



Gurukul Technicals Institute

Computer education · Robotics · Science projects · Delhi

FREE EBOOK

ENGLISH, CAREERS AND VOCATIONAL SKILLS

Handbook for Computer Teachers

Plan lessons, run a computer lab and help every student learn

INSIDE THIS BOOK

- The role of a computer teacher
- Planning a lesson
- Teaching practical skills: show, guide, then let go
- Running a computer lab
- Keeping the lab working: maintenance, backups and antivirus
- ...and 6 more chapters, practice questions and a glossary

Intermediate

Computer teachers, trainee teachers and centre instructors

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Handbook for Computer Teachers

A practical handbook for computer teachers and instructors. It shows how to plan a lesson, teach a skill in three steps, run and maintain a computer lab, test students fairly with rubrics, and help fast and slow learners in the same class. It also covers teaching adults, online safety, record keeping, talking with parents and ready-to-use activity ideas.

WHO IT IS FOR	Computer teachers, trainee teachers and centre instructors
LEVEL	Intermediate
SUBJECT AREA	English, careers and vocational skills
WHAT IS INSIDE	11 chapters, practice questions with answers, and a glossary

HOW TO USE IT

Read one chapter at a time and try the examples as you go: on a computer, at your workbench or in your notebook. The boxes give tips, safety points and short activities. When you finish, test yourself with the practice questions and check your answers at the end. Words you may not know are explained in the glossary.



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The role of a computer teacher

A computer teacher does much more than show students which button to press. You help them become confident, careful and independent users of technology. For many students, the computer class is where they first learn that they can solve a problem on their own. That confidence stays with them long after they forget which menu held which command.

What the job includes

On a normal day, a computer teacher may:

- plan and teach lessons for different classes or batches;
- demonstrate skills on a projector or a large screen;
- move around the lab helping students who are stuck;
- set and mark practical tests and assignments;
- keep the lab's computers working, updated and safe;
- keep records of attendance, progress and equipment;
- answer parents' questions;
- keep learning, because software changes every year.

Qualities of a good computer teacher

Quality	What it looks like in class
Patience	Showing a step a third time without sighing
Clarity	Using short sentences and everyday words
Fairness	Giving every student the same chance and the same rules
Curiosity	Trying new software before teaching it
Calm	Staying steady when the projector or the internet fails
Honesty	Saying "I'm not sure, let me check" when you do not know

REMEMBER

Students do not need a teacher who knows everything. They need a teacher who shows them how to find out. When you look something up in front of the class, you are teaching the most useful skill of all.

A learner first

Technology changes fast. A spreadsheet program looks different every few years, and new tools, including AI tools, keep appearing. Set aside a little time each week to explore something new. Try every task yourself before you set it for students, on the same kind of computer they will use. Many lessons go wrong only because a menu looked different on the lab computers.

EXAMPLE

Mr Iqbal, a computer teacher in Lucknow, keeps a notebook called "Things I learnt this week". Each Friday he writes down one shortcut, one new feature or one question a student asked that he could not answer at first. After a year, the notebook is full of ideas for lessons.

Your influence beyond the lab

Students copy what you do. If you save your work often, name files sensibly, lock your screen when you step away and speak kindly when something breaks, they learn those habits too. Your behaviour in the lab is part of the lesson.

CHAPTER 2

Planning a lesson

A lesson without a plan often drifts. The teacher talks too long, the practical work gets rushed and the bell rings before anyone has checked what was learnt. A simple plan prevents this.

Start with the objective

An objective is a sentence that says what students will be able to do by the end of the lesson. Write it with an action word you can see and check:

- Good: "Students will be able to add a column of numbers using the SUM function."
- Weak: "Students will understand spreadsheets."

You cannot see understanding, but you can see a correct SUM formula on a screen. If you cannot check an objective at the end of the lesson, rewrite it.

The parts of a lesson

- 1. Starter (about 5 minutes):** a quick question or task that links to the last lesson or makes students curious.
- 2. Demonstration (about 10 minutes):** you show the new skill, step by step.
- 3. Guided practice (about 10 minutes):** students follow along while you watch and help.
- 4. Independent practice (about 10 to 15 minutes):** students do a task on their own.
- 5. Check and close (about 5 minutes):** you check whether the objective was met and preview the next lesson.

