



# Your First Mission: Calibrate Your Instrument

A one-time setup to prepare your device  
for scientific measurement.

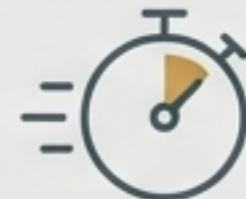


Tree  
Measurement  
App

# Why Your Mission Begins Here



Just like a musician tunes their instrument before a concert, we need to ‘tune’ your phone’s camera. This one-time calibration turns your phone into a precision tool, ensuring every measurement you take is accurate scientific data.



**Time Required:**  
10-15 minutes



**Location:** Home or Office  
(with good Wi-Fi)



**Frequency:**  
Do this only ONCE.

# Your Mission Plan

We'll guide you through three critical stages  
to get your device field-ready.



1

## Establish Your Identity

Create your volunteer profile.



2

## Power Up Your Sensors

Grant access to your phone's GPS, Camera,  
and Motion sensors.



3

## Calibrate for Precision

Tune your camera using a simple reference object.

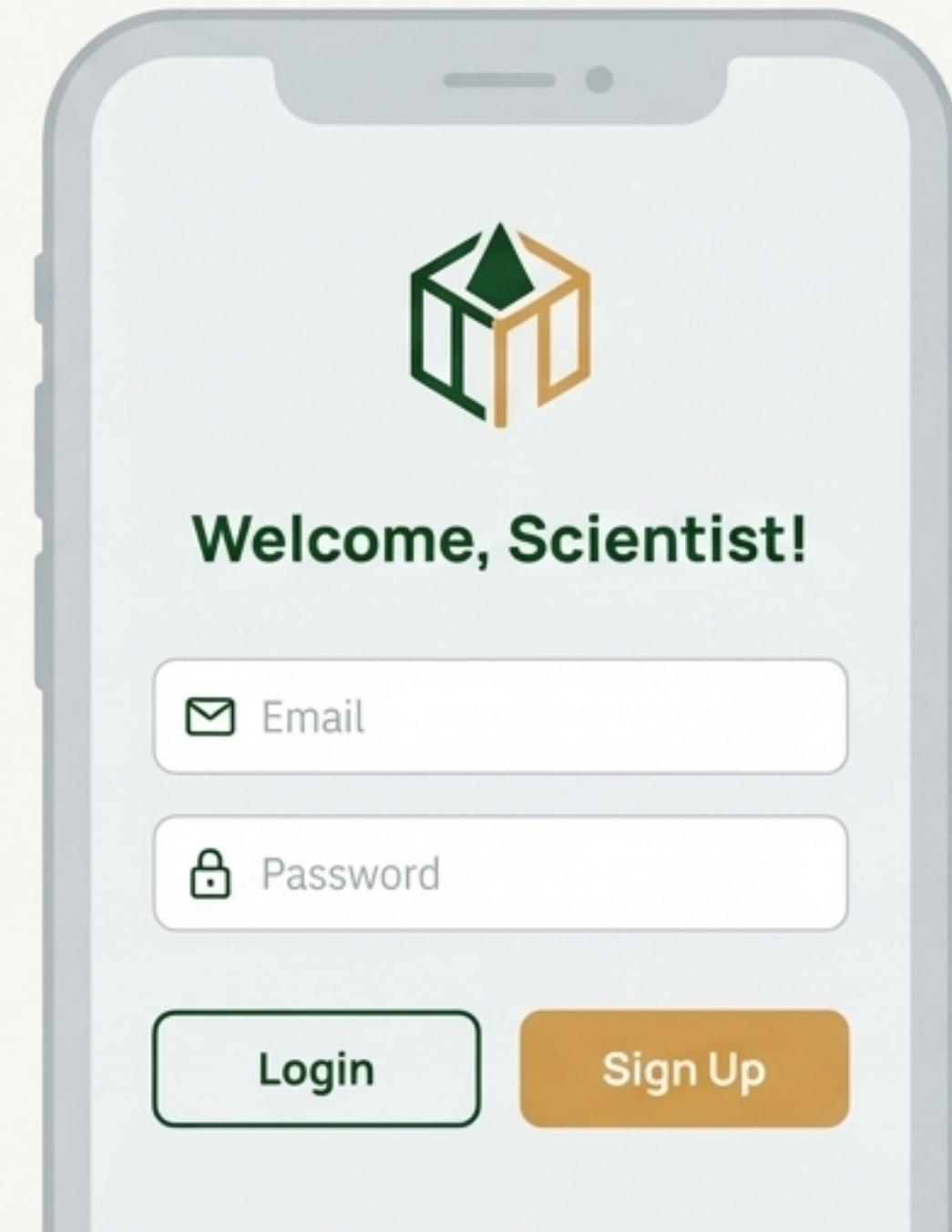
STAGE 1: ESTABLISH YOUR IDENTITY



# Create Your Field Scientist Profile

1. Open the **Tree Measurement App** link in your browser (Google Chrome is recommended).
2. Click the “**Sign Up**” or “**Login**” button.
3. Create your profile.

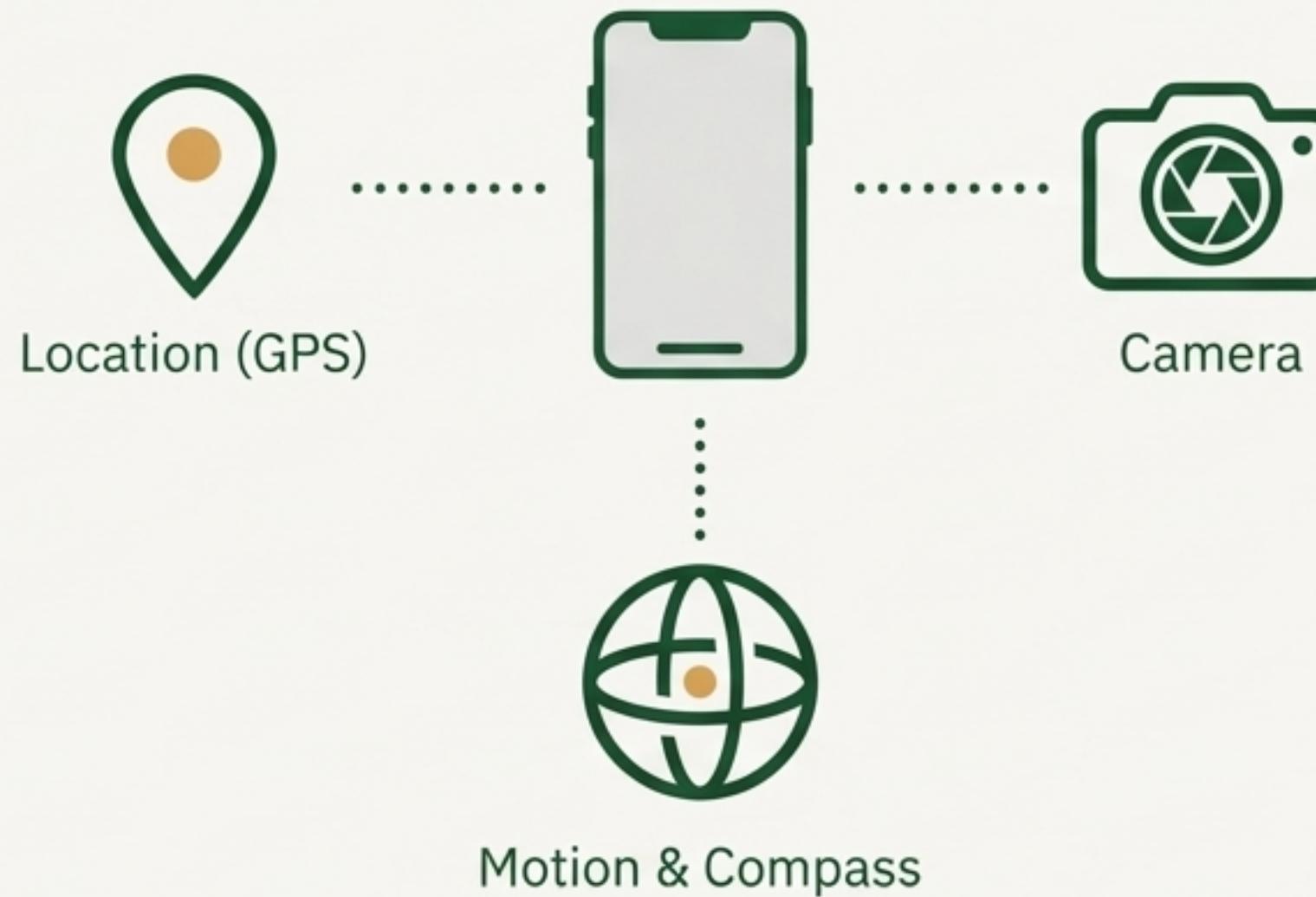
This ensures all the trees you measure are credited to you on the leaderboard!



