

REPURPOSING THE Dell Chromebook 11- 3120 Disassembly and Reassembly Guide

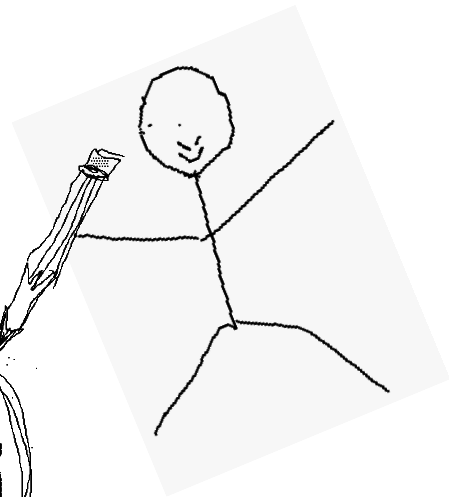
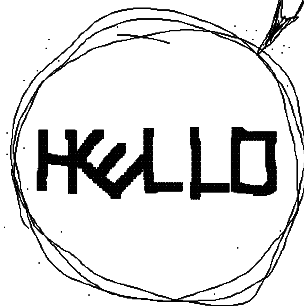
this is true of course, but we're going to take a look anyways.



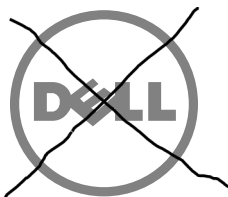
Warning: This manual is intended for use by a Dell Certified Technician.
Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

Have you ever wondered
how to repair a
DELL Chromebook 11 3120?

NO?
Me neither, up until I
discovered what Chromebooks
even were



by: claudio aka c3



Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your computer.

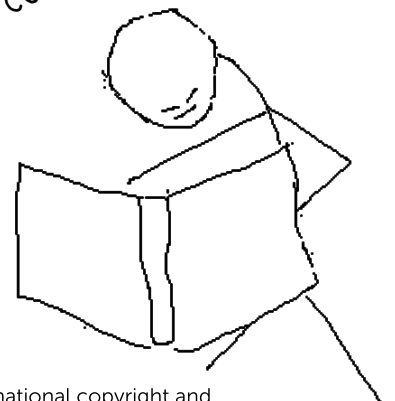
 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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Does this count as fair
use?



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Rev. A00

1. INTRODUCTION

In this manual we'll take a look at what Chromebooks are, their rise and fall in educational environments and how to make them usable again beyond the built-in expiry date of the older models.

As repairing Chromebooks is device specific (and has many pre-requisites), in this guide we'll focus on the one I've personally managed to repair and that I started reusing the DELL Chromebook 11 3120.

We'll do so by traversing two sources of documentation: the original DELL "disassembly and reassembly manual" and @mrChromeb0x's, an open source developer who has documented extensively how to repair this and many more models of Chromebooks.

All of the above is mediated and reworked by me, @C3 occupying the space of a service manual to insert my own form of documentations, which makes use of play and humor to add various elements that are smoothed out of technical documentation for most of the time.

DISCLAIMER

Repairing Chromebooks is device specific, so the methods shown here will not work on any Chromebook device.

This guide focuses on a method that works for the DELL Chromebook 11 3120, if the computer device is not managed.

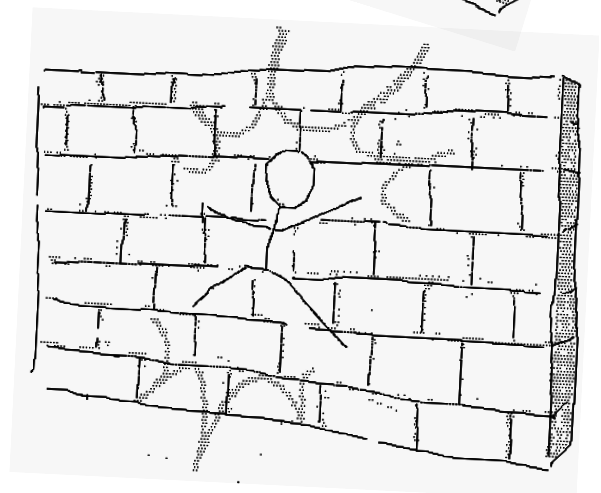
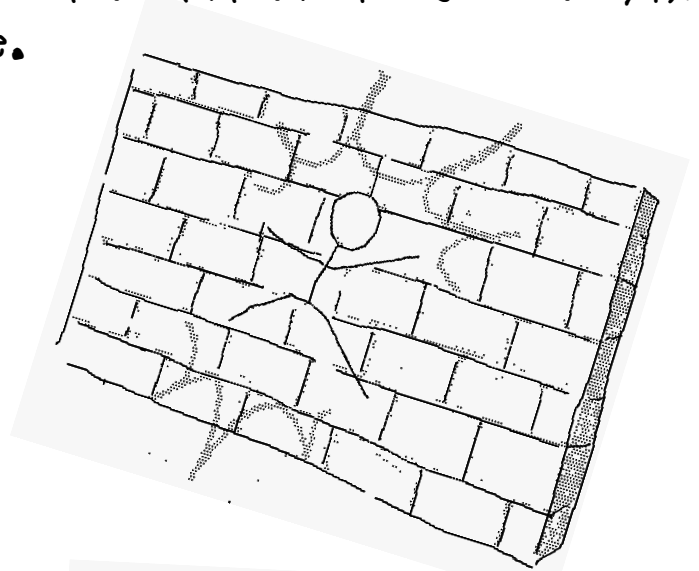
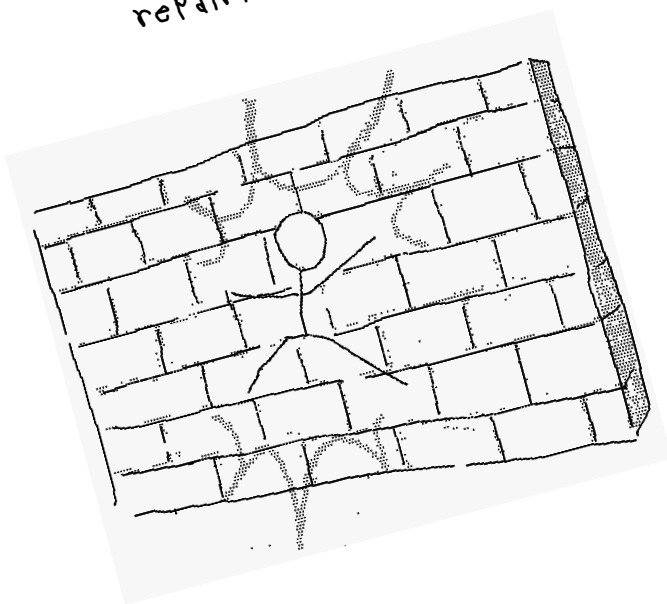
If a device is managed, you should see a message that says "Chromebook managed by *name*" in the welcome screen once you turn it ON

During the past three years I've been approaching maintenance and repair of computers and smartphones. Since my background is in the Arts, I thought that this was something that I could not do as I lacked a technical background, but as more of our daily lives revolves and relies on using computers for everything, I became interested in approaching their materiality.

In 2025 I took part in a workshop organized by Boris Smeenk at the WDKA, the art academy I studied at in Rotterdam. Together with other students, I discovered this family of devices for the first time by repairing a series of them discarded by different elementary schools in the Netherlands.

This was one of the hardest repair I've ever done, and the most shocking one as well. It was something completely different than what I was used to and the process to fix them gave me a major headache.

An accurate representation of the many walls I hit while repairing my Chromebook



I decided to focus on the Chromebook as I consider it a device that sums up various interests I developed over the past years, that came up while looking into communities of practice such as degrowth, solarpunk and permacomputing, that always felt quite abstract and hard to approach in concrete ways.

* tech jargon

* technical documentation

* repair

* e-waste

* reuse

* planned obsolescence

* low-tech

But wait, what is a Chromebook anyway? Let's take a walk around it and find out.

2. WHAT IS A CHROMEBOOK?

The Dell™ Chromebook™ 11 (3120) system top view and features are as below:

The Chromebooks are a series of computers produced by all of the big computer manufacturers (ACER, DELL, HP, LENOVO, SAMSUNG etc.) in collaboration with Google.

From the outside,
this looks like a regular computer...

They run on ChromeOS, a web-based operating system created for a seamless navigation across the applications that are part of Google's workspace (Gmail, Google Drive etc.).

