

TECH TALK FOR PRINCIPALS

ScopelT Education –Term 3, 2018

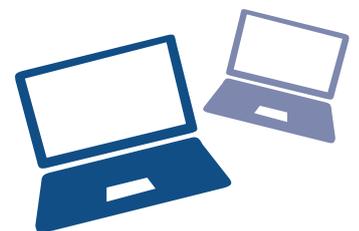
Edition #8



Digital Technologies learning offers important skills for life

The four areas of computational thinking and why they are so important in integrated learning

A digital technologies education provides benefits far beyond the basic learning of tech skills. It also contributes to broader life skills such as problem solving, computational thinking, working memory and collaboration.





What does computational thinking really mean?

Computational thinking is an important skill that contributes to many subject areas including mathematics, science and even the arts! Computational thinking is not thinking like computers. Although computational thinking describes the sort of thinking that high level tech developers engage in, plenty of other people think in this way too, and not just when it comes to using computers. The thinking processes and approaches that help with computing are really useful in many other domains too. The way that a new game, app or technology device is developed may use a very similar process to

a teacher putting on a school play or writing a lesson plan.

In each case you will:

- Take a complex problem and break it down into smaller problems
- Work out the steps or rules for getting things done
- Focus on the key details to manage the complexity of the task
- Reference the processes used in previous projects to solve the problem.

Computational thinking can be explored in four broad areas:

1. Decomposition: break a problem down into smaller pieces

Decomposition helps us solve complex problems and manage large projects. This approach has many advantages. It makes the process a manageable and achievable one – large problems are daunting, but a set of smaller, related tasks are much easier to take on. It also means that the task can be tackled by a team working together, each bringing their own insights, experience and skills to the task.

You and your pupils will already use decomposition in many different ways across the curriculum.

- In science or geography, labelling diagrams.
- In English, planning different parts of a story.
- In general project planning, planning a research project for any subject or working collaboratively to deliver a group presentation.
- In maths, breaking down a problem to solve it.

2. Pattern Generalisation: finding similarities between things

From an early age, students become familiar with repeated phrases in nursery rhymes and stories; later on they'll notice repeated narrative structures in traditional tales or other genres.

- In music, children will learn to recognise repeating melodies or bass lines in many musical forms.
- In maths, pupils typically undertake investigations in which they spot patterns and deduce generalised results.
- In English, pupils might notice common rules for spellings, and their exceptions.

3. Abstraction: pulling out specific differences to make one solution work for multiple problems.

4. Algorithmic thinking: getting to a solution through the clear definition of the steps needed.

From the Principal Nuwarra Public School, NSW, Australia



In our ScopelT lesson last week, the focus was on mathematical operators where students are asked to make their own calculators (quite a difficult lesson).

ScopelT are usually happy if students are able to complete the addition and subtraction symbols. If they achieve multiplication and divide, that's fantastic.

In this particular session, a student named Izzy was partnered with James. They not only completed the four operation symbols mentioned above but also greater than, less than, equal to and square root. Both teachers were amazed! To top it off the whole class did a great job, with the majority of students completing the first 4 tasks.

At the end of the lesson, Anthony the ScopelT teacher praised the class by saying that he was so happy with their efforts. Anthony stated "Now that ScopelT is coordinating lessons in countries all over the world, I am declaring this class the greatest in the world!"

The students were ecstatic! Anthony then declared Izzy and James world champions.

When the class were lining up, he noticed Izzy was crying tears of joy. While she wiped the tears from her eyes a few class mates were patting her on the back. A minute after they left, James returned to the room and Anthony realised that James had left the room at the time of the lesson wrap up. Anthony told him how great he and Izzy were and shortly after Izzy came up to him saying "James, we are world champions!" They both started fist pumping and congratulating each other.

We have been using ScopelT for 4 years now and I can not recommend them enough. These are the stories you don't hear about. The moments that touch everyone's hearts. Well done Izzy and James but also well done ScopelT. You are truly amazing! - Reg Corney, Principal



Professional Development for Educators

DTPD01 – Programming and Planning for Digital Technologies: Beginner Coding

Aligned to APST: 2.1.2, 2.2.2, 2.6.2, 3.2.2, 3.3.2, 3.4.2, 6.4.2

Wollongong, NSW Australia

Date: Friday 7th Sept, 8:45am – 3:30pm

Location: Stem Zone Room,
Science Space Wollongong,
60 Squires Way,
North Wollongong NSW 2500

Price: \$484

Newcastle, NSW Australia

Date: Friday 21st Sept, 8:45am – 3:30pm

Location: Harbour View Room,
Quality Hotel Noah's on the Beach,
Corner Shortland Esplanade & Zaara St,
Newcastle NSW 2300

Price: \$484

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