

Science on Sea



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In 2005 the NPC Sea World Education Centre embarked on a project to develop an Educator's resource using the sea to teach parts of the new Physical Science Syllabus for Grades 10 to 12 that came into effect this year - 2006. The resource was developed with disadvantaged schools in mind. This was made possible with sponsorship from Natal Portland Cement and SAB Miller's Social Responsibility Programme.

The idea of this resource stemmed from interactions with science teachers at a South African Association of Science and Technology Educators Conference in 2004. Many educators do not feel they have the necessary understanding and resources to teach science. South Africa, and KwaZulu-Natal in particular, has a shortage of specialised science teachers and there is a decreasing interest in entering the science fields as a career due to the perception that science is difficult and boring. We hope that this teacher's resource will assist to create exciting lessons with examples to clarify concepts and bring the sea into the classroom. After all, the sea covers 70% of the earth's surface! South Africa urgently needs scientists to help us further understand the workings of the ocean and to manage people's interactions with this environment to ensure a long-term future for all.

Dolphin in Sea World show pool showing concept of refraction.





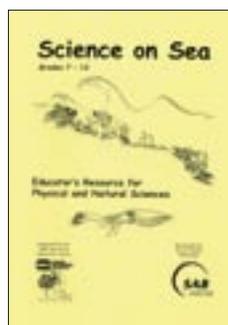
The current state of Marine Science Human Resources in South Africa:

- Science departments of Tertiary Education Institutions are not attracting enough students, therefore there is no pool from which to recruit professionals;
- There has been a reduction in learner numbers for higher grade maths and physical science in the last 10 years;
- In 2001 14% of South African schools had qualified maths and science teachers (Masehela, K. 2005);

Sea World has worked closely with a small group of Physical Science teachers from a range of backgrounds including expertise in teaching Physical Science and having experience of the issues faced in disadvantaged schools. Over the past year, Sea World staff and these educators met monthly to choose the topics, present ideas using marine examples to show scientific concepts, and share activities that can be done without expensive or difficult-to-source equipment.

The draft activities were compiled, from which a selection of activities were undertaken. Approximately five thousand learners at the National Science Week Expo at the MTN Science Centre and three thousand learners and the general public at the Sea World Aquarium, were targeted in May 2005. In June, a range of activities were workshopped with two groups of teachers (totalling forty three). The teachers were asked to evaluate the facilitation of the learning and the draft activity guides.

Educator's resource.



Subsequently, the 'final' document was developed and submitted to our core group of teachers and a Physical Science subject advisor for comment. Once the document had been edited, it was printed using the ShareNet printing works run by the Wildlife and Environment Society of South

Africa (WESSA). WESSA produces and distributes low-cost teaching resources for schools and educators and has an excellent reputation.

This year we will run a further series of workshops for teachers to explore a selection of the concepts and activities that the resource features.

Sea World has undertaken this process with a number of resources to date and we do not see this as the final product. We hope that when educators use our resource they will give us feedback to enable us to improve the resource for printing in the future. ♦

Reference: Masehela, K. 'Overview of the state of maths, science and technology education, 1994 – 2004', *EduSource Data News No. 47* April 2005, South Africa.

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