## STAGE 2: POWER UP YOUR SENSORS



# Your Phone's Senses Are Key to Measurement



For the app to work, it needs access to three specific sensors. If any are blocked, the measurement tools will not appear. We'll guide you through enabling each one.

STAGE 2: POWER UP YOUR SENSORS

# Enabling Location and Camera Access



**Why:**

To pin the tree on the global map.

**Action:**

When prompted, click **Allow**.

Allow this site to access  
your location?

Block

Allow

**Why:**

To take photos of trees for measurement.

**Action:**

When prompted, click **Allow**.

Allow camera access?

Block

Allow

## STAGE 2: POWER UP YOUR SENSORS

# The Tricky Part: Enabling Motion Sensors



### **Why it's crucial:**

These sensors measure your phone's angle and tilt, which is essential for calculating a tree's height accurately.

### **The challenge:**

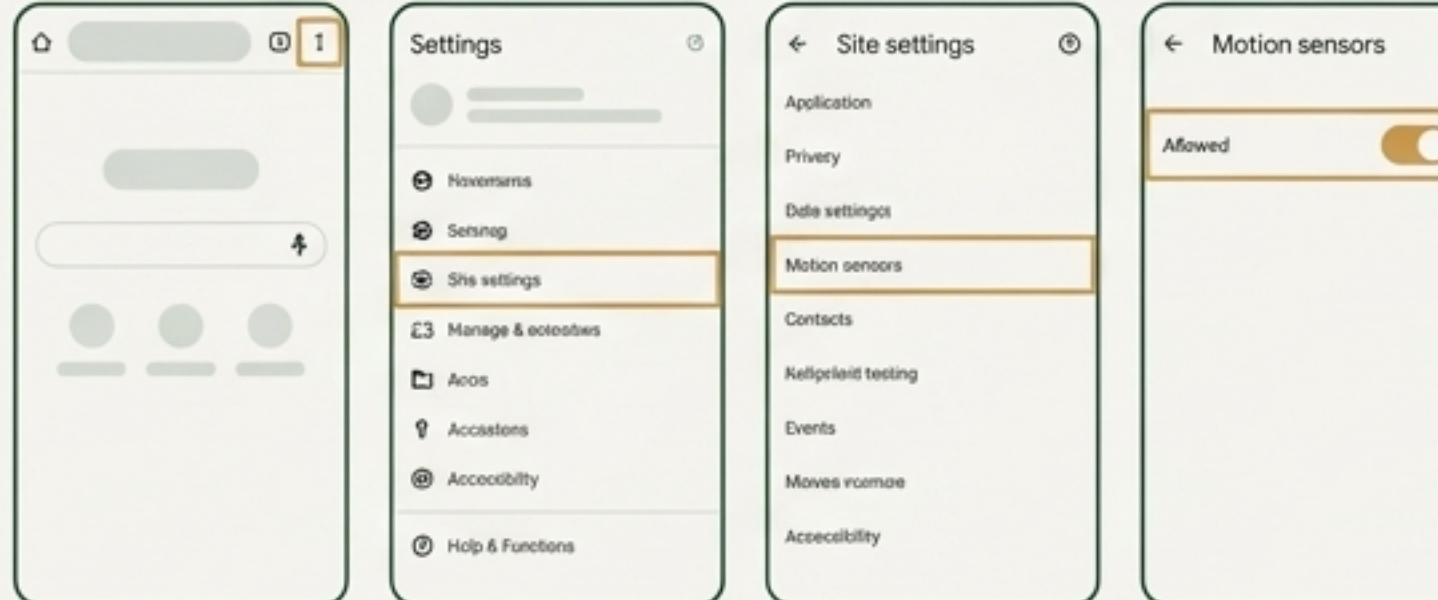
Unlike the camera or GPS, this permission is sometimes hidden in your browser's settings. If the app says 'Sensors Blocked,' you'll need to enable it manually.