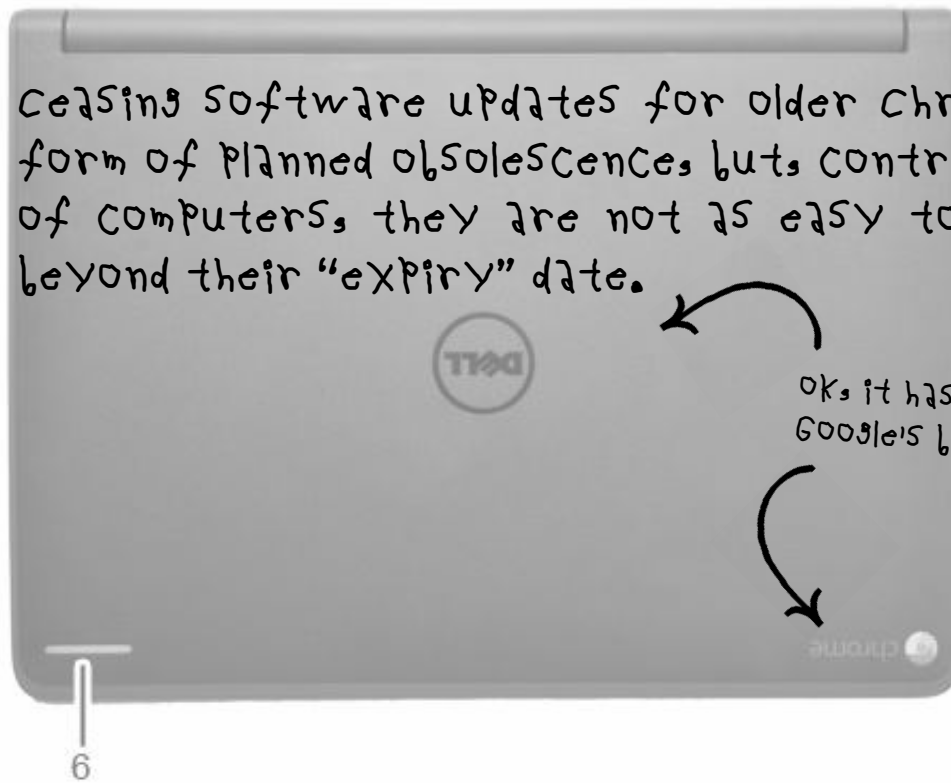
Since 2012 they have been popular computers for schools due to their cheapness (around \$150-300) and relative ease of use.

But Google eventually stopped supporting ChromeOS for numerous older models, stating that software and important security updates would not be supplied anymore, which caused them to become suddenly obsolete.

Because these devices work mostly online-first (since they are linked to Google accounts) for schools this was most likely an important reason to get rid of them and upgrade to the newer models, revealing the hidden cost of adopting them in the first place.

This is not something new. Every consumer product for decades has been designed with an artificially determined lifespan that makes something stop working and creates a need to replace it sooner than necessary. This practice is called "planned obsolescence", and it rules the design of everything.

ceasing software updates for older Chromebooks is also a form of planned obsolescence, but, contrary to other type of computers, they are not as easy to repair and reuse beyond their "expiry" date.

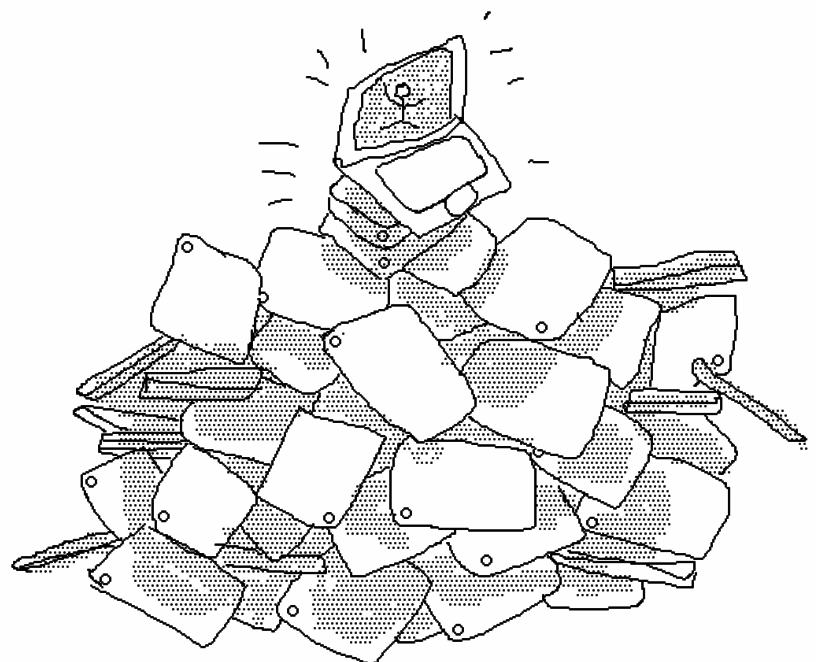


OK, it has both DELL and Google's branding...

New models of these computers are still being produced to this day and the old ones are mostly abandoned and perceived as trash to be disposed of.

Label	Description
1	Webcam LED
2	Webcam
3	Microphone
4	Speakers
5	Power Button
6	A-Cover LED (Interactivity LED)

But, in terms of hardware, most of them still work and since a lot of rare minerals and labor go into the production of these devices, throwing them away seems to be more of a waste than a security precaution.



If Google determines how long this computer can be used for through ChromeOS, what we need to do is to get rid of it, making it possible to install another operating system.

Since removing ChromeOS is not something enabled by default, we need to first do some hardware and software modifications to the Chromebook, which might sound scary and wrong at times, but these are essentially the steps needed to achieve our goal.

Starting from the hardware, let's first of all open the DELL Chromebook up.

On its bottom side we can see that it has 7 screws and that fortunately all of them are cross shaped and of the same size. This type of screw is pretty common, so finding a screwdriver to take them out should not be too hard.

Bottom View
The Dell™ Chromebook™ 11 (3120) system bottom view and features are as below:

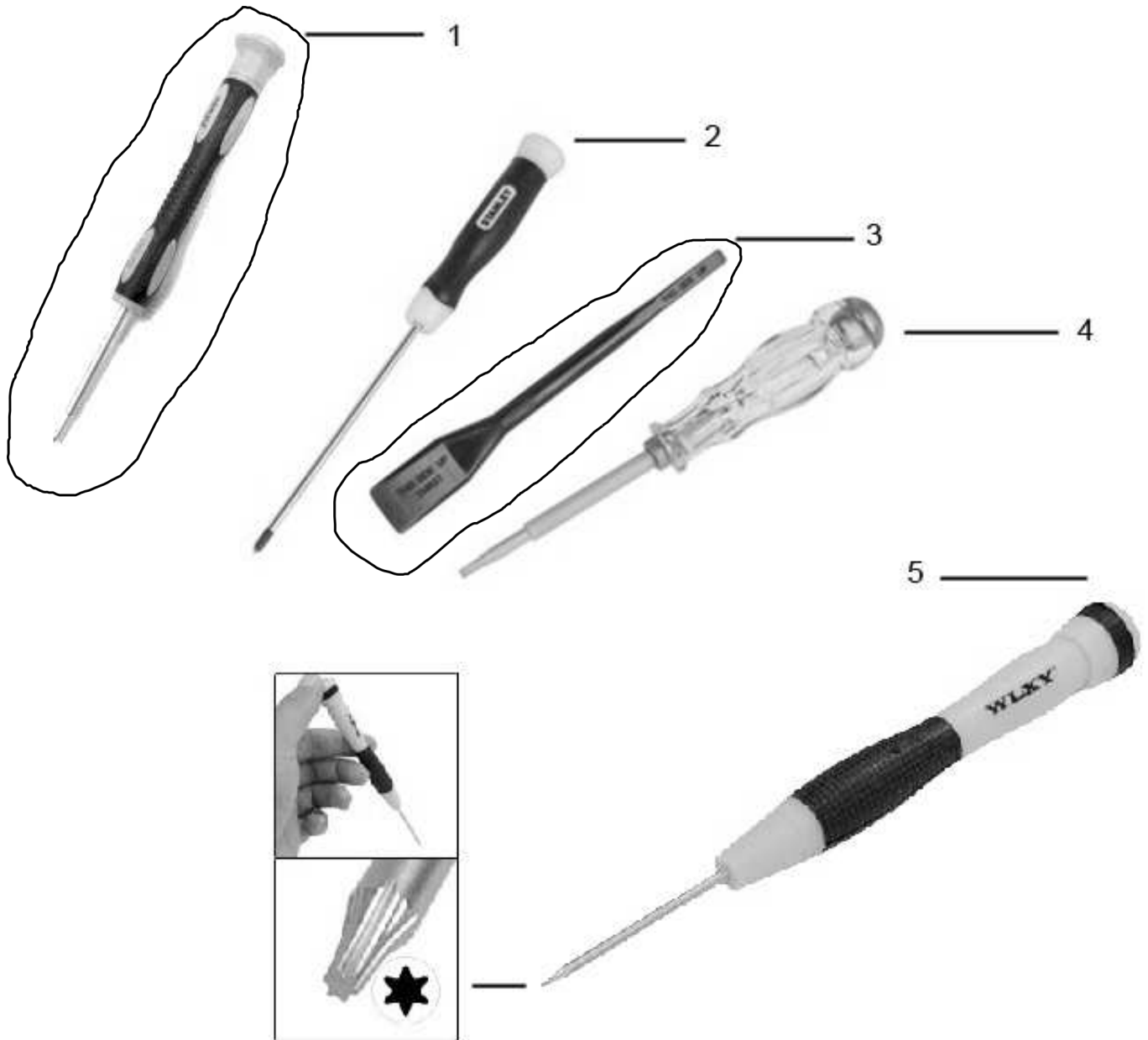


Tools Required

3. OPENING A CHROMEBOOK

A set of required and optional tools are necessary to service the product.

