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1 Choosing a Laptop

More and more computer users are now using laptops because of their convenience and portability. This chapter looks at some of the issues to consider when buying a laptop, and how to ensure you buy the right one for your needs. It also covers the elements of a laptop and some of the accessories you will need.

Apple has an excellent range of laptops, running its macOS operating system. However, the majority of this book deals with "IBM-compatible" laptops, as they are known. These types of laptops are the most common, and run on the Windows operating system.

The New icon pictured above indicates a new or enhanced feature introduced on laptops with the Windows 10 Creators Update.

A Brief History of Laptops

Modern computers have come a long way since the days of mainframe computers, which took up entire rooms and were generally only the domain of large educational establishments or government organizations. Before microprocessors (the chips that are used to run modern-day computers), these mainframe computers were usually operated by punchcards: the operators programmed instructions via holes in a punchcard and then waited for the results, which could take hours or days.

The first personal computers, i.e. ones in which all of the computing power was housed in a single box, started to appear in the early 1970s, and the first machine that bore any resemblance to modern personal computers was called the Datapoint 2200. The real breakthrough for personal computers came with the introduction of microprocessors – small chips that contained all of the necessary processing power for the computer. After this, the industry expanded at a phenomenal rate with the emergence of major worldwide companies such as Microsoft, Apple, IBM, Dell and Intel.

But even as personal computers were being developed for a mass-market audience, there was a concerted drive to try to create a portable computer so that people could take their own computer with them wherever they went. Even in the fast-moving world of technology, the timescale for shrinking a computer from the size of a large room to the size of a small briefcase was a dramatic one.

First portable computers

With most types of technology, we are obsessed with the idea of making the item as small as possible, whether it is a music player, a telephone or a computer. However, the first portable computers bore little resemblance to the machines that we now know as laptops. At the beginning of the 1980s there were a few portable computers released, but most of them were bulky, had very small screens and could not run on internal batteries. The most popular of these was called the Osborne 1, which was released in 1981. Although this

was the size of a small suitcase and had a minuscule amount of computing power compared with modern machines, it proved a big success as it enabled people to carry their computers around with them for the first time.

The machine that first used the term "laptop" was called the Gavilan SC, which was developed in 1983 and introduced in 1984. This had the big advantage of being able to run on an internal battery, and it was also one of the first portable computers that appeared with the now-universal "clamshell" design, where the monitor folded down over the keyboard.

In the late 1980s, companies such as Kyocera, Tandy, Olivetti, NEC, IBM, Toshiba, Compaq and Zenith Data Systems began developing fast and more powerful laptops, and it is in this period that the growth of laptops really began to take off.

In 1991, Apple introduced its PowerBook range of laptops, and in 1995 the introduction of Windows 95 provided an operating system for IBM-compatible laptops.

Laptops have now become an integral part of the computer market, and in many areas sales have outstripped those of desktop computers. Also, they are more than capable of comfortably meeting the computing needs of most computer users. Add to this their portability (which has reached a stage where you no longer need to worry about causing yourself an injury in order to carry one around), and it is clear why laptops have become so popular.

Mobility is now an essential part of computing, and when Windows 8 was released it was aimed firmly at the mobile world. However, this caused some issues, particularly with users of desktop and laptop computers. Windows 10 has gone a long way to addressing these issues, partly by reinstalling a number of features that are aimed more at users with a traditional keyboard and mouse. This shows that laptops still have an important role to play, and will continue to do so.

Because of their size and weight, the first portable computers, such as the Osborne 1, were known rather unflatteringly as "luggables".

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Laptops v. Desktops

When considering buying a laptop computer, one of the first considerations is how it will perform in comparison with a desktop computer. In general, you will pay more for a laptop with similar specifications to a desktop. The reason for this is purely down to size: it is more expensive to fit the required hardware into a laptop than the more generous physical capacity of a desktop computer. However, with modern computing technology and power, even laptops with lower specifications than their desktop cousins will be able to handle all but the most intensive computing needs of most home users. The one situation where laptops will need to have as high a specification as possible is if you are going to be doing a lot a video downloading and editing, such as converting and editing old family movies.

Some of the issues to consider when looking at the differences between laptops and desktops are:

- **Portability**. Laptops easily win over desktops in this respect, but when looking at this area it is worth thinking about how portable you actually want your computer to be. If you want to mainly use it in the home, then you may think that a desktop is the answer. However, a laptop gives you portability in the home too, which means that you can use your computer in a variety of locations within the home and even in the garden, if desired.

- **Power**. Even the most inexpensive laptops have enough computing power to perform most of the tasks that the majority of users require. However, if you want to have the same computing power as the most powerful desktops, then you will have to pay a comparatively higher price.

