

**Quality Education Fund Thematic Networks – Tertiary Institutes (QTN–T)
(2022/23)**

Project Title:

STEM Education with Self-directed Learning and Progressive Development in Problem-solving

1. Support Service Coordinator

School-based Professional Support Section, Curriculum Support Division, Education Bureau

2. Network Coordinating Organisation

Department of Science and Environmental Studies, The Education University of Hong Kong

3. Objective

The project aims to develop secondary and primary school teachers' professional capacity in

- promoting STEM education with a stronger linkage to the subject curricula
- enhancing the integration of STEM-related disciplines using self-directed learning (SDL) as one of the major approaches
- exploring holistic approaches and STEM educational designs with a view to developing students' problem-solving skills

4. Foci of Support

- To assist teachers in integrating SDL with curriculum-oriented cross-disciplinary STEM education in secondary and primary schools
- To enrich teachers' knowledge in designing and implementing problem-based STEM learning activities to promote students' problem-solving skills
- To lead teachers to design cross-disciplinary STEM learning activities that consolidate students' knowledge in STEM-related disciplines
- To enhance the coordination of school-based curricula of various subjects relating to STEM education across grade levels
- To help participating schools develop their school-based STEM education curriculum based on the schools' missions and visions, resources and student characteristics
- To provide exemplars of STEM education activities, including the learning and teaching materials, developed by the participating schools for teachers' reference

5. Modes of Support

- To build a STEM education leadership community, which composed of curriculum leaders and teachers from participating schools, for the development of quality STEM education and facilitation of professional exchange and experience sharing among the teachers in the community
- To organise professional development seminars and workshops for school leaders and teachers
- To coordinate and facilitate lesson observations cum post-lesson discussions in the school-network

- To provide on-site support, such as collaborative lesson planning and technical support
- To conduct surveys and focus group interviews with the participating schools to evaluate students' learning outcomes and the effectiveness of STEM education

6. Expectations on Participating Schools

- Each participating school forms a core team of at least 2 – 3 teachers and assign a teacher-in-charge to liaise with the support team
- The core team works closely with the support team in areas such as needs analysis, professional development, lesson observations and post-lesson discussions
- Participating schools collaborate with the support team to design curriculum-oriented, cross-disciplinary STEM learning activities with a focus on problem-solving, and implement them in classrooms
- Participating schools organise one open lesson for teachers of other participating schools to observe
- Each participating school contributes to a resource pack by sharing one school-based curriculum unit together with the learning and teaching materials on STEM education as an exemplar
- Participating schools arrange regular timeslots for teachers concerned to attend meetings and participate in various professional development activities, e.g. collaborative lesson planning
- Participating schools attend two Executive Committee (EC) meetings and an annual dissemination seminar to share the good practices generated and effective ways to cope with challenges encountered
- Participating teachers share with other teachers their experience in school-based curriculum development and the materials and resources they develop, e.g. work plans, learning and teaching materials, research reports and student work (The copyright of these materials will be owned by the Quality Education Fund.)
- Participating schools observe strictly their legal obligations and, in all cases, comply with the Copyright Ordinance in developing school-based learning and teaching materials

7. Project Webpage

<https://stemsdl22.eduhk.hk/>