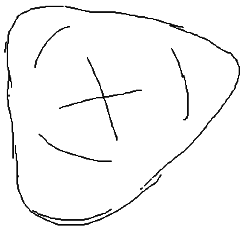
For this repair we actually only need tools 1 and 3.



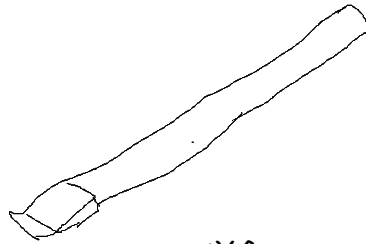
1. Small Phillips-head screwdriver, size #1
2. Small Phillips-head screwdriver, size #1
3. Plastic scribe
4. Small flat-head screwdriver
5. Tork 5 screwdriver

One Phillips-head screwdriver Size 1 and something made of plastic to pry open the bottom cover to access the motherboard of the Chromebook.

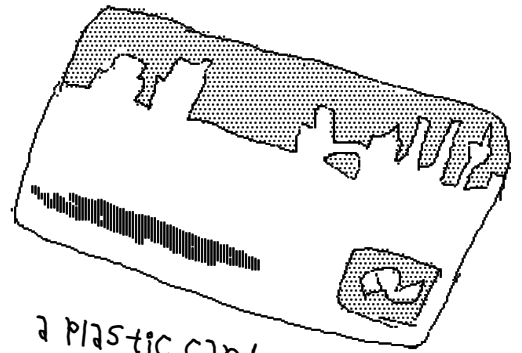
TO PRY the bottom cover open If you cannot find any of these tools, even a plastic card or badge should do the work, it just needs to fit between the computer its bottom cover.



looks like
a guitar pick

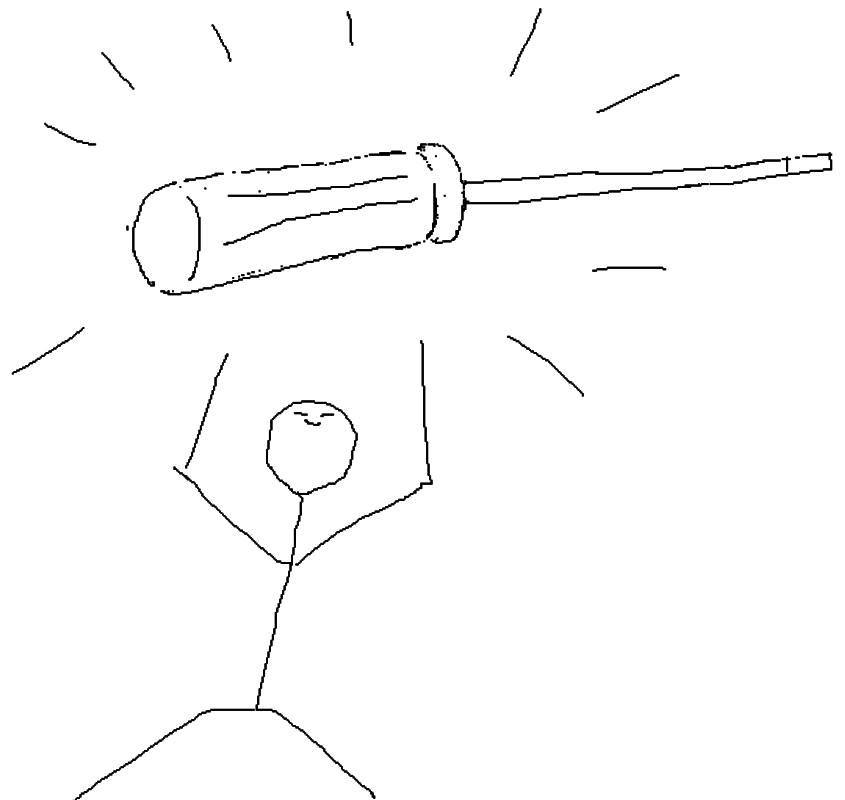


looks like
a little shovel



a plastic card

OK, Time to get that
screwdriver we talked
about before...



obtained screwdriver

When removing a screw, remember to keep the screwdriver straight and to use the right tip.

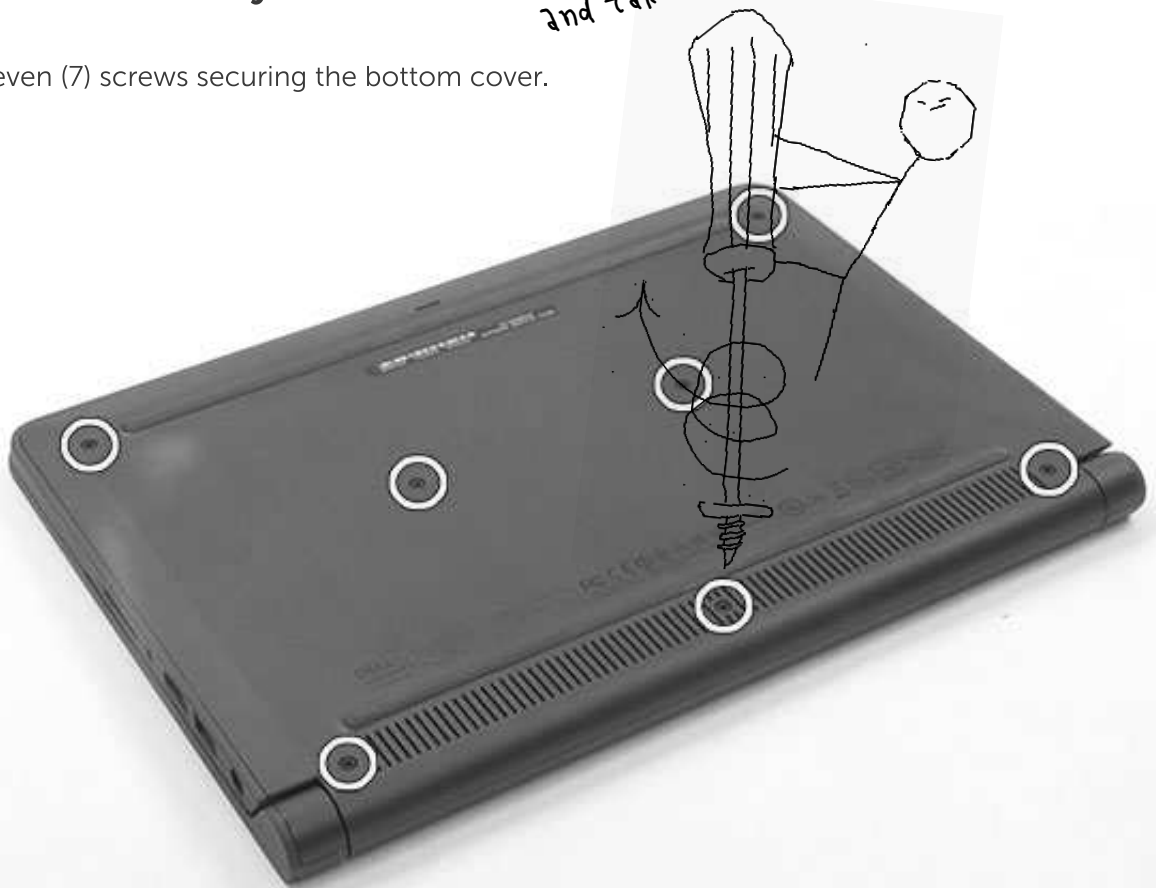
Start slow when unscrewing and be gentle!

