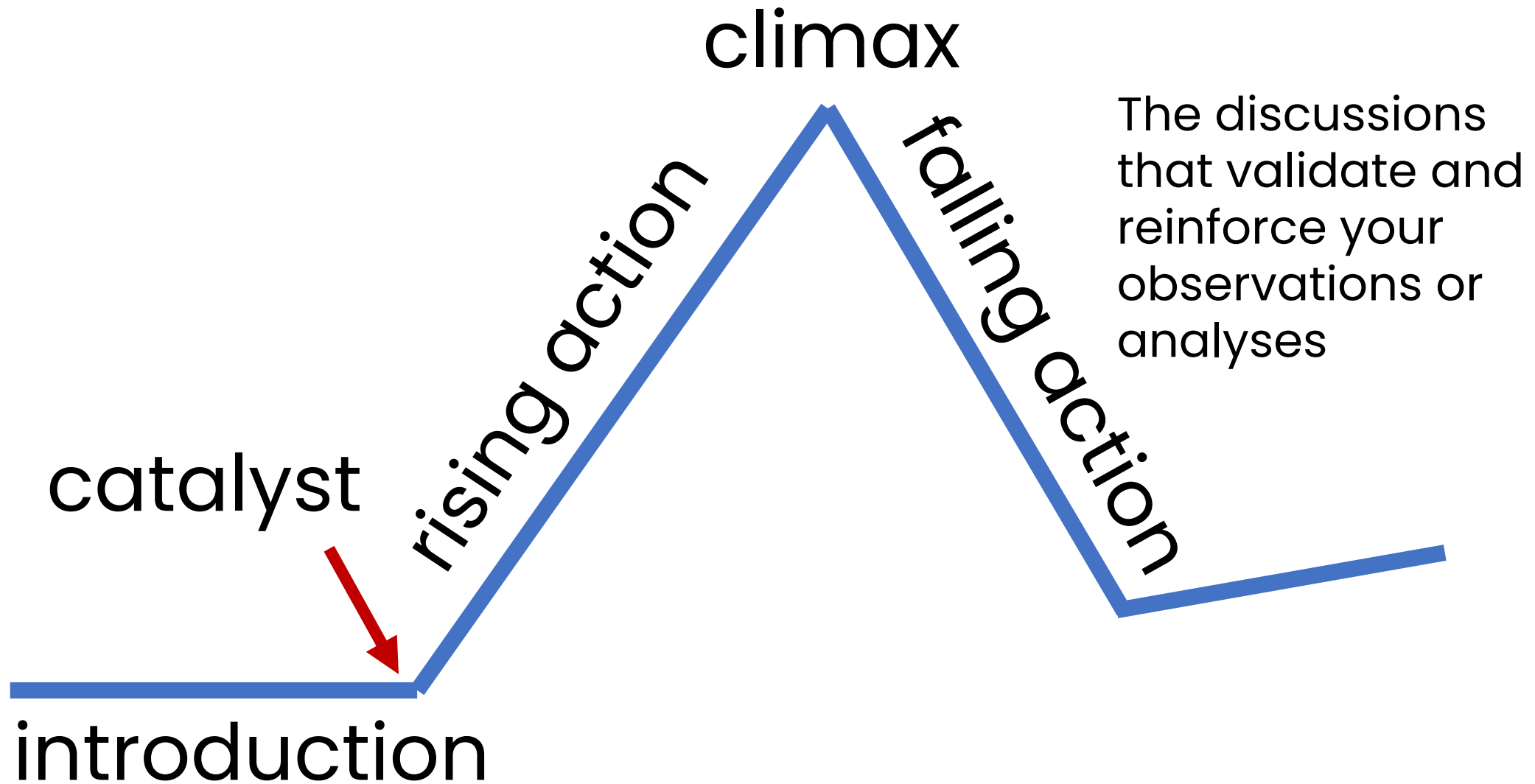


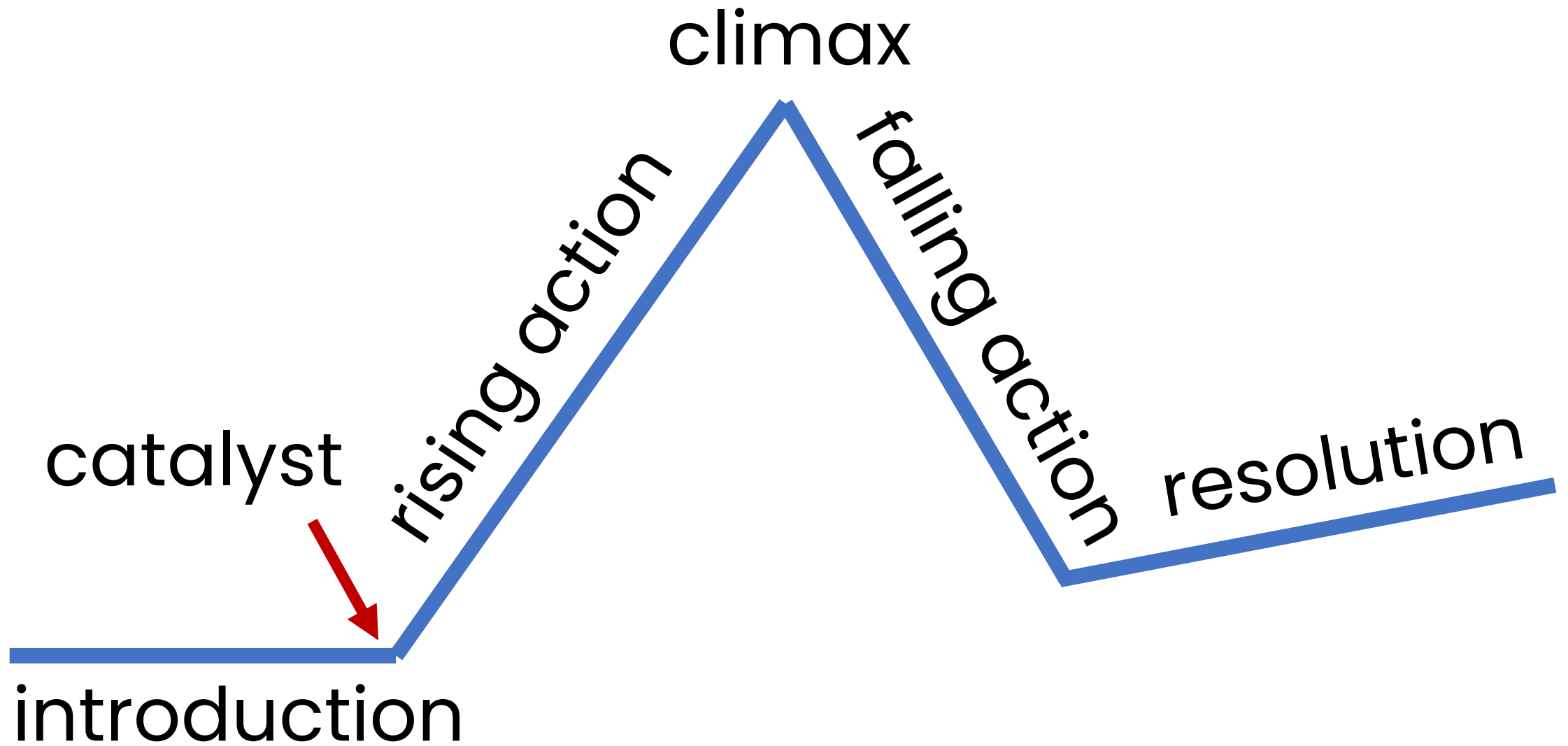
Aha moment – the strongest support to verify your conclusions

