sySTEAM

systematic approach for implementation of STEAM education in schools

STEAM READINESS
SELF-CHECK TOOL

This self-check tool should not be understood or used as tool, which indicates absolute absence of quality in lowest points or excellence in highest. We believe that each school is community with certain needs, contexts and might tackle todays and future challenges not with predetermined set of solutions, but with creative and adaptive approach. Thus, we encourage everyone to use this tool as opportunity to self-analyse yourselves in order to better understand your current situation in relation to STEAM implementation.

Change management is difficult process which takes time. Not every culture is keen for radical innovation and change, but we do not find disturbing that education system and each learning community evolves at its own pace. Great achievements are made through incremental improvement, if they are made wisely, timely and coherently.

For advancement and improvement, you need to choose means based on analysis and you need to have an idea what you can do better. Here you will find 5 questions. Answering them should allow you better understand your school situation and act accordingly.

Every school should use this tool in accordance with their own institutional mission, national education policy, community ambitions and goals.

SELF-CHECK TOOL

1. S – Synthesis of disciplines. Which example best represents your common practice in school? Please choose one.

a) *singing the song to memorise the important historical events.*

b) *reading a play about famous historical personality and explaining the way the playwright used the art form to express the human condition.*

c) *integrating math and physics disciplines with Mars as a theme (e.g. calculating differences of various characteristics between Mars and Earth (e.g. temperature, rotation, mass, etc.) and discussing what effect do these differences have.*

d) *teaching to understand musical piece as a literature story to convey its musical characteristics, for e.g. dynamics according to the idea of the composer.*

e) *teaching students to purify different attributes in order to classify practical stuff, e.g. trees, colors, etc. in order to help understand how this works in more abstract cases, e.g. numbers.*

2. T – Technology. Which example best represents your common practice in school? Please choose one.

a) *students read given article on computers instead of textbooks.*

b) *students take a quiz using a Kahoot! instead of using pencil and paper.*

c) *students are given task to make the presentation using their chosen tools.*

d) *students take care of greenhouse through online solutions (measurement, real-time cameras, etc.).*

e) *students use virtual reality glasses and google maps application to take virtual museum tour.*

3. E – Extent. Which example best represents your common practice in school? Please choose one.

a) *integration of two or more subjects in order to commemorate an important event, such as Earth day.*

b) *preparing a short-term project using knowledge of at least two subjects at the end of the semester / trimester.*

c) *integration using thematic units for introduction of new theme for several subjects (baroque, classicism, gothic for music, literature, arts) several times per semester / trimester.*

d) *students carry out a continuous project (e. g. Designing a Low Energy Home: Heating and Cooling) by using knowledge of several subjects and have repetitive sessions dedicated to this theme.*

e) *content and Language Integrated Learning (CLIL).*

4. A – Applicability. Which example best represents your common practice in school? Please choose one.

a) *students apply Pythagorean theorem to solve the task given by the teacher.*

b) *students make inference about which matter will float on water by calculating density of these matters and then provide examples how they can use this information in life (application is rather theoretical and artificial).*

c) *students use their knowledge to plan the budget of an upcoming school event.*

d) *students prepare a business plan to redesign the chosen product to be more environmentally friendly, that includes market analysis, product design and marketing campaign.*

e) *designing and testing the app that helps to improve healthy lifestyle and visualise the progress.*

5. M – Mentorship approach. Which example best represents your common practice in school? Please choose one.

a) *the teacher conducts the scientific demonstrations and manages the experimental apparatus, but asks questions to the students, asking for predictions about what may happen by operating in a certain way and asking for explanations of what has been observed.*

b) *laboratory activity conducted under the guidance of a worksheets given by the teacher and containing instructions for conducting the experiments.*

c) *laboratory activity with concrete goals, for e.g. "Find this ...", "Determine that ...".*

d) *the research problem to be solved through laboratory activity is provided by the teacher, but the students are responsible for designing and conducting the work, collecting data and building descriptions and explanations of what it is observed.*

e) *for the task, "Set up a study aimed at sound analysis or speech recognition" students can choose to compare high and low tones, male and female voices, sounds produced by musical instruments, noises, etc.*