We don't want to ruin the shape of the screw you are trying to remove, if that happens it will be harder to take it out and to put it back in place later when we want to close the computer again.

Bottom Cover Disassembly

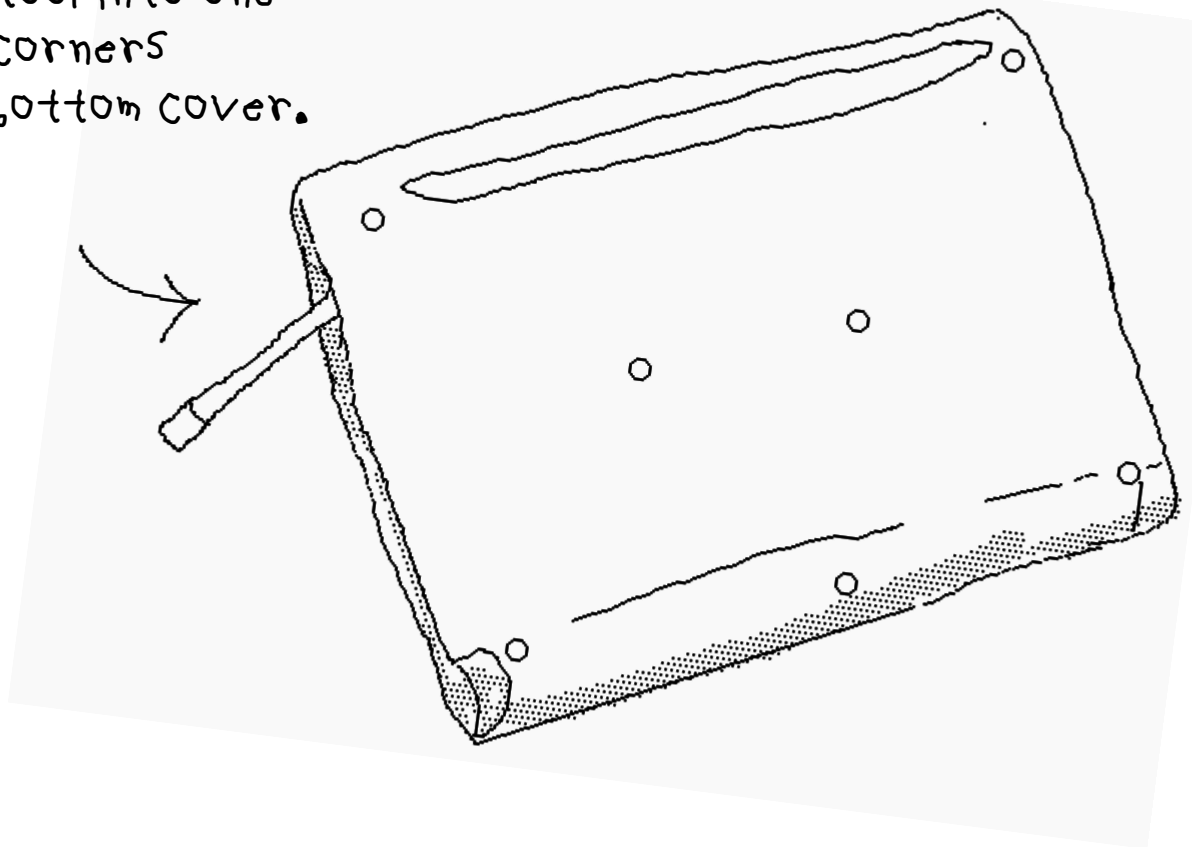
1. Loosen the seven (7) screws securing the bottom cover.

and take them out

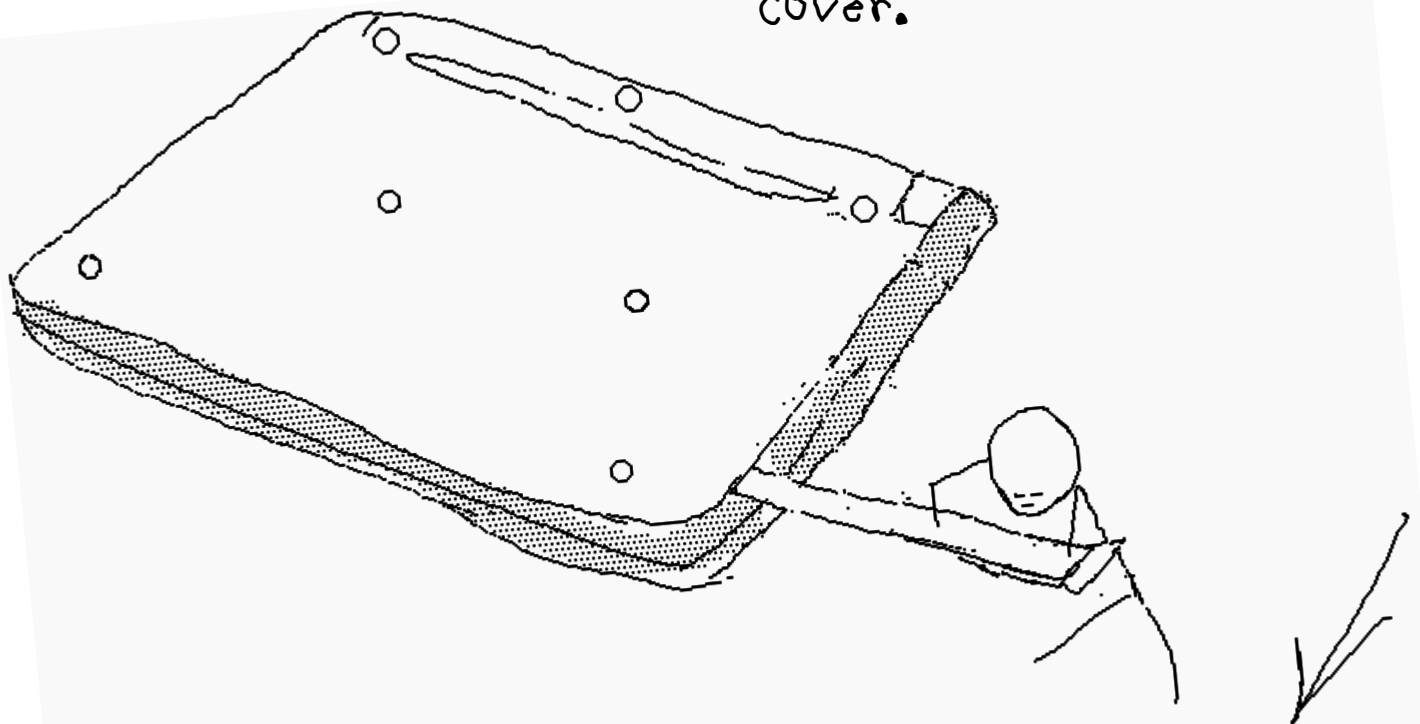


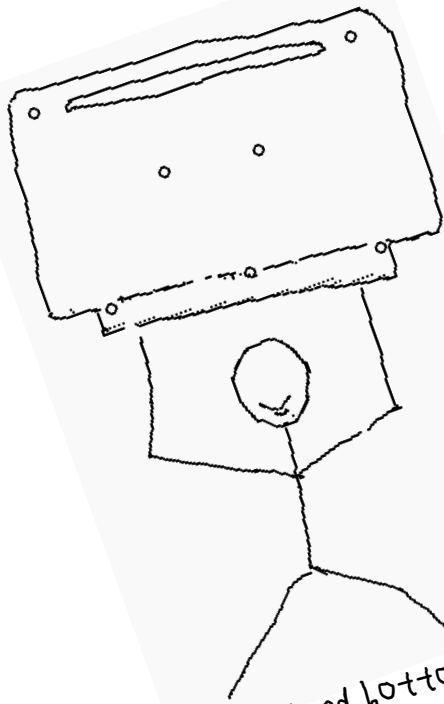
2. Pry up the bottom cover carefully, starting from the top corners.

After removing all
the screws, insert a
prying tool into one
of the corners
of the bottom cover.