## STAGE 2: POWER UP YOUR SENSORS

# How to Manually Allow Motion Sensors

### Android Users (in Chrome)

1. Tap the **three dots (:)** in the top right.
2. Go to **Settings > Site settings**.
3. Find and tap **Motion sensors**.
4. Make sure the toggle is **ON (Allowed)**.
5. Refresh the app page.



### iOS Users (in Safari)

1. Go to your iPhone **Settings**.
2. Scroll down and find **Safari**.
3. Scroll to 'Privacy & Security'.
4. Ensure **Motion & Orientation Access** is **ON**.



### STAGE 3: CALIBRATE FOR PRECISION

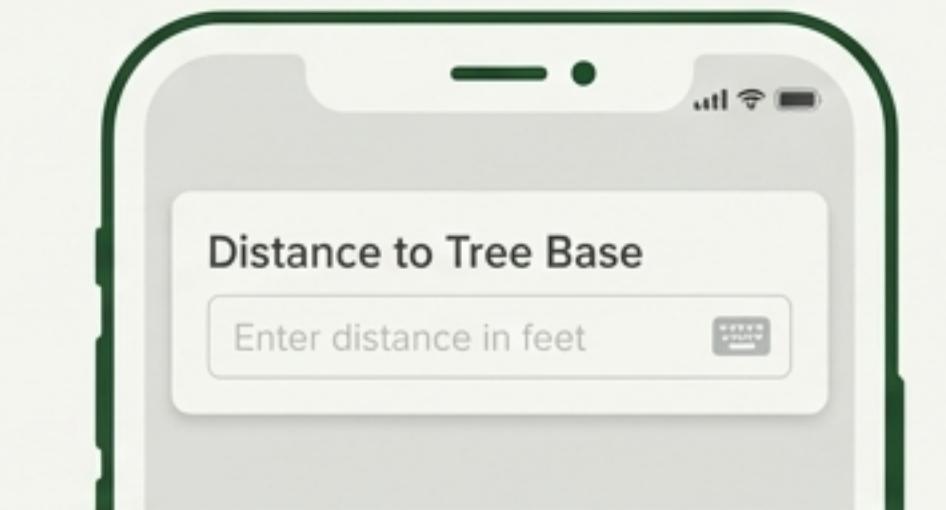


# Do You Need to Calibrate Your Camera?

**Not everyone needs to!** The app is smart. To check, open the app and point it at a vertical object like a wall or door.

## GOOD TO GO

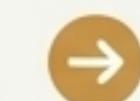
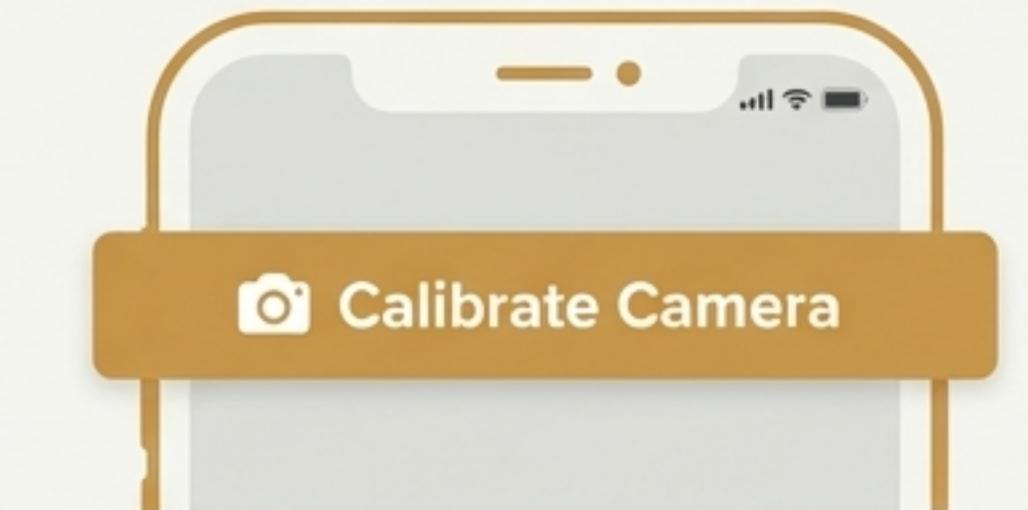
If the app asks for...



