Educate to Empower

Attention, Class lesson pack



Technology tips for teachers

Getting the most from classroom technology, and the right balance between print and digital

- Pull-out section
- Ages 11–18
- A companion to the two lessons

European Schoolnet

EPSON®

How to use this

Start with learning, not technology. Technology can make learning more visual, flexible and collaborative, but no single tool or approach is right for every task. It works best alongside established teaching methods, with the right balance helping students participate, practise, question and think for themselves.

Slide 52, in Lesson 2, gives students the idea these tips turn on. Signal is the thing you are supposed to be attending to; noise is everything else arriving at your eyes and ears; and what matters is the gap between them. The same test works for teaching. A printed page has one thing on it; the same page on a laptop has the page, the tabs behind it, and whatever arrives while the student is reading. The content has not changed — the ratio has.

What follows is not an argument against technology. It is an argument for choosing the medium deliberately, because the medium sets the ratio before a word is taught. Part 1 is about getting the most from the technology in your room. Part 2 is about the balance between digital tools and pen and paper.

Educate to Empower

PART 1

Getting the most from classroom technology

1 Turn screen time into active learning

Avoid using technology simply to present information. Immersive learning is most effective when students actively participate by applying their knowledge, testing ideas and learning from mistakes in a safe environment.

- **Bring abstract ideas to life.** Use large-scale projection to explore places, systems and processes that students cannot experience directly, from walking through ancient Rome to exploring the chambers of the heart or seeing electrons orbit inside an atom.
- **Create a shared experience.** Use whole-class projection to immerse students in the same learning experience, without isolating them through individual headsets or devices.
- **Build in thinking time.** Pause the experience to let students question, compare and reflect on what they are seeing.

2 Make shared content work for every seat

Every student needs a clear view of shared lesson content, wherever they sit. A large projected display can make content visible across the classroom and help everyone take part in the same learning experience.

- **Check the view.** Before the lesson, look at the display from the back and sides of the classroom. Make sure text, diagrams, videos and subtitles are large and clear enough to see.
- **Look for visual barriers.** Check whether glare, reflections, display bezels or restricted viewing angles make any part of the content difficult to follow.
- **Keep the room usable.** Use a display that remains clear in normal classroom lighting, so you do not need to interrupt the lesson to adjust blinds or lights.

Project large. To ensure everyone in the class can see clearly, set up your screen so its height matches how far the back row sits. Use the 4/6/8 Rule: divide the distance from the screen to the furthest student by 4 if they need to read fine detail (charts, small text), by 6 for normal lessons and slides, or by 8 if you're mostly showing videos. That gives you the minimum screen height for that seating. As a quick check, the screen should fill about a third to half of what students see when they look up from their seats. In a typical classroom this usually means a 100"–150" screen with students sitting roughly 3–5 m away.

Keep slide design clean. Eng, Godwin and Fisher (2020) gave beginning readers the same story in a standard layout and in one stripped of decorative detail: comprehension rose from 47 to 80 per cent, and their eyes left the text roughly a quarter as often. One text and a very large effect, so do not take the figures literally — but if an image on a slide is not doing a job, it is competing with the one that is.

PART 1

Getting the most from classroom technology

3 Avoid teaching from one fixed point

Classroom technology should give you the freedom to move, not keep you anchored beside a screen. Moving around the room helps you see the whole class, check students' progress and offer support where it is needed.

- **Control content remotely.** Where possible, use a laptop, tablet, wireless presenter or another portable device so you can control the lesson from around the room.
- **Move around while students work.** Check in with students in different parts of the classroom, including those furthest from the front.
- **Keep sightlines clear.** Position equipment so it does not obstruct students' view of the content, you or one another.

4 Make it easy for students to contribute

Where your classroom setup allows, invite students to share content from their devices. Displaying different contributions side by side can help the class compare ideas and discuss different approaches, while you remain in control of what appears on screen.

PART 2

Balancing digital tools with pen and paper

Digital technology has an important role in education, but it should complement rather than replace printed and handwritten work. Give students regular opportunities to read, write and think independently, using worksheets and textbooks alongside digital experiences to support literacy, numeracy, knowledge retention and critical thinking.

5 Match the format to the learning task

- **Use shared digital content** to visualise an idea, explore a simulated environment, compare sources or involve the whole class in the same experience.
- Use printed materials when students need to work through information-dense text, practise handwriting or complete work independently without immediate access to digital tools or AI.
- **Combine the two.** Use projected content to introduce or explore an idea, then give students a printed activity to help them process what they have learned, record their own thinking and demonstrate their understanding.
- **Bring printed work back to the shared screen.** Scan a completed task or display it using a document camera so the class can review and discuss it together. Where your setup allows, annotate the work on screen and save or share the notes afterwards.

6 Put demanding reading on paper

Delgado and colleagues (2018) meta-analysed 54 studies and found a reliable comprehension advantage for paper over screens — one that has grown since 2000 rather than shrunk, as students have become more familiar with screens rather than less. Two qualifications matter. The advantage sits in informational text — for narrative it is close to zero — and it is largest under time pressure. And the mechanism is not eyesight. Ackerman and Goldsmith (2011) found no difference when study time was fixed, and a clear one when students managed their own, with screen readers consistently more confident than their scores justified.

