

COMPUTER APPLICATIONS TECHNOLOGY TEACHER GUIDE

Welcome to the Mindset Computer Applications Technology teaching and learning resources!

In partnership with [Coza Cares Foundation](#), Mindset Learn, a division of Mindset Network, has designed and produced over 800 resources, including interactive computer-based lessons, video lessons and online tutorials (also called 'How To's'). The teaching and learning resources are for Grades 10, 11 and 12, and cover the following curriculum sections:

- Solutions Development:
 - Word processing
 - Spreadsheets
 - Presentations
 - Web Design
 - Databases
- Systems Technologies
- Information Management
- Network Technologies
- Internet Technologies
- Social Implications

All resources are available on the Mindset Learn [website](#). Please use them in one of the ways described in this guide. We welcome feedback and constructive contributions, which you can send by [email](#).

In this guide, CAT teachers will find:

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Overview of Available Resources

The Mindset teaching and learning resources include:

Interactive Computer-based Multimedia Lessons

These lessons provide an e-learning experience for the user, who works through each lesson at his/her own pace. Content is presented in interactive ways with short self-checks, to assess understanding, interspersed throughout the lesson. Each interactive multimedia (IMM) lesson will take between 20 and 40 minutes to complete, depending on the length of the lesson and the speed with which the user works through it.

The intention of each interactive multimedia lesson is to provide an overview of a large section of work, to use either as an introduction to a section or, more likely, as a review of work already completed. All related video lessons and How To's are also indicated in the IMM lessons, to provide comprehensive coverage of the overall topic.

Video Lessons

Video lessons cover clusters of related topics within a section of work. For example, a video lesson might include all aspects of formatting a document. The video lessons are presented by CAT teachers in a studio, using application software, where applicable. The videos were not scripted; they were meant to be quite informal and to mimic the sort of teaching that might take place in a classroom.

The reason for providing the video lessons is to cover a small section of work, similar to the kind of work that might be dealt with in one classroom lesson. Most of the videos are between 5 and 12 minutes in length.

The video lessons use Microsoft Office 2010 for all aspects of Solutions Development, and also show how similar the solutions development aspects of the curriculum are when using Open Office. The two types of software application are juxtaposed seamlessly, thus preventing confusion.

Mindset Learn deliberately decided to include Open Office in its videos, without losing the emphasis on Microsoft Office 2010 applications, so that the teaching/learning resources can be used in a wide variety of circumstances, depending on the software application choice of a school or other institution. This also means that private learners, ranging from those in workplaces to those at home, can also make use of them. The use of open source software that is freely available as downloads makes computer technologies accessible to a wide range of users.

Mindset Learn also decided to include a set of video lessons on using google docs. They cover most aspects of word processing, spreadsheets and presentations, and show how similar the use of google docs is to other software applications. They could be used by members of the public for general learning, by workplaces and by teachers/learners for extension work.

Online Tutorials (How To's)

Online Tutorials (How To's) provide very quick, short references to individual aspects of topics. For example, one How To might deal with how to format font colour (only). They show actual software application, in action, in the Solutions Development section, or provide fast, handy information in an easily-accessible form in other sections, like Web Design or Internet Technologies.

The purpose of providing the How To's is to offer a large collection of quick checks for the learner (or teacher or computer user). They are easy to access and provide the kind of instant help one might also get from consulting a dictionary or checking a thesaurus.

While there are some How To's for sections like Systems Technologies, Information Management and Internet Technologies, the vast majority of the How To's cover individual topics from Solutions Development. There is a full set of How To's for every aspect of Solutions Development in Microsoft Office 2010 and another full set of How To's for every aspect of Solutions Development in Open Office.

Series Guides

Apart from this Teachers Guide, which provides an overview of the resources available and some suggestions on how to use them, there are printed notes for each curriculum section, such as Solutions Development or Systems Technologies. These Series Guides provide a summary of the IMMs that go with that section, and short summaries of the videos supporting the IMMs. They also list all the How To's in the section.

The intention of the notes or Series Guides is to provide a quick way to find exactly the video lesson one might like to use, or check for the How To's relating to one overall topic. The Series Guides should form part of any teacher's planning. They can also be used by learners, to determine exactly which learning resources they might need to view or review, for either preparation for work to be done in class or for revision of work covered already.