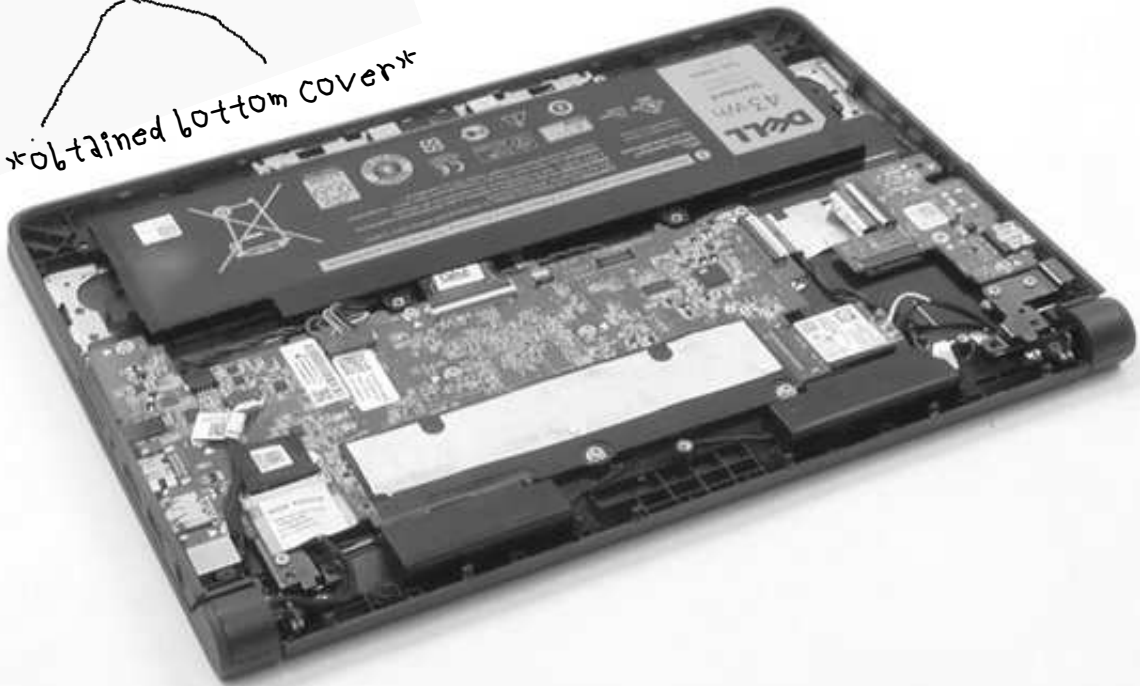
Then patiently go around
all of the edges. You will
hear a small pop everytime
you will loosen the back
cover.





This is where things
get interesting...
but first, let's talk
about a couple of
precautions.

obtained bottom cover



Bottom Cover Reassembly

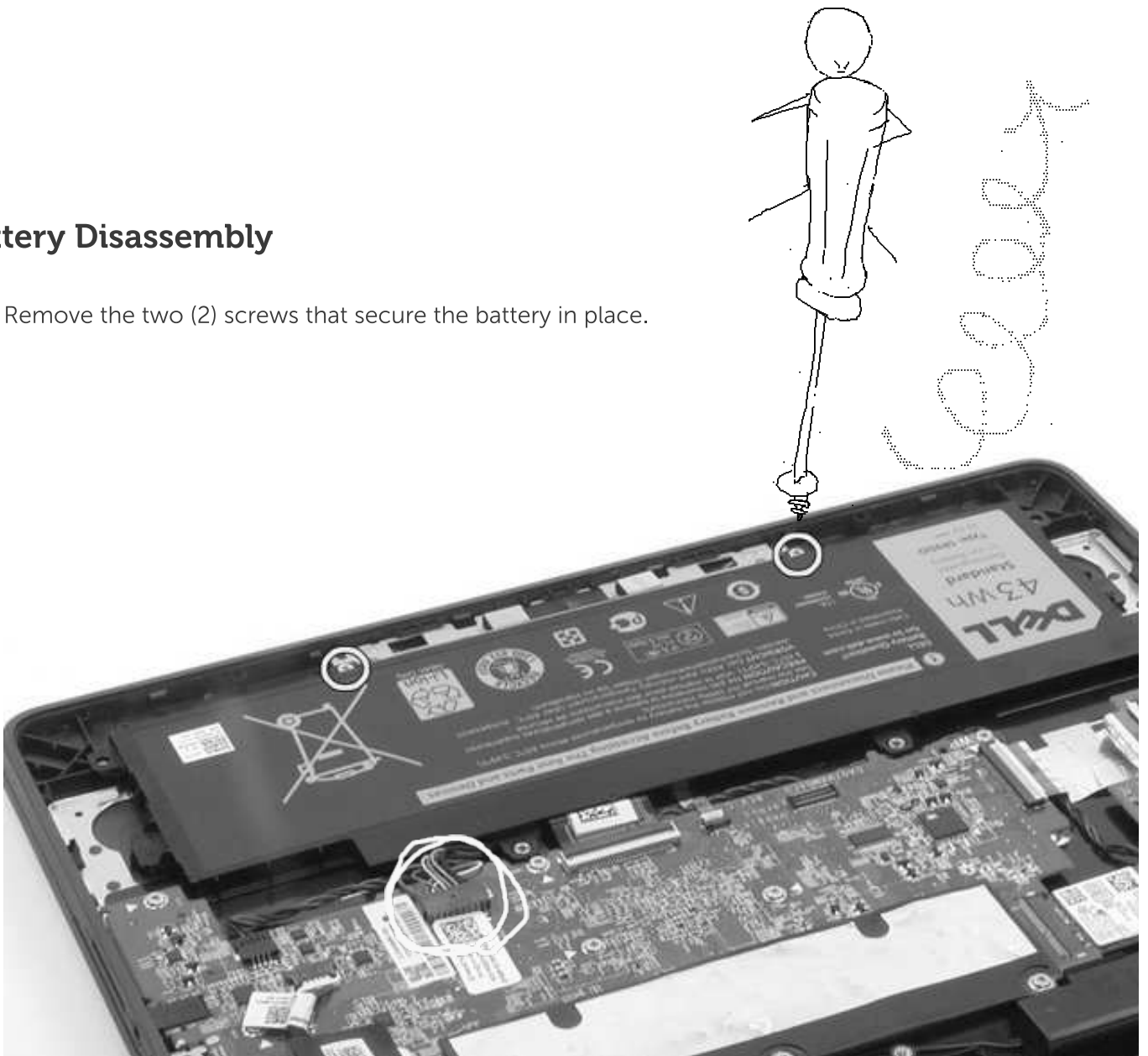
1. Replace the bottom cover back into its original location.
2. Gently push the cover back to make sure that it is secured in place.
3. Tighten all seven (7) screws.

Before touching anything inside of the computer, make sure that the device is turned OFF and unplugged from power.

Once you open any electronic device, make sure to disconnect the battery (possibly remove it) before touching anything.

Battery Disassembly

1. Remove the two (2) screws that secure the battery in place.



2. Slowly pull the battery to disconnect the battery cable from system board, and remove the battery from the system board.



2/4

keep in mind that whenever working inside of a computer, you should use plastic tools to touch the components to avoid conducting electricity and shortening something.

4. REMOVING THE HARDWARE LOCK

Now, on the motherboard (the green circuit board) there are 9 screws, but we are only interested in removing one, the "WP" screw.



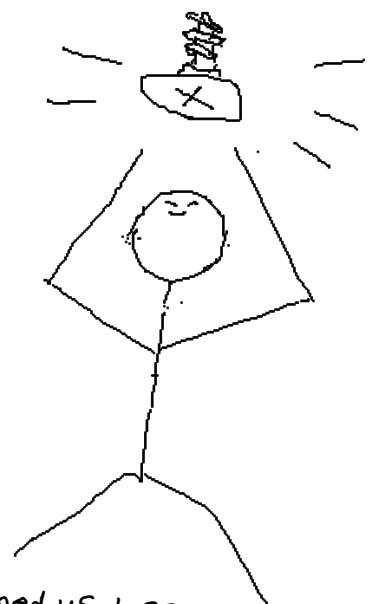
"WP" stands for
~~workers power~~
~~welcome people~~
~~wearY plastic~~
write protection

After disconnecting the battery from the computer, we can take a look at the motherboard and search for the letters "WP", which mark the screw we are looking for.

Once we find it, we can take it out and forget entirely about it, as it is literally standing in our way.

The WP screw is used as a lock to prevent making modifications to the computer, which we want to do by removing ChromeOS.

