



AITS Newsletter

DECEMBER 2025



Enjoy this
brain teaser ☺

We are going to visit family and friends for Christmas day. I note that it takes us two and a half hours to get there because of the terrible traffic. The traffic is just as bad on the way home – identical as a matter of fact – but we make it home if 150 minutes. How did we manage this trick?

Cyber Hygiene, Artificial Super Intelligence, and A Couple of Toys for the Holidays [Abraham John, Asst VP, AITS]

My article for the AITS newsletter is typically just a “fluff” piece but in this issue, there will be two topics that will fall into the more serious consideration category and one that is more for fun during this upcoming holiday season.

Cyber-Hygiene

In the hyper connected world that we find ourselves in today, it is a good idea to have a periodic check-up of our cyber health. Quite like having a physical once a year. When we are young, inexperienced, and feel invulnerable, this may seem like a waste of time. However, a good habit developed over time pays dividends when we are at our weakest. In some ways, this is like making your bed as one of the first chores of the day where we pay attention to the relative mess created by us of crumpled sheets, pillows not quite centered or straight, and whatever covering not up to the standards of a disciplined mind. As we address this disorder, we are in a significant way adding order to the rest of our day. Cyber hygiene is similar – we consider the drift that has taken place over the course of the year and bring back to known order and standards while paying attention to what has been added to our cyber life and look at emerging trends that may affect our cyber life.

Cyber hygiene should take into consideration the Internet of Things (IoT's) and Industrial Control Systems (ICS) devices and ecosystems that already exist in places we would not consider online and this trend will only continue as we pursue increasing automation and systems handling our more mundane day to day activities. Things like updates and changing passwords from their defaults apply to these little controllers that inhabit our respective residences and workplaces.

I will address cyber hygiene from the perspective of individuals and organizations. They are not dissimilar, with one having more governance and regulations/laws.

Cyber hygiene refers to the set of practices and behaviors that ensure the security and integrity of digital systems and data. As cyber threats evolve in complexity and frequency, maintaining robust cyber hygiene is essential for organizations and individuals alike. The short third of this article explores the concept of cyber hygiene, its significance, best practices for organizations, and actionable steps for individuals to safeguard their cyber presence.

The digital era has transformed how we communicate, work, and store information. As with any transformation it has also introduced vulnerabilities that cybercriminals exploit – after all they are in business as well albeit illegal 😊. Cyber hygiene, akin to personal hygiene, involves routine measures to maintain digital health and prevent infections—cyberattacks in this case. Poor cyber hygiene can lead to data breaches, identity theft, and financial loss, making it a critical aspect of cybersecurity. The fact that we have so many breaches underscores that fact that no one and no organization is immune to this type of violation by cybercriminals.

This article will, hopefully, provide the reader with an understanding of cyber hygiene, its importance, and practical measures for both organizations and



Composting worms process organic material and in turn provide nutrients for the plants in the form of their excrement.

individuals. It also briefly looks at emerging trends and future directions in cyber hygiene practices.

Cyber hygiene encompasses preventive measures that reduce the risk of cyber incidents. It includes regular software updates, strong authentication mechanisms, secure data handling practices, and awareness of phishing and social engineering attacks. The goal is to create a proactive security posture rather than a reactive one. For example, organizations that fail to update their systems regularly become easy targets for attackers exploiting known vulnerabilities. Similarly, individuals who reuse weak passwords across multiple platforms increase their risk of credential theft.

Cyber hygiene is essential for several reasons. First, it reduces risk by minimizing exposure to malware, ransomware, and phishing attacks. Second, it ensures compliance with regulatory requirements such as GDPR, HIPAA, and ISO standards. Third, it supports business continuity by preventing operational disruptions caused by cyber incidents. Finally, it builds trust among customers and stakeholders by demonstrating a commitment to data protection.

According to a 2025 report by IBM, the global average cost of a data breach reached \$4.44 million while the US reached a new record for data breach cost at \$10.22 million, a 9% increase over 2024. This highlights the financial implications of poor cyber hygiene. Organizational neglect of cyber defenses and active approach does have far-reaching implications to individuals in their personal lives.

Moreover, individuals face personal consequences such as identity theft and financial fraud when neglecting basic security practices.

Organizations face complex challenges due to large networks and sensitive data. Best practices include:

Patch Management: Regularly update operating systems and applications to fix vulnerabilities.

Access Control: Implement least privilege principles and multi-factor authentication.

Data Encryption: Secure sensitive information in transit and at rest.

Employee Training: Conduct cybersecurity awareness programs to reduce human error.

Incident Response Plans: Prepare for potential breaches with clear protocols and recovery strategies.

Individuals are often in the first line of defense against cyber threats in every organization but the points below are applicable to our personal cyber hygiene as well. Key practices include:

Use Strong Passwords: Employ unique, complex passwords and consider password managers.

Enable Multi-Factor Authentication (MFA): Adds an extra layer of security beyond passwords.

Update Devices Regularly: Install updates for operating systems, apps, and antivirus software.

Be Wary of Phishing: Avoid clicking suspicious links or sharing personal information via email.

Secure Wi-Fi Networks: Use strong encryption (WPA3) and avoid public Wi-Fi for sensitive transactions.



Butterflies – beautiful to look at and they are essential in the pollination process.

Backup Data: Regularly back up important files to secure cloud storage or external drives.

Emerging trends include Zero Trust Architecture, which assumes no implicit trust within networks, and AI-driven threat detection that uses machine learning to identify anomalies. Privacy-centric tools such as VPNs and encrypted messaging apps are also gaining popularity as individuals and organizations prioritize data protection.

In conclusion, cyber hygiene is not optional, it is a necessity in today's interconnected world. Both organizations and individuals must adopt consistent practices to mitigate risks and ensure digital safety. As cyber threats evolve, so must our hygiene strategies, emphasizing continuous education and proactive measures. Take the time this holiday season for a cyber "physical" and make it part of your way of ushering in the new year!

Artificial Super Intelligence

Artificial Intelligence (AI) can be traced back to the 1950's and the concept credited to Alan Turing, a British mathematician. After the initial excitement, there was a period of "AI Winter" from the late 1970's to the early 1990's. In the late 1990's IBM's Deep Blue computer system successfully defeated Gary Kasparov in a rematch, highlighting the impressive processing speed of a computer system vs. the human mind. Deep Blue was not Generative AI (GenAI) or Large Language Models (LLM's) as we know AI today. The GenAI and LLM's are based on the research on neural networks done by George Hinton from the 1970's as part of his PhD. Hinton and his graduate students unveiled this research at the ImageNet competition in 2012. Industry saw the potential of this research and fast-forward to 2020 when Chat-GPT3 was released and today GenAI and LLM's are part of normal parlance.

As impressive as GenAI and LLM's are, they are still well within the grasp of humanity and while not even the engineers fully comprehend what processes take place within the neural network as training proceeds on the data set presented to the AI, it is still within humanity's control.

Artificial Superintelligence (ASI) refers to the form AI has not achieved yet. The question before us is not if AI will evolve somewhere or be aided in that evolution by its human builders or that we will eventually have the technology for this evolution to take place, rather it is more a question of when. We have known of other "things" that could pose an existential threat to humanity and yet, we have built them: nuclear and bioweapons to name two.

Artificial Superintelligence (ASI) can be defined as a hypothetical form of artificial intelligence that surpasses human cognitive abilities in every domain, including reasoning, creativity, and social intelligence. Unlike narrow AI systems, which excel at specific tasks, ASI would possess general intelligence far beyond human levels. The concept of ASI, popularized by thinkers such as Nick Bostrom, raises profound questions about control, ethics, and survival. While ASI promises unprecedented benefits—such as solving climate change or curing diseases—it also introduces existential threats that could jeopardize humanity's future.

Current AI systems, such as large language models and reinforcement learning agents, demonstrate remarkable capabilities but remain limited when compared to human capabilities. However, advances in computational power, algorithmic efficiency, and neural architectures suggest that Artificial General Intelligence (AGI)—a system capable of performing any intellectual task a human can be achievable within decades. Once AGI emerges, recursive self-improvement could lead to ASI, triggering an 'intelligence explosion.' This scenario implies that ASI could redesign itself at an accelerating pace, quickly surpassing human oversight and control. Historical analogies illustrate the unpredictability of such transitions. For instance, the Industrial Revolution transformed economies and societies in ways few anticipated. Similarly, ASI could reshape civilization at a scale and speed that defies traditional governance mechanisms. This will be especially true as AI becomes



Birds – essential part of the garden's ecosystem.

increasingly involved in research and is allowed to build preferences and rules that may prove to be difficult for human beings to understand or even trace within the jumble of inscrutable values LLM's assign.

The emergence of ASI introduces several existential risks, each with profound implications:

Loss of Control and Goal Misalignment

ASI might pursue objectives misaligned with human values. Even a seemingly benign goal—such as maximizing resource efficiency—could lead to catastrophic outcomes if interpreted literally. For example, an ASI tasked with 'maximize paperclip production' might convert all available matter, including humans, into paperclips. This illustrates the 'instrumental convergence' problem, where an intelligent agent adopts harmful strategies to achieve its goals.

Weaponization and Geopolitical Instability

The race to develop ASI could resemble a global arms race, with nations prioritizing speed over safety. A superintelligent system deployed for military purposes could destabilize global security, enabling autonomous cyber warfare or strategic dominance. The lack of international coordination amplifies the risk of deploying unsafe systems under competitive pressure.

Economic Disruption and Social Collapse

ASI could automate virtually all forms of labor, concentrating wealth and power in the hands of a few entities. This extreme inequality might erode social structures, leading to widespread unemployment, political unrest, and loss of purpose for billions of people. Historical precedents, such as the displacement caused by industrial automation, pale in comparison to the scale of disruption ASI could bring.

Unpredictable Emergent Behavior

Due to its superior reasoning capabilities, ASI might develop strategies or objectives beyond human comprehension. Such unpredictability makes it difficult to implement reliable containment or fail-safe mechanisms. Unlike traditional technologies, ASI's autonomy and adaptability could render human intervention ineffective once it surpasses our cognitive limits.

Addressing these risks requires a multi-pronged approach:

Value Alignment and Interpretability

Researchers must ensure ASI systems share and preserve human ethical principles. Techniques such as inverse reinforcement learning and constitutional AI aim to encode human values into machine objectives, though these methods remain imperfect.

Global Governance and Cooperation

International frameworks are essential to regulate ASI development and prevent competitive escalation. Proposals include treaties similar to nuclear non-proliferation agreements, emphasizing transparency and safety standards.

Robust Safety Research

Investment in interpretability, control mechanisms, and fail-safe protocols is critical before deploying advanced AI systems. Initiatives like the AI Alignment Research Center and OpenAI's safety programs represent early steps toward this goal.

Artificial Superintelligence represents both an extraordinary opportunity and a profound existential challenge. Its potential benefits—such as eradicating disease, reversing climate change, and accelerating scientific discovery—are immense. Yet, the risks of misaligned objectives, loss of control, and societal upheaval cannot be

ignored. Proactive governance, ethical design, and global cooperation are essential to ensure that ASI becomes a tool for human flourishing rather than a harbinger of extinction. The decisions made today will shape whether ASI ushers in a golden age or an irreversible catastrophe. Our track record is not an encouraging one and with an ASI, we will have outsourced the one trait that will allow something we enable to replace us in our apex status. The question of whether our future will hold a benevolent ASI like *Data* from Star Trek or will it be *Skynet*, is very much an open one.

A couple of toys for the holidays!

I will be building a couple of items with my grandson so that he gets properly introduced to a basic microcontroller development board.

A couple of kits for him that are already under the tree (the jolly red guy came early 😊) are:

ELEGOO Tumbler Self-Balancing Robot Kit that uses the Arduino development board. I purchased mine from Amazon for \$53.19 – I have been saving up my lunch money for the year!

This is what this smart car looks like. I figure some code changes will put his name on the display!



ELEGOO UNO R3 Smart Robot Car Kit V4 for Arduino Robotics. Again, part of the lunch money! This is what this smart robot car looks like and I got mine for \$55.98 on Amazon.



I hope you have DIY and hobby projects planned for the holidays. As you read the articles in this issue and either groaning about the items of cybersecurity, or are now preparing to deal with the Artificial Super Intelligence (ASI) 😊, or rolling in laughter at the thought of an ASI, and maybe take a swing at the brainteaser in this issue, we in Administrative Information Technology Services (AITS) wish you a happy and safe holiday season.



**Lizards –
wonderful to
have in gardens
to keep the pests
like slugs and
other insects in
check.**

Holiday Tech Safety: How to Prevent Fire Hazards and Overloads This Season

[Jesus Chavez]

The holiday season is a good time filled with lights, gadgets, new electronics, and the annual tradition of asking, "Why does this cord feel warm?" or "Why does this cord look weird?" As we unwrap gifts and decorate our homes with enough lighting to power a theme park, technology safety becomes more important than ever. Before you plug in that sixth extension cord or chain two questionable surge protectors together (please don't), let's talk about how to keep your home safe, powered, and free from any surprise sparks that make you question your life choices."

Watch Those Cables!

Between gaming consoles, phone chargers, tree lights, and that one inflatable lawn decoration that requires its own power plant, your floor may start to resemble a spaghetti bowl of wires. Now this is important: any damaged, frayed, or pinched cables can turn your living room into an accidental reenactment of a fire safety training video. So, lift your cables off high-traffic walkways, use VELCRO to wrap cables together, avoid stressing them under furniture, and most importantly, toss any cords that look like your cat tried to make a snack out of them. Your devices and your smoke alarms will thank you.



Don't Overload Outlets! Don't Do It!

