Workshop Series

AI for Scientists

Making it make sense to everyone else

Practical tools for scientific communication

01 — The Basics

So what even is AI?

Think of it as a very well-read assistant.

It's read basically the entire internet — papers, books, forums, articles.

No Common Sense

It doesn't understand context like humans do

Limited Memory

always give it what it needs to do the job right

No Clue About You

Unless you explicitly tell it what you need

The key: You must guide it with clear instructions.

02 — Key Concepts

GenAI vs LLMs, quickly

GenAI

AI that creates stuff

- Text
- Images
- Video
- Audio

LLM

The brain behind most of it

Large Language Model

Examples:

- ChatGPT
- Claude
- Gemini

Core idea: They all predict what comes next, really really well.

03 — Strengths

What it's good at

Simplifying complex text

Transform dense academic papers into accessible language without losing scientific accuracy

Rewriting for different audiences

Adapt the same content for experts, students, policymakers, or the general public

Summarizing long documents

Extract key findings from 50-page papers into digestible bullet points in seconds

Generating visuals & diagrams

Create images, videos, and diagrams from text descriptions to illustrate concepts

Brainstorming and structuring ideas

Get help organizing thoughts, creating outlines, and exploring different angles for your research communication

04 — Limitations

What it's bad at

Facts it wasn't trained on

It will guess and sound confident, even when wrong. Always verify critical information.

Very recent events

Knowledge has a cutoff date. Breaking news, latest research, and current events are often missing.

Knowing what YOU want

Without clear instructions, it assumes generic defaults. You must tell it.

Replacing your expertise

It's a tool, not a scientist. Your domain knowledge is irreplaceable.

⚠ **Remember:** AI amplifies your capabilities, but you're still the expert.

What's a prompt?

A prompt = what you type into the AI

It's basically an **instruction**.

The quality of what you get out is **almost entirely determined** by what you put in.

06 — The Framework

Prompting: the basics

Give it **4 things** when possible:

01

Task

What do you want it to do?

"Summarize this paper"
"Rewrite this paragraph"
"Generate 5 ideas for..."

02

Audience

Who is this for?

"A 15-year-old with no science background"
"Policy makers"
"Fellow geologists"

03

Format

How should it look?

"Bullet points"
"A single paragraph"
"Instagram caption format"

04

Tone

What style?

"Casual and conversational"
"Academic and formal"
"Fun and engaging"

07 — Examples

Bad prompt vs Good prompt

Bad

"translate this"

Too vague — what language? What style?

Good

"translate this comic from Spanish to English, keep it casual"

Specific: source, target, tone

Bad

"explain geology"

Way too broad — which aspect? For whom?

Good

"explain plate tectonics to a 15 year old with no science background"

Specific topic + audience

Bad

"make it better"

"Better" means nothing to AI

Good

"rewrite this paragraph to be simpler and more engaging for Twitter"

Specific improvements + platform

08 — Advanced Tip

Pro tip: use AI to fix your prompt

Not sure how to phrase what you want?

Just describe it roughly to Claude or ChatGPT and ask:

> "Can you turn this into a good prompt I can use for [tool]?"

1. Describe your rough idea to AI
2. Ask it to rewrite as a proper prompt
3. Paste the improved prompt anywhere

The AI will write a better prompt than you did. Use that.

09 — Tool Showcase

Tool 1: Claude / ChatGPT

Your text Swiss Army knife

Simplify field notes

Transform messy, technical field observations into clear, readable summaries

Rewrite jargon for general audience

Convert technical terminology into accessible language for public communication

Draft social media captions from papers

Turn research findings into engaging, platform-appropriate posts

Generate study-style notes

Create organized, student-friendly notes like a real uni student would write

Live Demo

Input

Raw geology notes from field work

Output

Instagram-ready caption with hashtags

Tool 2: NotebookLM

Your AI research assistant

Upload Documents

Full papers, lecture notes, PDFs — your entire research library

Ask Questions

Get answers sourced directly from YOUR uploaded documents

Audio Summary

Generate podcast-style audio summary automatically

The Power

Great for digesting **50 pages in 5 minutes**

Instead of reading entire papers, upload them and ask specific questions. Get precise answers with citations back to the source material.

Listen on the go

Turn your research into a podcast. Listen while commuting, exercising, or doing field work.

Live demo: Ask it to TL;DR the composting process from a real paper

Tool 3: Gemini / Nano Banana

Your visual and video generator

Generate Images

Create images from text descriptions to illustrate geological concepts

Edit & Translate

Modify existing images, translate comics, remove/add elements

Create Videos

Turn static visuals into animated looping videos

All-in-One Power

Everything happens **inside Gemini**

No need to switch between multiple apps. Text, images, editing, video — all in one place. Perfect for creating visual content for presentations, social media, or educational materials.

