

# The House of Innovation, Science and Technology

*Education & Culture*





# Education and scientific culture are major levers for development.

Inquiry-based Science Education (IBSE) significantly improves educational performance. The approach of "questioning, reasoning, experimenting, analysing, communicating" naturally improves children's ability to "read, write, count", while encouraging curiosity, sense of observation, critical thinking, perseverance and rigour. The challenge is to stimulate in young girls and boys the desire to learn, to explore phenomena and to create, just as scientists and engineers do.

These innovative pedagogical approaches require a favourable ecosystem: initial and continuous teacher education, raising awareness among the general public and all stakeholders of the interest of science and technology. Indeed, improving science literacy

is essential to better innovate and face challenges related to health, food, energy or environment, at the level of the community, the country or humanity.

Around the world, science centres have proven their relevance. However, in Africa, they are few and far between. Out of 41 existing centres, 80% are in South Africa.

To tackle this need, therefore, IAP supports the establishment of Houses of Innovation, Science and Technology in Africa, as areas of convergence between educational structures, the scientific community and the general public. Taking advantage of new

technologies, benefiting from digital resources and integrated into scientific knowledge networks, these houses will be efficient models that can be replicated in many different places.

Contributing to the growth of scientific culture and to the emergence of passionate, creative and enthusiastic citizens, able to innovate to build the world of tomorrow, a great challenge!

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Chair of the Global Council of IAP's Science Education Programme



### Improve the quality of education and change mentalities

- Strengthen the training and motivation of teachers
- Encourage the involvement of university students, young scientists and neighbouring research centres
- Offer the general public a place of immersion in scientific culture and build an awareness of science



### Develop a unique model

- Strong local anchoring
- Frugal: high quality at reasonable cost
- Replicable and durable
- Action research: impact measurement
- Capitalization and influence for permanent improvement



### Create an integrated space with 4 components

- 3 workshop and practical training spaces: preschool, primary, middle school
- Mini FabLab
- Mini digital museum
- Outdoor educational space





# 2 Mini FabLab

## *Revealing the ingenious*

3D printers, educational robots, electronic cards... let's go for the adventure of creation! Learn to search for resources, to programme machines, opens up to the extraordinary world of new technologies now accessible, accompanied by teachers and / or students.



# 1 Training Workshop Facilities

## *Building enthusiasts*

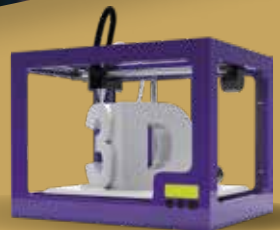
Every day, a teacher with his (her) students comes to implement with an experienced trainer the techniques of Inquiry-based science education.

Students from nearby universities assist the team, they learn and learn to learn: The children get into the game, and the teacher reinforces his-her experience, motivation and self-confidence by becoming familiar with the specific pedagogical approaches.

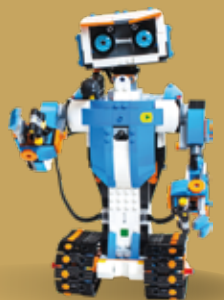
Indeed, inquiry-based science education is within their reach, in their class, with the means they have around them, ... and few tools, some of which can be made by themselves, in the FabLab!



And for eco-consumption, recycle the plastic collected in the surroundings to make new objects, in a virtuous and economical circle.



Go ahead all the ingenious, children, young people, parents, teachers, able to make wonders ... that they will be able to proudly present in the exhibition space!





# 3

## Digital Mini Museum

### *Feeding the curious*

A mini digital museum, quite simple! A few interactive screens, a few virtual reality glasses, shared resources from all over the world, bring science literacy within the reach of the community, according to its poles of interest and local/regional issues. One day, discover permaculture or climate issues, and another the great adventure of conquering space or examining the infinitely small...

And of course, beyond the virtual, seeing the concrete is important! A dedicated space for travelling exhibitions from the country or elsewhere also makes it possible to highlight the most brilliant achievements of the schools and universities from the surrounding area, a shared pride and a stimulating dynamic, by and for the community!

# 4

## Pedagogic Open-Air Space

### *Sowing seeds of researchers*

The outdoor educational stroll is an opportunity to observe the environment, to question the subtlety of the living, to ask oneself a thousand questions through some fun and formative experiences ... to leave finally, with a desire: to come back again!



**The InterAcademy Partnership (IAP)** is the global network of academies of science, engineering and medicine. IAP brings together more than 140 member academies in some 100 countries, which represent more than 30,000 leading scientists, engineers and healthcare professionals.

IAP draws on this expertise to promote excellence in science education; provide independent expert advice on science, technology and health issues; and to advance sound policies to achieve other critical development goals.

**The Science Education Program (SEP)** of IAP promotes Inquiry-based Science Education, which is defined as the practice in which students increase their science literacy and progressively develop key scientific ideas by learning how to investigate and build their knowledge and understanding of the world around them.

They use skills employed by scientists such as raising questions, collecting data, reasoning and reviewing evidence in the light of what is already known, drawing conclusions and discussing results.

### Participating IAP SEP Global Council Advisors



The world's largest museum, education, and research complex, a community of learning and the opener of doors.



Laboratory of innovative ideas and practices seeking to improve the quality of science education in schools and colleges.

### Partner Institutions



Consortium of Science Academies in Africa that aspires to make the “voice of science” heard by decision makers within Africa and worldwide.



International Science, Technology and Innovation Centre for South-South Cooperation under the auspices of UNESCO.



Network of innovative training international and multilanguage centres in the Africa-Mediterranean-European region.