Over the course of your career, you’ll write “instructions” constantly

- Protocols for how to perform experiments or do data analysis
- Methods sections for papers and talks
- Work procedures for subordinates
- Lesson plans for teaching
- Management plans for projects

The purpose of written instructions is to get somebody to do something in exactly the right way
Instructions must include:

The “ingredients”

The equipment needed

A chronological, step-by-step explanation of what to do

Periodic built-in checks to assess correctness

Instructions should emphasize:

Hazardous materials or conditions

Likely mistakes and how to avoid them
Instructions should have an obvious logical structure

Chronology (first to last)

Priority (most important to least important)

Each step should consist of only one discrete action

1. Place all dry ingredients in a medium bowl
2. Stir with a fork to mix ingredients thoroughly
3. Make a well in the center of the ingredients
4. Add the egg yolks, sugar, and vanilla to the well
5. On medium speed, beat with an electric mixer for 3 minutes
6. Gradually add the whipping cream while continuing to beat the mixture for an additional 5 minutes
Point out possible failure points or likely mistakes

Reduce heat to “LOW” after adding the brandy.

Build in checkpoints so the user can assess progress and ensure success

1. After adding the reagent, check the pH—it should be at least 5.2.
2. After shaking, the fluid should be bright green (between 8 and 10 on the color scale).
3. Turn the fume hood ON before adding the solvent.
4. Check to see that the water is turned off at the main before dismantling the toilet.
Avoid ambiguous language—think about how readers will interpret your words

Advice from Celia’s grandmother: “It’s impossible to make anything foolproof, because fools are so ingenious.”

No jargon! Use the simplest word that accurately and unambiguously conveys your meaning

Lost in Jargon
To recap:
Analyze the audience—what do they already know? What will confuse them?
Be sure to list all “ingredients” and all “equipment”
Anticipate likely mistakes and failure points
Include only one action per step
Write precisely and use familiar language
Remember IITMAFBFASI—but still try

Team Assignments:

**Team Cuisine:** Starting with canned tuna, make a tuna-salad sandwich, garnished with lettuce and tomato, and serve it with chips and a pickle.

**Team Halloween:** Make a jack-o-lantern and illuminate it.

**Team Ferrari:** Check the oil in your car (it’s a quart low) and add oil.

**Team Camp-Out:** Build a campfire and make S’mores.

**Team Ice Cream Party:** Make liquid nitrogen ice cream for 20 people. Choose your favorite flavor.

Tip: Start by making an outline—tools, ingredients, steps, hazards