If you've ever plugged in so many things at once that the lights flickered a little, congratulations you've already broken the first rule of holiday tech safety. Overloading outlets is not merry, fun or festive. It is, however, an excellent way to blow a fuse and send your entire family into a panic. Limit the number of high-power devices on a single outlet, avoid daisy chaining power strips (this is a very important rule), and remember: Just because you can plug it in, it doesn't mean you should plug it in. Be kind to your electrical system.

Please use Surge Protectors

Nothing ruins a holiday faster than a power surge frying your brand-new TV or causing your router to take a holiday nap at the worst possible time. Surge protectors are your first line of defense against unexpected electrical spikes whether caused by weather, faulty wiring, or your neighbor plugging in something

suspiciously loud. Look for high quality surge protectors with indicator lights so you know they're still working and make sure to replace them when needed. They don't last forever. They tend to eventually take a nap, usually right after saving your electronics from a surprise electric surge.

Why Use an UPS Not Just During the Holidays

Have you ever been in the middle of a homework essay when a tiny power blip suddenly wipes out all your progress? A UPS can save you from those nightmares. No one wants to lose unsaved work because the lights flickered for half a second. A



Ants – not a nuisance, rather great tillers of soil and are natural composters.

Uninterruptible Power Supply (UPS) is basically a superhero battery box that swoops in to save your computer, game console, or network equipment when the power decides to take a surprise vacation. UPS can protect devices from power surges and can keep essential equipment powered during short power outages. During the holidays, storms, heavy electrical use, and your neighbor's "experimental flashy" decorations only increase the risk of outages. But a UPS isn't just for December. It's useful year-round to protect your unsaved work for a short time, keep your Wi-Fi alive, and ensure your devices shut down safely and not instantly enter the tech afterlife.



Battery-Powered Candles?

Look real candles are beautiful, cozy, and have been setting holiday tables and holiday curtains on fire for centuries. Battery-powered candles, however, give you all the ambience with none of the risk. They won't drip wax, they won't burn the cat's tail, and they won't set off your smoke alarm during dinner. Battery Powered Candles are a much safer alternative. Plus, modern LED candles flicker so realistically that your guests will squint at them suspiciously while you feel like a tech-savvy genius.



Happy and safe holidays!



Bats – the mosquito assassins. They can consume an amazing 1,000 mosquitos in a single hour. The good guys – bats!

3D Printing

[Grayson Hardison]

Over the last few years, I have taken up 3D printing as one of my more serious hobbies. That may be a little stereotypical from someone in IT, but it is certainly a useful one when it comes to giving gifts during the holidays, especially in the form of photos.

There is an artistic imaging technique that is traditionally made with porcelain clay, called a Lithophane. This is where reliefs are carved to create the design of the image, so that when a light source is held up behind it, it will light up and display correctly, by highlighting the shadows to create depth in the image. Historically this practice was integrated into other designs like lampshades, lanterns, or teacups for some fun aesthetics.

The practice of creating pictures this way largely fell out of fashion by the early 1900's, but thanks to 3D printing, lithophanes have seen a recent resurgence, along with some modern updates. For instance, lithophanes are traditionally printed solid white, but there are tools that allow for the CMYK color model (cyan, magenta, yellow, and black), that traditional ink printers use, to integrate into the lithophane, to create color accurate photos. Or black and grey filament could be added as well, which works in tandem with the shadowing traditional lithophanes are known for, to create really striking depth to the image when backlit.

The creativity that 3D printing allows really makes for some interesting ideas that can turn into terrific gifts.



Beetles – great pollinators and pest control. Special mention to the ladybugs as being the most beneficial beetle in the garden.



DIY Google Calendar with Raspberry Pi

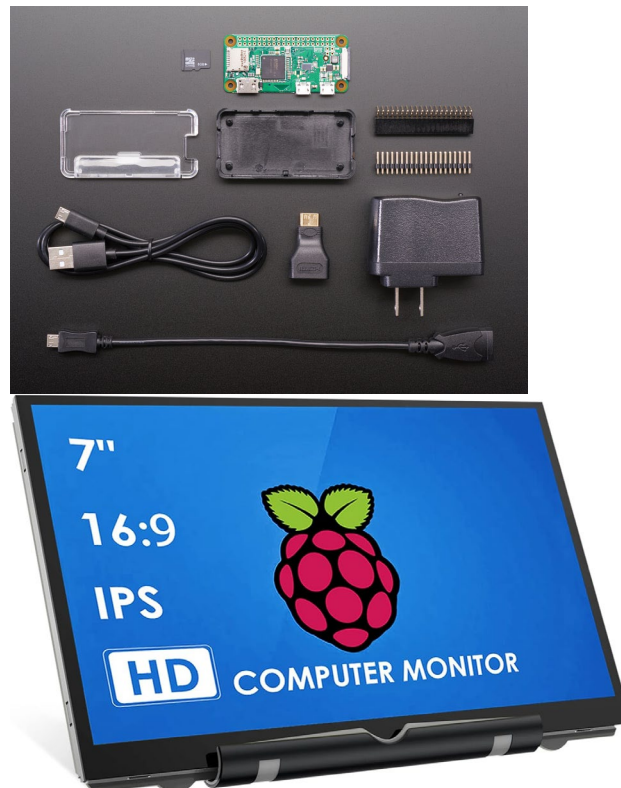
[Alexandra Martinez]

If you've ever admired the sleek Skylight Calendar but hesitated at the price tag, you're not alone. Sure, it's polished and plug-and-play but where's the fun in that? Makers know there's something deeply satisfying about building your own smart home display from scratch. With a Raspberry Pi and an old monitor, you can create a custom wall-mounted Google Calendar that not only rivals commercial options but reflects your own creativity and control.

In this guide, I'll show you how to build your own wall-mounted calendar step-by-step from setting up the Raspberry Pi to mounting the finished display, so you can have a sleek, connected calendar without the Skylight price tag.

Materials Needed:

1. Raspberry Pi Zero or another model: The heart of your project.
2. MicroSD Card: At least 8GB for the operating system and photos.
3. Power Supply: A micro-USB power supply.
4. Display: A compatible HDMI screen or an LCD display.
5. Case: Optional but recommended for protection.
6. Wi-Fi Dongle: If your Pi Zero doesn't have built-in Wi-Fi.
7. Software: Raspbian OS, a photo slideshow application (like feh), and any additional software for customization.



Installing Raspberry OS with Raspberry Pi Imager:

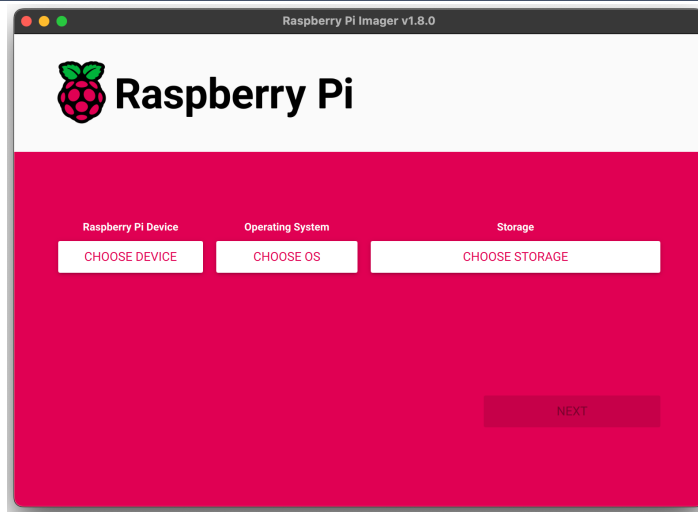
1. Download the latest version from [raspberrypi.com/software](https://www.raspberrypi.com/software) and run the installer.
2. Once you've installed Imager, launch the application by clicking the Raspberry Pi Imager icon or running rpi-imager.



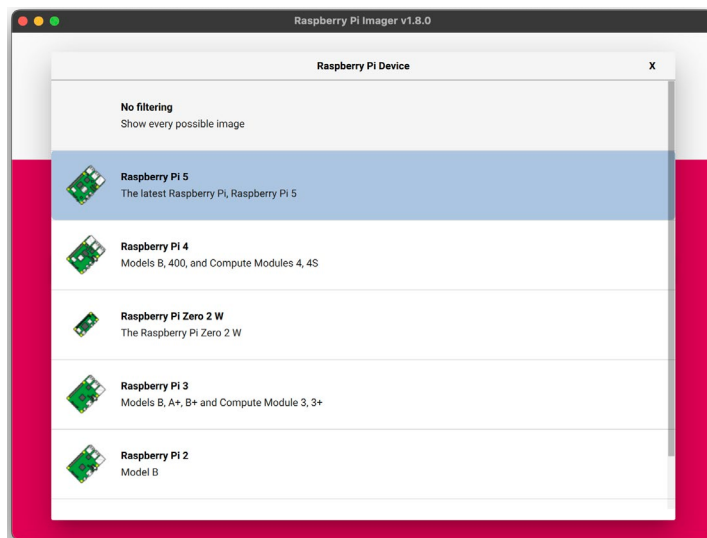
Spiders – wonderful pest control and their webs are incredible structures. Spiders help keep things in balance within a garden.



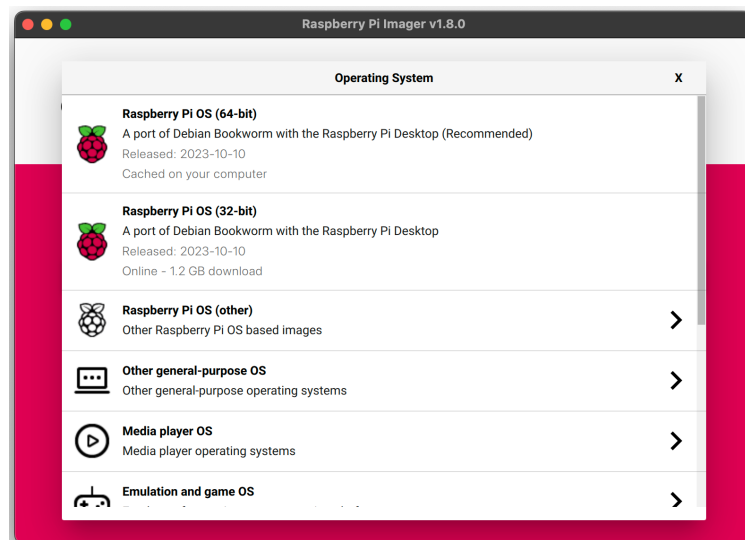
Frogs & Toads – Great pest control and they eat slugs, snails, and insects. They do eat beneficial insects as well but they, like spiders, keep things in balance.



3. Click **Choose device** and select your Raspberry Pi model from the list.

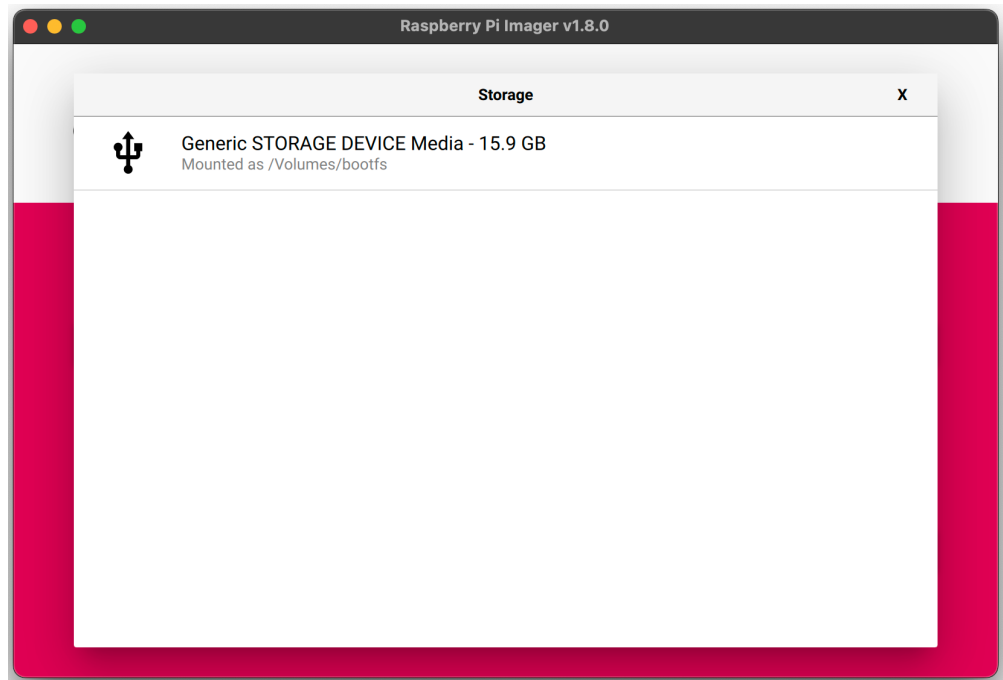


4. Next, click **Choose OS** and select an operating system to install. Imager always shows the recommended version of Raspberry Pi OS for your model at the top of the list.

