STEM LESSON PLAN

Main discipline:	Science
Objective:	Student will design an environment as an example of sound insulation application.
Other discipline:	Engineering
Objective:	Student will make a design for meeting a need or solution to a problem by using his/her knowledge.
Other discipline:	Technology
Objective:	Student will make a measurement by using his/her smartphone as a sensor.
Social skills:	Teamwork, planning and problem solving skills

Authentic Problem of A Knowledge Society:

It has been asked to make a design of a theater hall from the Company you worked for. Your team will be responsible for the sound insulation of the hall.

Constraints:

- The cost of the prototype room should not be more than 20$ as a budget.
- The prototype room should not export more than 10% of the sound.

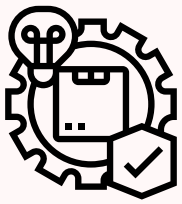
1- Fact Finding:

Firstly, you should begin your lesson by bringing up a relevant current topic or asking related questions to arouse an interest for the work. After that, you should lead students to research about the topic. You can also provide some resources for them . Academic articles, textbooks, popular science websites and videos can be a great source of knowledge.

2- Ideation:

At this stage, you should offer them an environment to come up with different solution ideas. If it is necessary, you can lead them by asking related questions. At this stage, you can teach them the sound insulation topic as a lesson.

3- Product Development:



Now it is time to prepare a prototype. You should give your students enough time to prepare tehir prototype product as a group by paying attention to constraints. They can finish their work as an extracurricular study. Each group should have one product.

4- Refinement:

At this stage, students should test their prototype products. They can use their smartphones as a sensor and measure the desibel level of the sound. It is suggested that, testing stage should be perform together in the classroom. There can be multiple products for the solution to our problem.

5- Disseminate & Reflect:

At the end of the work, students should display their prototype products. School should organize a STEM Fair or a Science Fair to give students an opportunity to share and reflect their works.

EVALUATION:

Evaluation Rubric:

Producing expected prototype	1	2	3
Paying attention to constraints	1	2	3
Making a measurement by using a sensor	1	2	3
Finding different and creative solution	1	2	3
Participating the group work	1	2	3
Reflecting the prototype effectively	1	2	3