Comic Translation

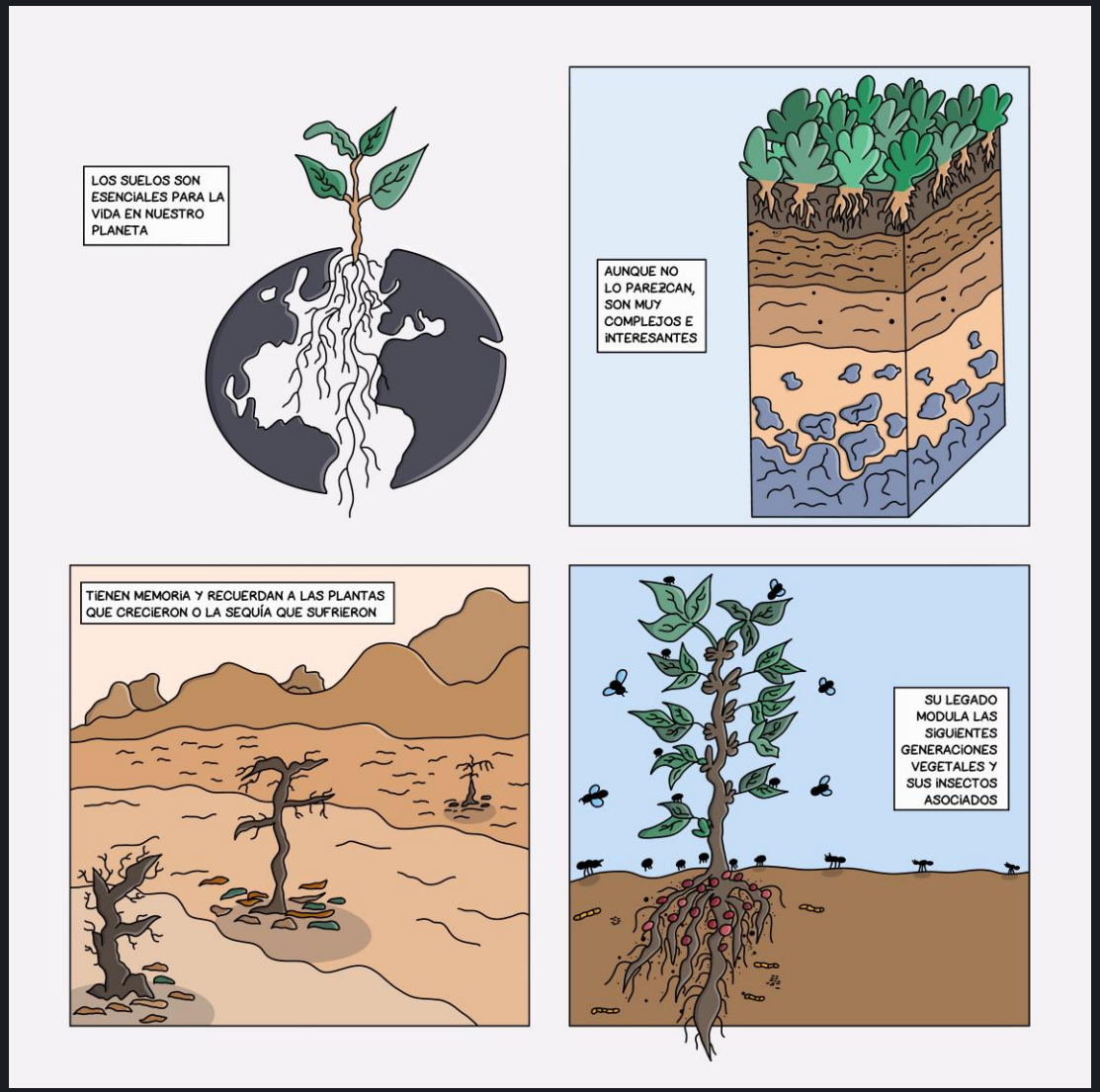
Upload a comic, get it translated instantly