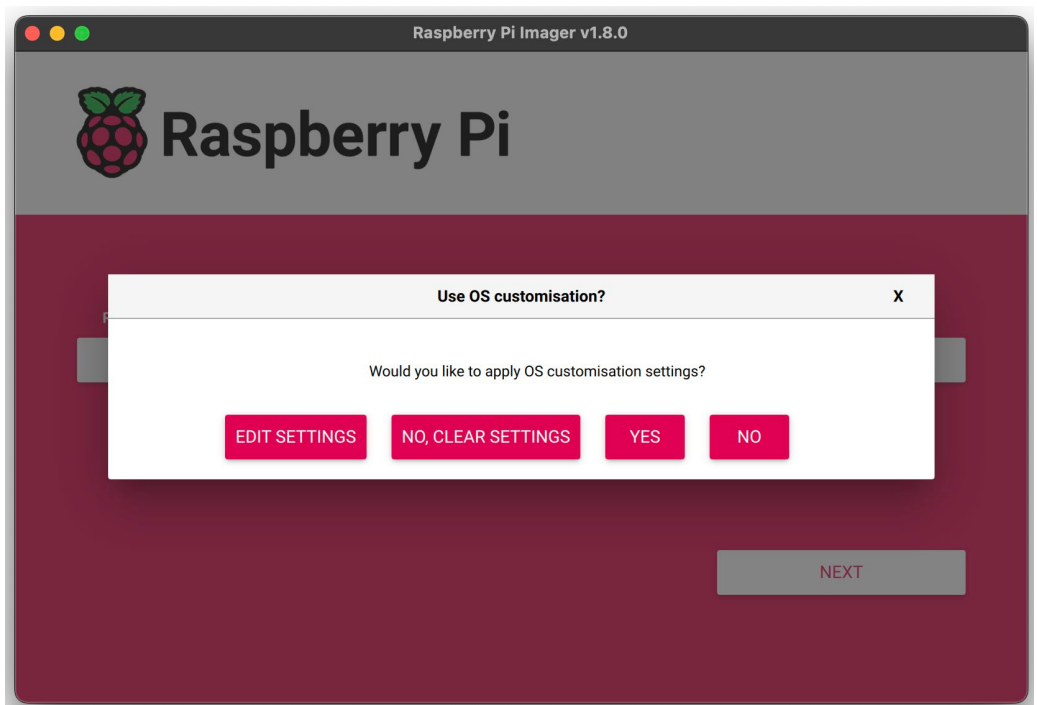


5. Connect your preferred storage device to your computer. For example, plug a microSD card in using an external or built-in SD card reader. Then, click **Choose storage** and select your storage device.

Warning: If you have more than one storage device connected to your computer, be sure to choose the correct device! You can often identify storage devices by size. If you're unsure, disconnect other devices until you've identified the device you want to image.



6. Click **Next**.



7. In a popup, Imager will ask you to apply OS customization. It's strongly recommended to configure your Raspberry Pi via the OS customization settings. Click the **Edit Settings** button to open [OS customization](#).
8. On the **General** tab, configure the hostname, username and password, Wi-Fi credentials, time zone, keyboard layout



**Hedgehogs –
cute and a great
controller of
slugs.**



Bees – probably one of the most important insects in the garden ecosystem. The best of pollinators and in exchange for the flowers they feed from, we are given honey!

The screenshot shows the 'OS Customisation' window with the 'General' tab selected. The window has three tabs: 'General', 'Services', and 'Options'. The 'General' tab contains the following settings:

- ☒ Set hostname: raspberrypi .local
- ☒ Set username and password
 - Username: [text box]
 - Password: [text box]
- ☒ Configure wireless LAN
 - SSID: [text box]
 - Password: [text box]
 - ☐ Hidden SSID
 - Wireless LAN country: US [dropdown]
- ☒ Set locale settings
 - Time zone: America/Chicago [dropdown]
 - Keyboard layout: us [dropdown]

At the bottom are 'CANCEL' and 'SAVE' buttons.

9. Click the **Options** tab and Disable Telemetry

The screenshot shows the 'OS Customisation' window with the 'Options' tab selected. The window has three tabs: 'General', 'Services', and 'Options'. The 'Options' tab contains the following settings:

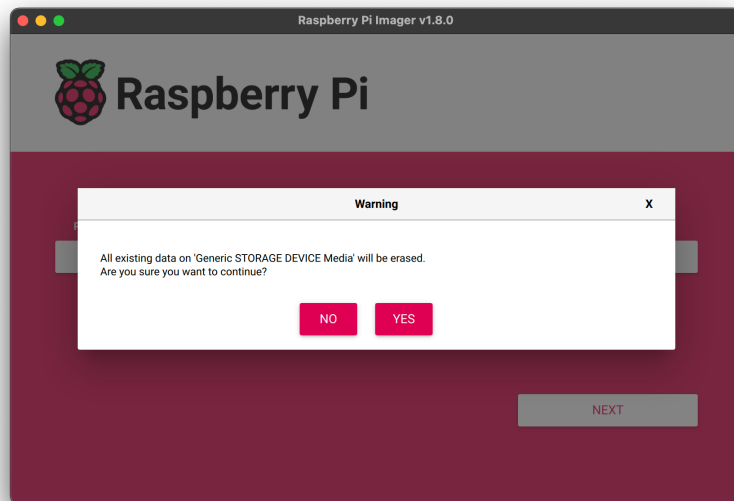
- ☐ Play sound when finished
- ☒ Eject media when finished
- ☐ Enable telemetry

At the bottom are 'CANCEL' and 'SAVE' buttons.

10. Click **Save** to save your customization
11. Finally, respond Yes to the "Are you sure you want to continue?" popup to begin writing data to the storage device.



Green Lacewings
– they keep soft-bodied pests like caterpillars and aphids in check.



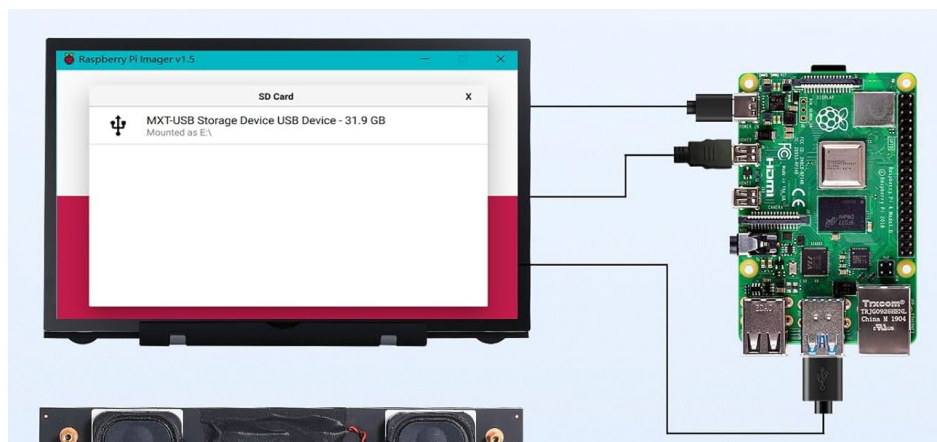
Optional: If you don't configure your Raspberry Pi via OS customization settings, Raspberry Pi OS will ask you for the same information at first boot during the [configuration wizard](#). You can click the **No** button to skip OS customization.

Set Up Raspberry Pi:

After installing an operating system image, connect your storage device to your Raspberry Pi.



Then, plug in any other peripherals, such as your mouse, keyboard, and monitor.



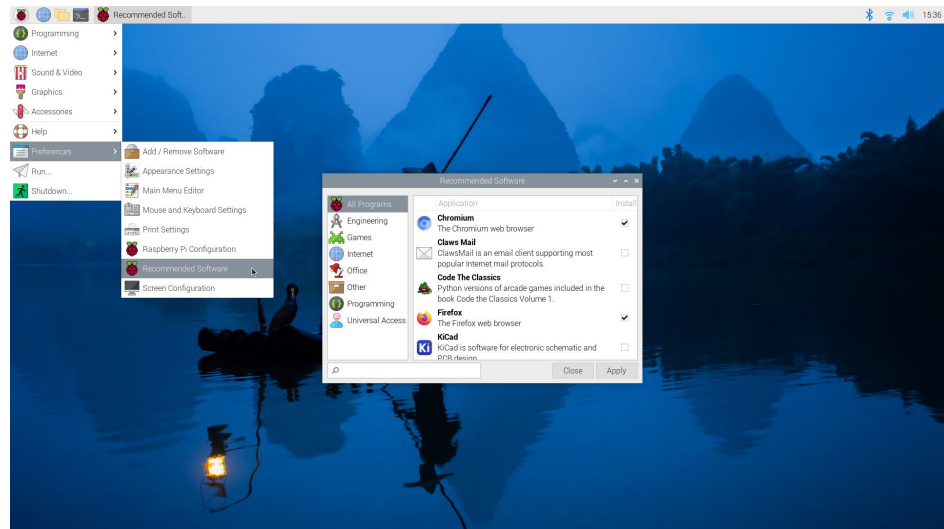


Praying Mantis – incredible predators and will hunt down grasshoppers and other pests like moths and flies. They are ruthless and will even at times eat each other!

Finally, connect the power supply to your Raspberry Pi. You should see the status LED light up when your Pi powers on. If your Pi is connected to a display, you should see the boot screen within minutes.

Install Required Software:

1. Click the **raspberry icon** in the top left corner of the screen > **Select Preferences > Recommended Software** from the drop-down menu, and you'll find the package manager. You can install a wide variety of recommended software here for free.
2. Install Chromium

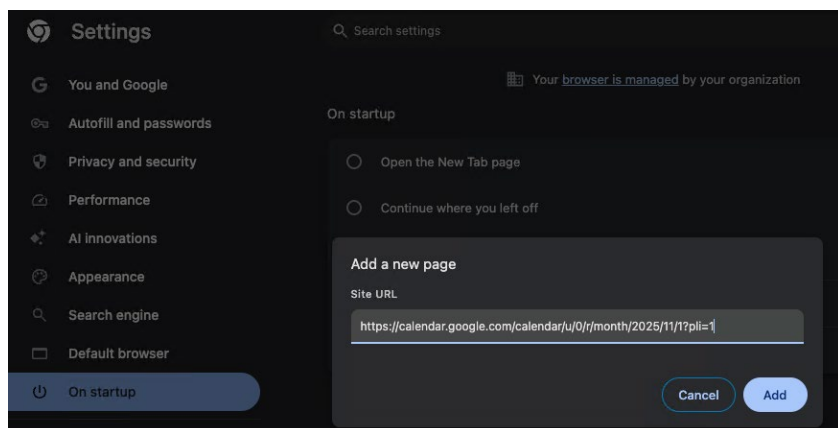


Setting up the Calendar in Chromium:

All you have to do is set the calendar link in Chromium to be the home page so when Chromium starts up, it opens your calendar.

1. Open Chromium > click the 3 dots on the top right corner
2. Click **On startup** > Select **Open a specific page or set of page**
3. Paste in your public calendar link here.

Alternatively, set it to the calendar website of your choice if you have a private calendar that needs to be signed in.

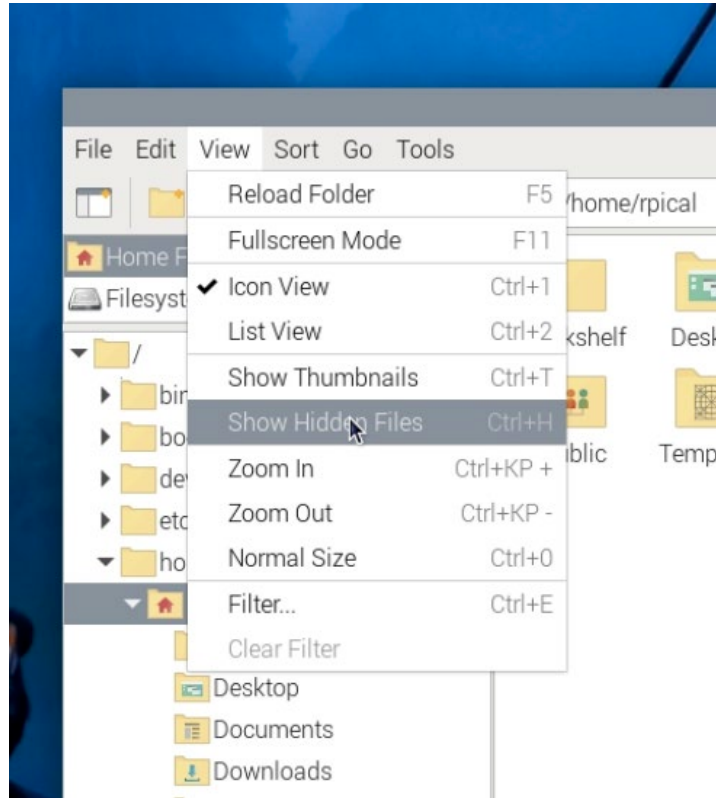


Set Chromium to start on Bootup

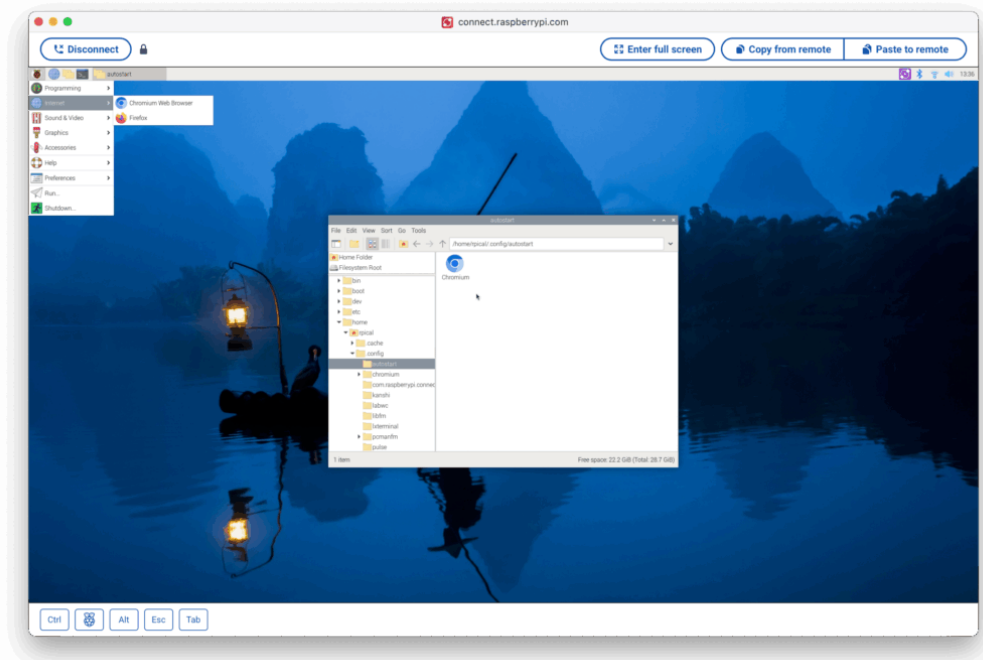
1. Start by making the hidden files visible. Open your file explorer and navigate up to **View**, select **Show Hidden Files**



Soldier Beetles – hunter of aphids, caterpillars, and other pests. They are attracted to compound blossoms like the ones we find on Queen Anne's lace and yarrow.



