

Science Project Planner and Safety Sheet

One phenomenon, one project, grades 6–12. Plan it and clear it before students start. Free — no email, no account.

Step 1 — The anchoring phenomenon

Write the observable thing students will spend the project explaining. An event, not a topic.

It is an anchoring phenomenon only if every box is true	
☐	It is observable — something that happens, not a term or an explanation.
☐	It is relevant or consequential to the students in front of me.
☐	It can be explained using content I already have to teach .
☐	Students cannot understand it at a glance.
☐	Explaining it does not require prior knowledge of the target content.

It does not need to be flashy. Everyday phenomena work when you help students notice the limits of what they can currently explain.

Step 2 — The three dimensions

Write these before you launch. This is the document that answers an administrator's question before it is asked.

Dimension	In this project
Science & engineering practice	
Disciplinary core idea	
Crosscutting concept	

Grading so a messy result is not punished

Score this individually	Score this as a group
Reasoning from evidence · the limitations section · the student's own written explanation	Collaboration · the shared product · safety compliance · the presentation to the audience

A student whose design failed and can explain why, with data, has demonstrated more than one whose project worked by luck.

The Data Test, Safety Plan and Final Check

Write the safety plan before the lesson plan. Then run the final check before you hand work back.

Step 3 — The data test

If every number in this project could be looked up, redesign it. Students should generate or wrestle with data that has no answer key. Write what data students will produce themselves:

Safety plan — complete before students start

Item	Plan
Approved materials list	
Who signs off on the written procedure	
Disposal / containment	
District policy checked (date & who)	
The one thing that would stop this project	

The four things that shut science projects down

Check	
☐	Student-designed chemistry. Students design the procedure, variables, controls and measurements — not the reagents. Pre-approved list, written procedure, teacher signature before anything is poured.
☐	Microbiology that gets opened. Plates sealed when inoculated and disposed of unopened. Policy checked before buying plates.
☐	Health claims about real students. Aggregate and anonymous only. Families told in advance. No individually identifiable health data.
☐	The conclusion the data cannot support. Every conclusion states what the data cannot tell you, next to what it can.

Failure budget

Tell students the first design is **expected to fail** and that the iteration log is graded. If a design has to work the first time, students will build the safe thing and learn nothing. A null result is a finding.