- **Functionality**. Again, because of their size, desktops have more room for items such as DVD writers, multi-card readers and webcams. These can be included with laptops, but this can also increase the price and the weight of the laptop.

Another issue with laptops is battery power, which is required to keep them operating when they are removed from a mains electrical source. Obviously, this is not an issue that affects desktops.

Types of Laptops

To meet the needs of the different types of people who use laptops there are several variations that are available:

- **Netbooks**. These are the ultimate in small laptops, but have less power and functionality than larger options. They generally have screens that are approximately 10 inches (measured diagonally from corner to corner) and are best suited for surfing the web and sending email, although they can also do productivity tasks.

- **Ultrabooks**. These are very light and slim laptops that still have significant power and functionality. They have screens of approximately 13 inches, and weigh as little as 1.2 kg. They are an excellent option if you are going to be using your laptop a lot while traveling.

- **Notebooks**. These are the most common types of laptops as they have a good combination of size, weight and power. They generally have screens that are approximately 13-17 inches and weigh approximately 2-3.5 kg. Notebooks are an excellent option for using in the home and also while traveling.

- **Desktop replacements**. These are larger, heavier laptops that can be used in the home instead of a desktop computer. They are more powerful than other types of laptops, but the downside is that they are not as portable. They generally have screens that are up to approximately 17-19 inches, and weigh approximately 4-6 kg.

- **Hybrids**. With the proliferation of touchscreen mobile computing devices such as smartphones and tablet computers, manufacturers have been looking at ways to incorporate this functionality into laptops. This has resulted in the development of touchscreen laptops and hybrid devices, which can be used both as a laptop and a tablet. This is done by including a keyboard that can be hidden (by having a sliding, detachable or revolving screen) so that the device can quickly be converted into a touchscreen tablet. These devices are becoming increasingly popular.

Netbooks usually have a slimmed-down version of the full Windows operating system, due to limits of their memory and architecture.

A lot of the weight in a laptop is taken up by peripherals such as DVD writers, card readers and webcams. The more of these that a laptop has, the heavier it is likely to be.

Laptop Jargon Explained

Since laptops are essentially portable computers, much of the jargon is the same as for a desktop computer. However, it is worth looking at some of this jargon and the significance it has in terms of laptops:

- **Processor**. Also known as the central processing unit, or CPU, this refers to the processing of digital data as it is provided by programs on the computer. The more powerful the processor, the quicker the data is interpreted.

- **Memory**. This closely relates to the processor and is also known as random-access memory, or RAM. Essentially, this type of memory manages the programs that are being run and the commands that are being executed. The more memory there is, the quicker programs will run. With more RAM, they will also be more stable and less likely to crash. In the current range of laptops, memory is measured in megabytes (MB) or gigabytes (GB).

- **Storage**. This refers to the amount of digital information that the laptop can store. In the current range of laptops, storage is measured in gigabytes. There are no external signs of processor or memory on a laptop but the details are available from within the This PC option, which is accessed from the File Explorer.

Memory can be thought of as a temporary storage device, as it only keeps information about the currently-open programs. Storage is more permanent, as it keeps the information even when the laptop has been turned off.

- **Optical drive**. This is a drive on the laptop that is capable of reading information from, and copying it to, a disc such as a CD or a DVD. Some modern laptops have internal optical drives such as CD writers or DVD writers.

- **Connectivity**. This refers to the different types of media device to which the laptop can be connected. These include card readers for memory cards from digital cameras, USB devices such as music players, and USB flashdrives for backing up files or storing items.

- **Graphics card**. This is a device that enables images, video and animations to be displayed on the laptop. It is also sometimes known as a video card. The faster the graphics card, the better the quality the relevant media will be displayed at. In general, very fast graphics cards are really only needed for intensive multimedia applications such as video games or videos.

- **Wireless**. This refers to a laptop's ability to connect wirelessly to a network – i.e. another computer or an internet connection. In order to be able to do this, the laptop must have a wireless card, which enables it to connect to a network or high-speed internet connection.

- **Ports**. These are the parts of a laptop into which external devices can be plugged, using a cable such as a USB. They are usually located on the side of the laptop, and there can be two or three of each.

- **Pointing device**. This is the part of the laptop that replaces the traditional mouse as a means of moving the cursor on the screen. Most pointing devices are in the form of a touch pad, where a finger on a pad is used to move the cursor. An external mouse can also be connected to the laptop and used in the conventional way.

- **Webcam**. This is a type of camera that is fitted into the laptop, and can be used to take still photographs, or communicate via video with other people.