A sample lesson plan

Item	Details
Class	Class 7, 40 minutes, 30 students, 15 computers
Topic	Adding numbers in a spreadsheet
Objective	Students will be able to add a column of numbers with =SUM() and the AutoSum button
Before class	Save the file Picnic budget on every computer; test the projector
Starter	"Our class picnic costs: bus ! 3,500, snacks ! 1,200, water ! 300, tickets ! 2,000, first aid ! 250. How would you add these quickly?"
Demonstration	Type the items in column A and amounts in column B, rows 2 to 6. In B7 type =SUM(B2:B6) and press Enter. Show the answer, ! 7,250. Then delete it and show the AutoSum button (Σ) doing the same.

Item	Details
Guided practice	Pairs do the same on their computers. Teacher checks every screen.
Independent practice	Each pair inserts three new rows above the total, adds three items of their choice and changes the formula so that the total includes them (<code>=SUM(B2:B9)</code>). Fast finishers find the average of all eight amounts with <code>=AVERAGE(B2:B9)</code> .
Check and close	Three students explain what B2:B6 means. Exit question: "Write the formula to add C3 to C10."
Resources	Projector, file on each computer, printed step card for those who need it

TIP

Write your plan on one page. If a plan needs three pages, it is too detailed to follow while you are actually teaching.

After the lesson

Spend two minutes noting what worked and what did not. "Demonstration took 18 minutes, too long" or "Pairs with one weak typist fell behind" are notes that make the next lesson better.

TRY THIS

Take a topic you will teach next week. Write one clear objective with an action word, then plan the five parts in a table like the one above.

CHAPTER 3

Teaching practical skills: show, guide, then let go

Computer skills are learnt by doing, not by watching. But students cannot do something they have never seen. The best approach moves in three steps, often called I do, we do, you do.

Step 1: Demonstrate (I do)

You perform the skill while students watch.

- **Make it visible.** Use a projector or a large screen, and zoom in so that menus and text are readable from the back row.
- **Hands off, eyes up.** Ask students to turn their monitors off or take their hands off the mouse during the demonstration. Otherwise half of them will click ahead and miss the explanation.
- **Narrate every click.** Say what you are doing and why: "I am selecting the cells first, because the computer needs to know which cells to change."
- **Go slowly, one step at a time.** What feels slow to you is normal speed for a beginner.
- **Show the common mistake too.** "Look what happens if I forget the equals sign." Students remember a mistake they have seen.

Step 2: Guided practice (we do)

Students try the skill while you guide them.

- Repeat the steps slowly while the class does them along with you.
- Walk around and look at screens. Do not stay at your desk.
- Put the steps on the board or on a printed step card so that students can catch up without waiting for you.

REMEMBER

When a student is stuck, resist taking the mouse from them. Point to the screen and ask, "What do you think comes next?" or "Where did we find that command?" If you click for them, you solve the problem; if you guide them, they learn to solve it.

Step 3: Independent practice (you do)

Students complete a task alone, without step-by-step help.

- The task should be similar to the demonstration but not identical. For example, after a demonstration of a letter, students write a leave application.
- Give a short checklist so that they can check their own work: "Date at the top? Subject line? Margins set? Spelling checked? Saved with your name?"

- Use the time to help students who are struggling, one at a time.

A useful classroom habit

Teach the rule three before me: before asking the teacher, a student tries three other sources, such as the step card, the software's help, and a classmate. This keeps you free for the students who most need you, and teaches everyone to look for answers.

EXAMPLE

Ms Kaur teaches a batch of adults to send an email with an attachment. She demonstrates once on the projector, saying each step aloud. Then the class sends an email to her together, step by step. Finally each learner sends a photo of their favourite place in Amritsar to a classmate without help. By the end, every learner has done it twice, once guided and once alone.

CHAPTER 4

Running a computer lab

A computer lab is a shared space with expensive equipment, electricity and many people. Clear rules and a sensible layout keep students safe and the machines working.

