

SOCIAL INNOVATIONS EDUBYTE 2 2020, INTERMEDIATE PHASE

MAKING THE CONNECTIONS IN MATHS

This issue of EduByte looks at another aspect of the CASME research commissioned by PEP Academy that helps us make sense of Intermediate Phase maths and how we can best support learners in an after-school environment.



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What does CAPS require of learners in the intermediate phase, and what is the shift in focus, knowledge and skills as learners' transition from the foundation phase? The CAPS document acknowledges that the standards are set high but goes on to say that they are achievable. But the reality is that most South African learners fail to achieve minimum proficiency in maths.

The research suggests that by designing structured materials that are activity driven and focused on mathematical proficiency, coupled with teacher support and development – the skills and outcomes can be achieved.

As the learner moves from foundation to intermediate phase, he is expected to move from counting reliably to calculating fluently in all four operations (adding, subtracting, multiplying and dividing). The learner should be encouraged to memorise **with understanding**, multiply fluently, and sharpen mental calculation skills. There is a shift from concrete operations to abstract as the numbers he works with in intermediate phase are larger.

What can we do to help our learners shift from foundation phase to intermediate phase maths?

There's a lot that we can do! But one of the most important is to help learners see the big picture of the maths. There are central ideas and concepts that are connected across the maths – so everything a child will come across in the curriculum is connected.

Rather than learners seeing maths as a basket of separate and fragmented concepts, let's help them see that everything is connected – all the maths forms one coherent whole.

As a teacher in an after-school programme it's important to align what you do in the afternoons with the curriculum that is covered at school. But teachers can do much more than that. Teachers have the opportunity to show learners the links between the different parts of the maths curriculum – while also making the links between the maths and other subjects such as social sciences, language and natural sciences.

Teachers also have the opportunity to link the maths to the real world, and the context in which learners live – so that they can begin to realise some of the aspirations of the CAPS curriculum. Learners should develop:

- an appreciation for the beauty and elegance of mathematics;
- a critical awareness of how mathematical relationships are used in social, environmental, cultural and economic relations;
- recognition that mathematics is a creative part of human activity.

Here are some practical steps to help learners see the links and form a bigger picture:

- Familiarise yourself with what learners might encounter in other subjects. Keep an eye out for topics that link naturally to the mathematics you are teaching
- Integrate other subjects into the teaching of mathematics (Teach Across the Curriculum)
- Use familiar contexts to introduce and teach new concepts. Get to know learners' interests and try to connect the mathematics to these interests.
- Expose learners to real life applications of mathematics, where and whenever possible
- Create an awareness of the beauty and elegance of mathematics. Be enthusiastic about the mathematics that is all around us. Marvel in patterns found in nature or the unique qualities of numbers. Create opportunities for learners to talk about the mathematics they are discovering through the afternoon activities.

This is an open source educational resource drafted by Social Innovations. This note draws from the research report Into the Gap, authored by CASME. The references for the research are cited in the full report which can be downloaded from www.socialinnovations.co.za