Please place dot for each question depending on answer you have chosen and connect dots by straight line.
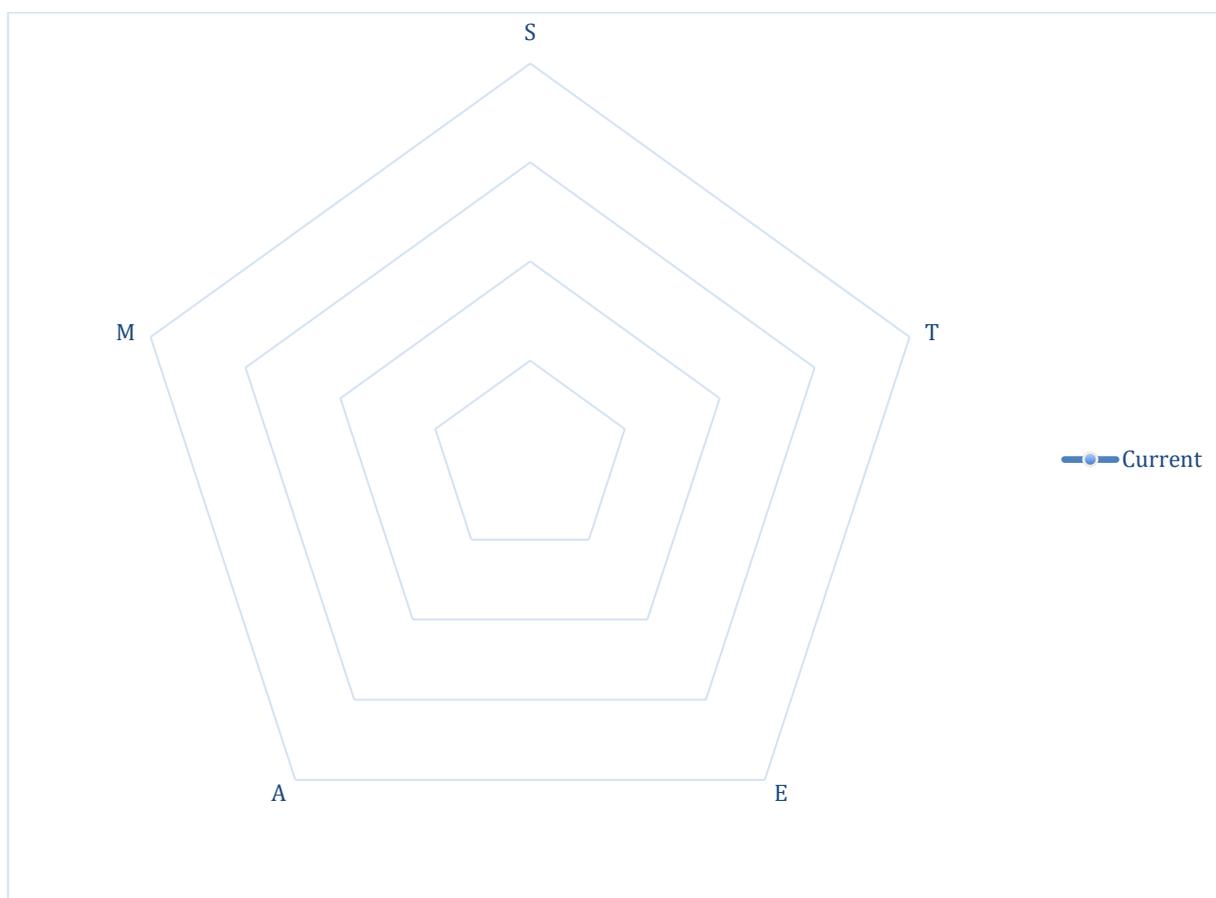
It is your STEAM readiness level diagram. Points which are closer to centre of chart represents lower level of certain aspect of STEAM. But as mentioned before you should not interpret this as "poor quality" / "high quality" diagram, but rather as inspiration for further possible improvements of each aspects. The best diagram is not that diagram which have all dots on highest levels, but that diagram with best represents school aspiration and goals.

S – Synthesis of disciplines. Do we mechanically connect disciplines or focus on showing for students underlying principles beneath separate subjects?

T – Technology. Is technology in classroom "fun" or a "game-changer"?

E – Extent. How "normal" is to integrate on day-to-day practice?

A – Applicability. Do we solve theoretical problems with very basic understanding how it might be applied in real life or do we encourage students to tackle relatable, everyday life issues?

M – Mentorship approach. How free student is to make decisions about his/her own learning?