You can skip ahead to the **Final Checklist!**

## CALIBRATION NEEDED

If the app asks to...



Follow the next steps.

# Prepare Your Calibration Target

## What You Need



A sheet of standard **A4 paper**. (Or any object with a known size).



A **ruler or scale** (if not using A4 paper).



A **flat wall** OR a **flat table**.

## Setup Diagrams

Wall Method

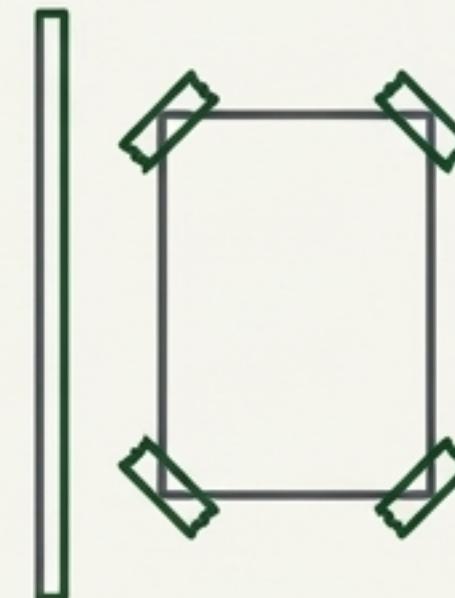
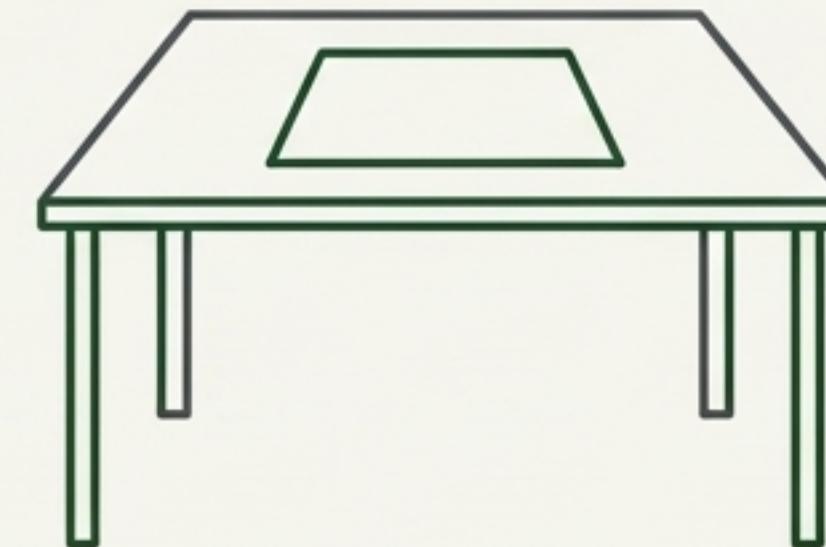