Lab rules

Keep the list short and display it on the wall. Explain why each rule exists; students follow rules they understand.

1. No food or drinks near the computers.
2. Enter quietly and wait for instructions before switching on.
3. Use only your own login and keep your password secret.
4. Save your work in your own folder, with your name in the file name.
5. Do not install software, change settings or plug in your own devices without permission.
6. Report any fault, damage or strange message to the teacher at once.
7. Shut down properly at the end and push your chair in.

Seating

How you arrange the lab affects how well you can teach.

Layout	Advantage	Disadvantage
Rows facing the front	Everyone sees the projector	You cannot see the screens from the front
U-shape along the walls	You can see every screen from the middle	Students turn around to see the projector
Islands of four	Good for group projects	Harder to manage noise and cables

Many teachers prefer the U-shape for practical work and move students to face the projector for demonstrations. When there are fewer computers than students, seat them in pairs and swap the "driver" (who uses the mouse and keyboard) every ten minutes.

Health and comfort

- The top of the monitor should be at or slightly below eye level, about an arm's length away.
- Feet flat on the floor and wrists straight while typing.
- Remind students of the 20-20-20 habit: every 20 minutes, look at something about 20 feet (6 metres) away for 20 seconds.

SAFETY

Keep cables tidy and off the walking path. Never let students open a computer, a monitor or a power supply, or touch sockets and switchboards. Loose sockets, sparking or a burning smell must be handled by a qualified electrician: switch off at the main switch if it is safe to do so, move students away and inform the head. Keep a fire extinguisher suitable for electrical fires, such as a CO2 type, near the door, and never use water on an electrical fire.

TIP

Keep a laminated seating chart at your desk. It helps you learn names quickly and lets you trace who was using a computer when a problem appeared.

Keeping the lab working: maintenance, backups and antivirus

A lab where half the computers do not work wastes everyone's time. A little regular care prevents most problems.

A maintenance routine

How often	What to do
Every class	Check that each computer starts; note any fault in the fault register
Every week	Wipe keyboards, mice and screens with a dry or slightly damp cloth (power off); check cables
Every month	Install updates; run a full antivirus scan; delete old files to free disk space
Every term	Check every machine against the inventory list; test the UPS and backups
Every year	Have a trained technician clean dust from inside the computers, with power off

Keep a fault register: a notebook or spreadsheet with the date, computer number, problem, action taken and who fixed it. Over time it shows which machines keep failing and need replacing.

Updates and antivirus

- **Updates** fix security holes and bugs. Schedule them for after school hours so they do not interrupt lessons.
- **Antivirus software** finds and removes harmful programs, called malware. Recent versions of Windows include built-in protection called Microsoft Defender Antivirus. Whatever you use, keep it switched on and updated.
- **Pen drives** are a common way for malware to spread. Scan them before opening files, or set a rule that students share work through their own folders instead.

User accounts

Give students standard accounts, which cannot install software or change important settings. Keep the administrator account (which can change everything) and its password for teachers and technicians only. Some labs use software that restores each computer to a clean state at every restart; if your lab does, remind students that anything saved on that computer is lost at restart.

Backups

A backup is an extra copy of files kept somewhere else, so that work is not lost if a computer fails. A widely used guide is the 3-2-1 rule:

- keep **3** copies of important data,
- on **2** different kinds of storage (for example, the computer and an external drive),
- with **1** copy kept somewhere else (for example, a cloud account or a drive kept off-site).

EXAMPLE

At a school lab in Jaipur, the teacher copies the students' project folders to an external hard disk every Friday and to the school's cloud account at the end of each month. When one computer's disk failed before the annual exam, no student lost their project.

DID YOU KNOW

Most data loss is not caused by viruses. It is caused by ordinary things: a failed disk, a file saved over by mistake, a lost pen drive. Regular backups protect against all of them.

CHAPTER 6

Assessing students fairly

Assessment means finding out what students have learnt. Good assessment does two jobs: it tells the student how to improve, and it tells you what to teach next.

Two kinds of assessment

- **Formative assessment** happens during learning. Quick questions, watching screens, and exit questions at the end of a lesson tell you who needs help now.
- **Summative assessment** happens at the end of a unit or course: a practical exam or a final project that gives a mark or grade.

