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EXPO

Eskom Expo for Young Scientists

without a date - duplicate of previous "Prospectus"

1489

Eskom

Prospectus

EXPO FOR YOUNG SCIENTISTS

PROSPECTUS

MISSION STATEMENT

**To contribute to the development of critical skills
to meet the demands of the 21st century
by creating interest and stimulating participation in
the sciences and technology
among the youth of Southern Africa
through regional and national expositions**

EXPO FOR YOUNG SCIENTISTS

Registered under Section 21 of the Companies Act - 92 06939/08
Registered as a Non-Profit Organisation - 008-350

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EXPO FOR YOUNG SCIENTISTS

Expo for Young Scientists is sponsored by the following organisations:

ARMSCOR
BILLITON
DEPARTMENT OF ARTS, CULTURE, SCIENCE AND TECHNOLOGY (DACST)
ESKOM
HUMAN SCIENCES RESEARCH COUNCIL (HSRC)
INTEL SOUTH AFRICA
NUCLEAR ENERGY CORPORATION OF S A LIMITED (NECSA)
SASOL
UNIVERSITY OF PRETORIA

Organisations that are also represented on the Board of Directors are:

Associated Scientific and Technical Societies (AS & TS)
Foundation for Education, Science and Technology (FEST)

Supporting companies:
Regional Expo Sponsors

Expo for Young Scientists is grateful for the funding, support and participation of all these organisations

Expo for Young Scientists is affiliated to:
The National Science and Technology Forum (NSTF)
The Intel International Science and Engineering Fair (ISEF)
The International Movement for Scientific Activities (MILSET)
The Worldwide Young Researchers for the Environment (WYRE)

WHAT IS THE AIM OF EXPO?

The aim of Expo for Young Scientists is to provide an opportunity for learners to display their work, interests and activities in science and technology. Exhibitors discuss their work with judges, fellow participants and members of the public.

INFORMATION FOR PARTICIPANTS

Expo competitions are open to all learners in school interested in any branch of science, including mathematics, biology, technology, geography and the human sciences. ***See the list of categories for this year.***

Expo caters for learners who are interested in scientific topics beyond the requirements of the school syllabus, and provides an opportunity for them to display the products of hobbies and any other scientific or technical interests and activities.

Exhibitors can enter their work at the nearest Regional Expo. ***A list of Regions, together with contact details of the Expo co-ordinator in each region, can be found towards the end of this booklet.***

A decision to enter Expo involves an important commitment and is not to be taken lightly. As investigative, scientific projects are what Expo is all about, a young scientist should undertake the work in a methodical way. Advice on starting a project, carrying out the investigation, and displaying results, is given later in this prospectus.

INFORMATION FOR EDUCATORS

Getting involved with Expo

Expo for Young Scientists aims to stimulate interest in science and technology among learners.

The organisation depends on educators to distribute information about Expo to their learners, and to display notices about regional Expos. As Expo categories cover a wide range of topics, a number of subject educators can be involved - science, biology, mathematics, geography, technology and computer science all have a place in Expo.

Interested educators should contact their regional Expo co-ordinator (see list) for entry forms and more information.

Children should be encouraged to participate in Expo every year - Expo makes science exciting and is a great incentive for achievement. Because space at a regional Expo is usually restricted, each school should consider sending a limited number of its top projects. A school Expo, at which this selection could take place, is an ideal way in which to display learners' work to the parents and the school community.

Enthusiastic educators can inspire their students to great achievements, simply through their encouragement and support.

Expo depends on the active involvement of educators. Educators willing to assist with the organisation and administration of Expo, should contact their regional Expo co-ordinator.

Types of Projects

Entries may be grouped roughly into three main types:

1 Collections

These make up the simplest type of exhibits. The collection should be arranged in such a way as to illustrate a specific method or principle. Judges will expect students to have background knowledge related to the collection. Generally, collections are mainly for younger exhibitors, though top quality scientific collections have been selected for international participation.

2 Constructions

Exhibitors with constructions should display some technical knowledge; acquired skills will also be part of the final assessment. It is important that exhibitors ensure that their models work for the duration of Expo. Commercially available kits and models are unsuitable for display as an Expo project, unless they are being used for some other purpose in the exhibit.

Background knowledge is required: for example, if a pupil has entered a model of a crane, then an understanding of pulleys and levers would be expected.

3 Investigations

An investigation is a more advanced project, and it is this type of work that is strongly encouraged at Expo. The investigation should deal with a specific topic or field of interest, and set out to solve a particular problem. The young scientist will have embarked on original research in a selected area. Judges will expect to see evidence of scientific method and experimental records. Originality, perseverance, method and observations all become part of the evaluation. Knowledge gained from background reading is essential.