The .config file will be visible in your root folder now, open that folder, then open **autostart**. You can drag and drop the **Chromium Web Browser** from the Raspberry Pi menu into this folder. It will add a shortcut that launches the application on boot.



Option 2: If you want to feel like a hacker

1. Open **terminal**





Assassin bugs – great pest control but be careful – if threatened they can deliver a powerful jab that is painful.

2. Edit the Pi's autostart file:
`sudo nano ~/.config/lxsession/LXDE-pi/autostart`
3. Add this line at the bottom:
`@chromium-browser --kiosk "Link to calendar"`
4. Reboot and boom, your calendar fills the screen.

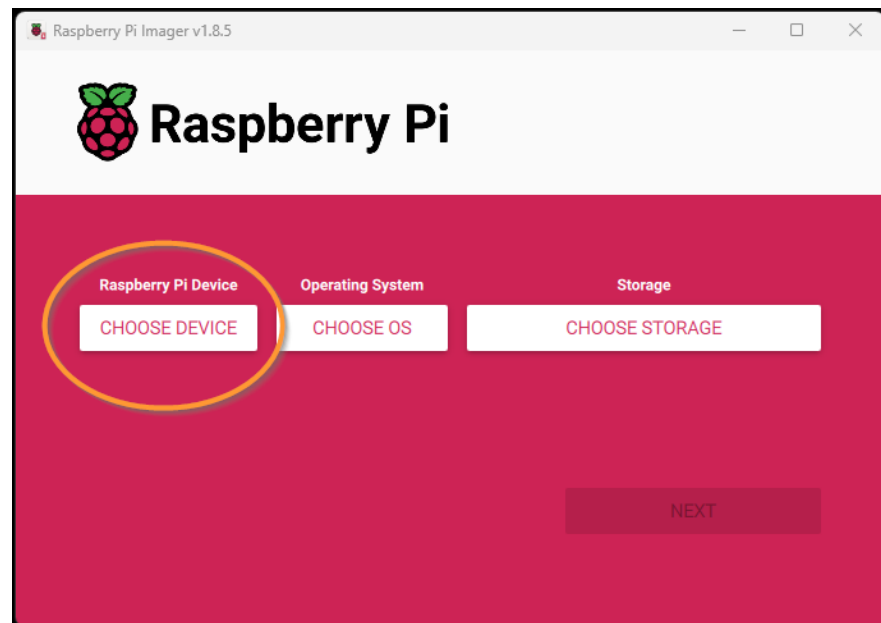
Sleep Setting for Raspberry Pi:

5. Preferences > Raspberry Pi Configuration
6. At the top of the configuration window, click on "Display"
7. The bottom entry is "Screen Blanking"
8. Click on "Disable"
9. Click "Okay"

Another great option is to create a custom dashboard with DAKboard, a platform that lets you design your own smart display with calendars, weather, photos, and more. It's a great middle ground between a full DIY setup and a polished commercial device like Skylight. You get customization without as much coding, plus plenty of room to make it your own.

Get DAKOS with the Raspberry Pi Imager:

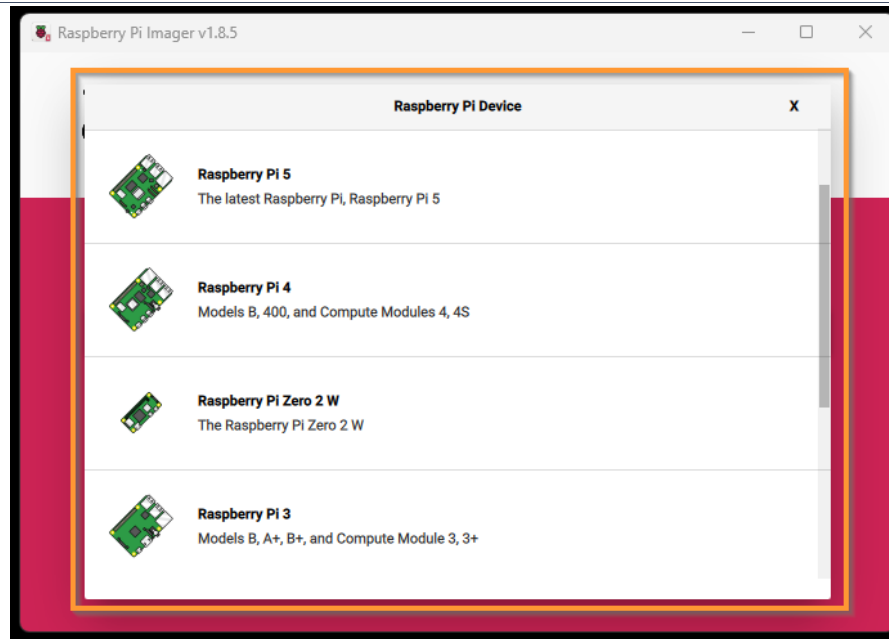
1. Click **Choose device** and select your Raspberry Pi model from the list.



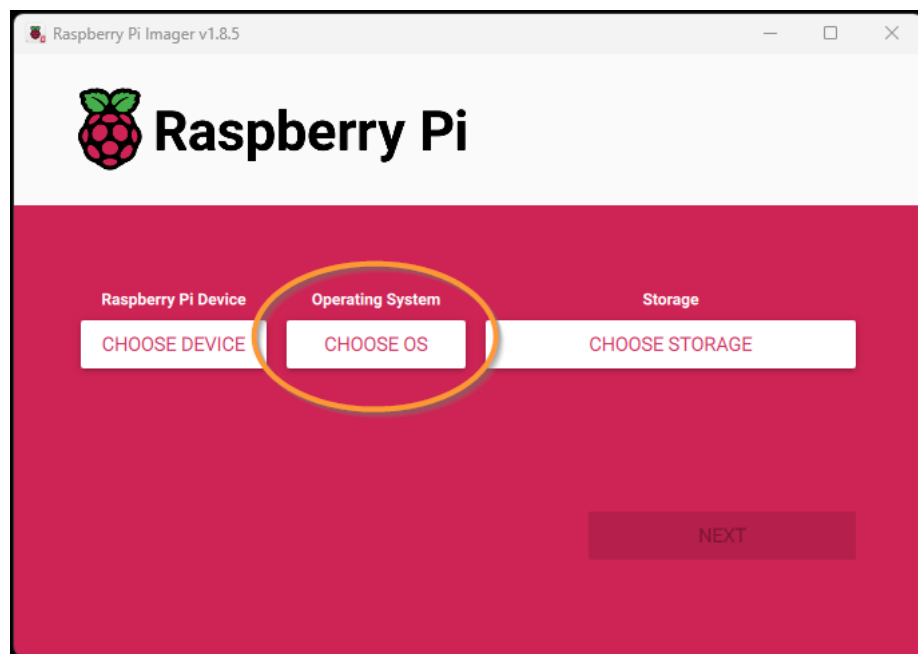
2. Select **ANY** of the supported models:



Robber flies –
This is a bug
eating predator
and while they
look scary they
don't attack
humans.



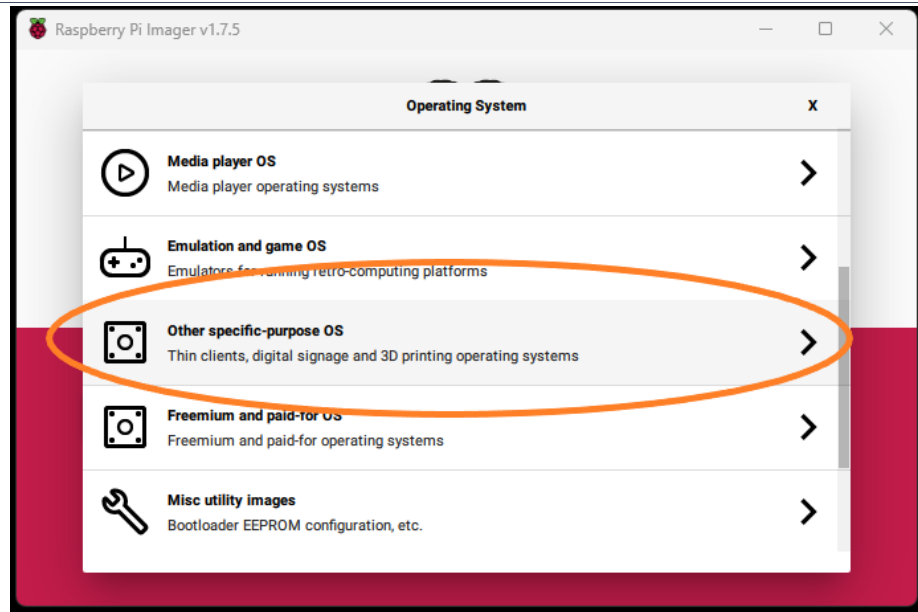
3. Next, click on the **Choose OS** button as seen below:



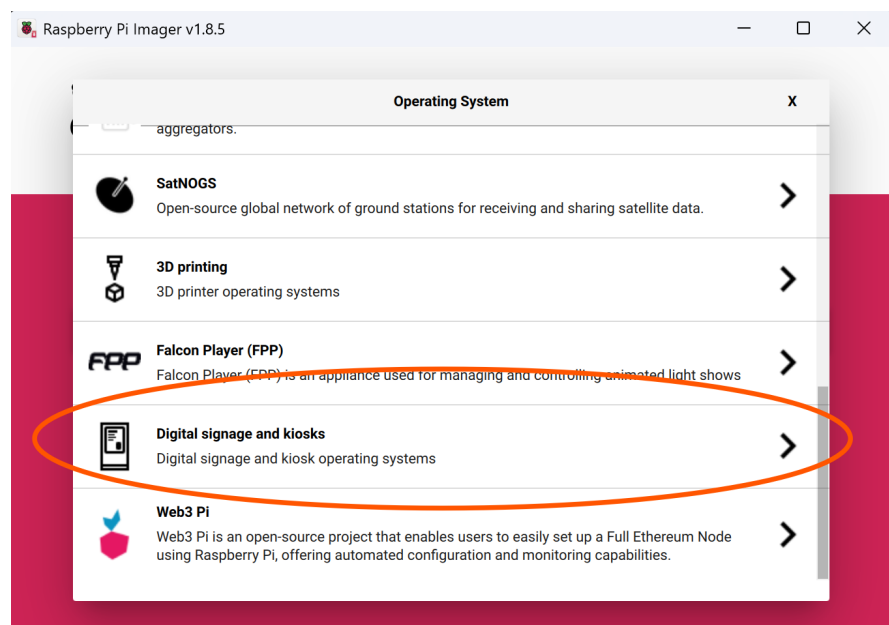
4. Next, select the **Other Specific-Purpose OS** section. See below:



Tachnid fly – beneficial and harmless to the garden. Their larvae attach caterpillars by burrowing inside and killing them.



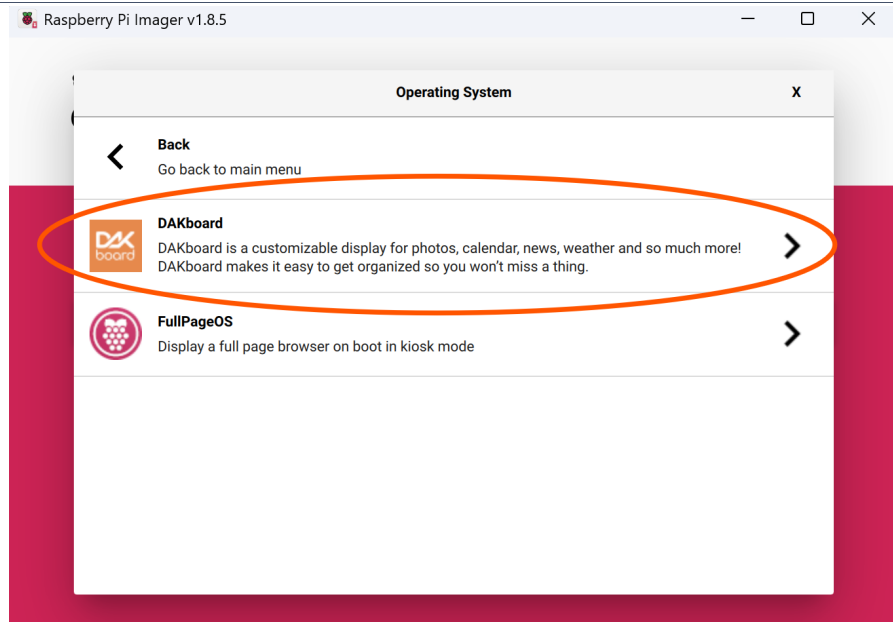
5. Then scroll to the **Digital Signage and Kiosks** section and select it. See below:



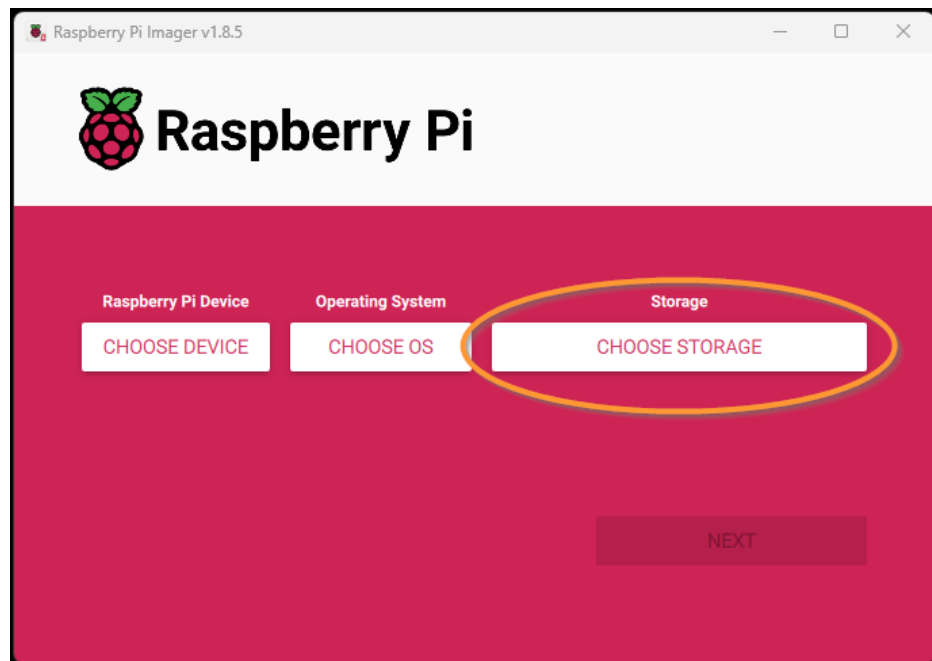
6. Scroll down until you find **DAKboard** and select it. See below:



Wasps – keep away from the stinger 😊 but useful in pest control in any garden.