In practice

Extended, unfamiliar or assessed reading goes on paper, particularly when it is timed. Short and narrative reading can go on whatever is to hand — that is where the difference disappears.

Hand it out when it has to be read. A projected page is one signal delivered to thirty different distances and angles. A printed page is thirty identical signals, each at the reading distance of the eye using it and each under that reader's own control — you can go back a paragraph without asking the teacher to go back a slide. It cannot be interrupted.

PART 2 — Balancing digital tools with pen and paper continued

7 A device does not only distract the student holding it

Carter and colleagues (2017) ran a randomised trial with 726 students across fifty classrooms and found that permitting laptops and tablets cost around 0.18 of a standard deviation on the final exam; requiring tablets to lie flat on the desk did no better than leaving them unrestricted. The reading is not that devices should be banned. It is that a device open "just in case" is not free. And part of the cost is paid by the row behind: in a simulated lecture, Sana, Weston and Cepeda (2013) found that students in direct view of a classmate multitasking on a laptop scored lower on a test than those who were not.

8 Use screens where they add real value

Digital tools add most value when they make a learning activity more interactive or enable something that would not be possible on paper. Use them to help students:

- **Take part together.** Use live quizzes and polls so that every student can answer and receive immediate feedback, rather than having one student answer while the rest listen."
- **Work at an appropriate level.** Where available, use adaptive learning tools that adjust the difficulty of activities in response to each student's progress, holding each student at the edge of what they can already do — which no teacher addressing thirty students at once can manage.
- **Use digital tools actively.** Cameras, digital microscopes, timers and audio can help students observe, investigate and interact. Used actively rather than passively, these do not flood attention.

The working rule is the one from Take Action on Distraction: spend screen time where the non-screen alternative would genuinely be less useful, and print the rest.

9 Use AI as support, not a shortcut

Using AI well involves more than knowing how to write a prompt. Students also need to understand how it works, assess its output critically, blend useful input with their own ideas and adapt as the technology develops.

- **Protect independent thinking.** Set tasks that require students to develop and express their own reasoning rather than submitting AI-generated answers.
- **Encourage students to question AI.** Ask them to compare its responses with other sources, identify potentially false or unreliable information and reflect on what they would change.
- **Build strong foundations first.** Continue to develop literacy, numeracy, handwriting and subject knowledge, so students have the skills they need to use emerging technologies critically and independently.

A quick lesson check

- Is the technology helping students participate, practise, question or think for themselves, rather than simply presenting information?
- Have I chosen the most appropriate format for this task? Does it need to be read, or only looked at? Reading goes on paper.
- Is there a good balance between shared digital content, individual screens and printed material?
- Can every student see and engage with shared content clearly? Is the smallest text on screen at least one two-hundredth of the distance to my furthest student?
- Is there anything on this slide that is not doing a job?
- Can I move around the classroom and support students while using the technology?
- Is any device open in this room that does not have a job right now?
- Are students using digital tools and AI to support their own thinking, rather than replacing it?
- Would the non-screen version have been less useful? If not, print it.

References and further reading

Ackerman, R., & Goldsmith, M. (2011). Metacognitive regulation of text learning: On screen versus on paper. Journal of Experimental Psychology: Applied, 17(1), 18–32. https://doi.org/10.1037/a0022086

AVIXA. (2016). Display image size for 2D content in audiovisual systems (ANSI/AVIXA V202.01:2016). AVIXA.

Carter, S. P., Greenberg, K., & Walker, M. S. (2017). The impact of computer usage on academic performance: Evidence from a randomized trial at the United States Military Academy. Economics of Education Review, 56, 118–132. https://doi.org/10.1016/j. econedurev.2016.12.005

Clinton, V. (2019). Reading from paper compared to screens: A systematic review and meta-analysis. Journal of Research in Reading, 42(2), 288–325. https:// doi.org/10.1111/1467-9817.12269 *

Delgado, P., Vargas, C., Ackerman, R., & Salmerón, L. (2018). Don't throw away your printed books: A metaanalysis on the effects of reading media on reading comprehension. Educational Research Review, 25, 23– 38. https://doi. org/10.1016/j.edurev.2018.09.003

Eng, C. M., Godwin, K. E., & Fisher, A. V. (2020). Keep it simple: Streamlining book illustrations improves attention and comprehension in beginning readers. npj Science of Learning, 5, Article 14. https://doi.org/10.1038/s41539-020-00073-5

Flanigan, A. E., Wheeler, J., Colliot, T., Lu, J., & Kiewra, K. A. (2024). Typed versus handwritten lecture notes and college student achievement: A meta-analysis. Educational Psychology Review, 36(3), Article 78. https://doi.org/10.1007/s10648-024-09914-w * Sana, F., Weston, T., & Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. Computers & Education, 62, 24–31. https://doi.org/10.1016/j.compedu.2012.10.003

Voyer, D., Ronis, S. T., & Byers, N. (2022). The effect of notetaking method on academic performance: A systematic review and meta-analysis. Contemporary Educational Psychology, 68, Article 102025. https://doi.org/10.1016/j.cedpsych.2021.102025 *

Wass, S., & Goldenberg, G. (2025). Take action on distraction: The definitive guide to improving attention and focus in the Early Years and Key Stage 1. Bloomsbury Education.