

## We are the makers – 3D Print Learning Scenario – History of Printing: from movable type to 3D printer

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| <b>1. Title of the Scenario</b>         | <b><i>History of Printing: from movable type to 3D printer</i></b>  |
| <b>2. Target group</b>                  | This scenario can be fit with different ages: - 6-10 yo / 11-13 yo /14-16 yo  |
| <b>3. Duration</b>                      | This scenario can be divided into 3 different 1/1,5 hour lessons.   |
| <b>4. Learning needs</b>                | Drawing and digital skills  |
| <b>5. Expected learning outcomes</b>    | <p>The history of printing is explained by what occurrences can benefit the adoption of some innovations. Students will discover how Gutenberg discovered his printing press, and then they will build the history, using Tinkercad and the 3D printer. They will print their movable type; they will understand which sensors are better for an automatized press, and finally, they will print their book. A circular project about the history of printing!</p> <ol style="list-style-type: none"> <li>1)Awareness of the process behind innovations;</li> <li>2)Learn how the Gutenberg's press works;</li> <li>3)Learn social uses of movable type;</li> <li>4)Learn to print in 3d a movable type using Tinkercad.</li> </ol>   |
| <b>6. Methodologies</b>                 | <p>Lesson 1: The teacher explains the history of printing. Why did former attempts of printing fail? The teacher explains what are the differences between Efecto disc (and Chinese attempts) and the press in the later Middle Age. The teacher tries to obtain answers from students about the types of writing, using an interactive whiteboard and tools like mural.</p> <p>Lesson 2: Using Tinkercad the teacher shows how to obtain the 3D prototype of our letters. Students can be divided into groups and work on their letters, or, if the school has got only one computer available, few students can be chosen for trying how to model the type.</p> <p>Lesson 3: The teacher explains other uses of movable type, for example, the popular game Scrabble. Regarding the social use of movable type, they can be an easier way of writing for dyslexic guys and blind people, who can touch the letter like it was a braille system. Finally, they can print a letter on the paper with ink and the 3D object.</p> |
| <b>7. Place / Environment</b>           | Classroom, lab.   |
| <b>8. Tools / Materials / Resources</b> | Projector, Audio system or interactive whiteboard, 3D printer, Smartphone, Tablet, Computer.  |

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| <p><b>9. Step by step description of the activity / content</b></p> | <p>Lesson 1</p> <ol style="list-style-type: none"> <li>1. Use the presentation (LINK) to involve students and share some information about the printing press with movable type.</li> <li>2. The teacher has to create a presentation about the history of printing.</li> <li>3. The teacher asks how many types of writing systems exist, and which is more efficient for a printer.</li> <li>4. Each student answers using the interactive blackboard or their device.</li> </ol> <p>Lesson 2</p> <ol style="list-style-type: none"> <li>1. The teacher shows how to use Tinkercad</li> <li>2. Each group or a few selected students try to prepare a 3D model of types.</li> </ol> <p>Lesson 3</p> <ol style="list-style-type: none"> <li>1. Downloading each file on the computer</li> <li>2. Printing with some ink the letter obtained with the 3D printer</li> <li>3. Understanding social uses of movable type, Scrabble. And the circularity of this project, which students have built the history with.</li> </ol> |
| <p><b>10. Feedback</b></p>  | <p>Lesson 1: Knowing the past. The history of printing, the society, and which ways of writing exist.<br/>         Lesson 2: Quality of 3D model<br/>         Lesson 3: Quality of real model printed. Understanding of the social use of those 3D objects.</p>   |
| <p><b>11. Assessment &amp; Evaluation</b></p>                       | <p>Lesson 2: Evaluation of the team group<br/>         Lesson 3: Evaluation of the product</p>  |