Innovation and Development - Patents and Registered Designs

Some exhibitors display projects that show innovative thinking and provide new products. Expo en-courages the development of entrepreneurial projects, which may lead to the marketing of these products.

Exhibitors are advised to obtain legal advice about patent applications before entering their work at a regional Expo. Once a design or product has been on public display it may **NOT** be patented. However, if an exhibit is displayed for judges only, no patent rights should be lost.

WARNING: Animal Experimentation

Expo will **NOT** accept any project that may have affected an animal's health or well-being by causing stress, discomfort, pain or death. Note that the display of live animals or birds will **NOT** be allowed as part of a project at an Expo because of the possible stress that this could cause to the creatures.

We encourage any non-invasive and non-intrusive studies, that is, observational, behavioural and natural history studies. Projects addressing the correct treatment of animals or conservation methods are also welcome.

When research on animals is to be undertaken, an adult (parent or teacher or professional researcher) must ensure that all relevant legislation is followed, that the animals are legally acquired, that they are properly housed and fed, and that they do not suffer unnecessary pain or discomfort.

Detailed rules and guidelines regarding from Expo regional co-ordinators, or from the Expo national office in Pretoria.

PREPARING A PROJECT FOR EXPO

1 The most important aspect of preparing a project is that the learner(s) must be

interested in the subject of the research!

Topic ideas may stem from textbooks and other reading matter, or may simply arise from something that has been observed or wondered about. Many Expo exhibits are derived from school projects that have been expanded on or developed in some way. On the other hand, the project may have nothing to do with school work whatsoever. It may be a problem that has caught a learner's imagination. The possibilities are unlimited.

Titles of projects that were selected for international participation at recent Expo Finals, are listed on the page after next. The wide variety is noticeable!

2 Once the topic has been selected, the learner(s) should read up as much as possible on the subject from available literature, magazines and books.

3 A plan of action should be drawn up. This will involve determining what needs to be done, how it will be done, and when it will be done. It may be necessary to consult with teachers or experts in the chosen field. Learners should not be afraid to ask for help, information or advice - it is then the learners' responsibility to make the best use of this assistance. (It is also important that the sources of help are acknowledged!)

4 At this stage the learner(s) should be in a position to start experimenting, and finding the answers to the questions they have asked. A well-planned project should enable the learner(s) to attain reliable results.

THE IMPORTANT STEPS

For an investigation it is usual to go through the following stages:

PROBLEM - state the problem to be solved

HYPOTHESIS or RESEARCH QUESTION - think of possible solutions, or make an educated guess, so that the purpose of the research can be defined

TEST or EXPERIMENTATION - test the hypothesis or possible solution, with careful scientific method

RESULTS - carefully record the results of the experiments, and make notes of observations

CONCLUSION - draw conclusions from the results

POSTER AND DISPLAY

When preparing a project for display, the exhibitor must realise that space at an Expo is limited: there is never more than 1.5 metres of table length, and often less than this.

The display should consist of a poster, a file containing a written report with experimental data and bibliography or acknowledgements, and some elements of the experimental apparatus.

A poster display should briefly explain the importance of the project, essential background information, the methods used in the investigation, and the results and conclusions reached by the authors. It should be self-explanatory although the author should be prepared to present additional data and discuss his/her procedure. The poster should be laid out neatly, with large print for easy viewing. [At a 2-metre distance the display should resemble the one in the diagram.]

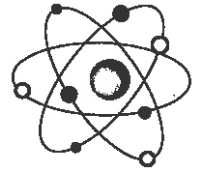
POSTER

Tittle of Project

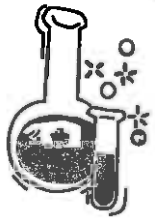
Name

School

Region



Introduction	Method of Experiment

Results	Conclusion
	

NOTE

- A discussion section can be included as well as ideas for further research
- You should also include acknowledgements.

EXPO FOR YOUNG SCIENTISTS

A project must be entered into a Regional Expo, at which the top projects will be selected for participation in the Expo National Finals.

When do Regional Expos take place?
Regional Expos are usually held between July and early September each year. Interested students should contact their science or biology teachers, or the nearest regional Expo co-ordinator, for more information, or visit our website

How long does Expo last?
The duration varies from region to region: some regions hold their Expos on one day only, others take place over two or three days. Ample opportunity is given for registration and the setting up of exhibits before judging begins. Expo is also open to the public. During judging and viewing time the exhibitors should be on hand to explain their work.

What are the Entry Fees?
There is usually a nominal entry fee of R5.00 to R10.00 for regional Expos, but this may vary in some regions.

Students whose projects are selected for the National Finals, will receive details about participation from the National Expo office.

What prizes can one win?
All exhibitors will receive a certificate of participation.
Prizes differ from one Regional Expo to another. In some regions, medals or trophies are awarded; some regional Expos present cash, book or equipment prizes; or bursaries available.