If the hardware write protection is enabled, we cannot remove the software write protection, so this is a necessary step.



obtained useless screw

5. JUMPING BETWEEN MODES

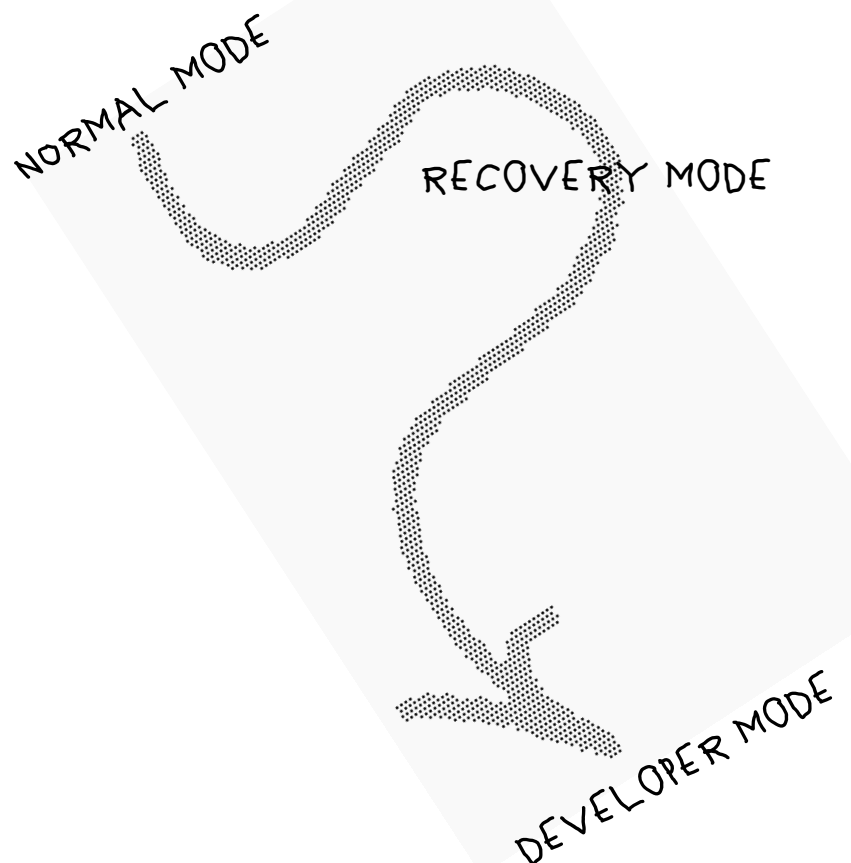
After removing the WP screw, we can put the computer's battery back in place and close the bottom cover.

It is now time to turn the computer ON again and continue with the removal of the software lock.

Before getting there, we need to enable a couple of functionalities on the Chromebook that are turned OFF by default and we do so by changing MODES.

What is a mode? Every Chromebook as-is starts always in NORMAL MODE, but there are four of them, each determining/limiting how you interact with the computer and what you can or cannot do with it.

To continue, we need to get to DEVELOPER MODE. Is there a direct way to go there? Of course not! We need to first make our way to RECOVERY MODE and then from there activate it. All of this is done by using dedicated key shortcuts, which will bring us through various screens.



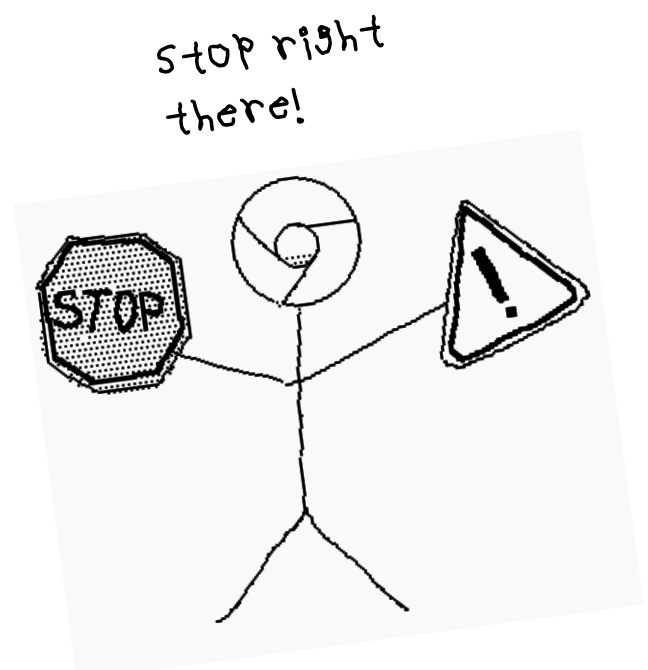
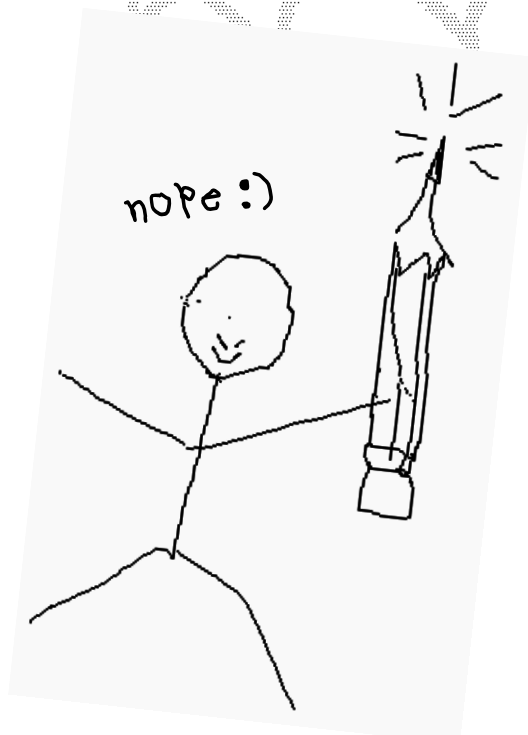
1. NORMAL MODE
2. RECOVERY MODE
3. DEVELOPER MODE
4. LEGACY MODE

A NOTE ON **!!** WARNINGS **!!**

The next section will also present us with many visual warnings (exclamation marks, red and yellow colors, specific terms that allude to unsafety)

These digital street signs might make us feel like we are doing something wrong.

But don't get intimidated by them! we will pass through the next steps and reach our destination.

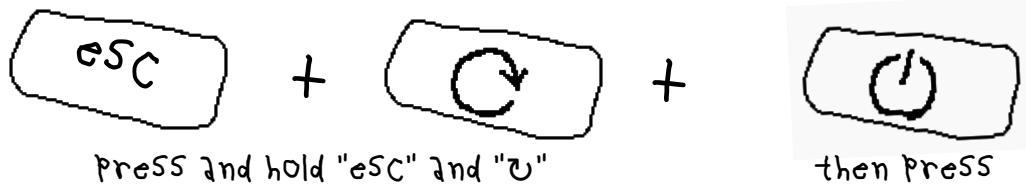


IMPORTANT

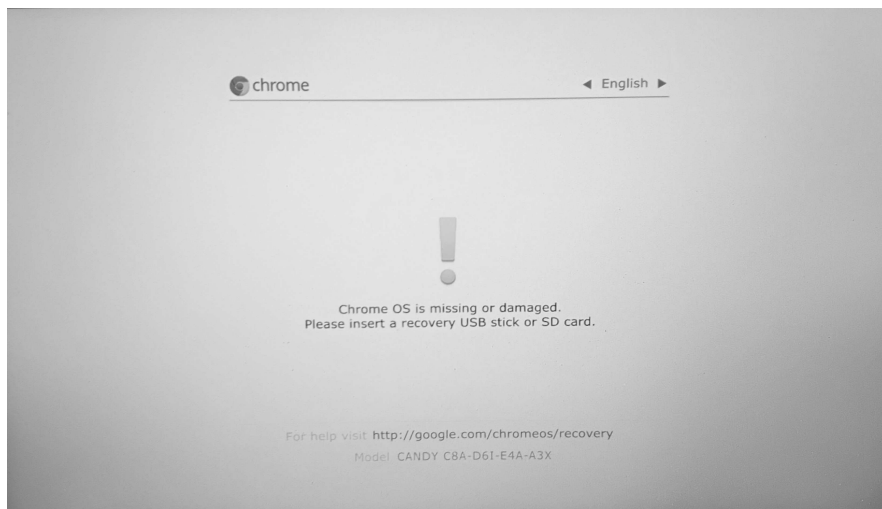
This part also assumes that the device we are trying to modify is NOT managed by an IT administrator.

In case your device is managed, there will be different steps to enable DEVELOPER MODE like using a CH341A programmer (spooky) which this guide does NOT cover.