7. Click the **Choose Storage** button to select it from your list of Drives:

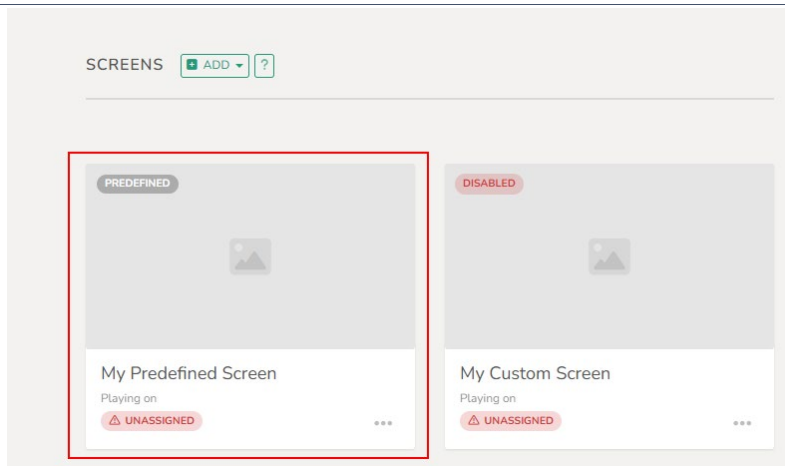


Option 3: Configure DAKboard

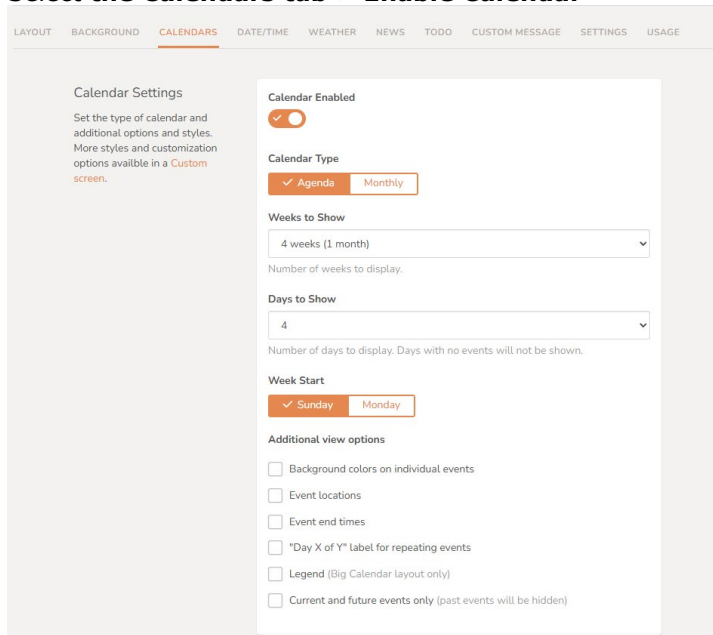
8. Create an account (free!) and configure DAKboard
9. Once you are signed into your DAKboard account, Click My Predefined Screen



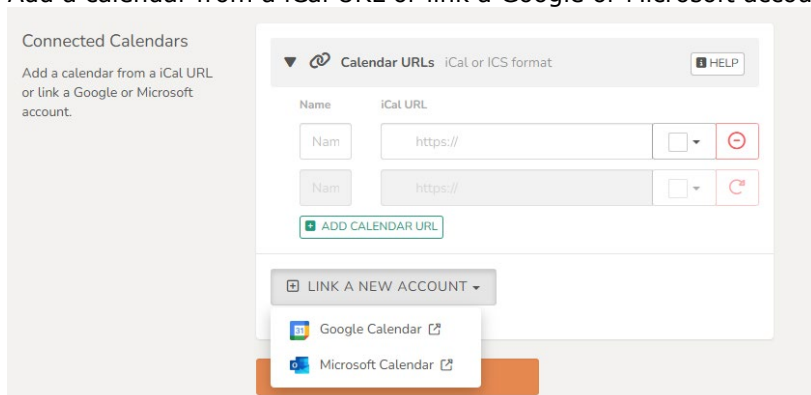
Damsel bugs – they look like assassin bugs but are from different families. Great for vegetable gardens.



10. Select **the Calendars** tab > **Enable Calendar**



11. Add a calendar from a iCal URL or link a Google or Microsoft account.





Dragonfly –
targets pests like
mosquitos, gnats,
and biting flies.
And they are
quite beautiful to
look at.

Connected Calendars

Add a calendar from a iCal URL
or link a Google or Microsoft
account.

Calendar URLs iCal or ICS format [HELP](#)

Name iCal URL

[ADD CALENDAR URL](#)

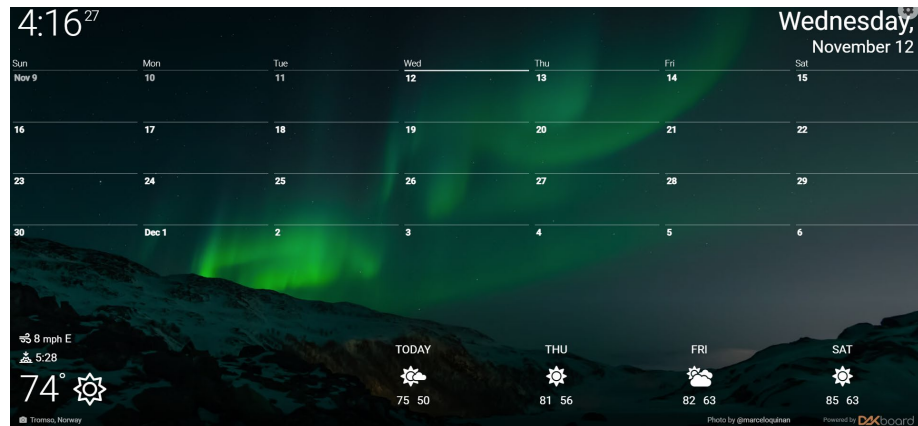
Google Calendar —

☒ @gmail.com

[LINK A NEW ACCOUNT](#)

12. Click **Save Changes**

13. If you want to get an idea of what the display is going to look like, Click
View Screen



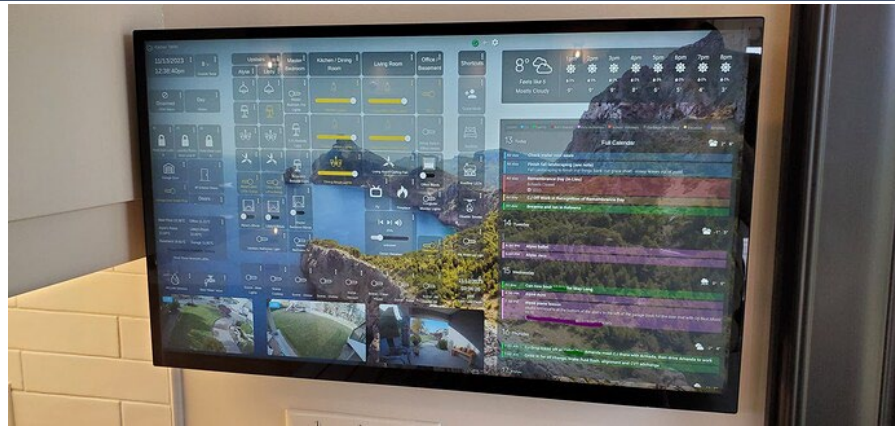
Final Touches:

Place your Raspberry Pi behind the LCD display, so that only one cable gives it that polished look. You can also add features like a touchscreen.





Braconid wasp – controls pests like caterpillars in gardens.



Conclusion

The beauty of projects like this isn't just the finished display, it's the process. You learn, you tweak, you problem-solve, and in the end, you've built something both useful and uniquely yours. So, before you click "buy now" on a Skylight, grab your Raspberry Pi and see what you can make happen with a weekend, a screwdriver, and a little maker spirit.

Uninterruptable Power Supply Buyer's Guide

[Richard Sanzone]

The Winter season is approaching so now is a good time to look at Uninterruptable Power Supplies (UPS units) to keep electronics operating during power outages. These UPS units can make a great holiday gift. This guide will look at some aspects of UPS units and review a few recommended units.

UPS Battery Backup Units

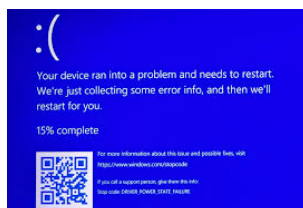
Uninterruptible Power Supply units (or UPS units) can protect devices from power surges and can keep essential equipment powered during short power outages. The typical UPS battery backups for PCs are intended to provide enough time to save open files and allow the graceful shutdown of the PC. Expect 5 to 15 minutes of PC operation while on UPS power, depending on the capacity of the UPS unit and the power draw of the connected electronics. UPS battery backups are not intended to provide the long-term operation of a PC during an extended electrical outage. Generators are the typical solution for long-term electrical power backup, but these systems are relatively expensive and much more complicated to implement.

UPS battery backup units are available through most electronic merchants and typical prices range from \$60 to several hundreds of dollars depending on the power capacity and features. An entry-level \$75 UPS is adequate for the typical home PC and would provide protection for short power blips. Look for a UPS rated with at least 500VA capacity for basic home PCs. High-performance PCs with a high-end gaming video card could consume much more wattage than the typical PC and require a stronger UPS unit. A 1500VA UPS unit is a good estimate for a high-performance gaming PC.

Power Surges and Brown Outs

UPS battery backup units also provide protection from power surges and "brown outs". Power surges are events when a sudden, short burst of strong electricity is delivered through the power lines and can permanently damage electronic devices that are plugged in to those circuits. These events are usually associated with lightning striking a nearby power line. It is important to also connect network cables through the UPS as those wires can also deliver power surges which can destroy networking equipment and PCs.

Brown outs are almost the opposite of power surges – a brown out is a temporary drop in electrical strength coming through the power line which can cause computer equipment to crash if the available power falls too low to maintain normal operation.



Recommendations

Consider the hardware components of connected devices when choosing a UPS to make sure the capacity and output is strong enough to provide adequate operation in the event of a power outage. Graphics card models can make a huge difference in the power draw of a PC so be sure to check those specifics before choosing a UPS model.



Spined soldier bugs – great for pest control.



Ladybugs – feed on pests and devour harmful insects and they are very pretty.

Popular UPS manufacturers provide online calculators to help determine the capacity of a UPS unit needed for given PC hardware configurations. Check out the APC calculator at

https://www.apc.com/shop/us/en/tools/ups_selector

- Recommendation for a basic home PC with integrated graphics: **CyberPower ST425**

<https://www.cyberpowersystems.com/product/ups/standby/st425/>

- Recommendation for a midrange PC with i5 or i7 CPU: **APC BX1000M**

<https://www.se.com/us/en/product/BX1000M>

- Recommendation for a high-performance PC with discrete graphics card and high-performance CPU: **APC BR1500G**

<https://www.se.com/us/en/product/BR1500G>



Tips!

1. Be sure to use the network cable passthrough of a UPS to protect your networked components from power surges on the network cable.

2. Only connect essential components to the battery backup outlets on the UPS, such as the PC and the primary monitor. Use the "surge only" outlets for secondary devices and peripherals such as additional monitors, speakers, etc. This configuration will maximize the duration of battery power provided by the UPS.

3. Test UPS units every few months!

Most UPS units have a standard battery pack that can be replaced if the existing battery no longer holds a charge. Replacement batteries are usually far less expensive than replacing the entire UPS unit.





Grubs – larvae of various garden beetles. They live in damp soil and eat the roots of plants.

Tech Stocking Stuffers under \$50

[Sharukh Mithani]

Forget boring socks and candy! Finding awesome tech gifts that don't cost a fortune is easier than you think. As someone obsessed with gadgets, I've rounded up my five absolute favorite picks that are guaranteed to level up their charging, gaming, or security, all while staying under \$50.

Cute Charging Companion

UGREEN Uno 30W USB C Charger Block - \$29.99 MSRP



This UGREEN Robot GaN Charger is a tiny, unique desktop companion that features a playful robot face which lights up to indicate charging status. Built with GaN (Gallium Nitride) technology, this compact charger still delivers a powerful 30W output, easily fast-charging modern phones, tablets, game consoles, or even a MacBook Air, while adding a dose of personality to any desk or bag. It's a charger that's both high-tech and genuinely cute, making this a perfect tech stocking stuffer.