Look out for the following Series Guides:

- Solutions Development Grade 10
- Solutions Development Grade 11
- Solutions Development Grade 12
- Systems Technologies
- Information Management
- Internet Technologies
- Network Technologies
- Social Implications

How to Use the Resources

Prepare for teaching a section in advance, by looking at:

- the series guide
- interactive multimedia lessons
- video lessons
- the list of How To's (in the series guide)
- and some of the How To's themselves, to familiarise yourself with them

Become familiar with the resources on the Mindset website. Decide how and when you are going to make use of the resources. As a teacher you have a number of options with these resources. Here are some ideas:

- Go through all the resources for a section on your own, if you feel you need a refresher or if you'd like to look for new ways to present a section.
- Check the series guide first. This will give you an idea of what each interactive multimedia (IMM) lesson in the series covers, and what is in each video lesson. There will also be a list of all available How To's in that section. The series guide should be your main indication of which of the resources you'd like to use.
- Use the IMM lessons to get learners started on a section. This can be done individually or in small groups. If possible, design a worksheet for learners to complete as they work through the IMMs in this way.
- Alternatively, use the IMM lessons at the end of a section or a term, to give learners the chance to revise a full section. Even if using in this manner, design some sort of worksheet or set of questions, to guide learners and help them to get the most out of the IMM lessons.
- Introduce some of your lessons with suitable video lessons. Each one takes between 5 and 12 minutes, so check the duration and plan around this. Perhaps allow learners to try the function or operations directly after that, or proceed with your own lesson before providing some structured practical work for them.
- Another way to use the videos is to get learners to view one or more at the end of a section of work. It would be best to do this in conjunction with a set of questions, a task to complete in a small group or another type of structured work.
- Use the How To's as reference material. Ask learners to look up quick questions that they might have - "Help, I've forgotten how to do a word count" can be checked in a How To in the middle of a lesson and implemented immediately. This will encourage active learning and promote retention. In this way learners will also become familiar with the How To's and will know how to use them when they suddenly want to check on small aspects while doing homework or other schoolwork.

Example of How to Use the Resources

You are about to start teaching Presentations to your grade 10 class. You access the Solutions Development Grade 10 series guide and read the summaries of the resources available for Presentations. There are:

- 1 IMM lessons
- 10 video lessons

There are also 11 Microsoft Office How To's and 11 Open Office How To's about Presentations.

Now that you know what resources are available, you plan how you will use them to introduce some lessons, close some lessons, provide in-class group or individual work, provide homework or suggest consolidation and revision options. If relevant, design a set of questions for groups or learners to answer. Make sure you are familiar with the How To's in this section, so that you can refer learners to them if they ask the kinds of questions that they could easily look up themselves.

Even if you are not using Open Office in class, you may want to consider using this set of resources to create an extension exercise. Let learners see what the differences are between making presentations in Microsoft Office and Open Office, by using the Open Office How To's. There are very few differences. A highly skilled computer user should be able to switch between different applications - this may not be required to pass an exam, but it may well be required in a workplace one day. It also encourages flexibility, exploration and problem solving. Set some questions or ask learners doing this as an extension exercise to make a short presentation to the rest of the class, to indicate what they have learnt, or what the differences or similarities are.