climax

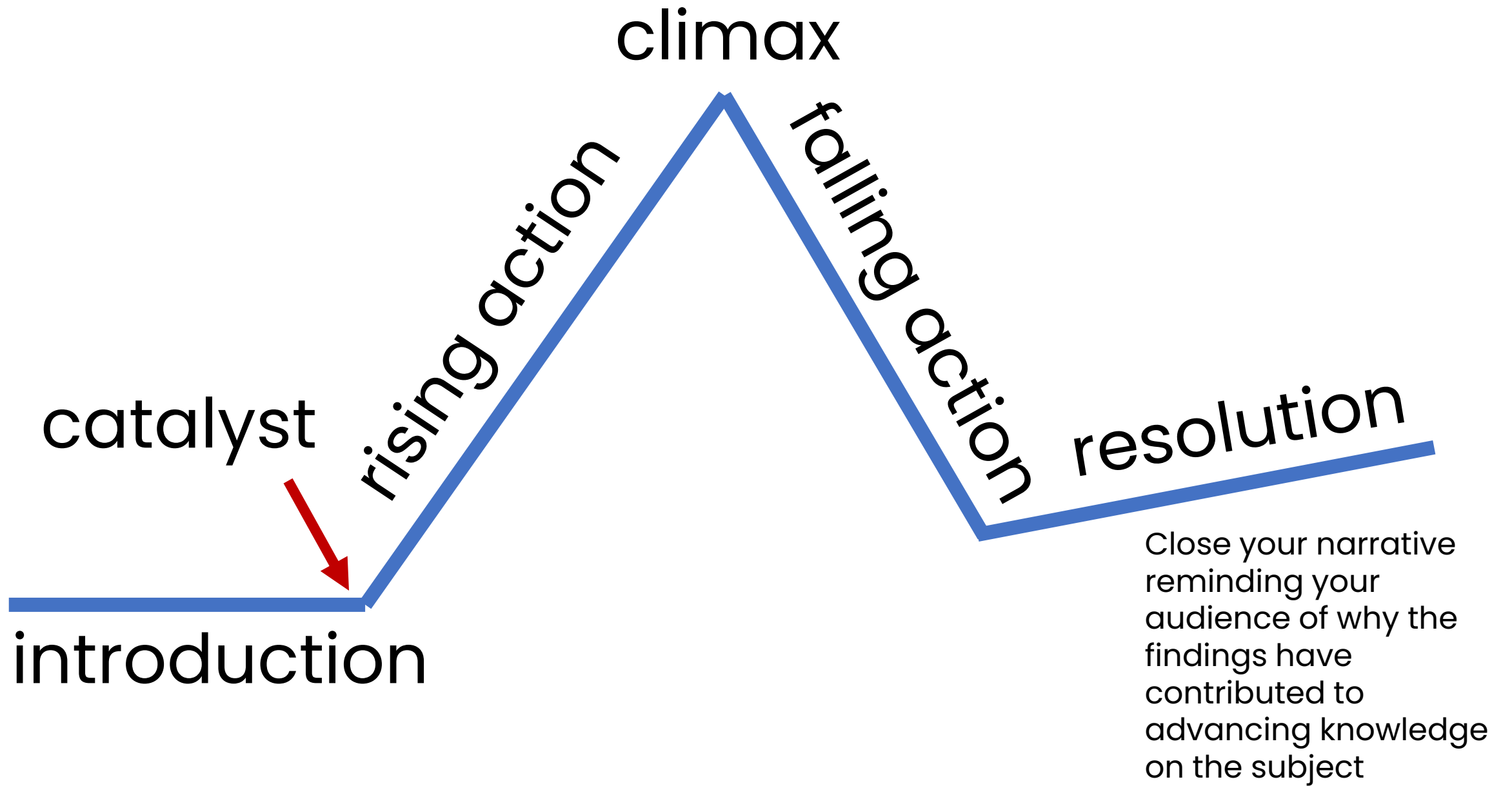










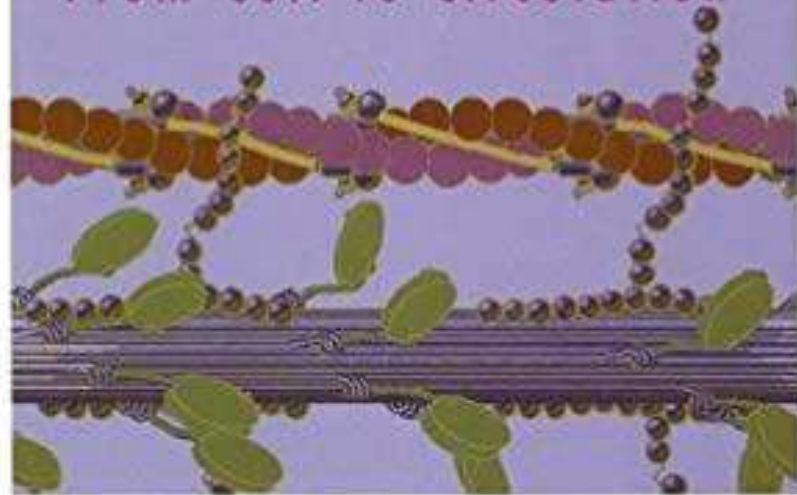


# **Analogies**

Fourth Edition

# HEART PHYSIOLOGY

From Cell to Circulation



**LIONEL H. OPIE**



LIPPINCOTT WILLIAMS & WILKINS

## Ways To Treat Heart Failure

- A. Whip the horse - ie Digoxin, Adrenaline, Milrinone etc
- B. Unload the Wagon - Diuretics ie Furosemide
- C. Slow the Horse - Beta Blockers
- D. Get a New Horse - Heart Tranplant
- E. Get a tractor - Ventricular Assist Device
- F. Heal the Horse - A bit of everything + Tender loving Care