Hot tip

External optical drives can also be connected to a laptop through a USB cable.

Don't forget

Don't forget

USB stands for Universal Serial Bus, and is a popular way of connecting external devices to computers.

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Size and Weight

The issues of size and weight are integral to the decision to buy a laptop. In addition to getting a machine with enough computing power, it is also important to ensure that the screen is large enough for your needs and that it is light enough for you to carry around comfortably.

Size

The main issue with the size of a laptop is the dimensions of the screen. This is usually measured in inches, diagonally from corner to corner. The range for the majority of laptops currently on the market is approximately 12-17 inches, with some more powerful models going up to 19 inches.

When considering the size of screen it is important to think about how you are going to use your laptop:

- If you are going to use it mainly for functions such as letter writing and sending email, then a smaller screen might suffice.

- If you are going to use it mainly for functions such as surfing the web or editing and looking at photographs, then you may feel more comfortable with a larger screen.

- If you, or anyone else, is going to be using it for playing games and watching videos, then the larger the screen, the better.

Weight

Unless you are buying a laptop to replace a desktop, weight should not be too much of an issue, as most models are similar in this respect. However, make sure you physically feel the laptop before you buy it.

If you are going to be traveling a lot with your laptop, then a lighter, ultrabook type may be the best option. When considering this, take into account the weight of any type of case that you will use to carry the laptop, as this will add to the overall weight.

Looking at material on a smaller screen can be more tiring on the eyes as, by default, it is displayed proportionally smaller than on a larger screen. It is possible to change the size of the screen display, but this will lead to less material being displayed on the screen.

Getting Comfortable

Since you will probably be using your laptop in more than one location, the issue of finding a comfortable working position can be vital, particularly as you cannot put the keyboard and monitor in different positions as you can with a desktop computer. Whenever you are using your laptop try to make sure that you are sitting in a comfortable position, with your back well supported, and that the laptop is in a position where you can reach the keyboard easily and also see the screen without straining.

Despite the possible temptation to do so, avoid using your laptop in bed, on your lap, or where you have to slouch or strain to reach the laptop properly:

Working comfortably at a laptop involves a combination of a good chair, good posture and good positioning of the laptop.

If possible, the best place to work at a laptop is at a dedicated desk or workstation.

Seating position

The ideal way to sit at a laptop is with an office-type chair that offers good support for your back. Even with these types of chairs it is important to maintain a good body position so that your back is straight and your head is pointing forwards.

If you do not have an office-type chair, use a chair with a straight back and place a cushion behind you for extra support and comfort, as required.

One of the advantages of office-type chairs is that the height can usually be adjusted, and this can be a great help in achieving a comfortable position.

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Laptop position

When working at your laptop it is important to have it positioned so that both the keyboard and the screen are in a comfortable position. If the keyboard is too low, then you will have to slouch or strain to reach it:

If the keyboard is too high, your arms will be stretching. This could lead to pain in your tendons:

The ideal setup is to have the laptop in a position where you can sit with your forearms and wrists as level as possible while you are typing on the keyboard:

Beware

Take regular breaks when working with a laptop, and stop working if you experience aches, or pins and needles in your arms or legs.

Adjusting the screen

Another factor in working comfortably at a laptop is the position of the screen. Unlike with a desktop computer, it is not feasible to have a laptop screen at eye level, as this would result in the keyboard being in too high a position. Instead, once you have achieved a comfortable seating position, open the screen so that it is approximately 90 degrees from your eyeline:

Find a comfortable body position and adjust your laptop's position to this, rather than vice versa.

One problem with laptop screens is that they can reflect glare from sunlight or indoor lighting:

Most modern laptops have screens with an anti-glare coating. However, even this will not be very effective against bright sunlight that is shining directly onto the screen.

If this happens, either change your position or block out the light source, using some form of blind or shade. Avoid squinting at a screen that is reflecting glare as this will quickly give you a headache.

Carrying a Laptop

As laptops are designed for mobility, it is safe to assume that they will have to be carried around at some point. Because of the weight of even the lightest laptops, it can be uncomfortable to carry a laptop for an extended period of time. To try to minimize this, it is important to follow a few rules:

- Carry the laptop with a carry case that is designed for this task (or a double-strapped backpack).

- Carry the laptop on one side of your body and move it from side to side if necessary.

- Do not cross the strap over your shoulders, and try not to carry too many other items at the same time.

If you are traveling with your laptop you might be able to incorporate it into your luggage, particularly if it can be moved on wheels.

