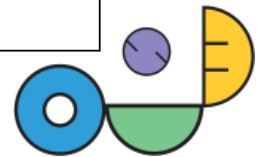




Instructional strategy : Design based education

Description of the activity:	"Design based education" is explained here as an example of an instructional strategy which can be used within STEAM education
Target group(s):	Primary and secondary schools
Keywords:	Design based education
Duration of activity:	45'
Description of activity environment and materials needed	This is an accompanying document for the powerpoint "designbasededucation".



Accompanying document for hand outs on Design based education

Examples from a practice based research project "Design@School" (www.designatschool.net) and an Erasmus KA2 project (PROGRAM, 2019-2023)

An example from elementary school

The students of the sixth grade started from the Context "OUR SCHOOL". Throughout the second semester, together with their teacher, they took on the challenge to make their school a more pleasant place. The class group was divided into 7 groups of 3 or 4 students. Group work and classroom feedback alternated throughout the students' quest for problems and solutions. In the end, the students realized a storage furniture to solve the problem of the sloppy dressing room in the gym.

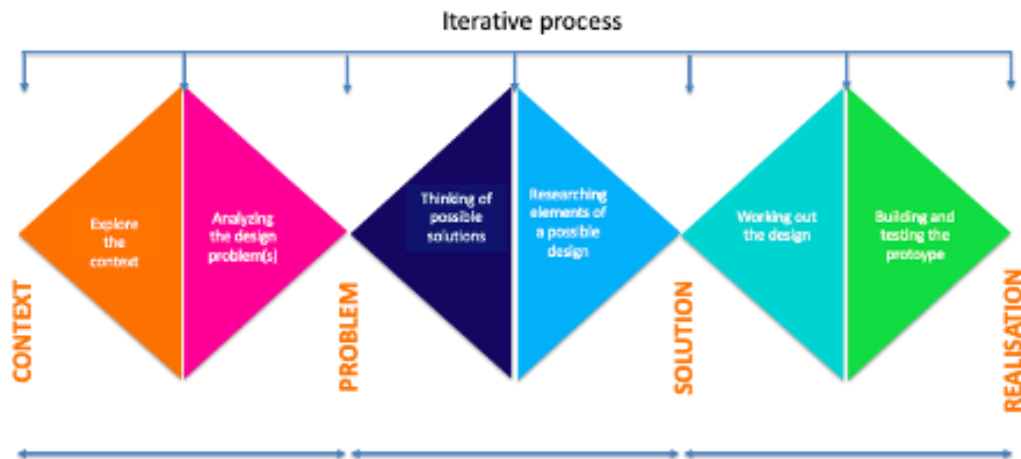
An example from secondary school

In a secondary school the teachers challenged the students to work on the CONTEXT: 'THE ROAD FROM THE SCHOOL TO HOME'. Pupils had to look for unsafe situations on their way from home to school. This context is relevant for first-year students who come to the new school. Data is collected via a digital research book, using photos and drawings. During the process, the students worked out a solution for a dangerous crossing place.

All solutions found were proposed to parents, municipal government and traffic policy.

These are examples from projects in which the process of design-based thinking is used in order to define a problem in an authentic context and to find a solution for this problem.

There are different models that can be used Henze, Barendsen, Rahimi & Stammes (2019), but a well know model is the diamond model (British design council, 2018) in which the creative process is presented as a diamond in which the process of divergent/convergent thinking takes place 2 times. An adaptation of this model to school context is the design@school-model in which the process of divergent/convergent thinking takes place 3 times. (Van De Keere & Neyrynck, 2020)



Design@school in a nutshell

The "design @ school" model presents six stages across three contiguous diamonds, where the shape of the diamond indicates how we think. During phase 1 "exploring the context", phase 3 "thinking of possible solutions" and phase 5 "working out the design" we think divergently: we broaden and think broadly. During phase 2 "analyzing the design problem(s)", phase 4 "researching elements of a possible design" and phase 6 "building and testing the prototype" we think convergent: we narrow down and think concretely.

The first diamond aims to detect a multitude of problems in order to ultimately select one problem statement that is relevant to the user. In the second diamond, solutions are devised and selected, and in the third diamond, solutions are worked out and ultimately realized to tackle the problem.

During each of these phases, there are methodologies to facilitate the process. These methodologies also originate from "human centered design", but can be translated to the level of students aged 10-14 years. (<https://www.designkit.org/human-centered-design>)
<https://serc.carleton.edu/sp/library/issues/what.html>