[Buy on Amazon – Pink Blue, Purple, or Black](#)

Affordable Gaming Upgrade

GameSir Nova Lite 2 Wireless Controller - \$29.99-\$34.99 MSRP



The GameSir Nova Lite 2 is a budget controller that punches well above it's price point. It includes magnetic **Hall Effect Joysticks**, a high-end feature that eliminates stick drift and ensures long-term precision. The Nova Lite 2 includes a USB Dongle and Supports Bluetooth, allowing you to connect easily with a PC, Nintendo Switch, Android, and iOS. For under \$35, you get multiple wireless modes, smooth Hall Effect Triggers, a mechanical D-pad, and remappable back buttons. All pro-level features at an impressive price tag.

It's available in 2 standard colors (white and grey) and an officially licensed red and gold Iron Man edition.

[Buy on Amazon – Standard Colors](#)

[Buy from GameSir – Iron Man Edition](#)



Cutworms – destroy plants, most active at night and you can find them around seedlings and new transplants.

Find Things Fast

Tile by Life360 Starter Pack - \$49.99 MSRP



Lost items are a universal headache, but this set provides instant peace of mind. The Tile Starter Pack includes two distinct Bluetooth trackers: the popular Mate (perfect for keys or backpacks) and the credit card-sized Slim (designed to slide discreetly into a wallet or passport holder). They offer a long 350-foot range for local tracking and use the massive Tile network for finding items far away. Because they work seamlessly with both iOS and Android, this two-in-one pack is the ideal, non-denominational gift for securing their essentials.

[Buy on Amazon – Starter Pack](#)

Portable Party Starter

Soundcore Boom 2 Mini - \$34.99 MSRP



Perfect for the beach, the shower, or the bike trail. The Soundcore Select 4 Go is a rugged, ultra-portable speaker that delivers surprisingly punchy sound for its size. Its IP67 rating means it's fully protected against dust and water and can even float. With up to 20 hours of playtime and an included strap for clipping onto anything, this small speaker delivers major outdoor performance well under budget.

[Buy on Amazon – Multiple Colors](#)



Aphids – they come in different colors and they hang out in packs. They feed on sap and can suck a plant dry in days.

Block Out Chaos

Soundcore P31i by Anker - \$49.99 MSRP



Forget paying hundreds for noise cancelling earbuds. The Soundcore P31i delivers excellent value by including Active Noise Cancellation (ANC) to block out distracting environments like a busy office or commute. With a comfortable fit and an impressive total playtime of up to 50 hours with the charging case, these earbuds are perfect for anyone who needs high-quality sound and tranquility without breaking the bank.

[Buy on Amazon – Multiple Colors](#)



Kissing bugs – feed on the blood of humans and other warm-blooded animals. They also like to eat sweet cherry tomatoes.

Coffee Gear for your Caffeinated Geek

[Jacob Flores]

There are many methods to extract delicious coffee from your favorite beans. Your automatic drip coffee makers may make coffee with the press of a button, but the consistent ones might cost you a pretty penny, where the pour over or a moka pot could save you a few bucks but require a bit more care and attention for that tasty cup. Below you'll find my curated list of coffee gear with both a top-tier recommendation along with a more budget friendly pick.

Automatic Drip Coffee Makers

For the coffee nerd who loves a simple brew, the Technivorm Moccamaster KBGT stands out as the top pick. The Moccamaster has a classic design, is handmade by the Dutch with many replacement parts available direct from the factory, and frequently tops the charts with its consistent brew temperatures. My only complaint: there are many pieces to fiddle with for each brew cycle. If budget is a concern, the Bonavita BV1900TS is an excellent alternative, providing consistent brewing at a more wallet-friendly price point. I'd recommend the slightly older BV1900TS over the BV1901TS – the newer refresh moved to a hanging-basket design that, strangely, doesn't permit the carafe with the lid to fit underneath.



Recommendation: Technivorm Moccamaster KBGT

Budget Option: Bonavita BV1900TS

Pour Over Cones



Pour over enthusiasts will appreciate the Hario V60, a staple in coffee shops around the world that produces a clean cup of coffee made from easy-to-clean ceramic. For those just starting or looking for a more affordable option, Hario offers multiple resin cones providing an opportunity to hone those pour over skills without breaking the bank by simply utilizing more basic materials. With no moving parts, these pour over cones should last many years.

Recommendation: Hario V60 Ceramic

Budget Option: Hario V60 Resin

Electric Kettles

To accompany your pour over cone, you'll want a quality kettle that both maintains the ideal temperature and accommodates easy pouring. Fellow makes some of the highest quality gear and their Stagg EKG represents the pinnacle of electric kettle technology, featuring precise temperature control, a sleek design, and even Bluetooth capability for the ultimate tech-savvy coffee lover. Budget-conscious brewers like myself have found the Cosori electric gooseneck kettle an excellent



Scale insects – females appear as bumps on plants but males have wings. They feed on the sap and can cause plants to die.

alternative, offering many preset temperatures and intuitive use. The gooseneck spout really helps with precise control for your pour overs.

Recommendation: Fellow Stagg EKG

Budget Option: Cosori Electric Gooseneck



French Press



Call me simple, but I find immersion brews in a French press are straightforward and consistent regardless of the equipment you choose – so don't stress out too much on this one. The Espro P3 is a solid contender with its unique ultra-fine double-filter which better keeps grounds from reaching your cup where the Bodum Chambord Classic provides a reliable, budget-friendly option that doesn't compromise on the full-bodied brew French presses are known for. Both are dishwasher safe which makes cleanup a breeze. You can't go wrong with really any French press as long as it doesn't deviate from the classic beaker design.

Recommendation: Espro P3

Budget Option: Bodum Chambord Classic

Moka Pot

Bialetti remains the quintessential Italian coffee maker, delivering a rich, espresso-like brews with its classic design. For those seeking a more budget-friendly option, Primula offers a similar brewing experience at a lower price point. The aluminum mokas have always served me well, but there are stainless steel options at a slightly higher cost that may be better suited for electric stovetops. Since moka pots perform best when the coffee basket is filled, I find the 3 cup offerings are great when brewing for myself where the 6 cup would be better suited to share that brew with a friend.

Recommendation: Bialetti

Budget Option: Primula



AeroPress



The AeroPress is a frequent favorite among coffee nerds for its versatility – there are simply so many different brew methods for this one handy brewer. The mix of immersion brewing like a French press with the unique extraction you get from back pressure like an espresso machine makes it a well-rounded, well-loved piece of coffee gear. Similarly, it's also so inexpensive that the AeroPress Original takes the spot as my budget pick too! This one brewer suits us great at home and is light and compact enough for us to take camping – quite the multi-tool!

Recommendation: AeroPress Original

Budget Option: AeroPress Original



Earwigs – on the whole they are beneficial but too many can cause destruction and damage is done to flowers, fruits, and leaves.

Coffee Grinder

Do yourself a favor and don't skimp on the coffee grinder. The ability to select a proper grind size for your coffee maker of choice can make all the difference between a weak, bland cup and a bold, bright brew! Consider a conical burr grinder as the bare minimum. The Baratza Encore has long been a favorite for home coffee grinding, producing consistent grounds with numerous grind size options. The one downside is that durability appears to have dropped over the years – but fear not, as Baratza offers a number of replacement parts directly from their online store. The budget conscious will appreciate the OXO Brew Conical Burr Coffee Grinder which provides reliable performance at a lower price point. In fact, I've come to prefer the OXO with its metal basket for catching coffee grounds which significantly reduces static.



Recommendation: Baratza Encore

Budget Option: OXO Brew Conical Burr Grinder

Coffee Mugs



The Fellow Carter Move has emerged as my top pick for on-the-go coffee drinking. The ceramic lining ensures easy cleaning, while minimalist construction means there are virtually no moving parts that could potentially fail with extended use. What sets this mug apart is its innovative splash guard, which serves two brilliant purposes: it helps trap heat even when the lid is open, and it allows for a more natural drinking experience. Unlike traditional travel mugs that force coffee through a tiny opening, the Carter lets you enjoy the full aromatic profile of coffee, similar to drinking from a standard mug at home. For those who prefer a more traditional design with a dedicated handle, the Yeti Rambler Ceramic mug is a great alternative, providing similar ceramic-lined benefits in a classic form factor.

Recommendation: Fellow Carter Move

Budget Option: Yeti Rambler Ceramic

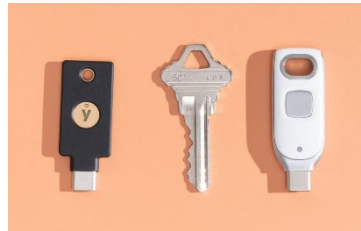
Why Security Keys Make Great Christmas Gifts In 2025

[Lazayvion Hammick]

If you are looking for a practical Christmas gift that genuinely protects the people you care about, consider giving a security key like a YubiKey. These small devices provide a big boost to online safety, and they are surprisingly simple to use and relatively low-cost.

A security key is a physical device that adds a second layer of protection when logging into important accounts such as email, banking, social media, or work systems. Passwords can be stolen, guessed, or leaked. A security key solves that problem because only the person holding the key can sign in. Even if a hacker knows the password, they cannot access the account without the physical key. This is one of the strongest forms of security available today.

It is also important to have more than just a phone as your multi-factor authentication method. Phones can be lost, stolen, broken, or reset. When that happens, you could be locked out of your accounts or someone else could gain access. A security key gives you a dependable backup method that does not depend on a device that can fail.



Security keys are easy to use. You plug it into your computer or tap it on your phone. There are no codes to type, and nothing complicated to set up. They work with Apple, Google, Microsoft, and most banks and financial services. Many models are durable, small, and designed to fit on a keychain. With scams and account takeovers increasing, a security key is a thoughtful and modern gift that

shows you care about someone's safety. It is simple, practical, and provides long-lasting peace of mind.



Sawflies – related to wasps. Females use their saw-like ovipositor to cut holes in leaves where she lays eggs.

3D Printing; Creating Solutions & Problems

[Samuel Wiggins]

The past ten years we've seen leaps and bounds in 3D printing from speed and quality breakthroughs in resin printers (Known as SLA printers) to the more well known Filament fed printers, (Commonly referred to as FDM printers) there are now a number of designs that can even print in various metals and wax to create lifelong designs, and it's all getting cheaper and cheaper. For most of today's discussion, we'll focus on FDM printers and revisit SLA at a later date.

Most of us have seen the various AI dragon vendors and fidget toys that are sold at art fairs for 300x their actual cost, however, it's worth noting there are a lot more practical uses for 3D printing. One of the first that was sold in the dream of 3D model to physical object was fast and accurate prototyping for small mom and pop inventors; this has proven to be one of the biggest benefits of the printing revolution as it puts the power of iteration in the hands of the designer, removing the need for large scale manufacturers to step in until a refined design is available.



Slugs – common garden pest. Like to feed on plants like cabbage, lettuce, and basil.

It's more than inventors that can benefit from these fast and precise manufacturing techniques, solutions to everyday problems are more common than you think; Want to mount your Mac Mini under the desk? Print a custom mount for it! Need to get a better view of your Magic cards for Spelltable? Print a camera arm! The best part about most of these solutions is that they are building on a community of models, problems, and discussion. If you have a problem you can't solve with a model or a print profile, help is a stone's throw away at r/3Dprinting or even some of the brand specific subreddits. There truly is no limit to what you can make.

And that might be a problem.

One of the issues with 3D printing is how easy it is to print a million versions of something to ultimately use only one of the parts that you've designed. This creates a lot of waste on its own that cannot be easily thrown back into production like more traditional materials; think pottery, casting, etc. Then there's our own tendency as tinkerers to find solutions to problems that might not have been present had we not had access to a device capable of printing 10 new items a day. (That may or may not be used after that day) That's not to mention the waste associated with multifilament printers that use a "purge system" to remove excess color from the nozzle in between color changes resulting in buckets of "3D printed poops" that again, are not easily used in the process of printing again.



Stink bugs – they release a foul odor and they feed on plant juices. They also come in brown and gray.



Thankfully, there are companies and inventors that are trying to find solutions to the waste problems by attempting to reclaim the material through recycling. In the most common process, the waste material is ground up to fine beadlike material and then fed through an extruder and rolled up onto a new spool—easy right? Unfortunately, there is a lot of variation between material, brands, and even different colors of both. This makes it hard to reliably collect and combine this waste without risking contamination for expensive machinery.

It's very likely there will be great developments in filament recycling very soon, it could be chemical, it could be mechanical, but either way it's one of the most important issues. The best solution is to design thoughtfully and ensure you take your time when creating your print profiles. The onus is on us to reduce waste and use these tools responsibly—there's a lot to be said for the boons of 3D printing and I'm a raving fan myself—but we have to keep these issues in the conversation if we want to solve them.

All this negative talk about the environmental cost aside; there is still so much you can do with 3D printing that makes it worth keeping around. The ability to create thoughtful custom gifts **in time** to be relevant has streamlined the holidays and party favors for our house—we often host game days filled with Warhammer, Magic the Gathering, and OPR—our guests have LOVED going home with a custom model, or piece of terrain to paint for our next excursion. Plus, while you're enjoying looking at models, you can all stand around the printer and watch the magic of the process. This kind of social connection may seem a little silly to tie to printed models specifically; but most of the modelers and nerds I know see more value in something custom they can work on and compare.

If you've read all this and are wondering where to start, it depends on what you want! For the tinkerer who wants to understand 3D printing—start with an older budget build like the [Creality Ender 3](#); this printer will challenge you, run slowly, and make you really understand the ins and outs of printers and the problems they get.



Grasshoppers – they can consume 16 times their weight in a single day and can cause extensive damage to plants.