Keyboard and Touch Pad

Laptops have the same basic data input devices as desktop computers, i.e. a keyboard and a mouse. A laptop keyboard is very similar to a desktop one, although it is best to try the action of the keys before you buy a particular laptop, to ensure that they are not too "soft", i.e. that there is enough resistance when they are pressed.

One of the main differences between a laptop and a desktop computer is the mouse (or pointing device) that controls the on-screen cursor. In the early days of laptops, some of them had a small control stick to move the cursor. However, these have been almost universally replaced by touch pads, which are small, sensitive, square or rectangular pads that are activated by stroking a finger over them to move the cursor. It sometimes takes a bit of practice to get used to them, but after a little experience they can be as effective as a traditional mouse. When using a keyboard or touch pad, avoid having your fingers too high:

Instead, keep your hands and fingers as flat as possible over the keyboard and the touch pad:

Don't forget

Laptop keyboards contain the same functionality as any standard computer keyboard. However, most manufacturers have keyboards with functions that are specific to their own laptops.

Using an External Mouse

Not everyone likes touch pads as a means of moving the cursor on a laptop, and it is true they can sometimes be slightly fiddly and prone to erratic movement if the control is too jerky. The good news is that it is possible to use a conventional mouse with a laptop to move the cursor.

A mouse can be connected to a laptop via one of the suitable sockets (ports) at the back or side of the laptop. These are usually in the form of USB ports:

Once the mouse has been connected to the laptop it can be used in exactly the same way as with a desktop computer. In some cases it is possible to add a wireless mouse, which can be used without the need for a cable:

It is certainly worth persevering with a laptop's touch pad, even if it seems very frustrating at first. Once you have found the correct pressure to apply, it will become much easier to control.

Ports and Slots

Most laptops have a slightly bewildering array of sockets and slots for connecting external devices. These sockets are known as ports, and they come in a variety of shapes and sizes for different devices and uses:

- **USB**. This is a method for connecting a variety of external devices such as digital cameras, digital music players, scanners and printers. The latest standard in widespread use is USB 3.0, and this has largely replaced parallel and serial ports in terms of connecting devices such as printers or an external mouse.

- **USB Type-C**. This is the latest type of USB port, for devices with a USB Type-C cable. The port is thinner than a standard USB one and is reversible, so that the end of the cable can be inserted both ways, rather than a single way as for standard USB ports.

- **Ethernet**. This can be used as a cable connection to your internet router, rather than using a Wi-Fi connection.

- **HDMI (High-Definition Multimedia Interface)**. This can be used to connect to compatible digital devices, including high-definition TVs. This enables you to view whatever is on your laptop screen on a television, and is a good option for watching movies or displaying photos.

- **Memory card readers**. These are used for downloading photos from memory cards from digital cameras or smartphones. Some laptops only have an SD card slot, since these are most commonly used. If you need to attach a multi-card reader for different types of memory card, this can be done using a USB port.

The main slot on some laptops is:

- **CD/DVD players or re-writers**. These can be used to play music CDs or watch videos on a DVD. They can also be used to copy data to blank CDs or DVDs. This is a good option for backing up items that you want to keep, such as photos.

Laptops with USB 3.0 ports can still be used with USB 2.0 (or earlier) devices, but they will also work with any USB 3.0 devices.

Not all laptops have a CD/DVD player, although external CD/DVD drives can be connected.

The Wonder of Wireless

For anyone who has struggled with a tangle of computer cables and wires, the advent of wireless technology has been one of the great computing breakthroughs of recent years.

Wireless technology does exactly what the name suggests: it allows a wireless-enabled computer to communicate with other similarly-enabled devices, such as other computers, printers or an internet connection. First of all, the devices have to be set up as a network, i.e. they have to be linked together so that they know they should be communicating with each other. Once this has been done, files can be shared or sent to the printer, and the internet browsed, all without the need to connect the devices using a cable.

In order to be part of a wireless network, a laptop must have a wireless capability. Most modern laptops come with wireless cards already installed; otherwise, they can be installed in any available expansion slot.

Hotspots

One of the great growth areas of wireless technology is hotspots. These are public areas that have been set up to distribute the internet wirelessly. This means that anyone with a wireless card in their laptop can, if they are within a certain range, access the internet in a variety of public places. These include:

- Coffee shops
- Airports
- Hotels
- Libraries
- Supermarkets

Hotspots operate using Wi-Fi technology, which is the method by which the signal from the network is transferred to individual users. Most hotspots have a limited range of approximately 100 yards. Some are free to use, while others charge a fee, depending on usage.

One concern about hotspots is security. This is because if you can access a network wirelessly, someone else could then also access your laptop and data. Many hotspots have software in place to try to stop this.