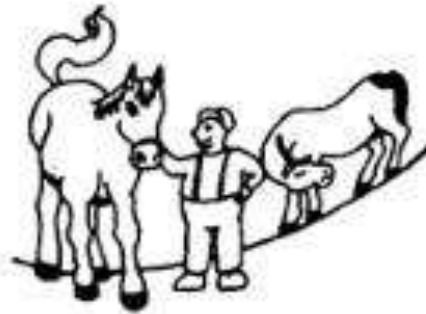
WHIP THE HORSE



UNLOAD THE WAGON



SLOW THE HORSE



GET A NEW HORSE



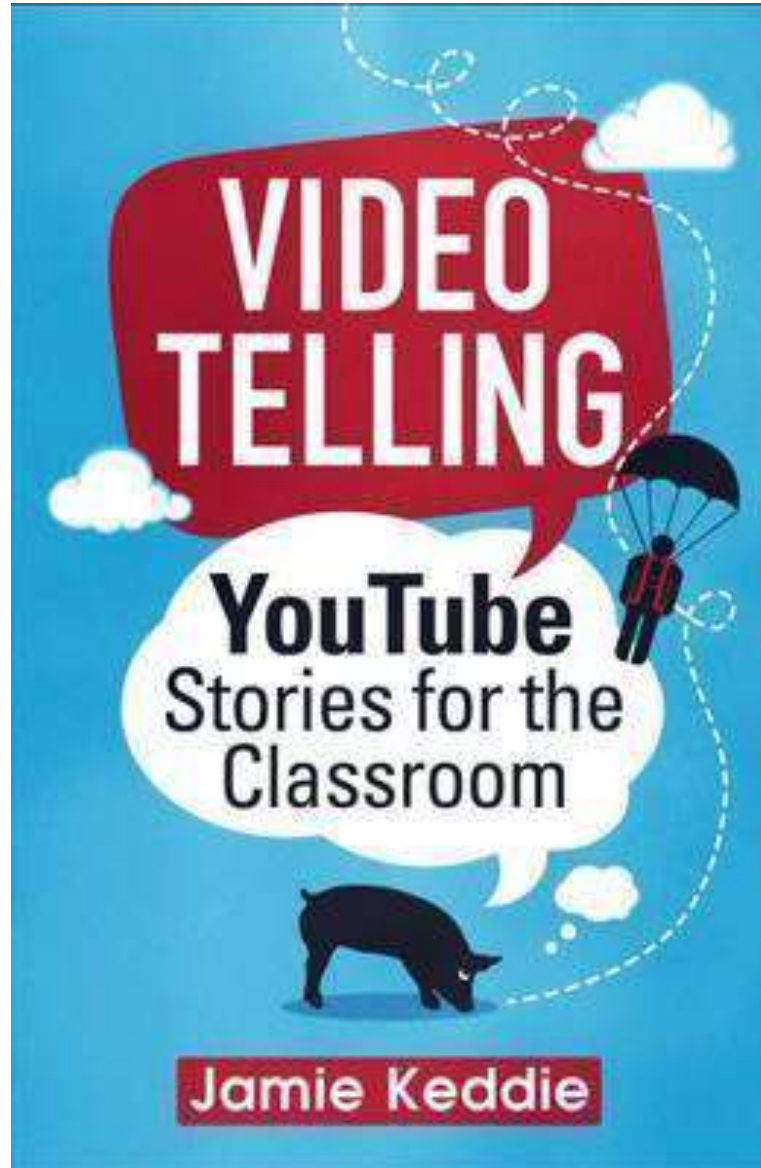
GET A TRACTOR



HEAL THE HORSE

Image courtesy Heart Physiology: From Cell to Circulation: Lionel H. Opie Lippincott Williams & Wilkins, 2004