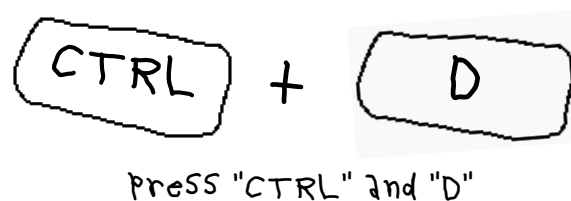
TO get to RECOVERY MODE, we need to enter this key combination:



After a bit, we'll enter RECOVERY MODE, and we will be greeted by our first warning, which we will ignore.

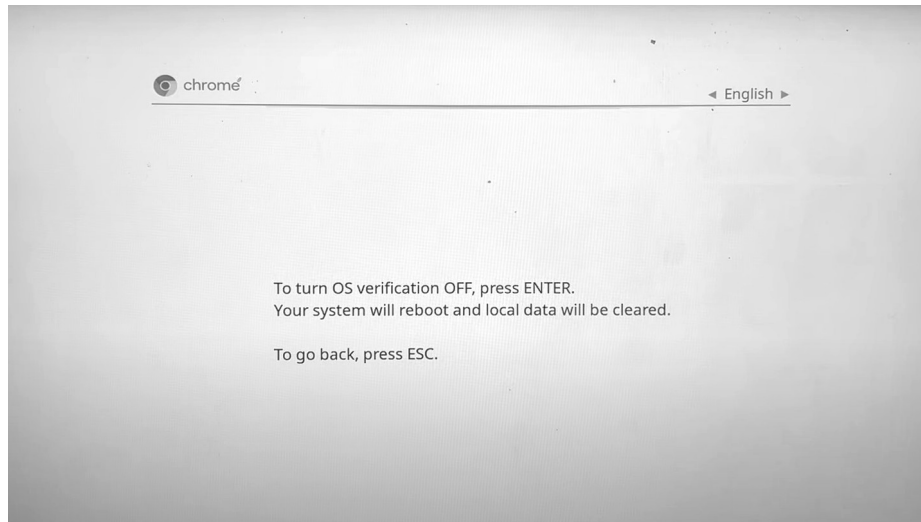


From here we can try to activate DEVELOPER MODE, which can be accessed by using another key combination.



The next screen we will get to informs us that to disable OS verification, we simply need to press the "ENTER" button.

OS verification?
weren't we trying to
enable DEVELOPER MODE?

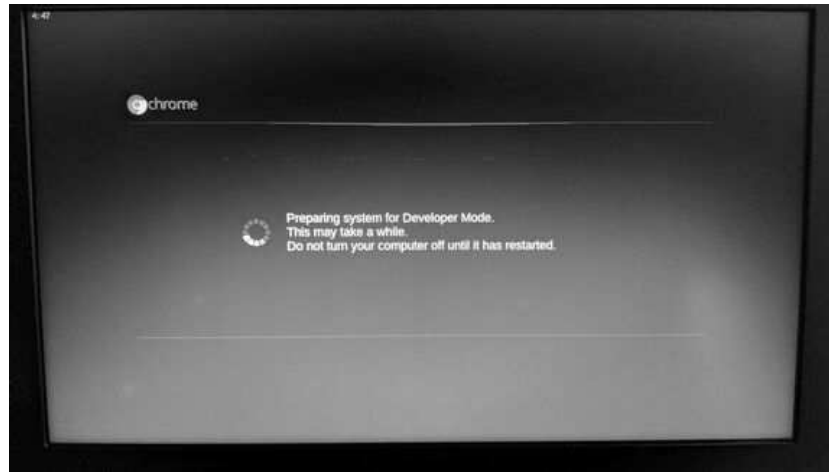


After pressing ENTER, the screen will go black for an instant, then we will get to yet another screen, which shows us yet another warning.



At this point we don't press any keys, we just have to wait until the computer will play two !!!VERY LOUD!!! beeps, which will bring us to a new screen, one that warns us that DEVELOPER MODE is being activated.

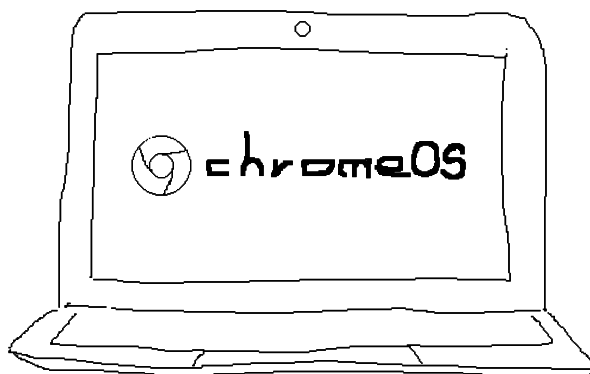
On the top left of the screen, a timer of about 5 minutes will pop up, after which the computer will reboot on its own.



We can use these five minutes to consider how much work went into designing this tedious set of procedures and how much work we have already accomplished by this point. Undoing these locks requires a combination of prerequisites and overall jumping so many hoops that you would think this is a circus show not a repair process.

Oh, the five minutes have passed!

After DEVELOPER MODE is activated, we will come back to the previous screen that says that "OS verification is OFF", and if we wait again the computer will start in NORMAL MODE (confusing) this time with "developer powers" enabled.

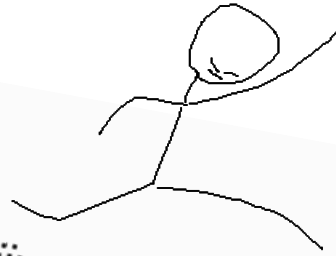


I cannot believe we
are still here...

maybe I'll go for
a walk...



NORMAL MODE



RECOVERY MODE



DEVELOPER MODE

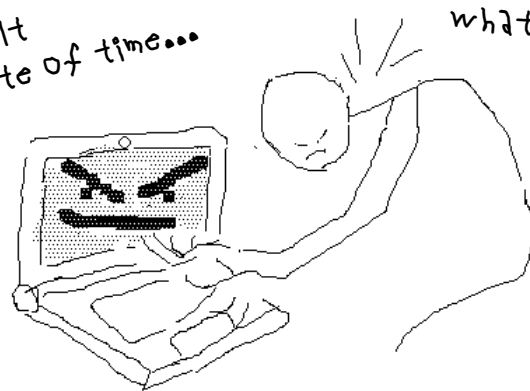


NORMAL MODE



6. REMOVING THE SOFTWARE LOCK

wow, that sure felt like a massive waste of time...



what was I trying to do again?

We are now back in the Chromebook welcome screen.



From here, we need to connect to the internet and make use of our newly acquired developer powers to enter the terminal, from there we will download a "script" and use it to remove the software WP lock and finally modify our Chromebook to take ChromeOS out of it.

TO open the terminal, we will use another key combination:



Press "CTRL", "ALT" and "->"

Opening the the Terminal for the first time might feel like this:

```
~$ sup, are you sure you want to be here?
```

Even though it might look SCARY, the terminal is essentially a program that represents the space of the computer through a text based interface, instead of a graphical one.

TO interact with the computer within the space of the terminal, we will now write text and then press ENTER once we are ready to have the computer process it.

Once in the terminal, we will get to a login screen. The welcome text tells us to login as "Chronos", so we write it on the keyboard and press ENTER.

(if that name sounds familiar, it's because Chronos is the Greek God of time... that's a very pretentious name to give to a computer user Google...)



After logging in as Chronos, we can continue with what we were doing.

```
Developer Console

To return to the browser, press:

  [ Ctrl ] and [ Alt ] and [ <- ] (F1)

To use this console, developer mode must be enabled.
Doing so will destroy any saved data on the system.

In developer mode, it is possible to
- login and sudo as user 'chronos'
- require a password for sudo and login(=)
- disable power management behavior (screen dimming):
  sudo initctl stop powerd
- install your own operating system image!

• To set a password for 'chronos', run the following as root:

chromeos-setdevpasswd

If you are having trouble booting a self-signed kernel, you may need to
enable USB booting. To do so, run the following as root:

enable_dev_usb_boot

Have fun and send patches!

localhost login: chronos
```

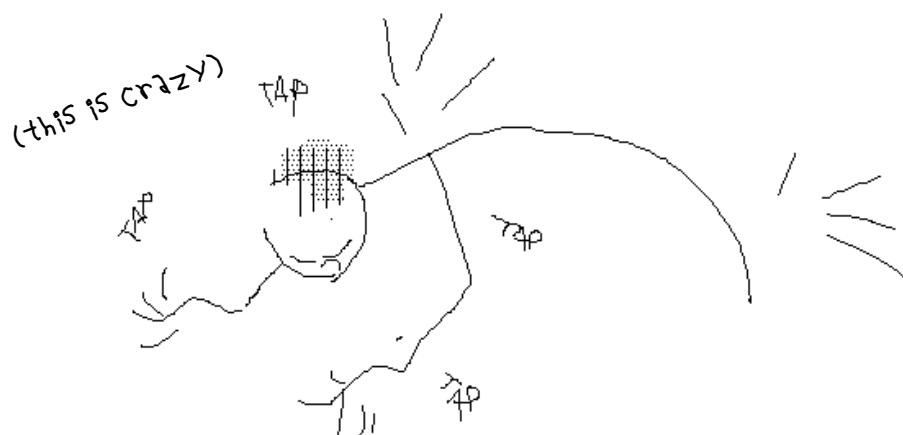
by default the user "Chronos" does not have a password set, so we can just login

Next, we type this crazy instruction by hand, prepare to make mistakes, which is normal as it is pretty unnatural to write anything close to this:

capital O
↓

```
cd; curl -LOf https://mrchromebox.tech/firmware-util.sh
&& sudo bash firmware-util.sh
```

if this does not work,
try writing "-LOfk"
instead of "-LOf"



This roughly translates to:

"Go to my home folder and download this program called `firmware-util.sh` from @mrChromelox's website, then if it was downloaded correctly open it and execute the instructions written in it".