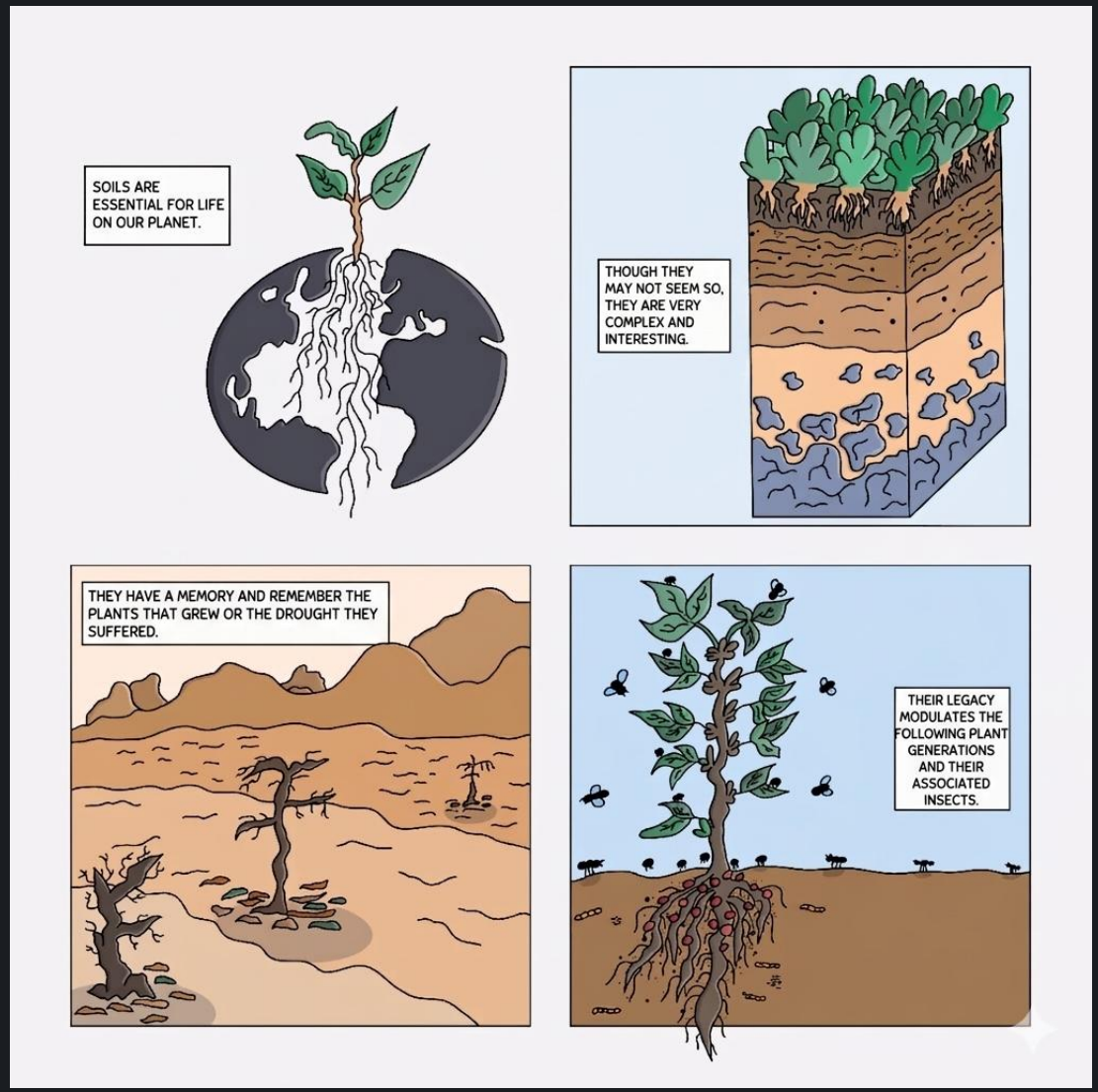
Video Animation

Static image → animated video loop

Live demo: Comic translation + composting video animation

Composting


LOS SUELOS SON ESENCIALES PARA LA VIDA EN NUESTRO PLANETA
AUNQUE NO LO PAREZCAN, SON MUY COMPLEJOS E INTERESANTES
TIENEN MEMORIA Y RECUERDAN A LAS PLANTAS QUE CRECIERON O LA SEQUÍA QUE SUFRIERON
SU LEGADO MODULA LAS SIGUIENTES GENERACIONES VEGETALES Y SUS INSECTOS ASOCIADOS


SOILS ARE ESSENTIAL FOR LIFE ON OUR PLANET.
THOUGH THEY MAY NOT SEEM SO, THEY ARE VERY COMPLEX AND INTERESTING.
THEY HAVE A MEMORY AND REMEMBER THE PLANTS THAT GREW OR THE DROUGHT THEY SUFFERED.
THEIR LEGACY MODULATES THE FOLLOWING PLANT GENERATIONS AND THEIR ASSOCIATED INSECTS.

Tool 4: Napkin AI

From messy notes to clean visuals

Paste any text

Even rough, unorganized notes work perfectly. Just copy and paste.

AI detects structure

Automatically identifies processes, relationships, and key concepts.

Generates visuals

Creates diagrams, flowcharts, and visual representations instantly.