For more details about Wi-Fi and networks, see Chapter Nine.

Cleaning a Laptop

Like most things, laptops benefit greatly from a little care and attention. The two most important areas to keep clean are the screen and the keyboard.

Cleaning the screen

All computer screens quickly collect dust and fingerprints, and laptops are no different. If this is left too long it can make the screen harder to read, causing eye strain and headaches. Clean the screen regularly with the following cleaning materials:

- A lint-free cloth, similar to the type used to clean camera lenses (it is important not to scratch the screen in any way).

- An alcohol-free cleaning fluid that is recommended for computer screens.

- Screen wipes, again that are recommended for use on computer screens.

Cleaning the keyboard

Keyboards are notorious for accumulating dust, fluff and crumbs. One way to solve this problem is to turn the laptop upside down and very gently shake it to loosen any foreign objects. Failing this, a can of condensed air can be used with a narrow nozzle to blow out any stubborn items that remain lodged in the keys.

The outer casing of a laptop can be cleaned with the same fluid as used for the screen. Equally effective can be a duster or a damp (but not wet) cloth and warm water. Keep soap away from laptops if possible.

Choosing a Carry Case

When you are transporting your laptop it could be placed in any convenient bag, such as a backpack, a duffle bag or even a large handbag. However, there are several advantages to using a proper laptop carry case:

● It will probably be more comfortable when you are carrying it, as it is designed specifically for this job.

● The laptop will be more secure, as it should fit properly in the case.

● You should be able to keep all of your laptop accessories together in one case.

When choosing a carry case, look for one that fits your laptop well and has a strap to keep it secure inside:

Also, make sure that there are enough additional spaces and pockets for accessories, such as cables and an external mouse. Finally, choosing a case with a padded shoulder strap will be of considerable benefit if you have to carry your laptop for any length of time.
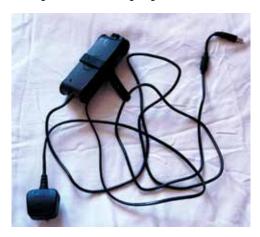

A laptop case should also be lockable, either with its own internal lock, or with a fastening through which a padlock can be put.

Spares and Accessories

Whenever you are going anywhere with your laptop, there are always spares and accessories to consider. Some of these are just nice things to have, while others could be essential to ensure that you can still use your laptop if anything goes wrong while you are on your travels. Items to consider for putting in your laptop case include:
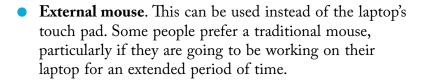
- **Spare battery**. This is probably the most important spare if you are going to be away from home for any length of time, and particularly if you think you may be unable to access a power supply for a period of time, and so be unable to charge your laptop battery. Like all batteries, laptop batteries slowly lose power over time and do not keep their charge for as long as when they are new. It is a good idea to always keep an eye on how much battery power you have left and, if you are running low, try to conserve as much energy as possible. Although laptop batteries are bulky and heavy, carrying a spare could mean the difference between frustration and relief, if you are left with no battery power and no charging options.

- **Power cable**. This is the cable that can be used to power the laptop when it is not being run on battery power. It usually consists of a cable and a power adapter, which makes it rather bulky and heavy. Whenever possible, this should be used rather than the internal battery, and it should be kept with the laptop at all times.

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- **External mouse**. This can be used instead of the laptop's touch pad. Some people prefer a traditional mouse, particularly if they are going to be working on their laptop for an extended period of time.

- **Multi-card reader**. If you do not have a built-in multi-card reader (see page 21), an external one can be used to download photos from a digital camera memory card. This will connect via a USB port.

- **Headphones**. These can be used to listen to music or films if you are in the company of other people and you do not want to disturb them. They can also be very useful if there are distracting noises coming from other people.

- **USB flashdrive**. This is a small device that can be used to copy data to and from your laptop. It connects via a USB port and is about the size of a packet of chewing gum. It is an excellent way of backing up files from your laptop when you are away from home.

- **Cleaning material**. The materials described on page 23 can be taken to ensure your laptop is always in tip-top condition for use.

- **DVDs/CDs**. Video or music DVDs and CDs can be taken to provide mobile entertainment, and blank ones can be taken to copy data onto, similar to using a USB flash drive.

Hot tip

It is important that headphones are comfortable to wear for an extended period of time. In general, the types that fit over the ears are more comfortable than the "bud" variety that is inserted into the ear.

Don't forget

Backing up (see page 181) is the process of copying folders and files from your laptop onto an external device for safekeeping in case the folders and files on the laptop are deleted or corrupted.