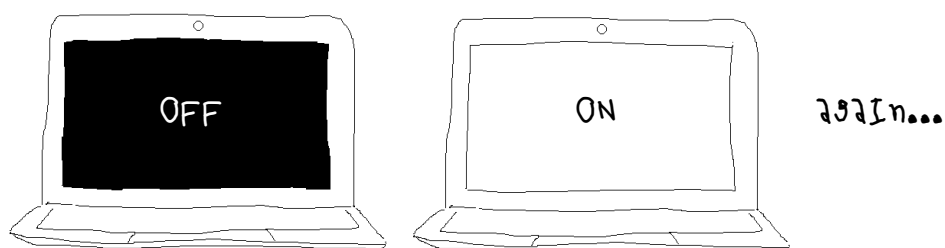
The program we download from @mrChromelox's website is a script, which can be thought of as a series of instructions, written by someone in a text file. A computer can read a script and execute the instructions written in it.

We use "`firmware-util.sh`" to remove the software WP lock, and then modify the firmware of the Chromebook, which will result in removing ChromeOS.

To my understanding, the firmware is a particular type of software that controls computer hardware. By itself hardware does not do much, so firmware in this case sort of directs every piece of the computer, making it work as expected.

After we write the previous long instruction and press ENTER, the script should pick up that the software writing protection on the Chromebook is still on, and ask us if we want to turn it OFF.

To confirm, we write the letter "Y" and then press ENTER. The computer will reboot itself.



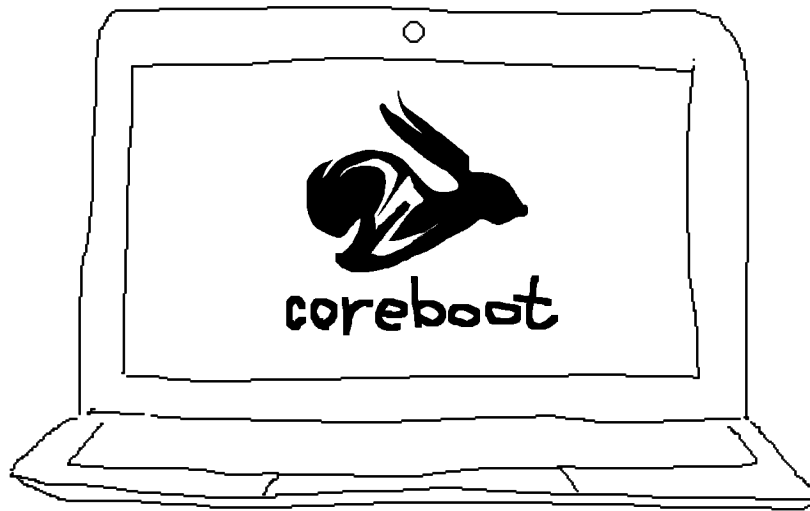
When the computer turns ON again, we head back to the terminal (CTRL+ALT+ ->) and type again the previous long instruction to go back at the interactive text menu. out of the available options, we are interested in number 2) "Install/Update UEFI (Full ROM) Firmware"

To be clear, the script we are using reads hardware and software information from the Chromebook (like the model and the status of the WP locks) and it presents it in an interactive text menu, with a few selectable options. Not all of the options available have the consequence of removing ChromeOS, but since that is our objective, we will choose option 2).

This option supports older devices beyond their set "expiration date", giving a chance to continue to use them. To be able to select this option, the "Fw WP" field should read "DISABLED".

```
ChromeOS Device Firmware Utility Script 2025.11.08
*****
**      Device: HP Chromebook 14 G5
**      Board Name: CAREENA
**      Platform: AMD StoneyRidge
**      Fw Type: Stock ChromeOS
**      Fw Ver: Google_Careena.10388.52.0 (07/08/2019)
**      Fw WP: Disabled
*****
**      1) Install/Update RW_LEGACY Firmware
** [WP] 2) Install/Update UEFI (Full ROM) Firmware
** [WP] 3) Set Boot Options (GBB flags)
** [WP] 4) Set Hardware ID (HWID)
**      5) Backup Current Firmware
*****
Select a numeric menu option or
R to reboot P to poweroff Q to quit
```

After selecting and ENTERing option 2, a series of questions will come up. Read and answer to them by writing the suggested text and wait until the operation is completed. You will then go back to the main menu and press R to reboot the computer one last time (which might take a while).



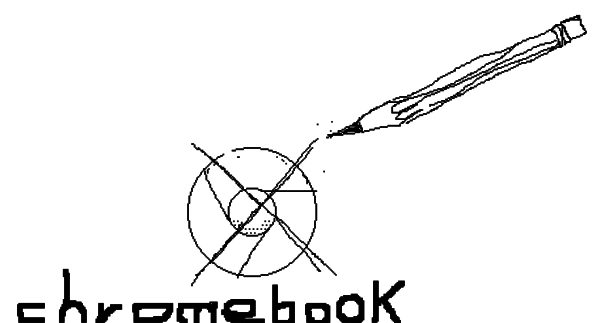
If when the computer turns ON you see a splashscreen with a running rabbit, you've successfully got rid of Google's ChromeOS.

And now... nothing, nothing is installed yet so nothing shows up, but at least you are free to install a new operating system and do what you want this device concretely.

Think about how to reuse it, instead of leaving it on a shelf to catch dust.

What you've done here is very important, maybe this is your first time opening a computer up, or a terminal, but essentially what you did was disobeying to the expectation of trashing a fully functioning computer device, against Google's will.

Isn't it absurd that to do so you had to go through so much? And isn't it absurd that this is only one of the existing methods to repair a specific Chromebook models, largely depending on the work of @mrchromebox?



7. REUSING A CHROMEBOOK

After I repaired the DELL Chromebook during the Repurposing Chromebooks workshop by Boris, I learned that I could keep it. I've never used a device that I repaired on a daily basis (also because they were not mine) up until that point, so I was curious about this possibility.

Something bugged me about this computer, and the whole general family of these devices, maybe it was the amount of work it is required to simply make them usable again, or, most importantly, the fact that they were produced to support education, but they end up in obscuring what a computer even is.

I chose to keep it and reusing it became an important part of my artistic research method, as I've learned through practice how to embrace material limitations and to work with the slowness of an older machine for both my own artistic purposes (such as trackpad artworks) and for general daily use.

This started a journey into re-defining my personal technological usage, revisiting my needs and expectations.

I've learned many new tools and methods of how to do more with less, like learning how to operate a computer with a different operating system (Linux Debian 12) navigating the terminal and using text based programs.

This meant also running into many new walls, mostly defined by my lack of technical background, but by trying, failing and repeating I've found the way things made sense for me.

COLOPHON

The text written in this manual is a rework of the original documentation by @mrchromelox.

docs.mrchromelox.tech

All of the drawings shown have been made by Claudio Castro Chaponán aka C3 by using the DELL Chromebook 11 3120'S trackpad

@chipC3@graphics.social

using "Noodle", a drawing tool made by hundredrabbits

<https://100r.co>

The font in use is called "testType" and it is designed by Xiaoyuan Gao - notyourtype.nl

The original service manual is publicly available online on DELL'S website

www.dell.com/support/kbdoc/en-uk/000178390/dell-chrome-systems-guide?lang=en

Thanks to Boris Smeenk and his work on the Repurposing Chromebooks workshop

https://wiki.i25.wdka.nl/wiki/Repurposing_Chromebooks

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