Table Method



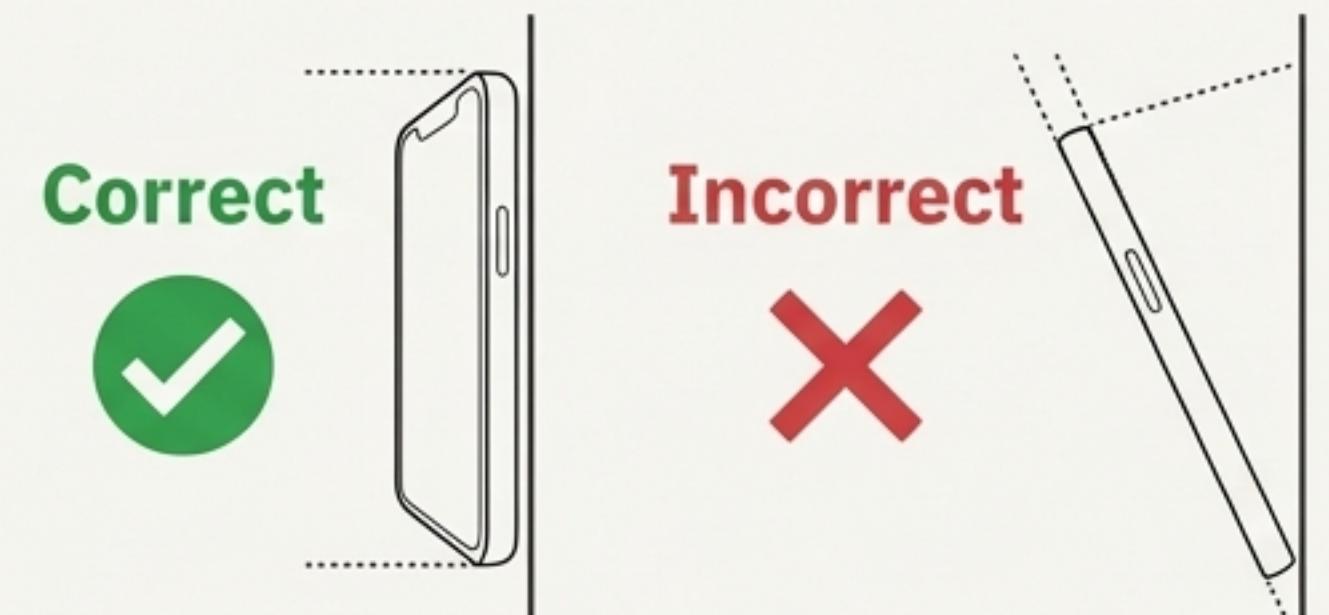
## STAGE 3: CALIBRATE FOR PRECISION

# The Calibration Sequence

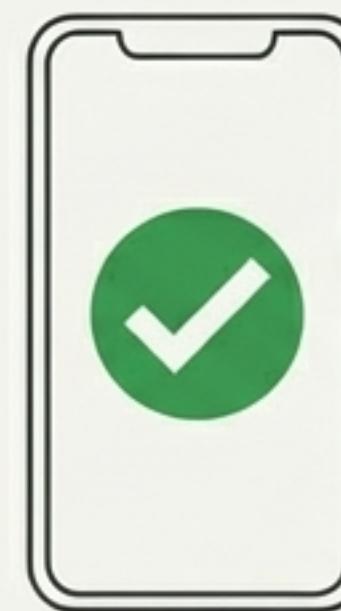
- 1. Open App:** Follow the prompt to the Calibration screen.
- 2. Position:** Stand back so the A4 paper fits clearly in the frame.
- 3. Capture:** Take the photo.
- 4. Measure:** The app will ask for the object's real-world size. Enter its height (e.g., 29.7 cm for A4 paper).
- 5. Save:** Click 'Save Calibration'.

### Hold Your Phone Straight!

Your phone must be **perpendicular** to the paper. Do not tilt it up, down, or sideways.



# Success: Your Instrument is Tuned



Focal Length: Saved  
Status: Calibrated

You've successfully **calibrated** your device!  
Your phone is now a scientific instrument.

## The Science Explained

The app has measured and saved your specific camera's 'Focal Length.' It will remember this value for all future tree measurements, ensuring your data is accurate.

# Final Systems Check

Before you head into the field, confirm that your setup is complete.

- I am logged in to my profile.
- GPS Location is ON and allowed.
- Motion Sensors are allowed in browser settings.
- I have completed the camera calibration (if it was required).



Congratulations, Field Scientist.  
Your equipment is ready.

You are now ready for **Module B: Field Measurement!**

Height: 22.4m



NotebookLM