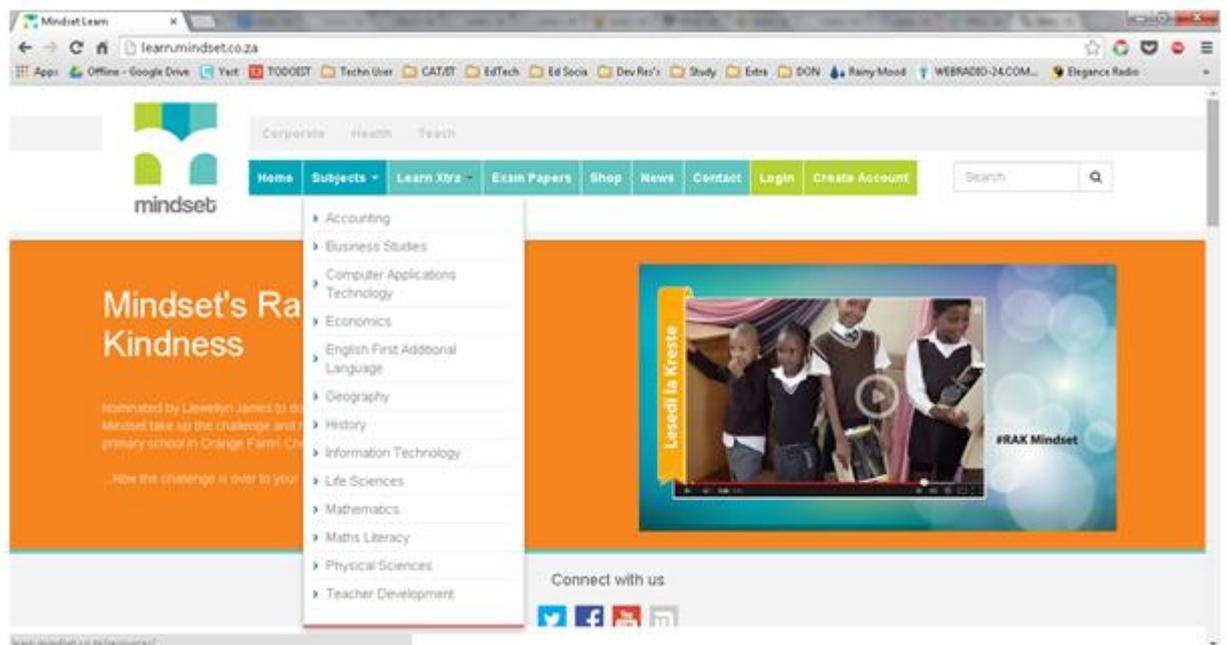
In the same vein, some fast learners may want to try out google docs. There are [4 videos](#) about making presentations in google docs. The principles of using the application are the same as those of any other presentation application. It is a good idea for learners to be able to use web-based applications such as google docs - they can use them for free at home, in any public computer environment and in a future workplace.

How to Find the Mindset CAT Resources

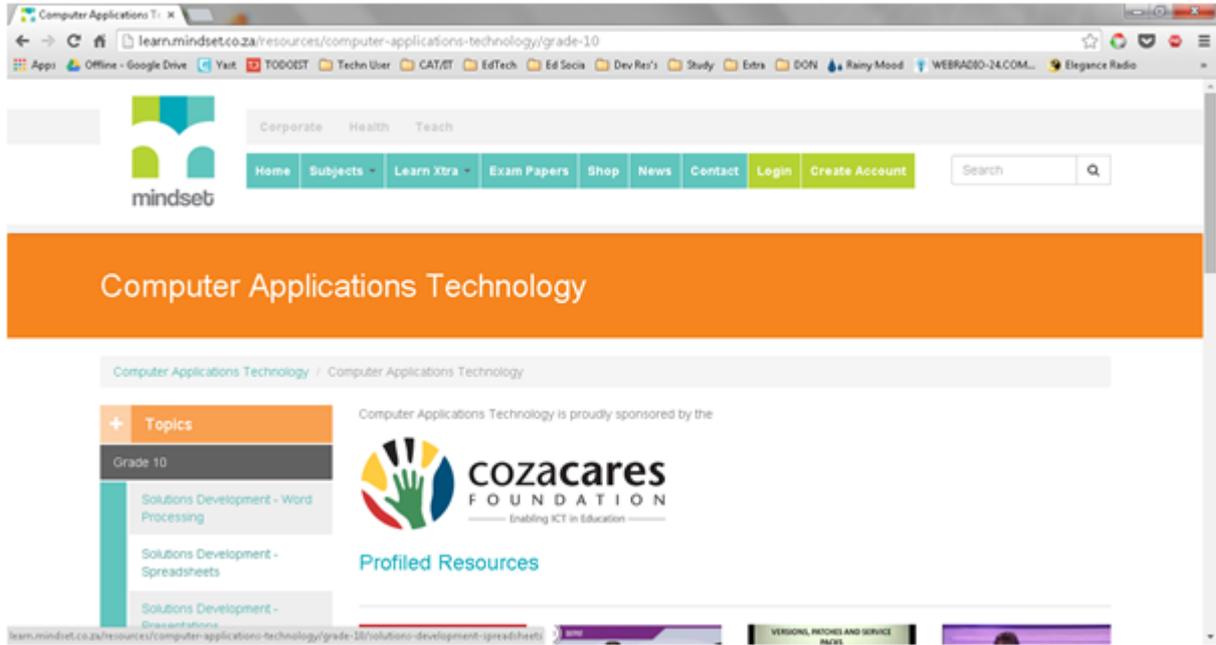
All the Mindset Learn Computer Applications Technology teaching and learning resources are on the [Mindset website](http://learn.mindset.co.za). The relevant curriculum sections are grouped per grade but not per term. This means that all content for (Solutions Development) word processing for grade 10, for example, is in one section.