For some participants, selection for the National Finals is a prize in itself!

POINTS TO REMEMBER

1. Ensure that entry forms are filled in fully, and that the information is clearly readable.
2. Enclose the entry fee and self-addressed envelope if they are requested.
3. Post entry forms to the regional co-ordinator well before the closing date.
4. Make the exhibit look attractive - use colour and show findings clearly.
5. Note carefully the limits placed on the space available for an exhibit (usually a maximum of 1.5m x 1m)
6. Prepare the exhibit in good time - do not become involved in last minute panic.
7. If the exhibit is meant to work - ensure that it does work!
8. During the judges interview, speak clearly and do not be afraid.

POSTER

AWARDS AT EXPO NATIONAL FINALS

At the national competition, exhibitors are judged for gold, silver and bronze medals.
There are special awards made by interest groups:

the Grasslands Society of South Africa;
the Parasitological Society;
die Suid-Afrikaanse Akademie vir Wetenskap en Kuns;
the Department of Arts, Culture, Science and Technology;
the S A Institute of Civil Engineers,
the S A Institute of Electrical Engineers,
the National Botanical Institute,
the Conchological Society of South Africa,
the Microscopy Society of Southern Africa
Eskom: Best development project,
Best energy project,
Best female project

Prestigious awards are:
the Exhibitors Award
the Conrad Cambray Memorial Award
the Meiring Naude Memorial Award
the Derek Gray Memorial Award

Also, some Expo Finalists are nominated to participate in International Science Fair.

JUDGING

Judges at Regional Expos and at the National Finals are asked to give their personal opinions and to make assessments based on their professional qualifications and expertise.

The judging of exhibits is based on a number of criteria which include:
Originality of the project
Scientific method
Clarity of presentation
Skill in presentation of data and material
Thoroughness of research
Depth of knowledge
Visual appeal of the poster

The exhibit should look attractive and interesting. A judge or spectator should be able to see what the exhibitor has done, and what he/she has found.

The **interview with the judges** is aimed at establishing the exhibitor's understanding of the topic, and the originality and thoroughness of their methods and experimentation. Most of what an exhibitor has to say should be on display or be discussed during the interview. If the exhibitor has plans for a publication, some written work may be necessary.

Judges will provide students with written comments about their projects.

An important aspect of Expo is that the exhibitor's work is seen by other learners. The prizes and prestige are only one consideration.

By participating in Expo learners will increase their awareness of the wonders of science, add to their knowledge and broaden their scientific horizons.

TITLES OF PROJECTS CHOSEN FOR INTERNATIONAL PARTICIPATION

This list gives an indication of the variety of topics that can be entered in Expo for Young Scientists:

Astronomy and Space Sciences
Sunsational Spots

Architecture, Housing Settlement studies
Econo-nisch, promting tourism by housing

Animal Sciences
Growing Bats

Human Sciences
Homo Sapiens

Mathematics and Statistics
Maths the easy way

Environmental Sciences and ecology
A season river study of the Umvoti

Agricultural Sciences
Besin voor jy begin

Human Sciences
Heart disease in woman

Engineering: Chemical, Metallurgical and Mining
Corundum and spinel synthesis

Engineering: Mechanical, Civil and Industrial
Sunflower
Sparewheel

Design, Technology, Innovation and Development
Refrigeration unit

Acknowledgements
We thank the Durban and Cape Town Regional Expo Committees for their permission to use exerpts from their local prospectuses in compiling this booklet.
The section on Animal Experimentation is adapted from instructions in the booklet International Rules for Precollege Science Research: Guidelines for Science and Engineering Fairs issued by Science Service, organisers of the Intel International Science and Engineering Fair.

CATEGORIES

This is the category list for the Expo National Finals.
Expo Regions may use their own list of categories, but projects entered for the Finals must be placed in one of the following groups:

	Primary Schools	Grades 8 and 9	Grades 10, 11, 12
Category	Category number	Category number	Category number
Physics	1	101	201
Chemistry	2	102	202
Mathematics and Statistics	3	103	203
Plant Sciences	4	104	204
Animal Sciences	5	105	205
Environmental Sciences and Ecology	6	106	206
Agricultural Sciences	7	107	207
Design, Technology, Innovation and Development	8	108	208
Earth Sciences - Geography and Geology	9	109	209
Computer Sciences and Applications	10	110	210
Electronics, Electricity, Electrical Engineering	11	111	211
Engineering - Chemical, Metallurgical, Mining	12	112	212
Engineering - Mechanical, Civil, Industrial	13	113	213
Energy	14	114	214
Marine Sciences	15	115	215
Astronomy and Space Sciences	16	116	216
Medical Sciences	17	117	217
Health Care	18	118	218
Architecture, Housing, Settlement Studies	19	119	219
Human Sciences	20	120	220
Tourism opportunities, including ecotourism	21	121	221
Recycled Materials	22	122	222
Food Sciences	23	123	223
Science and Mathematics Teaching Aids	24	124	224