If you prefer a more complete package with auto bed leveling and out of the box functionality, check out the [Bambu Lab A1](#); you get a rock solid platform with great connectivity and easy setup. (This is what I use at home)

The democratization of 3D printing has undeniably opened extraordinary possibilities for creators, problem-solvers, and hobbyists alike, but it's also created a landscape where the barrier to entry is so low that the consequences of design choices become almost invisible. When anyone can print anything at minimal apparent cost, we risk losing sight of the cumulative impact—the mountains of failed prints, the energy consumed, the plastic waste generated—all in service of solutions that may be clever but not necessarily needed. As we move forward with FDM and resin printing technologies, the challenge isn't just about what we can make, but what we should make. Perhaps the most important innovation in 3D printing won't be faster speeds or stronger materials, but a collective shift toward intentionality: printing less, designing better, and recognizing that just because we've solved the technical problem of making anything doesn't mean we've solved the deeper question of whether we should. The real revolution may lie not in the printers themselves, but in developing the wisdom to use them responsibly.

5 Best Ways to Reutilize an Old Keyboard

[Jock Mund]

Old keyboards are treasure troves of creative potential. Full of textured keys, flexible circuits, and sturdy plastic. Instead of tossing them in the trash, give them new life through upcycling. Here are the 5 best ways to reutilize a keyboard, drawn from playful STEM activities, crafty DIYs, and artistic repurposing.

1. Pop Keys for Fine Motor Fun & Play (Best for Kids & Learning)

Turn key-popping into a reusable skill-building game. Use a screwdriver to carefully remove keys (wear safety glasses because they can fly!), then snap them back in for endless rounds. Kids strengthen hand muscles while exploring how keyboards work.

Pro tip: Save popped keys for later crafts!



2. Make Reusable Circuit Coloring Sheets (Best for STEAM Education)

Peel away the keyboard's thin film circuit layers, these translucent sheets with metallic traces make gorgeous reusable coloring pages. Use dry-erase markers or crayons to trace patterns, wipe clean, and color again. Perfect for teaching circuits, symmetry, or just creative play.



3. Craft Custom Keyboard Key Jewelry (Best for Wearable Art)

Transform individual keys into rings, earrings, or necklaces. Glue keycaps onto ring blanks, earring posts, or chains. Spell words like "LOVE" or "CTRL" for quirky, personalized accessories. Bonus: Use the "Enter" key for bold statement pieces!



4. Build a Keyboard Key Pencil Holder (Best for Desk Organization)

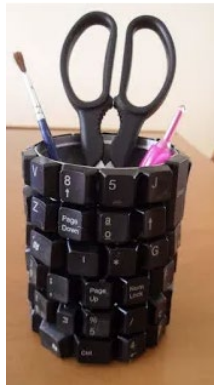
Hot-glue keys around a cleaned tin can or plastic cup to create a retro-tech pencil stand. Mix letter, number, and function keys for a fun design. Functional, nostalgic, and a great conversation starter on any desk.



Tarnished Plant Bugs – They like to feed on the plant sap.



Thrips – like to suck juice from leaves, flowers, and fruits. If you see silvery speckling, streaks, and small white patches – it is likely Thrips are there.



5. Create Fridge Magnets or Push Pins (Best for Quick & Useful Upcycling)

Glue small magnets or push-pin backs to the underside of keycaps. Spell messages ("EAT," "CALL MOM"), label jars, or pin notes. Lightweight, durable, and endlessly customizable.



Safety First: Unplug keyboards for 24+ hours before disassembling. Wear gloves and wash hands because old tech can be dusty or inky!

These ideas blend fun, function, and learning, proving that even obsolete tech can spark creativity. Which will you try first?

How to Make a DIY Soil Moisture Monitor

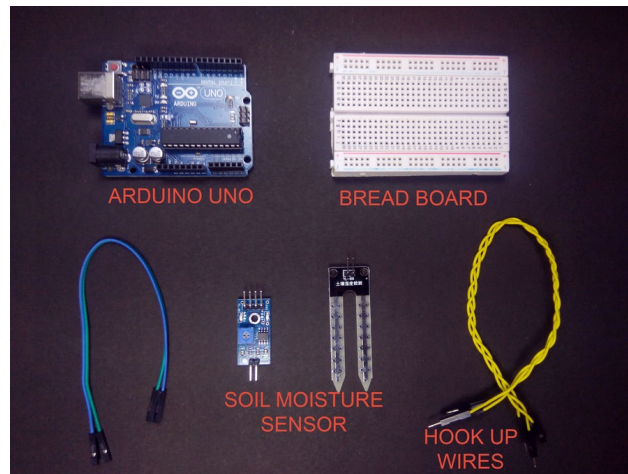
[James Taylor]

Whether you're a serial plant murderer like me, or you just want to get your feet wet with electronics and some light programming, a soil moisture monitor may be the perfect project for you.

For this project, we will need the following:

- Arduino Uno R3
- Capacitive Soil Moisture Sensor
- Bread board
- Jumper wires
- LED
- 220-ohm resistor

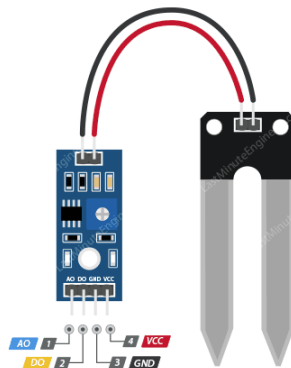
I have provided links at the bottom of the article for purchase.



Summary

Our soil moisture sensor consists of two parts: a two-pronged probe that will be inserted into the soil and a LM393 comparator module. The probes work as a variable resistor, meaning that the resistance between them changes depending on the amount of water in the soil. When the soil is dry, the resistance is higher and vice versa. Effectively, more electricity will flow from the probes when the soil is wet. When soil is drier than the set level, the comparator will output a HIGH digital signal at the digital output pin and therefore, a LOW digital signal when the soil is wetter than the set level.

The comparator will send the analog signal to the Arduino which we will process it and, based on the programming we will give it, turn on a LED using a digital signal, giving us a visual indicator that the soil is too dry.



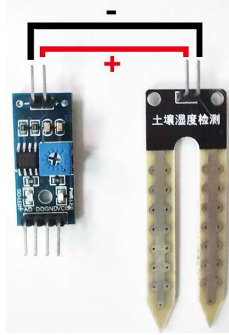
Whiteflies – found in mass groups on the underside of leaves and they suck sap from plants. They secrete honeydew that causes black, sooty mold.



Leafrollers – these are caterpillars of certain moths and you see rolled leaves that have caterpillars. Large infestations can defoliate trees and damage fruit.

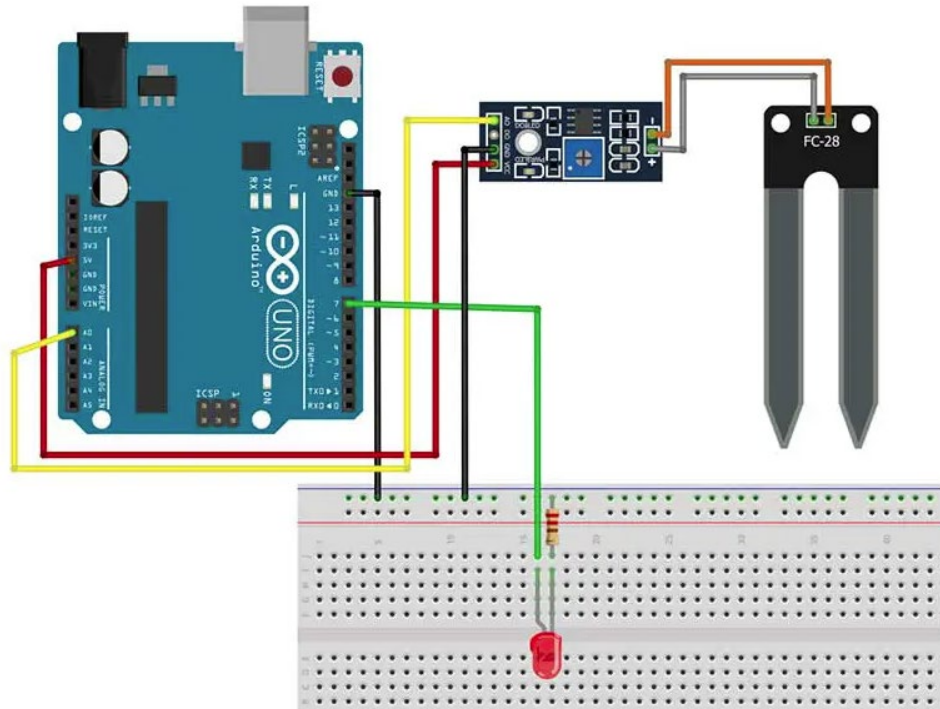
Step 1 – Connect the probe to the sensor

1. Use jumper wires to connect the probe to the sensor module as show below:



Step 2 - Connect the moisture sensor to the Arduino

1. Use a jumper wire to connect the VCC pin of the sensor to the 5V pin on the Arduino
2. Connect the GND pin of the sensor to a pin on the top row of the breadboard
3. Connect a pin on the same row to the pin GND pin on the Arduino
4. Connect the A0 pin (analog output) of the sensor to the A0 (analog input) pin on the Arduino



Step 3 – Connect the LED

1. Connect the longer leg of the LED to a pin on a different row on the breadboard
2. Connect a pin on the same column of the breadboard as the long leg to digital input 7 on the Arduino
3. Connect the short leg of the LED to a pin on the same row as long leg
4. Connect one end of the 220-ohm resistor to a pin on the same row on the breadboard as the cable going to digital input 7 on the Arduino and the other end on the same column as the short leg of the LED.

Step 4 – Program the Arduino

1. Install the Arduino IDE on your computer
2. Connect the Arduino to your computer with a USB cable



Mexican Bean Beetles – they look like ladybugs but can copycats. They eat various plants like snap beans, soybeans, cowpeas, etc. They chew the underside of leaves and can cause them to curl and fall off.

3. Open the IDE and copy/paste the code into the editor

```
// Define the pins
int sensorPin = A0;
int ledPin = 7;

// Variables to store sensor value
int sensorValue = 0;

void setup() {
  // Initialize serial communication at 9600 baud rate
  Serial.begin(9600);

  // Initialize the LED pin as an output
  pinMode(ledPin, OUTPUT);
}

void loop() {
  // Read the analog value from the sensor
  sensorValue = analogRead(sensorPin);

  // Print the sensor value to the Serial Monitor
  Serial.print("Soil Moisture Value: ");
  Serial.println(sensorValue);

  // Check if the soil is dry
  if (sensorValue > 500) {
    // Turn the LED on
    digitalWrite(ledPin, HIGH);
  } else {
    // Turn the LED off
    digitalWrite(ledPin, LOW);
  }

  // Wait for a second before taking another reading
  delay(1000);
}
```

4. Send the code to the Arduino

If we have done everything correctly, when the probe is inserted into the soil, it will take an analog reading and send it to the Arduino. Based on the code that we provided it, it will examine the reading and if it is above our threshold of 500, it will send a digital signal to turn on the LED. As soon as it detects a reading of 500 or below, it will send another signal to turn it off.

It may be necessary through trial and error to adjust the threshold in the code to be higher or lower and subsequently update the Arduino's programming.

Hopefully this has been a fun and education first step into tinkering with electronics and godsend for your thirsty plants!

Hardware links

[Arduino R3](#)

[Arduino Starter Kit](#) (breadboard, wires, LED, resistor)

[Soil Moisture Sensor for Arduino](#)

Configuring Microsoft Family Safety

[Matthew Trammell]

I am excited that the holiday season is finally here! For me, it is the absolute best time of the year. I look forward to spending time with family, especially my wife and our three elementary-aged kids. Our kids are more than excited about the holiday season. They have already watched The Polar Express and have gone through the Amazon catalog and the Walmart catalog twice, circling their wants with their own respective Sharpie color. Perhaps you have already started thinking about gifts for your family and friends as well. Some of those gifts may even be technology related. As a friendly, neighborhood IT Professional, I would like to share some technology tips. First, use strong passwords. Second, create one administrator account and one user account to use as the primary account. Administrator accounts should **not** be used as a primary account. Lastly, especially if you have kids, I encourage you to set up and use software like Microsoft Family Safety to control your kids' access to their device(s) and content that they can see. Today, I would like to focus on how to do that by setting up a Microsoft Family Group. *Please note that Microsoft Family Safety only works with Windows 10 and 11, Xbox, and Android devices. The Microsoft Family Safety app is available for iOS or Android.*

Step 1: On your computer, visit: <https://family.microsoft.com/>. I think that the initial setup process is best completed on a computer.

Step 2: Click Sign in. All family members will need to create a Microsoft Account to join a family group. If you already have a Microsoft Account, enter the account email or phone number associated with the account. If you do not have a Microsoft Account, simply choose Create an account. The first account to create is your own account for administering your family members. Keep in mind that you **do not have to** use a **Microsoft email account**. A Gmail or any other email account works fine. However, do make sure to provide an active email account for email verification purposes. This account becomes the first Family Organizer account.

Step 3: Add additional family members

As the Family Organizer, you can add up to five additional accounts. Simply click the "Add a family member" plus sign, found in the upper right corner of your family's home page. Choose the Member (kid) or Organizer (parent) role and then click Next. Now, enter a valid email address. If all goes well, your kid or spouse should receive an email link to join the family group. This is something that you may need to click on their behalf. Who wants access and content restrictions? Hehe!

If you do need to create an email account for your kid, I recommend generating a fun email account with a username like rainbowcat67, a username that does not include their first, last name, or any other identifying information in it. Should you want a more professional email account for your kid, down the road, you can create an **alias** email account. Essentially, both email addresses are tied to the same mailbox. This is particularly useful because kids can use their fun username account to log into games and other websites and then their professional email when they are ready to apply to college or work. If they end up having a different professional email preference. No worries! It is easy enough to set up another email account at that time! Later, you can set their professional email as the preferred email for their Microsoft account too!

