

# Computing Devices Guide for Schools

| Table of Contents:  | Page |
|---|------|
| Introduction  | 1    |
| Digital Learning Planning and Framework (DLF)             | 2    |
| Key considerations for schools regarding devices          | 2    |
| Computing devices and blended learning                    | 3    |
| Student access to devices in schools – models             | 3    |
| Most commonly used student devices                        | 4    |
| Good Practice Videos - using tablets in schools           | 5    |
| 1:1 and Bring your own Device (BYOD) Models               | 5    |
| Purchasing considerations for teacher and student devices | 7    |

## Introduction

‘Fit for purpose’ computing devices for teachers and students are critical in supporting teaching and learning. It is important that teachers are equipped with devices that allow them to carry out activities to support teaching and learning outcomes that align with the schools Digital Learning Plan, but also devices that they are comfortable with.

Student devices need to support a wide range of activities that allow students to engage effectively in classes, in project work and other learning activities. Student devices need to be WiFi enabled, mobile, robust and need to have long battery life, so that they can be used throughout the school day.

The most common devices currently being used by teachers in schools are desktop PCs, laptops, iPads and chromebooks. The most common devices being used by students in schools are iPads, chromebooks, and laptops.



iPad (iOS)  
(Apple)



Chromebook  
(Google)  
(Available from  
a range of suppliers)



Windows  
(Microsoft)  
(Laptops, Surface)  
(Surface available from  
Microsoft, Laptops from a range  
of suppliers)



Hybrids  
(Available from a  
range of suppliers)  
‘Hybrid’ devices

## Digital Learning Planning and Framework (DLF)

Information on Digital Learning Framework (DLF) and how it can be used for planning to embed digital/ICT in into teaching, learning and assessment can be found at the Digital Learning Planning website <https://www.dlplanning.ie/>. The website helps schools improve digital learning, supports the Digital Learning Framework, mapping standards and statements of effective practice to good practice video exemplars. It helps school leaders understand how technology can support the learning process. In the same way as a school needs to have a Digital Learning Plan in place to guide their approach to teaching, learning and assessment, they should also consider having a Digital Technology Infrastructure plan in place so that their technology and digital infrastructure compliments and supports their Digital Learning Plan.

## Considerations regarding Devices

When considering computing devices, as part of DLF school self-evaluation and planning process school management and the ICT coordinating team should first consider school learning priorities and learning outcomes rather than the technical aspects of devices. School digital learning plans should form an integral part of wider school planning.

## Key considerations for schools regarding devices

The following points should be considered when reviewing how devices are used in the school.

- Does the school Digital Learning Plan refer to how it is planning to use computing devices to support teaching, learning and assessment?
- Are current computing devices meeting the current teaching, learning and assessment needs in the school?
- Do some devices need to be upgraded?
- What aspects are working well?
- What aspects don't seem to be working as well as planned ?
- Are there changes needed in how devices are used, that could make them more effective and improve the experience for teachers and students?
- Is there a need for additional teacher professional learning or training in how to use the devices more effectively? Note that the Oide TiE provides a range of teacher professional learning opportunities, through its online courses, good practice videos, webinars, online learning resources and courses in Education Centres.
- Are there areas that the school needs assistance with, for example from an external party, either from a pedagogical or technical perspective?
- Has the school identified an external party who can provide support to the school?
- Engaging with other schools as they may be able to suggest ideas which may be helpful.
- A good way of initially seeing relevant good practice from other schools is to watch some of the Oide TiE good practice videos which show how schools are embedding ICT. These can be seen at <https://www.oidetechnologyineducation.ie/videos/>
- Oide, through its Digital Technologies team, provides tailored school support in the effective use of digital technology in the classroom, including planning for digital learning. Oide Digital Technologies Professional Learning Leaders are available to give in-school, online and sustained support to schools at both primary and post-primary levels. If a school needs to apply for 'School Support' during the school year, it can do so at <https://www.oidetechnologyineducation.ie/courses-practice/schoolsupport/>
- Free courses are available for teachers and school leaders, so for more on this go to <https://www.oidetechnologyineducation.ie/courses-practice/>

## Computing Devices and Blended Learning

As the use of 'blended learning' in schools increases, there is a related increase in the number of mobile computing devices being used by students in schools. The term blended learning in relation to teaching and learning is a mix of classroom or face-to-face learning experiences with online learning experiences. As teachers are increasingly using digital technologies to support and enhance their teaching, learning and assessment practices, the use of blended learning is continuing to grow.

