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CAPS content for Grade 4 and 5 science and technology teachers: Energy, sound and mechanical systems

This course is designed for teachers who now have to teach technology, or want more science background. It is based on the "Term 3" content in the CAPS Grades 4 and 5.

We do problem-solving with real equipment, and will see how the process skills of the CAPS can be turned into good questions and practical tasks.

The 4 session course deals with knowledge in science and technology, as well as the skill and knowledge of how to teach it. These two aspects of the curriculum are known as Subject-Matter Knowledge (SMK) and Pedagogical Content Knowledge (PCK).

The Subject-Matter Knowledge covers

- The energy concept, and energy transfers through natural, mechanical and electrical systems. How energy is conserved but becomes less available. Renewable and non-renewable energy resources; stored and movement energy.
- Sound, vibrations, frequency/pitch, loudness, speed of sound in different substances, energy transfer.
- Fuels, heating, fire safety, electricity and ESKOM.
- Storing energy in mechanical systems, and getting movement energy from the systems. Theory of wheels.

The Pedagogical Content Knowledge (knowing how to teach this lot) covers

- Children's typical misconceptions, from SA and other countries, about air, energy and sound. Misconceptions about "forms" of energy.
- Activities that build the concepts of energy, sound and mechanical systems. How to develop the process skills listed in the CAPS, and set questions at different cognitive levels.
- Managing the technology-related projects: (a) musical instruments, (b) making a vehicle that stores energy and moves on wheels.

Assessment on the course is self-referenced assessment; in other words, your ending performance is compared to your starting performance.

The course venue: The RADMASTE Centre, Wits University Education Campus, Parktown (old JCE)