Methods, Results, and evidence

Everything used today is on this sheet. Nothing needs to be brought or prepared.

The five figures on pages 3 and 4 were drawn for this exercise. The data in them is invented and they are not from any published paper. Each one contains a distortion that is common in the literature, and each one is drawn in the group's own figure style, because these faults do not look like mistakes. They look like normal figures.

ACTIVITY 1 · 20 MINUTES · ALONE, THEN IN PAIRS

Report, or interpret?

Five sentences that appeared in the Results section of a manuscript. For each one, decide whether it reports an observation or makes an interpretation. If it interprets, rewrite it so that the Results can keep it, or move it.

#	The sentence as written	Report / interpret, and your rewrite
1	*The discharge capacity of the treated cell was 448 mAh g^{-1} after 200 cycles, compared with 412 mAh g^{-1} for the control.*	
2	*The improvement in cycling stability is attributed to the formation of a more uniform interphase.*	
3	*The onset potential shifted negatively by 65 mV, indicating faster kinetics on the modified electrode.*	
4	*As shown in Figure 4, the surface remained free of dendrites, confirming that the additive suppresses dendrite growth.*	
5	*Capacity retention was 61 % at 10 mA cm^{-2}, which is excellent for this chemistry.*	

The test. Cover the word and ask: could a machine with no knowledge of chemistry have produced this sentence from the raw data? If yes, it reports. If it needed a person to decide something, it interprets.

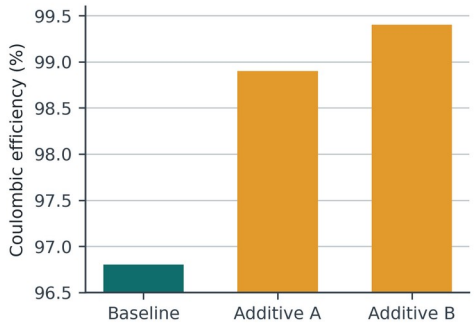
ACTIVITY 2 · 25 MINUTES · IN PAIRS

Figure forensics

Five figures. Each contains one distortion. For each, write what is wrong and what a reader would wrongly conclude because of it. Then say what you would change.

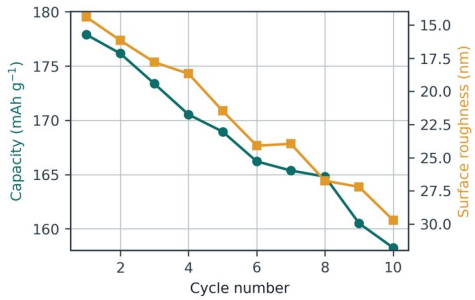
You are not looking for ugliness. You are looking for a figure that makes a reader believe something the data does not support.

Figure 1 · Coulombic efficiency of three electrolytes



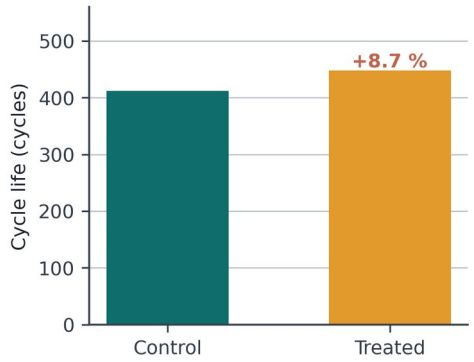
What is wrong, and what would a reader wrongly conclude?

Figure 2 · Capacity and surface roughness over cycling



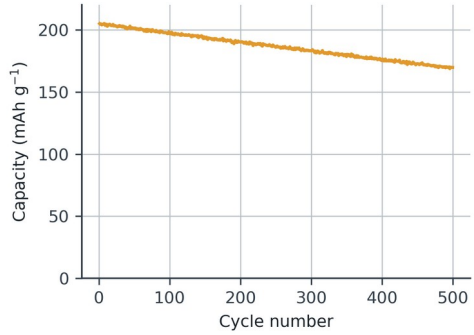
What is wrong, and what would a reader wrongly conclude?

Figure 3 · Cycle life, control against treated



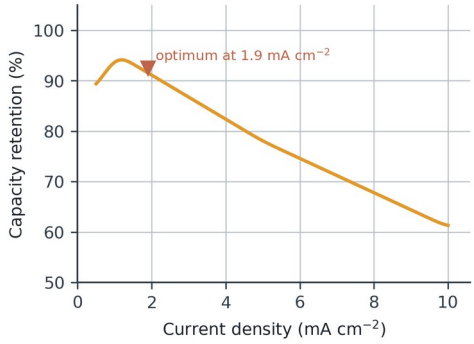
What is wrong, and what would a reader wrongly conclude?

Figure 4 · Long-term cycling of the treated cell



What is wrong, and what would a reader wrongly conclude?

Figure 5 · Capacity retention against current density



What is wrong, and what would a reader wrongly conclude?

Three questions for the debrief

a. Which of the five would survive peer review, and why?

b. Which one is the most serious, and what is your criterion for serious?

c. Have you drawn any of these five yourself?

BEFORE THE MIDTERM

What Weeks 1 to 6 asked you to be able to do

The examination is held 24 September to 4 October and covers Weeks 1 to 6 only. It asks you to analyse published work, not to recall definitions.

1	Name what an article type is for, and who reads it
2	Apply the authorship criteria and the course AI policy to a case
3	Write a reproducible search, and read a gap out of an evidence matrix
4	Reverse-outline a section and name a structural break
5	Tell an absence from a gap, and write an aim a result can settle
6	Separate reporting from interpretation, and find a distortion in a figure