MAKERS OF TOMORROW

STEM CLUB in school

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EHSAN HASSAN ALADWANI

PURPOSE

One of the goals of Kingdom of Saudi Arabia Vision 2030 is to improve the quality of life by individual lifestyle. As a contribution to this goal, I will establish STEM Clubs called **" Makers of Tomorrow "** .

KEY IDEAS

- STEM Club will offer students valuable opportunities to explore science, technology, engineering and mathematics, in informal settings by allowing students to experiment, ask questions and tackle their interests.
- Building teachers' capacity to support and encourage students' learning .
- Promoting students to participate in scientific, cultural, recreational and sporting activities in the community that contribute to improving the quality of life of the individual and the family by creating a diverse scientific environment for all interests and levels .

WHY

- To connect students with local challenges, expertise and real-world problems.
- To foster enterprise skills (such as problem solving, creativity and teamwork) and the students' belief in their own ability to use STEM practices as skills .
- To work outside the curriculum .
- To provide hands-on, project-based investigation.
- To create fun and inspiring environment that allows students to work in teams.

ACTION

STEP 1

Establish planning structure starting with creating Vision for STEM club (principals, staff, community members, participants, sponsors) to discuss :

- What is the actual purpose of the club?
- What are the goals for the participants?
- how does everyone envision the club in the future?

STEP 2

- Make a SWOT analysis (strengths, weaknesses,opportunities and threats).
- Build a realistic indications of success .

STEP 3

Teachers must develop a plan to determine the outcomes and design tasks and projects based on problem solving , discovery and exploratory learning skill with consideration to the curriculum content using Design Thinking process .

Students should create and evaluate their ideas and design solutions based on their personal interests.Students should implement the following steps in their projects :

- **Investigating :** Explore the needs or opportunities along with the technologies for the proposed solution .
- **Generating :** Visualize , build and communicate design ideas through describing ,drawing and modelling
- **Planning and managing :** Sequence of steps for making designed solution.
- **Producing :** Use materials ,tools,equipment and techniques to build the solution design.
- **Evaluating :** Use personal judgement to evaluate the success of design , processes including their effect on the environment.

STEP 4

- Evaluate performance vs plan. Progress goals should be evaluated four times a year.
- Use professional development resources online or STEM teachers for skill development. *

STEP 5

Show learners project in :

- The Ministry of Education platform and social media .
- Community Expo to develop interests in STEM in all school levels.

OUTCOMES

SUPPORT FOR TEACHERS

Training Program provides teachers with :

- Practical and high engagement strategies skills in STEM to develop learners abilities and aspiration .
- Team teaching skills .
- Particular training in a variety of topics. List of professional learning topic examples :
  - STEM projects and innovation.
  - Robotics and coding.
  - Makerspaces, tinkering and creative thinking .

LEARNER ACHIEVEMENT AND ASPIRATION

Students learn better when they know how to learn , the plan will focus on :

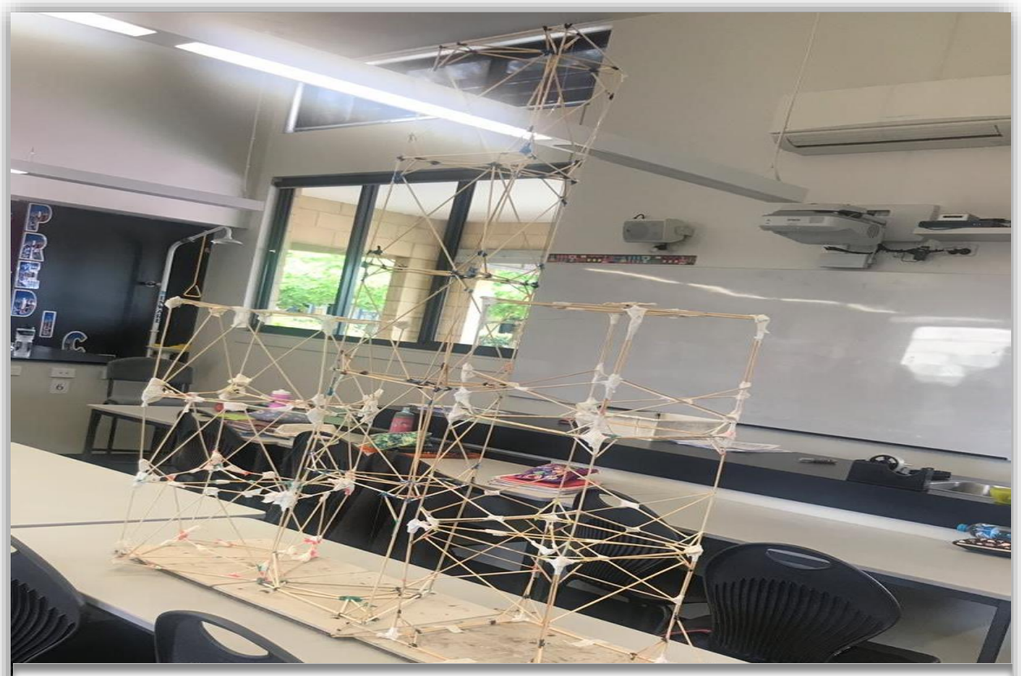
- Give Students opportunities to participate in authentic problem based learning projects that focus on the local community and globally.
- Engage the students in real world problems to find solutions.
- Improve students confidence and their capacity to transfer knowledge and understanding in a variety of STEM subjects and contexts .

SCHOOL IMPROVEMENT

Keep all Students and teachers accountable to the highest standards and provide academic and social support in a fun environment to raise students' interest and motivation .

KEY Resources

Tools : Prepare a Makerspace with the required tools and safety equipment.
Activities : Use IEN platform (National Education platform in Saudi Arabia)* to provide activity plans and resources in STEM.
Time : Schedule a one month timeline (four days a week) for each class during the school year.



Haileybury School

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