Here are some examples for finding resources:

1. Go to Mindset Learn at <http://learn.mindset.co.za/>
2. Select the subject Computer Applications Technology from the subject list.



3. Go to Grade 10 and choose a section, like Solutions Development – Spreadsheets under **Topics**.
4. Click on the required section (Solutions Development - Spreadsheets) to display all available resources. There is a filter function, if required.
5. There is also a search function, to find all resources relating to a particular keyword.
6. Notice that other sections of work for other grades can be found further down in **Topics**.



Computer Applications Technology

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Profiled Resources

Topics

- Grade 10
 - Solutions Development - Word Processing
 - Solutions Development - Spreadsheets
 - Solutions Development - Presentations



Solutions Development - Spreadsheets

Computer Applications Technology / Grade 10 / Solutions Development - Spreadsheets

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Filter by resource type: Sort by: Order:

Classroom Resources

10:00:00 7:26

10:00:00 9:20

10:00:00 5:11

10:00:00 2:49



If you do not want to access the CAT resources online, you could request a copy of all the resources on a USB drive. This is available through our online [shop](#), at a small fee that covers the USB drive and courier services to anywhere in South Africa.

CAT Teacher Challenges

Computer Applications Technology is a vast and multi-faceted subject. The Department of Basic Education describes it as “learning about ICTs, working with ICTs and using ICTs in an end-user environment to solve problems relating to the processing, presentation and communication of information” (Department of Education, 2008). This is very broad. Information and communication technology is an integral part of our lives. As a sector it generates massive annual revenue and employs large numbers of people, especially in other parts of the world. South Africa needs to reach similar levels of ICT ability. There should be no doubt then, that the CAT teacher plays a very important role in the lives of learners and the future workforce.

However, CAT learners may have the wrong attitude to the subject. Many have been led to believe that it is an easy subject. One only has to ask the average computer user anywhere to perform a vlookup or a nested if function to know that this is not the case. There are many other examples that indicate that there is a good deal of complexity in the subject of CAT and many areas that require application, integration and problem solving. Learners also believe that CAT is not as valuable as other subjects. This is partly because it is not a 'designated' subject. However there are many universities that treat all school subjects equally when calculating the admission points score. In addition, the feeling that CAT is inferior to IT is probably because of the inclusion of programming in IT. Consider, though, that very few learners entering tertiary study and/or the workplace will be inclined to do any sort of programming. It may well be more advantageous to them to have above-average computing skills.

We hope that the Mindset CAT resources will provide good examples of the full range of complexity to be found in CAT. For a good resource about the merits of CAT, also see this [presentation](#).

Many CAT teachers also encounter numerous physical, infrastructural and logistical challenges. These range from large classes to poor internet access or low numbers of computers. In many cases schools do not provide the required software and often teachers do not have a dedicated computer lab - CAT is often learned in a classroom, with once a week trips to a computer lab or a single computer. The Mindset CAT resources may help teachers to expose learners to hardware that they should know about, even if it is not first hand experience. They may also allow learners to learn about the latest version of software application packages, even if they do not have access to them at school. Remember to order a hard copy of all CAT resources if internet access is a problem in your school.

Many CAT teachers would find it demanding to meet all the objectives of teaching CAT. Not only is it expected that the knowledge and skills acquired in CAT will be transferred to other areas so that learners can “apply these skills to diverse situations and to take advantage of

learning opportunities to improve their employment and entrepreneurship opportunities”, but it is also expected that CAT will “provide learners with the 21st Century skills of:

- Digital-age literacy
- Effective communication
- High productivity
- Inventive thinking”.