EXPO REGIONS

GAUTENG

1. Expo for Young Scientists Witwatersrand
Mr. Peter Wright
St. Stithians College
Private Bag 2
Randburg
2125
Tel: (011) 787 5618
Fax: (011) 789 4665

2. Expo for Young Scientists Northern Gauteng
Mr. Awie Duvenhage
P.O. Box 40467
Moreletapark
0044
Tel/Fax: (012) 997 3486
Cell: 082 465 8204

3. DENEL Expo for Young Scientists East Rand
Mr. Buks Viljoen
P.O. Box 11718
Aston Manor
1620
Cell: 082 905 3179
Fax: (011) 974 7995

MPUMALANGA

1. SASOL Science and Technology Expo Highveld
Mrs. B. Longland
Oosterland High School
Private Bag X1009
Secunda
2302
Tel: (017) 631 1030
Fax: (017) 631 1000

2. MMC Expo for Young Scientists Lowveld
Mr. Johannes Mnisi
P.O. Box 256
Kabokweni
1245
Tel: (013) 751 3838
Fax: (013) 750 0343

3. SASOL Expo for Young Scientists Kwamhlanga
Dr F.E. Khumalo
P.O. Box 1189
Kwamhlanga
1022
Tel: (013) 947 2060
Fax: (013) 947 2755
Cell: 082 477 9805

NORTHERN PROVINCE

1. ESKOM Expo for Young Scientists Capricorn
Mr. Nelson Mphaga
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Vhufuli
0971
Tel: (015) 968 0240
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Cell: 082 512 9138

2. ESKOM Expo for Young Scientists Bushveld
Mrs. Wilma du Plessis
P.O. Box 374
Nylstroom 0510
Tel/fax: 014 717 5216
Cell: 082 843 7807

3. SASOL Science and Technology Expo Lebowakgomo
Mr. M.P. Sebela
P.O. Box 924
Lebowakgomo
0737
Tel: (015) 633 5059
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Cell: 082 882 3214

4. SASOL Expo for Young Scientists Mopani
Mr. Louw Olivier
Palaborwa Foundation
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Tel: (015) 781 2410
Fax: (015) 781 2410
Cell: 082 898 4806

NORTH WEST PROVINCE

1 NECSA Expo for Young Scientists Rustenburg
Mr. Nicholas Boikanyo
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Thlabane
09
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Fax: (014) 597 3399
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2 NECSA Expo for Young Scientists Potchefstroom
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Klerksdorp
2571
Tel: (018) 462 7523
Fax: (018) 464 3103
Cell: 082 709 1006

3. NECSA Expo for Young Scientists Mafikeng
Mr. J.R. Dolo
Subject Advisory Services
Private Bag X83
Mbato
2735
Cell: 083 455 4466
Fax: (018) 384 3432

FREE STATE PROVINCE

1. UFS Expo for Young Scientists Bloemfontein
Mr.Willem de Buisson
P.O. Box 31345
Fichardtpark
9317
Tel: (051) 447 3194 (w)
Fax: (051) 448 2003

2. Expo for Young Scientists Goldfields
Mr. Paul Sauer
Welkom High School
P.O. Box 753
9460
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Fax: (057212 4343

3. Expo for Young Scientists Bethlehem/Maluti
Mrs. Mada du Toit
Voortrekker High School
P.O. Box 296
Bethlehem
9700
Tel: (058) 303 4006
Fax: (058) 303 7178

NORTHERN CAPE

1. NECSA Expo for Young Scientists Kimberley
Mr. Gert Roodt
Northern Cape High School
Private Bag X5060
Kimberley
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Tel: (053) 832 4377
Fax: (053) 832 2176

2. NECSA Expo for Young Scientists Upington
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e-mail: fepost.ma@xsinet.co.za

WESTERN CAPE

1. UCT Expo for Young Scientists Cape Town
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Fax:(021) 659 1013

2. Expo for Young Scientists Stellenbosch
Mrs. Erika Hoffman
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Matieland
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Fax: (021) 808 3000

EASTERN CAPE

1. Expo for Young Scientists Port Elizabeth
Mr. Alistair Scott
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Engineering
Technikon Port Elizabeth
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Fax: (041) 583 1864

2. Rhodes University Expo for Young Scientists Grahamstown
Mr. Brian Wilmot
Grahamstown Foundation
P.O. Box 304
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Fax. (046) 622 7452

3. Eskom Expo for Young Scientists Border
Noreen Burton
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2. ESKOM Expo for Young Scientists Kwazulu
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3. Expo for Young Scientists Northern Kwazulu Natal
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