SCRATCH in school

This is a document that shows in which way all partners of ICT World use SCRATCH in school.

1. **Do you teach Scratch at school?**

Germany: In my state North Rine-Westfalia SCRATCH is taught in many schools especially in project groups for students from 10 years on. Some primary schools offer SCRATCH courses in the afternoon when students have done their homework. In some secondary schools computer science is offered to students in grade 8 and 9.

France: From this school year (reform), Scratch is included in Math lessons right from grade 3 (8 - 9 years old pupils) to grade 9 (14 - 15 years old pupils). At the moment a precise progression is not compulsory, but all teachers have had training. At school, all students work around 12 hours per year in Scratch workshops. Scratch is also included in Technology subject. Students are using it for 15 hours more with me.

Czech Republic: Yes, Scratch has recently been included in ICT lessons for grades 6 (11 - 12 years old pupils) and 9 (14 - 15 years old pupils) at our school. As far as we know Scratch is not usually taught at other lower secondary schools.

Spain: We teach Scratch in some primary and some secondary schools in Spain but in a really voluntary way. Every teacher does it on his own. Besides, Some parents associations are including scratch lesson after school. IN our school, we have started to work with scratch in 2 level (13-14 years old students) for the very first time.

Latvia: This school year the school has started a new Computing curriculum approbation, which includes elements of coding using SCRATCH. It is also used by many students of school outside lessons at the afternoon projects ICT WORLD workshops . Children gain an understanding of the fundamentals of programming with Scratch.

2. **Is it compulsory or voluntarily for each student?**

Germany: It depends on the school. Different schools have different profiles. At PGU students if grade 8 have to choose for two years a new course- sometimes a mixture of two subjects e.g. biology-geography, Spanish, as third foreign language or establishing a student company. Relevant for “ICT World” is a course called “ EMC-discoveries by using a computer”. In this course students learn to code with Scratch besides using GeoGebra, SketchUp and other application for simulations and visualisations.

France: Scratch teaching is now compulsory; it is evaluated in final 2ndary school exam.

Czech Republic: At our school it is compulsory.

Latvia: This is compulsory during school lessons and volunteered at the project workshops.

Spain: We have the new law on Education our region (Andalusia) has ruled what follows:
Conocer y manejar un entorno de programación distinguiendo sus partes más importantes y adquirir las habilidades y los conocimientos necesarios para elaborar programas informáticos sencillos utilizando programación gráfica por bloques de instrucciones.
It means that, students must get used to code using blocks when they are 13 to 15 years old from the next academic course in a compulsory way in the subject of technology.

3. **If you use Scratch at school: in which age groups do you teach Scratch?**

Germany: We have a project group led by a students for younger students at the age of 10 to 12 who are interested in coding and computer science. Students of the course. Our EMC students are 14 to 15 years old. Once a year each students of grade 5 (10 years) gets in touch with ideas of coding by doing a course "the hour of code" offered each autumn. After this lesson each students gets the certificate. At the end we explain to the interested one how to continue on this website with more advanced courses and give a paper to parents who can support this.

France: Scratch is taught at grades 6 - 7 - 8 and 9 at school.

Czech Republic: As mentioned earlier Scratch is taught at grades 6 (11 - 12 years old pupils) and 9 (14 - 15 years old pupils).

Latvia: Scratch should be studied from 5th to 9th grade in accordance with the new curriculum. In our school students have additional facultative lessons, so since third grade.

Spain: students at 2nd and third level: 13 to 15 years old.

4. **Is there a special curriculum for your school or is there an official syllabus from the ministry of education?**

Germany: We have developed a curriculum for course EMC. It contains basic concepts of coding including control structures as well as the use of variables to prepare coding with other tools when students choose informatics/computer science in upper secondary

level.

France: A precise curriculum is not imposed to teachers concerning Scratch; only global guidelines are given.

Czech Republic: No, there is not. It is up to each ICT teacher to choose what s/he will teach. In this the Czech school system is quite liberal.

Latvia: There is a state standard and the program of a school Computing course as well as school program.

Spain: The curriculum is formed by contribution of national, regional and our school organization of the subject of technology. Fortunately, the manager in my schools have included compulsory the subject of robotics at 3rd level which is based on coding with blocks with bitblock, visualino or directly arduino.

5. **Tell us some examples of what students are doing with Scratch?**

Germany: Students develop games with different levels, animations (stories) and graphics as done in former times with LOGO. Sometimes they develop math trainers for younger students.

France: Students mostly solve challenges using the basic Scratch functions. At school I use video tutorials so that students are autonomous and can learn by themselves. In Technology they have to use Scratch to program robots or to make a program that is linked to the subject (for instance converting binary to decimal).

Czech Republic: After managing the basics of the algorithms students create games, stories and fairy tales or short presentations.

Latvia: First, students must master the principle of algorithms, then create small stories, games, and interactive pictures.

Spain: Or students are working at 2level in ICT world activities and in 3rd level they are doing dynamic presentation on the topic of energy.

6. **Do you use a tutorial, book or website to teach or do students learn on their own?**

Germany: We normally offer own worksheets with short explanations and small tasks to learn Scratch. But it happens often that students learn at their own, not using the papers, they try out , talk with their classmates and use the official Scratch website with a

lot of examples, download, modify – shortly remix it.

France: Teachers have different ways of working. Personally I use video challenges and tutorials (https://www.isnbreizh.fr/scratch/)

Czech Republic: We usually use tutorials that can be found on the Internet and are a part of the Scratch domain. We do not use any books or handouts. Pupils usually learn by trying.

Latvia: We use specially designed for the new program in Latvia website https://startit.lv/ for teachers and students, official Scratch website, YouTube video.

Spain: No, we just give some explanations and they search information on the net.

7. **Does SCRATCH in your opinion help to understand basic ideas of coding and improve students' computational thinking?**
   Germany: We are strongly convinced that Scratch support this.
   France: Definitely yes
   Czech Republic: Yes, it does.
   Latvia: Yes, certainly.
   Spain: Yes, certainly.

8. **Is there a tendency from the educational authority in your country to support coding in general at schools and to enlarge class time for computational and coding concepts?**

   Germany: in our state unfortunately we cannot see any tendency in the lower secondary school. There is a lack of time to support computational thinking and coding in subjects like mathematics. So in my school not more than 20% to 25 % of the students in grade 8 get in touch with these concepts. In upper secondary level students can chose 3 lessons per week of informatics (besides biology, physics, chemistry).
   France: With the current school reform it is clear that coding and algorithmic are given a central position in the math and technology curriculums.

   Czech Republic: It is hard to tell. The overall tendencies are towards teaching polytechnical science and including computer studies and coding in as many (technical) subjects as possible. But there is no official concept, no support from the educational authorities. As we mentioned before the Czech system is quite liberal and schools can adjust the curriculum according to their needs.

   Latvia: In order to promote the popularity of the subject the computing among students, as well as increase the number of pupils studying computing subjects in depth, is being implemented educational project Start IT mainstream schools Latvia.

Spain: Yes, but with no funding. It should be accompanied by laptops, sensors, motors,... The tendency should be considered to be increasing as we come from zero to an average of more or less 30 minutes a wee**k.**