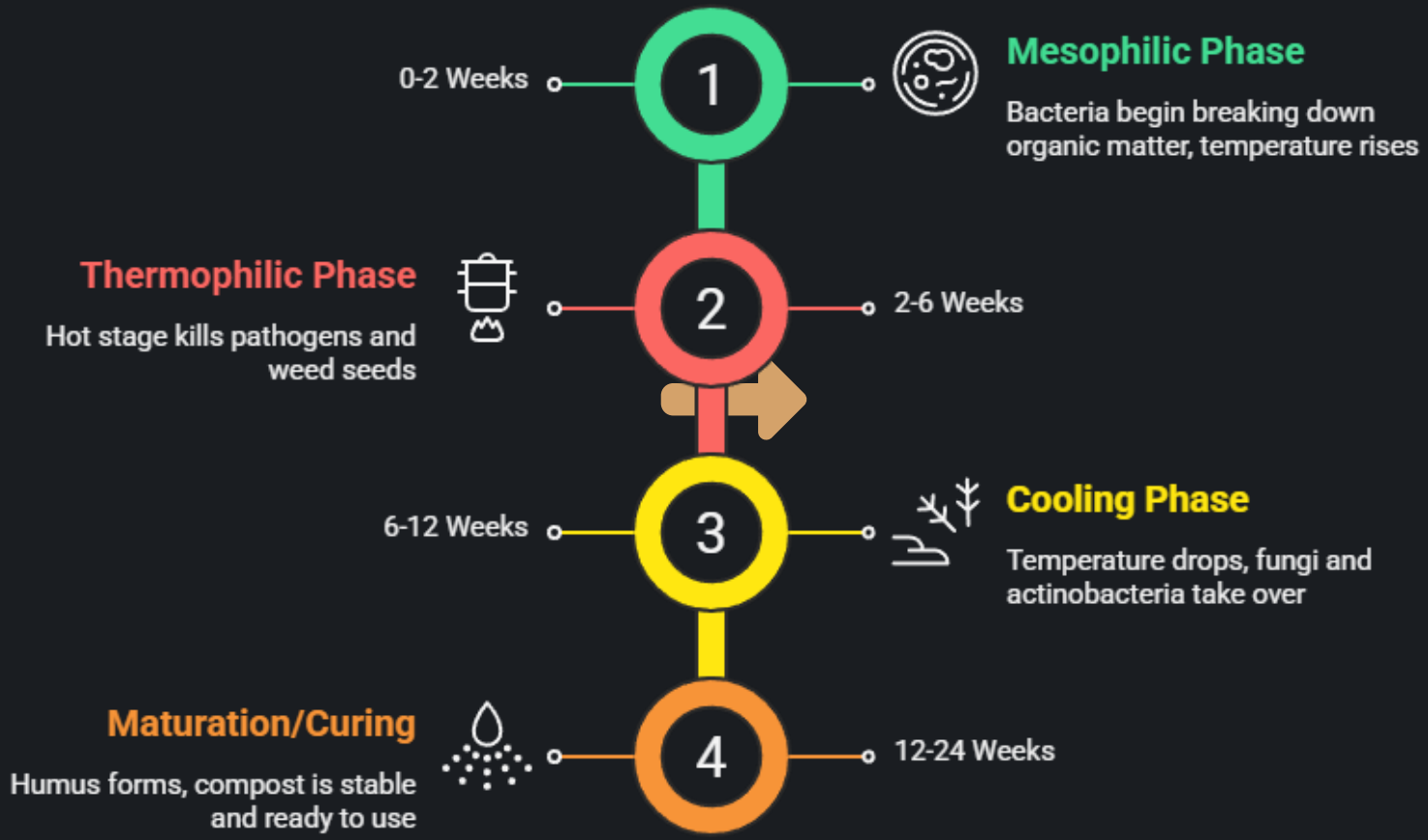
No Design Skills Needed

Perfect for turning a process or concept into something shareable

- ✓ Research workflows
- ✓ Geological processes
- ✓ Study guides
- ✓ Presentation slides

Live demo: Claude-generated notes → instant diagram

Composting Stages and Timeline



13 — Hands-On

Now you try

Pick one of these and do it on your phone **right now**:

01 Claude Rewrite

Take any paragraph from your notes and ask Claude to rewrite it for a **14-year-old**

"Rewrite this for a 14-year-old: [paste text]"

02 ChatGPT Caption

Ask ChatGPT to turn a concept you're studying into a **3-bullet Instagram caption**

"Make this into 3 Instagram bullets: [concept]"

03 Gemini Image

Describe a geological process to Nano Banana and **generate an image**

"Create an image of: [describe process]"

∞

There's no wrong answer.

Bad results are just **bad prompts** in disguise.

Oh, one more thing.

This entire presentation was made using AI with **Kimi Slides**.

Talk to **Claude / ChatGPT** to clean up your notes,
Give it structured content and it'll design a clean presentation in minutes.