Practical tests

Computer skills should be tested by doing, not only by writing. A good practical test:

1. matches what was taught and practised;
2. gives the same task and the same time to every student;
3. has clear, written instructions;
4. tells students in advance how marks will be given;
5. is checked on screen or from saved files, not from memory.

For example, a test on letters might say: "Type the given leave application. Set all margins to 2.5 cm, make the subject line bold, check the spelling and save it as YourName_Leave."

Rubrics

A rubric is a table that describes what each level of work looks like. It makes marking fair and shows students exactly how to improve. Here is a rubric for a poster made in a word processor:

Criterion	4 Excellent	3 Good	2 Fair	1 Beginning
Content	All required details, clear message	Most details, clear message	Some details missing	Message unclear
Layout	Balanced, aligned, easy to read	Mostly neat	Crowded or uneven	Hard to read
Use of tools	Uses all taught tools correctly	Uses most tools correctly	Uses a few tools	Needs help with tools
Accuracy	No spelling errors	1 to 2 errors	3 to 5 errors	More than 5 errors

EXAMPLE

Kavya's poster scores 4 for content, 3 for layout, 3 for tools and 2 for accuracy: 12 out of 16, which is 75 per cent. Because of the rubric, her feedback is specific: "Your message is excellent. Check spelling with the spell checker, and align the three text boxes to the left edge."

Feedback that helps

Feedback should say what was done well and give one or two clear next steps. "Good" or "Improve" alone teaches nothing. Return work quickly, while students still remember doing it.

TIP

Show students an example of excellent work before they start a task. When they can see what "4 Excellent" looks like, many more of them reach it.

CHAPTER 7

Teaching mixed-ability groups

In almost every computer class, some students have used computers at home for years and some have barely touched a mouse. Teaching only to the middle bores the fast learners and loses the slow ones. A few simple methods help everyone.

Find out where students are

At the start of a course, give a short, friendly skills check: switching on, typing a sentence, saving a file, finding a file, opening a website. It is not a test with marks; it tells you who needs extra support and who needs more challenge.

Tiered tasks

Give one task in three levels, so that every student works on the same topic at the right difficulty:

Level	Example task on making a table
Support	Fill in a table that is already made; follow the step card

Level	Example task on making a table
Core	Make a timetable table with 6 columns and 5 rows, and add headings
Challenge	Make the timetable, then merge cells for lunch break, add shading and a border style

Everyone must finish the core task; the challenge task is for those who finish early. Make sure challenge work is genuinely more interesting, not just more of the same.

Helping slower learners

- Sit them where you can reach them quickly.
- Give printed step cards with screenshots or clear drawings.
- Break tasks into smaller pieces and praise each finished piece.
- Check typing and mouse skills; many students are slow only because they still hunt for keys.
- Pair them with a patient classmate who explains but does not do the work.

Keeping fast learners busy

- Prepare an extension task for every lesson.
- Give them a small responsibility, such as checking that every computer has the lesson file.
- Let them explore features you have not taught and explain one to the class.

REMEMBER

A student who is slow on computers is not a slow learner in general. They may simply have had less chance to use a computer. With practice, many of them become your most careful and accurate students.

TRY THIS

Take your next lesson and write a support, core and challenge version of the main task. Note which students you expect to start at each level, then check after the lesson whether you were right.

Teaching children and teaching adults

The same software can be taught to a ten-year-old and a fifty-year-old, but not in the same way. Children and adults bring different strengths, worries and reasons for learning.

How they differ

	Children	Adults
Why they learn	Because it is in the syllabus, and because it is fun	For a job, a business or daily life
Attention	Short; needs variety and movement	Longer, but tires with long lectures
Fear	Rarely afraid of breaking the computer	Often afraid of "doing something wrong"
Experience	Little life experience to link to	Lots of experience you can build on
What motivates them	Games, stars, praise, friendly competition	Seeing the practical use straight away

Teaching children

- Keep explanations short: two or three minutes, then let them do something.
- Use stories and games. "Help the robot reach the treasure" teaches sequencing better than a definition.
- Use concrete examples from their world: a birthday card, a cricket score table, a school timetable.
- Set clear rules and routines, and praise effort, not only results.
- Supervise internet use closely at all times.