This means that a CAT teacher will need to teach CAT in such a way that the learner ends up as a bit of a super-user and that he/she understands how to apply CAT skills in diverse, knowledge-gathering and analytical ways.

The learning programme guidelines for CAT list numerous expected end-results, including:

- **Technology skills** – the ability to use the facilities of technology in an end-user environment and operate it purposefully and effectively
- **Information skills** – the ability to access, retrieve, store, organise, manipulate, evaluate, maintain, analyse, interpret, present and communicate information, as well as using end-user computer applications and ICTs to process and present information
- **Problem-solving skills** – the application of an authentic methodology for solving problems in a range of cases
- **Higher order thinking skills** – the ability to reason and reflect, pose and answer questions, interpret and adjust solutions and transfer skills from familiar to unfamiliar context
- **Creative skills** – the ability to design, develop and produce creative and elegant solutions
- **Collaborative skills** – the ability to develop multi-faceted and multi-levelled systems through collaborative teamwork
- **Lifelong learning skills** – the ability to achieve and maintain the knowledge, skills and values required in a dynamic knowledge domain.

CAT teachers must also be mindful that they are preparing the future workforce and future leaders for a knowledge-based economy, which relies on the creation of new knowledge, new products and advances in technology to generate economic growth and provide employment opportunities (Blankley and Booyens, 2010). These demands are already daunting, and are made even more challenging by the rate at which technological changes occur. So CAT teachers need to prepare themselves to do two things better than they used to:

1. Teach and assess so that learners can do more than merely pass exams
2. Keep their skills and knowledge updated and current

In relation to the second point above, teachers should try to go beyond the basic techniques and skills, and incorporate collaboration, creativity, productivity and integration with other CAT sections and other subjects. With a number of resources at hand, the basics are all readily available and the teacher's time can be freed up to focus on other things. Many teachers of CAT echo the need for a different and more varied teaching approach. Some of these came to the fore after learners attempted the Computer Applications Olympiad. Here are a few examples:

"I was actually surprised that some of my top 90% students, who are also achieving 96% for Mathematics, struggled with this exam. I worked through the questions and thought they would score much better than they did - it showed me how in CAT we are teaching the application rather than the skill. I think this happens as the final CAT practical examinations move us towards teaching the learners to achieve maximum marks."

"I thought the questions were very interesting; probably a bit difficult for the weaker pupils. Very often it is the poor reading ability of the pupils that cause them to struggle. The time allocation was not a problem. It was really their problem solving skills that were put to the test."

"This is what I love about the Olympiad, and what I would love to see implemented in CAT. There is more than one way to obtain the answer. Some of my learners used filters in Excel 2007 to get to the answer. Various ways of getting to the same answer. This promotes creativity and leads to higher order thinking skills. This is what we should be teaching in CAT."

"I liked the problem solving questions - for me this is matric level on Office. Formatting is not matric level. The textbook I use has many great Access and Excel questions at the end of chapters but when most of us teach we think of and focus on the final papers." (The Computer Society of South Africa, 2012)

Speaking of assessments, Brits (2013) contends that teachers must have good subject knowledge and must be masters of the subject, just as they expect their learners to become masters. They also need the skills required to set formal assessments. There are no formal assessments in the Mindset CAT resources, but from time to time some assessment examples will be posted on the Mindset CAT teacher forum. There are also numerous other platforms through which teachers share ideas and assessment resources. Commit to elevating the nature and level of assessment and your teaching will change too. At the moment, the alignment of teaching and assessment is too limited (Brits, 2013).

It is difficult for the average CAT teacher to stay up to date with the rapid changes in the world of work and in technology. Many CAT teachers did not get entirely satisfactory pre-service training; for example, Rijkman (2009) found that only 36% of CAT teachers in one province obtained their CAT training at their tertiary institution while qualifying as educators. A further 18% had to source their own CAT training from private institutions and 45% of CAT teachers in the study were trained by department officials for a few days. Similarly, Bihi and Selesho (2014) found that CAT teachers in INSET programmes reported that the content of their in-service training was not relevant to their needs and that more training sessions were required.

CAT teachers will therefore do well to use the Mindset CAT resources for their own quick revision, where necessary, and to find and use some of the free online courses available. Also try to find an ICT-focused mentor who can keep you in touch with advances in ICTs and with the demands of the workplace, so that you can serve your learners better.

References

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