For more on blended learning please refer to:

<https://www.oidetechnologyineducation.ie/courses-practice/blended-learning/>

## Models of student access to devices in schools

There are a number of different approaches used by schools regarding how they provide students access to devices. The more commonly used approaches are shown below in Table 1:

- Desktop PCs in Computer Rooms
- Mobile Trolley of shared student devices
- 1:1 Student Devices (standard device is chosen)
- Students bringing their own choice of device (BYOD)

| Models / Attributes            | Desktop PCs in Computer Rooms                              | Mobile Trolley of shared student devices                                     | 1:1 Student Devices (standard device is chosen)  | Students bringing their own choice of device (BYOD)  |
|--------------------------------|--|--|--|--|
| <b>Summary Description</b>     | Shared computer rooms of Desktop PCs                       | Device trollies are used to charge, store and move devices within the school | Each student has their own device available throughout the school day                      | Students are allowed to use their own devices  |
| <b>Choice of Device</b>        | A School Decision  | A School Decision  | A School Decision  | A Student Decision   |
| <b>Same / Different device</b> | Same device  | Same device  | Same device  | A variety of different devices   |
| <b>Advantages</b>              | Computer rooms are already present in post primary schools | Provides increased student access to devices                                 | Student access to devices throughout the school day, differentiated learning opportunities | Student access to devices throughout the school day, differentiated learning opportunities |
| <b>Disadvantages</b>           | Allow limited access to students                           | Cost of Trolley Plus devices   | Cost for parents   | May add additional challenges  |
| <b>WiFi implications</b>       | No Wifi required for Desktop PCs                           | Requires WiFi throughout the school  | Requires WiFi throughout the school  | Requires WiFi throughout the school  |

**Table 1: Models of student access to devices in schools**

## Most commonly used student devices

The most commonly used student devices in schools are shown in Table 2, along with some of the similarities and differences of these devices. Please note that Android devices are not recommended for schools in general. This is because Google, which owns Android, recommends Chromebooks (which run Chrome OS) for education instead of devices which run the Android OS. To support this recommendation Google has a specific Chromebooks for Education programme, where it provides a range of educational supports and resources for Chromebooks, while there is relatively little support provided for Android in educational contexts.

| Characteristics              | Laptops  | Surface Devices | Hybrid Devices | iPads | Chromebooks | Android Tablets |
|------------------------------|--|-----------------|----------------|-------|-------------|-----------------|
| Recommended for Schools      | Yes  | Yes             | Yes            | Yes   | Yes         | No**            |
| Manufacturer(s)              | Various  | Microsoft       | Various        | Apple | Various     | Various         |
| Operating System             | Windows  | Windows         | Windows        | iOS   | Chrome      | Android         |
| Instant On*                  | Varies   | Yes             | Yes            | Yes   | Yes         | Yes             |
| Long battery life            | Varies   | Yes             | Yes            | Yes   | Yes         | Yes             |
| WiFi enabled                 | Yes  | Yes             | Yes            | Yes   | Yes         | Yes             |
| Suitable for Teachers        | Yes  | Check***        | Check***       | Yes   | Yes         | No**            |
| Suitable for Students        | Yes  | Yes             | Check***       | Yes   | Yes         | No**            |
| Requires Anti Virus software | Yes  | Yes             | Yes            | No    | No          | No**            |
| Min Tech Spec available      | Yes  | Yes             | Yes            | Yes   | Yes         | No**            |
|                              |  |                 |                |       |             |                 |
| Instant On*                  | This means that devices power on instantly, unlike some devices such as laptops which can take from approx' 20 seconds to minutes to be ready to use |                 |                |       |             |                 |
| No**                         | 'No' for Android means that Google (who own Android) do not have a Android Education program. Instead they recommend Chromebooks for Education       |                 |                |       |             |                 |
| Long battery Life            | Long Battery life means that devices are designed to operate throughout the full school day (Typically 7-8 hours), without needing to be charged     |                 |                |       |             |                 |
| Check***                     | This means that devices 'may' be suitable, but schools need to check that they have sufficient CPU power, memory, data storage etc.,                 |                 |                |       |             |                 |

