What is the purpose of science education?

To prosper in this modern age of innovation requires the capacity to grasp the essentials of diverse problems, to recognise meaningful patterns, to retrieve and apply relevant knowledge.

Science education has the potential for helping the development of the required abilities and understanding by focusing on developing powerful ideas of science and ideas about the nature of scientific activity and its applications.

Scientific literacy refers to an individual’s scientific knowledge and its use. It allows an understanding of the scientific process and makes it possible to apply evidence-based knowledge across a broad range of issues that require individual and collective action (such as responding to COVID-19 and climate change, or understanding AI, machine learning and other new technologies).

Science Education is a key area for the InterAcademy Partnership (IAP), whose Science Education Programme (SEP) is led by a Global Council of experts that defines and implements its annual activities on global and regional scales.

What is Inquiry-Based Science Education?

Inquiry-Based Science Education (IBSE) adopts an investigative approach to teaching and learning where students are provided with opportunities to investigate a problem, search for possible solutions, make observations, ask questions, test out ideas, and think creatively and use their intuition. In this sense, inquiry-based science involves students doing science where they have opportunities to explore possible solutions, develop explanations for the phenomena under investigation, elaborate on concepts and processes, and evaluate or assess their understandings in the light of available evidence.

This approach to teaching relies on teachers recognizing the importance of presenting problems to students that will challenge their current conceptual understandings so they are forced to reconcile anomalous thinking and construct new understandings.

IAP seeks to reform and develop science education on a global scale, especially in primary and secondary schools, with a pedagogy based on IBSE because it provides opportunities for students to see how well their ideas work in authentic situations rather than in abstract discussions. Students build knowledge through testing ideas, discussing their understanding with teachers and their peers, and through interacting with scientific phenomena.