Teaching adults

The way adults learn is sometimes called andragogy, from Greek words meaning "leading adults". In practice, it means:

- **Start with why.** Tell them how the skill helps them: "This is how you will send your shop's bill on WhatsApp as a PDF."
- **Use their experience.** A shopkeeper already understands a ledger; show them that a spreadsheet is a ledger that adds itself.
- **Remove fear.** Show them Undo early. Tell them that nothing they do in class can break the computer.
- **Respect them.** Never talk down to an adult or rush them in front of others.

Older learners

Senior citizens may need a few extra adjustments. Make the text and mouse pointer larger in the settings, slow down the double-click speed if needed, and give printed notes in large print. Repeat important steps over several lessons. Many older learners want to use phones for video calls, payments and government services, so teach safety alongside every new skill.

EXAMPLE

Mrs Lakshmi, 62, from Chennai, joined a class to learn video calls with her grandson in Pune. The instructor started by showing her how to answer a call, then how to make one, then how to switch the camera. Each step was practised five times before the next. On the last day she called the instructor's phone from her own and smiled: "Now I can teach my friends."

CHAPTER 9

Keeping students safe online

When students go online in your lab, you share responsibility for their safety. Teaching safe habits is as important as teaching any software.

Supervision in the lab

- Never leave students alone with internet access.
- Turn on safe search settings in browsers and, if possible, use content filtering on the lab network.
- Set screens so that you can see them, and walk around regularly.
- Do not share students' photos, names or work online without permission from the institution and the parents.

What to teach students

1. **Passwords.** Use a long password, such as a short phrase of unrelated words, and never share it. Use different passwords for important accounts.
2. **Personal information.** Do not share your address, phone number, school name or daily routine with people you meet online.
3. **Strangers.** People online may not be who they say they are. Never agree to meet someone you know only online, and tell a trusted adult if someone makes you uncomfortable.
4. **Cyberbullying.** Hurting, threatening or embarrassing someone online is bullying. If it happens to you: do not reply, save the evidence with screenshots, block the person and tell a trusted adult.
5. **OTPs and PINs.** Never share an OTP or PIN with anyone, even someone claiming to be from a bank.
6. **Think before sharing.** Check whether a message or video is true before forwarding it. Once something is posted, it can be very hard to remove.
7. **Downloads.** Download apps and files only from official sources.

SAFETY

If a student tells you about bullying, threats or anything worrying online, listen calmly, do not blame them, write down what they told you and inform the head of your institution as your safety policy requires. For money lost to online fraud, the national cyber crime helpline is 1930, and complaints can be filed at [cybercrime.gov.in](https://www.cybercrime.gov.in).

Your own conduct

Keep all communication with students on official channels, such as institution groups that include other staff or parents. Do not send private messages to young students or add them on personal social media. This protects the students and protects you.

DID YOU KNOW

Many popular social media apps set a minimum age of 13 in their rules. Talking about these age limits with students and parents opens a useful conversation about why they exist.

TRY THIS

Ask students to write three "online safety rules for our class" in groups, then combine the best ones into one poster for the lab wall. Rules students write themselves are remembered longer.

CHAPTER 10

Records and talking with parents

Good records save time, settle disputes and show students' progress clearly. Good communication with parents turns them into partners in their child's learning.

Records to keep

Record	What it contains
Attendance register	Date and presence of each student in each class
Progress record	Test marks, rubric scores and short notes for each student
Syllabus tracker	Topics planned, topics taught and dates
Lab log	Which class used the lab and when
Fault register	Faults reported, action taken and date fixed

Record	What it contains
Inventory	Every computer, monitor, printer and accessory, with its number and condition
Backup log	Date of each backup and where it is stored

Keep records up to date every day; filling them in from memory at the end of the month leads to mistakes.

SAFETY

Student records contain personal information. Store them in a locked cupboard or a password-protected file, share them only with people who need them, and never post marks or personal details in public groups.