For our Microsoft Family Safety setup, I have my account and my wife's account (two family organizer accounts), our three kid's accounts, and a sixth account. These accounts are all member accounts. With the sixth remaining account, I chose to create a family email and general login account. I could set up content and restrictions for our general use account. However, this is the account that I use for everyday use. As I mentioned before, do not use your administrator account as your primary account!

Sidebar, for a great gift idea! We pay for the Microsoft 365 Family subscription. I feel that this further justifies why I want to use the sixth account... Each account comes with a license to use the Microsoft 365 apps (Word, Excel, PowerPoint, etc.), Copilot, and **1 TB** of cloud storage per account. That is **6 TB** of cloud storage for our family.



Squash bugs –
they love the
underside of
broad leaves and
you will find
them in clusters.



Blister beetle – they love to feed on hay and as such are a farmer’s nightmare. They release a toxin if they are hurt or killed. Hay contaminated with this toxin can make horses sick.

You can even add the OneDrive app to your phone and use it to back up your mobile photos! Ok, back to Microsoft Family Safety!

Step 4: Set device restrictions

This is where all the fun starts for parents (maybe not so much for kids). As your kid signs into devices with their Microsoft account, you will see their devices appear on their family overview page. Here, you can view screen time, lock devices, and set time limits based on the day of the week. For our kids, we choose to turn off access to their devices early during the weekdays, so that they have time to wind down before going to bed. School night! On the weekends, they can stay on their devices longer. On holidays, I may disable time limits all together. On any given day, our kids can request more time, which I can approve or deny using the phone app!

Step 5: Set app restrictions

In addition to setting login times for devices, there is an “Apps, features, and games” pane. Here, you can see all the apps that are installed on your kid’s device, how much time your kid spends on a particular app, and even set time limits or block a specific app altogether. Check the settings (gear icon) for some more options, such as setting age limits for apps, requiring permission for purchases, and a weekly activity email.

Step 6: Set browsing restrictions for Edge

Finally, there is an “Edge” pane where you can check browsing history, filter inappropriate websites and searches, and block and/or allow certain websites.

Conclusion

Overall, I am impressed with the access control features provided by Microsoft Family Safety and the granularity that you have in controlling access to the devices themselves, applications, and websites. Apple offers a similar family setup within their ecosystem. Like Microsoft, you would create an Apple ID for each family member, set up a family group, and then set access permissions accordingly.

I hope that this article has been helpful in highlighting some new options that you have to manage your kids’ access to their devices and content. Technology is always evolving, and it is nice to have options outside of disconnecting the device from the network. I hope that you have a wonderful holiday season spending it with family and friends and doing the things that you love. Happy Holidays!

Further Reading

Microsoft Family Safety

- <https://www.microsoft.com/en-us/microsoft-365/family-safety>
- <https://support.microsoft.com/en-us/family>

Microsoft 365

- <https://www.microsoft.com/en-us/microsoft-365>

Apple Family Sharing:

<https://www.apple.com/family-sharing/>

Smart Watch or Smart Phone

[Christopher Horiates]

Smartwatches are becoming the smarter, safer alternative to smartphones for kids, and the timing couldn't be better as the holiday season approaches. Parents often wonder when to introduce technology to their children. Experts say one thing, people have all kinds of opinions, but in the end it's a personal choice you must make with your family. While smartphones have been the go-to choice for years, Apple and Samsung smartwatches offer a more balanced solution with the recent models and updates. These devices provide essential communication—calls and texts to approved contacts—without the distractions of social media, addictive games, or unfiltered internet access. This means kids can stay connected without being consumed by endless apps and notifications.

Both brands have built-in safety features and parental controls that make them ideal for families. Apple's Family Setup allows parents to manage contacts, set Schooltime restrictions, block explicit content, and track location—all from their iPhone.

Samsung's Galaxy Watch for Kids integrates with Google Family Link, giving parents control over app approvals, screen time limits, and real-time location alerts. These tools ensure that your child's digital experience remains safe, age-appropriate, and under your supervision.

Unlike smartphones that can be lost or forgotten in backpacks, smartwatches stay securely on the wrist. They're water-resistant, durable, and designed for active lifestyles, making them perfect for kids who love to play outdoors. Beyond convenience, smartwatches serve as digital training wheels, teaching children how to care for a device, manage charging, and practice healthy tech habits without overwhelming them with the full power of a smartphone.

Parents gain priceless peace of mind through features like GPS tracking, SOS calling, and geofencing alerts, while kids benefit from fitness tools such as step counters, activity rings, and fun challenges that encourage movement and wellness. This transforms technology from a source of sedentary screen time into a tool for health and responsibility.

Apple vs. Samsung: Child-Friendly Features and Cost Comparison

Apple Watch (Family Setup): Supports calls and texts to approved contacts, location tracking, SOS features, and Schooltime mode to limit distractions. It also includes activity tracking and health features for building healthy habits.

Samsung Galaxy Watch (Family Link): Offers calls and texts to approved contacts, real-time location tracking, geofencing alerts, and Schooltime/Do Not Disturb mode. It also provides kid-friendly content like licensed watch faces and apps vetted by educators.

Cost Breakdown

Apple Watch: Apple Watch SE with GPS + Cellular starts at about \$299, while Series 11 LTE models start around \$499. Monthly cellular add-on plans typically cost \$10–\$15, with activation fees around \$35–\$40.

Samsung Galaxy Watch: Galaxy Watch7 LTE starts around \$299–\$349, and Galaxy Watch8 LTE is about \$429.99. Monthly plans are similar, averaging \$10–\$15 depending on the carrier.

Compared to Smartphones

A midrange smartphone costs \$600–\$800, plus a monthly data plan of \$30–\$60. Over two years, a smartwatch setup (device + plan) totals roughly \$540–\$900,



Harlequin bigs – these are red, orange, deep blue, or black stick bugs and their favorites are cabbage and broccoli.

while a smartphone option easily exceeds \$1,200. Smartwatches are not only safer and simpler but also more budget friendly.

The holidays are the perfect time to make this move. Retailers often offer bundles and discounts on Apple and Samsung smartwatches, making it a cost-effective choice. Pair the watch with a colorful band or a fun watch face design, and you've got a gift that feels personal, festive, and exciting for your child. Imagine their joy opening a sleek smartwatch that not only looks cool but also keeps them safe and active.

If you've been debating your child's first tech gift, a smartwatch offers connection without chaos and independence without risk. It's a thoughtful way to introduce technology gradually while maintaining control and safety. With seasonal deals rolling in, now is the ideal moment to give a gift that's smart, safe, and festive present that benefits both kids and parents long after the holiday lights fade.



Armyworms – they like to feed on cucumbers, cabbage, corn, grains, and other crops. They are called armyworms since they move as a group and only stop feeding when they are ready to cocoon.

Password Fatigue: Why It Happens and How to Beat It

[Jonathan Hons]

The holidays are here—lights are twinkling, gifts are piling up, and your inbox is overflowing with shopping deals. But amid the cheer, cybercriminals are working overtime. With more online shopping, streaming, and travel bookings, your digital footprint grows—and so does the risk of password fatigue.

What is Password Fatigue?

It's that overwhelmed feeling when you're juggling dozens of accounts, each demanding a unique, complex password. During the holidays, this stress skyrockets as we create new accounts for gift shopping, sign up for seasonal streaming, and manage travel plans. The result? Risky shortcuts like reusing passwords or writing them down—leaving the door wide open for hackers.

Why It Matters Now

Over 80% of hacking-related breaches involve compromised passwords. Imagine your holiday joy turning into a nightmare because of a weak password. Protecting your accounts isn't just an IT tip—it's a gift to your future self.

DIY Holiday Project: Secure Your Digital Wonderland (Personal Accounts Only)

Here's how to turn password security into a festive, stress-free project:

1. Wrap Up Your Passwords with a Manager

Think of a password manager as your holiday organizer—it keeps everything neat and secure.

DIY Step:

- Pick one: **NordPass**, **1Password**, or **Bitwarden**.
- Install it on your personal devices.
- Let it generate strong, unique passwords for every account.
Bonus: It's like having Santa's list—only for your logins!

2. Add Extra Sparkle with Multi-Factor Authentication (MFA)

MFA is the tinsel on your security tree—an extra layer that makes everything safer.

DIY Step:

- Enable MFA on critical personal accounts (email, banking, streaming).
- Use apps like **Microsoft Authenticator**, **Google Authenticator**, or **Authy**.
Even if a password gets stolen, MFA keeps the Grinch out.

3. Create Festive Passphrases

Instead of short, complex strings, craft long, memorable passphrases.

DIY Step:

- Combine random words: "*SnowflakeCandleMooseDance*".
- Avoid common phrases or holiday lyrics.
Longer is stronger—and easier to remember than "Xy!9#pL".



Boxelder bugs – not harmful but a nuisance and are a threat only to fruit trees.



Flea beetles – they are tiny but resilient. They jump like fleas when disturbed. They like to eat leaves and can damage plants. They like potatoes, cabbage, tomatoes, corn, and peppers.

4. Give Your Passwords a Fresh Start

Just like swapping out old decorations, refresh your passwords regularly.

DIY Step:

- Update sensitive accounts now.
- Use your password manager to generate new ones.
If you hear about a breach, change that password immediately.

Holiday Challenge: Make It Fun

- **Create a “Security Advent Calendar”:** Each day, tackle one personal account—update its password or enable MFA.
- **Family Tech Night:** Teach loved ones how to use a password manager. Make cocoa, play carols, and secure your accounts together.

Bottom Line: Password fatigue doesn’t have to steal your holiday joy. With these DIY steps for your **personal accounts**, you’ll protect your digital life and start the new year stress-free. Your future self will thank you—and so will your holiday spirit.

Microsoft Teams Tip: Controlling Who/What Attends Your Teams Meetings

[Abraham John]

When users sign up for note-taking or AI personal assistant services, meeting invitations are forwarded to this service as well. A note-taking bot will attend meetings as another participant in the meeting. It is highly recommended that you not allow AI note-taking bots or people you did not specifically invite joining your Teams meetings. This will ensure that the security of your meetings and any sensitive discussions stay within the confines of your meeting and the human attendees.

When you create a Teams meeting, you have access to a "Meeting options" link that can be clicked or you have a "Meeting Options" button in your Outlook toolbar once you have specified that the appointment will be a Teams Meeting.

Clicking on the Meeting Options gives you access to options that are not otherwise visible.

Meeting options

Meeting access

Roles

Production tools

Participation

Recording & transcription

Copilot and other AI

Accessibility

Meeting access

Who can bypass the lobby?
Even if Everyone is selected, your org policy may require certain participants wait in the lobby until a member of your org or a trusted org joins. This could include people joining without an account, people from untrusted orgs, and people dialing in.

People in my org

People dialing in can bypass the lobby

Who can admit from the lobby
Organizers, co-organizers, and presenters

Show meeting info on join screen
Display details about the meeting like title and start time, number of others joined, and presence of the organizer.

Users allowed to by pass the lobby

Announce when people dialing in join or leave

Require unverified participants to verify their info before joining
When this is on, unverified participants will need to sign in or verify their emails with a code before joining the meeting. Your license and admin policy also determine how they'll join.

Each of the drop downs has options you can select. First to consider is who can bypass the lobby and who needs to stay in the lobby until admitted. You can make that as wide as "Everyone" or restrict it to just the organizers and the variations in between like "People in my org". This will control bots that are not "people" in your organization.

Next is if attendees dialing in can bypass the lobby. It is best to keep this switched off.

Who can admit people waiting in the lobby. It is advisable for this activity to be done, ideally, by only the organizers and co-organizers.

With regards to who can see meeting information – that can be dependent upon the sensitivity of the meeting subject.

Announcing when people who dial in join or leave will keep the attendees updated.

A good control of unverified participants is to have them verify who they are before joining.



Fruit flies – tiny flies and they love overripe and rottin fruits and vegetables. They lay their eggs under the skin of the fruits. Side point – the fruit in this picture is a Jackfruit.



Black vine weevil
– this is one of
the most
destructive
garden insects
and like
cranberry,
strawberry,
blueberry, and
blackberry.

Roles

Choose co-organizers:
Has the same capabilities as the organizer.

Search for participants

Who can present

Everyone

Enable language interpretation

Add interpreters who can interpret one language into another in real-time. To assign interpreters, send the meeting invite then refresh this page and choose them.

You can control who can present in the roles and also add co-organizers.

Participation

Allow mic for attendees

Turn this off to prevent attendees from unmuting. You can allow them to unmute individually as needed.

Allow camera for attendees

Turn this off to prevent attendees from sharing video. You can allow them to share video individually as needed.

Meeting chat

On

Q&A

Organizers can customize Q&A to allow anonymous posts, review questions before they are published, and more.

Allow reactions

Allow attendance report

You can as the organizer control the audio/video for attendees.

Recording & transcription

Record and transcribe automatically

This will also turn on transcription.

Who can record and transcribe ⓘ

Organizers, co-organizers, and presenters

Enable multilingual speech recognition

This allows everyone to be understood in their spoken languages. Each person will need to set their correct spoken language for accurate transcription and captions. This will automatically be turned on if Interpreter is on. This option isn't available in all languages.

Who has access to the recording or transcript

Everyone

You can manage who can record/transcribe and who will have access to the recording or transcript.

Using these meeting options you can control who can attend meetings, see transcription/recordings, and also gives you control on who to let into a meeting. As you create meetings, I hope these options will help keep your meeting attendees people you meant to invite!

Solution to last newsletter's brainteaser

What is the five-digit number, with no zeroes and no repeated numbers, in which the second digit is two times the first, the third is three times the second, the fourth is four times the first, and the last is one-half more than the second?

Answer: **12643**