

## CERME 14: Thematic Working Group 03

### Algebraic Thinking

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#### Scope and focus of the Working Group

Algebraic Thinking is a well-established Thematic Working Group at CERME that provides a forum for international discussion on issues related to the nature of algebraic thinking and the routes by which it might be fostered through teaching and learning. TW3 aims to provide the participants with an opportunity to better understand the current state of research on algebraic thinking, reflect on the richness of perspectives to study this area, place their own work in a wider context, and identify key challenges for the future.

#### Call for papers and poster proposals

We invite philosophical, theoretical, methodological, empirical, or developmental papers and poster proposals on issues related to algebraic thinking. The scope of TWG3 is broad and any paper/poster of relevance to the overall focus of the group will be welcomed. A paper could, for example:

- Review the literature to examine how theories interrelate or influence what can be understood.
- Extend existing research on the nature of algebraic thinking (e.g., how students perceive and use specific algebraic concepts and procedures).
- Offer fresh insights on established research topics, such as fundamental algebraic processes (e.g., generalization, symbolization, argumentation, proof, and justification).
- Provide insight into the interface between concrete and abstract semiotic systems and the transition to algebraic symbolism.
- Examine the links or differences between arithmetic and algebraic thinking.
- Consider the role of language and the kinds of language uses that are important to algebraic thinking.
- Describe new approaches for developing algebraic thinking.
- Consider the design of rich mathematical tasks used to foster the development of algebraic thinking.
- Consider the role of technology or other teaching materials.
- Consider the role of teacher-student interactions whilst involved with algebraic activities.
- Discuss professional development programs that support teachers' development in algebra instruction.
- Examine algebraic thinking in special student populations.
- Report on translating research into classroom practices.
- Report large scale/longitudinal studies or replicate and extend existing research to new contexts.

Papers and poster proposals *must use the CERME template*, and conform to the guidelines at <https://www.cerme14.it/>. CERME 14 uses an electronic submission system <https://www.conftool.pro/cerme14/>. The authors submit the initial version of their paper on the website (uploading it both as a .doc and a .pdf file, and providing the required information, in particular the TWG number).

#### Reviews and decisions

Each paper will be peer-reviewed by two persons from among those who author papers to this TWG. *All co-authors* can be asked to review up to two papers. The group leaders will decide about the acceptance of posters.

#### Important dates

- See <https://www.cerme14.it/> for important dates