Talking with parents

- **Start with something positive.** "Ravi helps others in the lab" before "Ravi needs to practise typing".
- **Be specific.** "Ravi can make a table but forgets to save his work" is more useful than "Ravi is weak".
- **Suggest a next step.** "Twenty minutes of typing practice three times a week will help."
- **Keep messages short and polite,** and send them at reasonable hours.
- **Listen.** Parents often know things about the child that explain what you see in class.

EXAMPLE

A message to a parent: "Namaste, Mrs Verma. Aisha did very well in this week's spreadsheet test: she scored 14 out of 16. She can now add and average marks with formulas. To improve further, she can practise typing for 15 minutes a day. Thank you for your support."

Parent-teacher meetings

Before a meeting, look at each student's records and note one strength, one area to improve and one suggestion. Show actual work: a printed file or the screen often explains progress better than marks alone. End every meeting with an agreed next step.

REMEMBER

Every parent wants to hear that the teacher knows and cares about their child. A specific, honest, kind comment does that better than any amount of praise.

CHAPTER 11

Activities and project ideas

Activities make computer lessons lively and help students use skills for real purposes. Here are ideas you can adapt for any level.

For beginners

- **Typing race:** pairs type the same short paragraph; the score is speed minus mistakes, so accuracy matters.
- **File treasure hunt:** hide clue files inside folders; each file tells students where to look next.
- **Birthday card:** make a card for a family member with text, a picture and a border.
- **Unplugged binary:** use five cards showing 1, 2, 4, 8 and 16 dots. Turning cards face up or down shows how computers write numbers using only 0 and 1.

For intermediate students

- **Class picnic budget:** a spreadsheet with items, costs in ! , a total, the cost per student, and a chart.
- **School newsletter:** a two-page document with headings, columns, pictures and captions.
- **Survey project:** make an online form about favourite sports, collect answers from classmates and show the results in a chart.

- **Cyber safety poster or slideshow** for younger classes.

For advanced students

- **Simple website** about their town or a local business, with three linked pages.
- **Animation or game** in a block-based tool such as Scratch (scratch.mit.edu).
- **Small programs** in Python. For example, this program prints a times table:

PYTHON

```
number = 7
for i in range(1, 11):
    print(number, "x", i, "=", number * i)
```

Ask students to change it so that the user types the number, or so that it prints only the even answers.

Running a project well

1. Give a clear brief: what to make, for whom, by when and how it will be marked.
2. Show a rubric at the start.
3. Break the project into stages with check-in dates.
4. Let students present their work to the class.
5. Display good work on the lab wall or at a parents' day.

TIP

Link projects to real life. A budget for a family function, a price list for a local shop or a poster for a cleanliness drive feels worthwhile, and students work harder on things that matter to them.

TRY THIS

Choose one activity from this chapter and run it in the next two weeks. Afterwards, ask students what they enjoyed and what they learnt, and change the activity based on their answers.

Practice questions

1. Name four tasks a computer teacher may do on a normal day.
2. What is a lesson objective? Why is "Students will understand spreadsheets" a weak objective?
3. List the five parts of a lesson described in this book.
4. In the sample lesson, what formula adds the amounts in B2 to B6, and what total does it give?
5. What do the words "I do, we do, you do" stand for?
6. Why should students take their hands off the mouse during a demonstration?
7. What should a teacher do instead of taking the mouse from a stuck student?
8. Explain the rule "three before me".
9. Give five lab rules and the reason for any one of them.
10. Give one advantage and one disadvantage of a U-shaped lab layout.
11. What is the 20-20-20 habit?
12. What should a teacher do if a socket sparks in the lab?
13. What is a fault register, and how does it help?
14. Why should students use standard accounts instead of administrator accounts?
15. Explain the 3-2-1 backup rule.
16. What is the difference between formative and summative assessment?
17. What is a rubric? Give two benefits of using one.
18. A student scores 3, 4, 2 and 3 on a four-criterion rubric with a maximum of 4 per criterion. What is the score out of 16, and what percentage is that?
19. What are tiered tasks? Give an example.
20. Give three ways to help a slower learner in the lab.