**Table 2: Overview of most common devices in schools**

### Notes on Computing Devices:

- The 'instant-on' capability of tablets means that they can be used without any start-up delays in a variety of situations, and this facilitates their use into areas where ICT might not have been considered before. It also facilitates using them for shorter periods (eg., 10 minutes) during class. Older laptops can take a long time to start up, and this can be a barrier to their use in classrooms. The instant-on feature enables the possibility of 'anytime, anywhere' learning within school, in outdoor learning situations, or while on the move.
- Tablets and Chromebooks generally require less technical support than conventional desktops or laptops, and are being used increasingly in school where students 'bring their own devices' (BYOD). This model also lends itself to students supporting their own devices, generally referred to as 'bring your own support' (BYOS). If tablets can support differentiated learning while significantly reducing the level of technical support required, this model could greatly benefit schools.
- As touch screen technology has improved in recent years, tablets have innovatively used these improvements to provide the user with a higher quality of touch screen interactivity, including multi-touch pinch, zoom, rotate etc.,
- Tablet capability is extended by the wide range of applications or 'apps' available. Tablets also support web browsing and online activities.
- Typing on a tablet uses the soft keyboard (ie., on the screen), however an external keyboard can be purchased for most devices, though at additional cost.

- Being wireless devices, tablets generally don't have the same level of physical connections as laptops, though some have mini-USB ports, or expansion memory slots. Tablets generally have less memory storage than laptops. As such tablet users generally use online or cloud based services for additional data storage.
- Where students have access to computing devices in school the balance of 'learner control' may shift somewhat from the teacher to the student. This in turn can facilitate and support student self-directed, active learning and can facilitate higher levels of motivation and engagement in students.

## Good Practice Videos - using tablets in schools

The two videos highlighted below from the Oide Technology in Education website highlight relevant educational use of tablets in schools: (Click on the link to access the video)

### Using Tablets to support language learning (German)

<https://www.oidetechnologyineducation.ie/videos/using-tablets-to-support-language-learning-german/>

### Using tablets to support active learning in Business Studies

<https://www.oidetechnologyineducation.ie/videos/using-tablets-to-support-active-learning-in-business-studies/>

## 1:1 and Bring your own Device (BYOD) Models

Bring your own device (BYOD) involves allowing pupils/students to bring their own devices, especially tablets and other suitable personal devices, into classrooms to support improving student learning outcomes. Rather than the school owning the computing devices, the devices are student owned. Awareness and adoption of BYOD is growing. BYOD can be used both as an alternative to, or as an additional level of support to computers which are owned and provided by the school. BYOD has the potential to support a more student-centered, active learning approach, with students taking more responsibility for their own learning.

Some comments from Irish teachers on the benefits of BYOD include:

*'BYOD can promote greater participation from all pupils in the classroom'*

*'familiarity - most people are most comfortable with their own devices'*

*'if a student owns the device, they are more likely to look after it properly'*

*'homework - class assignments can be finished at home'*

## Potential Challenges and School Readiness

Given that introducing a BYOD model for students is a significant step for schools, careful planning and consultation with all the key stakeholders, including teachers, parents, pupils, and the board of management (BOM) is critical to achieving successful outcomes. Because each school situation is unique, some schools may encounter significant challenges in implementing BYOD. As such, as a first step a school readiness review is recommended. This review would assess school readiness from a number of perspectives. Some of the main challenges could include the potential barriers of inequality/digital divide issues, teacher readiness, and checking to make sure that the school WiFi is capable of supporting the number of additional devices. Also having a suitable school Acceptable Use Policy (AUP) to support the introduction of student devices is critical.

