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Advancing Knowledge NPC: Preparing STEM Education for the 4th industrial revolution

Science clubs bring out their best in science competition

Advancing Knowledge Non-Profit Company (AK NPC) held its annual Science Competition on 28 September 2022 in Worcester, for the science clubs of the rural schools of the Cape Winelands and surrounding areas. This was the first science competition held post-Covid.

The Science Competition for science clubs is an essential part of Advancing Knowledge NPC's second key component to enhance science education, namely, the building of a culture of science learning. Twenty-five schools reached the finals of the science competition. During the 15-year period of implementation in the rural Cape Winelands region of Cape Town, more than 100 science clubs were developed at participating rural schools at both primary and secondary levels. The science clubs are championed by passionate science teachers and principals who go the extra mile to ensure that (1) teachers attend the AK NPC's first component, namely the training offered for STEM teachers to build the culture of science teaching and (2) that their science learners participate in the internal school science club programme that leads to the annual AK NPC science competition. This component is directed at developing learners' interest, enthusiasm and willingness to want to learn Science, Technology, Engineering and Mathematics (STEM) subjects through a series of learner-directed projects, including science clubs and science competitions.

At the AK NPC Science Competition, learners from each science club took great pride in presenting their science experiments, investigations, exhibits, presentations, designs and activities to the judges. A maximum of 10 learners represented each science club and had 10 minutes to present their science activities while explaining the science concepts, theory and principles behind each presentation. More than 200 learners (accompanied by their science teachers) took part in the event showcasing their science knowledge, skills, and expertise to the adjudicators.

Colour changes, flames, explosions, chemical reactions, home-made technologies and awe-inspiring activities were the order of the day. It seemed that schools were determined to make the judges' task as challenging as possible as they delivered their well-rehearsed and prepared routines of interesting and creative science expositions, much to the delight and sometimes awe of the audience.

At the end of day, with everyone proud of their contribution to the science competition, the judges had the difficult task of choosing one winning school for the primary section and one in the high school section. The winning primary school was Vergesig Primary and Langeberg Secondary took the honours for the high schools – both schools are from Robertson. All participating schools were thanked for their contribution and encouraged to continue with their efforts to expand their interaction in STEM.

According to Professor Shaheed Hartley, Director and Academic Head of Advancing Knowledge NPC, the science competition started in 2004 and emanated from a programme directed at the support and training of rural science teachers. The idea of teachers forming science clubs at their schools served to measure teachers' commitment to the STEM project. The eagerness with which learners participated in the science clubs resulted in a greater demand for support for science clubs at schools and led to the annual science competition.



Learners make their presentations at the AK NPC Science Competition, showcasing their scientific knowledge and skills to the adjudicators.

Teachers also participate in the annual National Science Week conducted by the Department of Science and Innovation, the National Research Foundation and the South African Agency for Science and Technology Advancement, serving as facilitators on the AK NPC Roadshow to promote STEM in regions where very little of these activities are conducted. Many of the committed schools have been rewarded with a science laboratory – the third key component of AK NPC – which involves the construction of a new

science facility called a Science Teaching and Learning Centre (Science TLC), funded mostly by a partnership between AK NPC, Garden Cities Archway Foundation and the Western Cape Education Department (WCED).

In his speech at the opening of the science competition, Ziyad Moerat, WCED Science Subject Specialist and Advisor, encouraged science teachers to continue to support the establishment of science clubs at both primary and high schools as a way to attract the interest of learners to STEM subjects.

Advancing Knowledge NPC
Science Knowledge Advancement
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