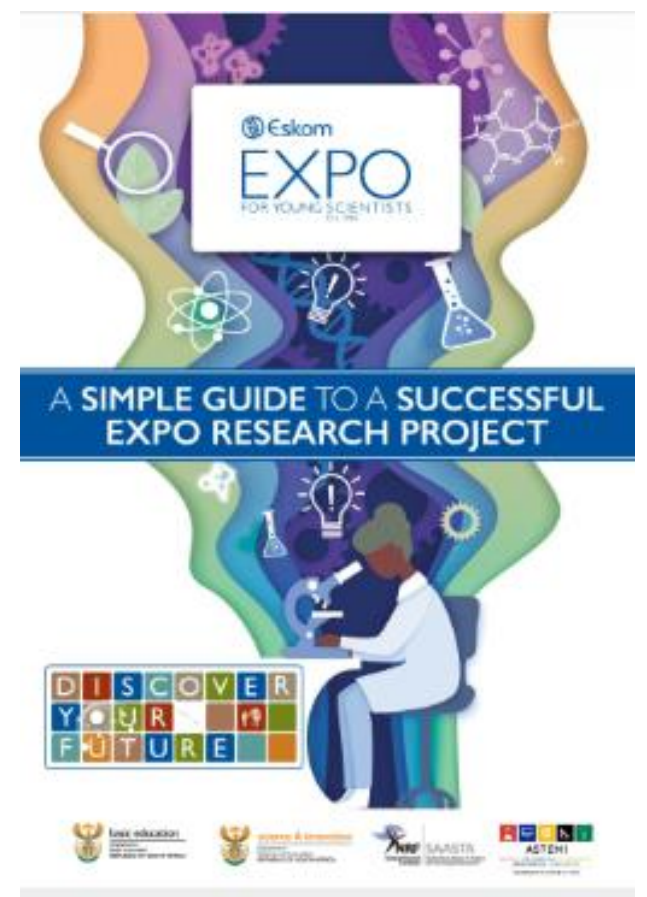
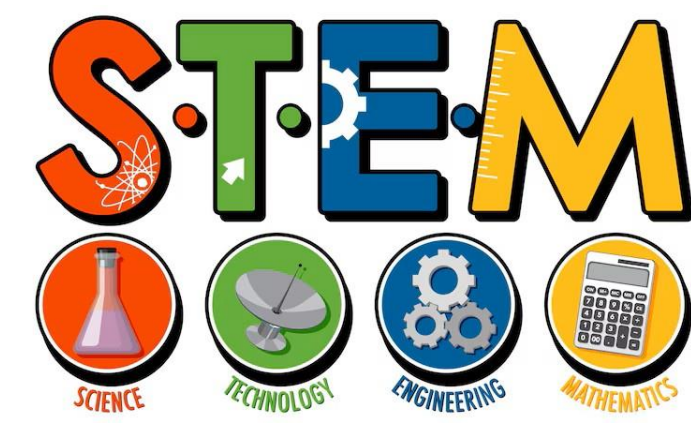


Engaging learners in non-formal Science, Technology, Engineering and Mathematics Education:

ESKOM EXPO FOR YOUNG SCIENTISTS

🌐 Preparing Global Citizens through STEM

- 📖 **CAPS Curriculum (2012):** Introduced by the Department of Education in South Africa aims to strengthen teaching and learning from Grades R–12.
- ⚙️ **Focus on STEM-** Science, Technology, Engineering & Mathematics - the key drivers of future-ready education.
- 🎯 **Core Goal:** Equip learners with essential knowledge and skills for real-world application.
- 🛠️ **Redressing Inequality:** Raising the quality of STEM education to bridge past imbalances.
- 🤝 **Collaborative Effort:** The Department of Basic Education works with national STEM organizations.
- ✅ **Excellence & Fairness:** Promoting both academic achievement and equitable opportunities.
- 🧠 **Constructive Engagement:** Encouraging hands-on learning and critical thinking in STEM.
- 🌐 **Global Readiness:** Building a generation of learners who can thrive in a tech-driven world.



🏆 Science Expos & Competitions: Inspiring Future Innovators

🏆 **STEM Olympiads, Competitions, Science Fairs:** Promote excellence, critical thinking, and global competitiveness.

- **ZA South Africa- Science Fairs** known as *Science Expos* are coordinated by the **Eskom Expo for Young Scientists** a non-profit organization.
- 🌐 **Largest National Science Fair:** The Expo covers **all STEM fields** – not just science – and reaches learners across the country.
- 🧑‍🔬 **Hands-On STEM Learning:** Science Expos and Olympiads offer practical, inquiry-based experiences.
- 🌐 **Diverse Participation:** Learners from **various backgrounds and contexts** engage in real-world STEM investigations.
- 🧠 **Innovative Teaching:** These events showcase **creative, alternative approaches** to teaching STEM.
- 🚀 **Pathway to STEM Careers:** Ignites curiosity and opens doors to science, tech, and engineering opportunities.
- 📢 **Supported by Research:** Activities like these are recognized for their role in strengthening STEM education (Zulu, Juan & Luescher, 2018).

❓ 4 Types of Projects:

1. 📐 Mathematics / Theoretical
2. 🌐 Social Sciences
3. 💻 Engineering / Computer Science
4. 🧪 Science Investigation / Experimental

❓ 13 Project Categories for selection & assessment

Include:

- Earth Sciences
- Plant Sciences
- Energy

(and many more across STEM disciplines)



🔍 The Journey: Expo Research Project

- ✅ **Register** for the Expo
- 💡 Identify a **Problem & Solution**. Choose an **appropriate method**
- ❓ Formulate a **Research Question & Hypothesis or Engineering Goal**
- 📋 **Plan & Conduct Research**
- 📊 **Collect & Analyze Data**
- 📝 **Draw Conclusions** and reflect on findings
- 📄 **Present a Poster** on the Expo Display Board, write a **Comprehensive Report & abstract**
- 🏆 **From Local to National:**
- 🔑 Selections at **District Expo**
- ➡️ Advance to the **Regional Expo**
- ✨ Top projects are selected for the **National Expo**

📖 NEW learner engagements in 2025: STEM Library Holiday Programme

Expanding Access, Mentorship & Engagement

- 🏠 **Local Libraries as Learning Hubs:** STEM programmes now hosted during **school holidays** and **weekly sessions** at community libraries.
- 🤝 **Mentorship by Pre-Service Teachers:** Future educators actively mentor and guide learners, offering academic and emotional support.
- 🧑‍🏫 **Real Teaching Experience:** Pre-service teachers gain valuable field experience while supporting meaningful STEM learning.
- 🧠 **Diverse Learning Experiences:** Engagement levels vary across holiday vs. weekly programmes — offering **flexible, learner-driven opportunities**.
- 🔍 **Research Opportunity:** These initiatives provide rich data for studying **learner engagement, teaching approaches, and STEM outcomes**.