Issues regarding inequality and digital divide may exist, for example between middle and low income families, as all students may not have suitable devices at home, and this is an area which requires a certain sensitivity. Some families may feel under financial and other social pressures to be involved, and it is recommended that schools consider how it would handle a situation where some students were not in a position to bring a suitable device to school.

Also following the introduction of BYOD some potential negative student behaviours may arise including comparisons between 'top of the range' devices with other lower capability student devices. To help address these types of situations some schools have provided school owned devices to certain students. Every school situation is different, so while BYOD may be suitable for some schools, or for some teachers, it may be seen as not appropriate for others, or might be seen as a possible future option.

### **Teacher Readiness – New Classroom Challenges**

There is no 'one size fits all' BYOD approach which can be applied to deliver successful outcomes in all schools. Schools have taken different approaches which suit their individual situations. In practice some teachers will adopt an approach to BYOD which they are comfortable with, and which is consistent with their current classroom management approach. Initially some teachers may not feel ready to adopt BYOD, however there is increasing evidence to show that following initial teething issues, positive learning outcomes can follow.

### **Breakages and Accidental Damage**

As tablets are mobile devices, they will be subject to the normal 'rough and tumble' of school life, whether they are being used only in school or whether they are also being taken home by students. It is inevitable that some breakages will occur. Damage to screens is one of the most common reported problems. In general screen damage is not covered by warranty and instead is covered under 'accidental damage' cover. Purchasing agreements from different providers may vary, so schools need to check these before selecting a provider.

### **Security and insurance**

All new devices purchased by a school should be added to the school's insurance policy. As tablets are small and easy to carry and conceal, they can be an attractive high-value target. As such they need to be carefully managed, especially if stored in the school during the week or at weekends.

### **BYOD Planning Checklist**

- Consult with all stakeholders, i.e., students, teachers, parents, BOM.
- Set out your learning objectives and how they align with BYOD use.
- Ensure your Network infrastructure, broadband, Wi-Fi etc. can support BYOD use.
- Can BYOD support multiple device types and platforms and if so, how will they be managed alongside any current MDM (mobile device) systems currently in place in the school?
- What are the school's strategies for equitable access to devices?
- Are there Teacher Readiness plans in place for training and support?
- Has the school's AUP been amended to include BYOD use?
- Has the school implemented Digital Citizenship training to students?

### **Tablet Trolley, Carrying Case, Charging**

For schools considering purchasing a set of student devices for shared usage, mobile device trollies will assist in securely storing, re-charging, and moving devices around the school. Schools that have stairs, steps, uneven surfaces, sloping corridors or more than one building level, have reported that mobile trollies can be difficult to manage in these cases.

## Purchasing Considerations for Teacher and Student Devices

Before a school purchases computing devices, it's important that the school is confident that the chosen device is the 'right learning choice' for the school. Seeking advice from similar types of schools that are already successfully using certain devices to enhance learning is an excellent way of getting relevant, up to date information. This could also be achieved by teachers evaluating devices in different learning situations or subject areas, sharing experience with colleagues both within the school and with other schools. Following this evaluation the school should have a more realistic expectation of the device capability and be in a better situation to make a decision. If a school places a priority on students having access to mobile learning devices, then it usually involves a choice between Windows laptops or hybrids, iPads, or Chromebooks.

**PC & Laptop Framework:** Schools can order PCs/Laptops from approved suppliers, without having to seek quotes from other suppliers for standard and higher specification versions of PCs and Laptops.

### Technical and purchasing considerations link:

The following link provides relevant technical and purchasing details for schools for a range of equipment:

<https://www.oidetechnologyineducation.ie/technology-infrastructure/technical-and-purchasing-considerations/>

This Guide is available from the Oide Technology in Education website at:

<https://www.oidetechnologyineducation.ie/technology-infrastructure/computing-devices/>

**End of Document**