# **Video Telling**



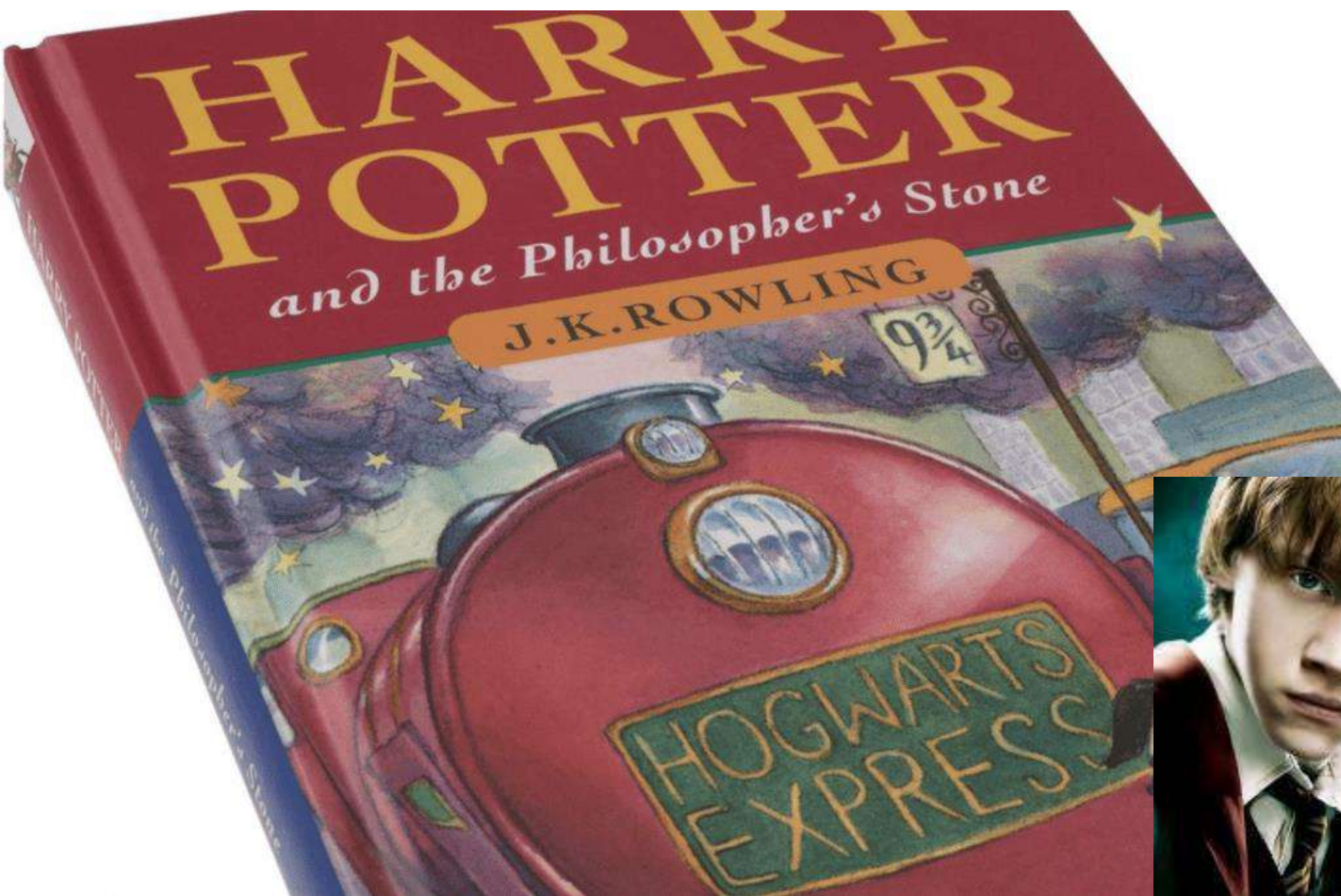


**The story**

**Discussion**

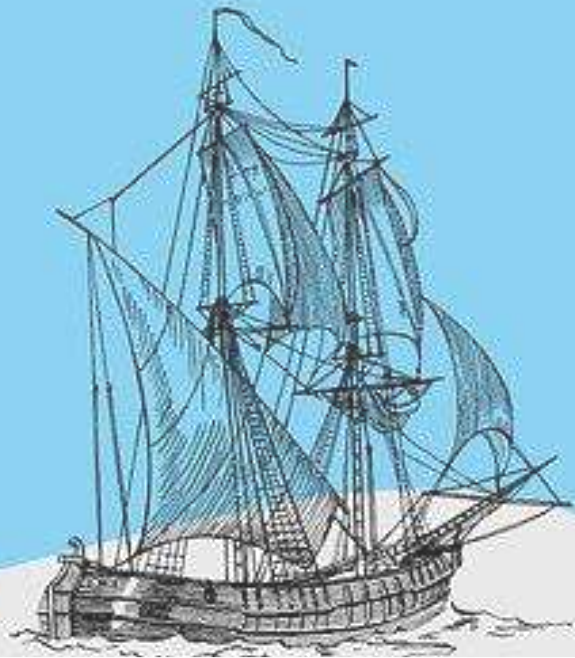
**Moment of  
comparison**







# **Your turn to tell your story!**



**Tell the story of what you teach to a non-specialist audience.**



Personal Narrative (your journey as a researcher)

Stories that provide some historical background linked to your subject of research

An anecdote or a story that is linked to a module you teach