21. Give two differences between teaching children and teaching adults.
22. What is andragogy?
23. Name four online safety habits to teach students.
24. What should a teacher do when a student reports cyberbullying?
25. Give three tips for writing a good message to a parent.

ANSWER KEY

Answers

1. Any four of: planning lessons, demonstrating skills, helping students in the lab, setting and marking tests, maintaining computers, keeping records, answering parents and learning new software.
2. An objective says what students will be able to do by the end of a lesson. "Understand" cannot be seen or checked, so it is weak; an action you can see on screen is better.
3. Starter, demonstration, guided practice, independent practice, and check and close.
4. `=SUM(B2:B6)`, which gives ! 7,250.
5. "I do" is the teacher demonstrating, "we do" is guided practice together, and "you do" is students working independently.
6. So they watch and listen instead of clicking ahead and missing the explanation.
7. Point to the screen and ask guiding questions, such as "What comes next?", so that the student finds the answer.
8. Before asking the teacher, a student tries three other sources, such as the step card, the software's help and a classmate.
9. Any five of the seven rules, for example no food or drinks, which protects keyboards and electrical equipment from spills.
10. Advantage: the teacher can see every screen from the middle. Disadvantage: students must turn around to see the projector.
11. Every 20 minutes, look at something about 20 feet (6 metres) away for 20 seconds to rest the eyes.
12. Switch off at the main switch if it is safe, move students away, inform the head and call a qualified electrician.

13. A record of each fault, the action taken and who fixed it. It shows which machines keep failing and need repair or replacement.
14. Standard accounts cannot install software or change important settings, so students cannot damage the system or install harmful programs.
15. Keep three copies of important data, on two different kinds of storage, with one copy kept somewhere else.
16. Formative assessment happens during learning to guide teaching; summative assessment happens at the end of a unit or course to give a mark or grade.
17. A table describing what each level of work looks like for each criterion. It makes marking fair and consistent, and shows students exactly how to improve.
18. $3 + 4 + 2 + 3 = 12$ out of 16, which is 75 per cent.
19. One task given at different levels of difficulty, such as support, core and challenge versions of a table-making task.
20. Any three of: seating them near you, printed step cards, breaking tasks into smaller pieces, building typing and mouse skills, and pairing them with a patient classmate.
21. Any two, for example: children have shorter attention spans and enjoy games, while adults want to see the practical use; adults are often more afraid of making mistakes.
22. The way adults learn, and the methods that suit them, such as starting with why and building on their experience.
23. Any four of: strong private passwords, not sharing personal information, care with strangers, dealing with cyberbullying, never sharing OTPs or PINs, checking before sharing, and downloading only from official sources.
24. Listen calmly without blaming the student, write down what was said and inform the head of the institution as the safety policy requires.
25. Any three of: start with something positive, be specific, suggest a next step, keep it short and polite, and send it at a reasonable hour.

Glossary

Administrator account

a user account that can install software and change any setting on a computer.

Andragogy

the study and practice of how adults learn.

Antivirus software

a program that finds and removes harmful software.

Backup

an extra copy of files kept in another place in case the original is lost.

Cyberbullying

hurting, threatening or embarrassing someone using phones or the internet.

Demonstration

the teacher performing a skill while students watch and listen.

Exit question

a short question at the end of a lesson that checks what was learnt.

Fault register

a record of computer problems, the action taken and the date fixed.

Formative assessment

checking learning during a lesson or unit in order to guide teaching.

Guided practice

students trying a new skill while the teacher leads and helps.

Independent practice

students completing a task on their own without step-by-step help.

Inventory

a list of all the equipment in a lab, with numbers and condition.

Malware

software designed to harm a computer or steal information.

Mixed-ability group

a class in which students have very different levels of skill.

Objective

a sentence stating what students will be able to do by the end of a lesson.

Rubric

a table that describes what each level of work looks like for each criterion.

Standard account

a user account that cannot install software or change important settings.

Step card

a printed card listing the steps of a task, for students to follow on their own.

Summative assessment

a test or project at the end of a unit or course that gives a mark or grade.

Tiered task

one task offered at several levels of difficulty.

3-2-1 rule

a backup guide: three copies, on two kinds of storage, with one kept elsewhere.



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