DESIGN THINKING ACTIVITY PLAN TEMPLATE

1. BASIC INFORMATION

PROJECT TITLE:

Title of the Design Thinking Project as it is mediated to students

AUTHOR(S):

Name(s) of teacher (s), designer(s), researcher(s) who created the Activity Plan

ISSUE:

What is the issue that the Design Thinking project deals with?

E.g. The biodegradable material in jewelry production

FINAL STUDENT PRODUCTION:

What is the expected final artifact that will be produced by the students using emerging technologies throughout the DT project?

e.g.1 a 3D model of a jewel

e.g.2 a GIS simulation game for sustainable transportation in the city

TECHNOLOGIES TO BE USED:

Select the ExtenDT2 technologies that will be used by students during the DT Project

☐ MaLT2　☐ ChoiCo　☐ SorBET　☐ VRobotics　☐ NQuire

DOMAINS:

Specify the domains (subjects) involved in the DT project and give a rating of the level of emphasis on concepts from each of them from 0 to 10.

E.g. mathematics: 8/10, chemistry 2/10, environmental education 5/10, Computer Science 6/10 other (specify).

2. SUMMARY

Provide a short description of the DT project clarifying:

a) the rationale behind the selected DT Project issue

b) the expected use of (emerging) technologies for creating a solution to this issue

c) the artifact(s) students are expected to construct using this technology

3. FOCUS, SET UP & REQUIREMENTS OF THE ACTIVITY

4.

3.1 LEARNING OUTCOMES

Domain related (for the domains mentioned in section 1)	*e.g.1 Discover the mathematical properties of the 3D shapes used for designing the digital jewel model*
	e.g.2 Decide on the material for printing the 3D model (Chemistry)
(Emerging) Technologies Related	*e.g. Programming GIS games, Robotic circuits, Logo programming, Interpret data*
Design Thinking & innovation Related	*e.g. develop empathy, develop presentation and communication skills, ability to create rapid prototypes*
21st century Skills Related	*e.g. collaboration, creativity, critical thinking*

3.2 PARTICIPANTS & CONTEXT

STUDENTS

Age	*10-11 years old*
Prior knowledge	*basic knowledge of programming concepts with Scratch*
Nationality, gender, cultural background	*1 pupil is from Albania and 21 from Greece, 15 boys & 7 girls*
Language	*Greek*
Special needs and abilities	*-*

TIME

ACTIVITY DURATION: *e.g. 8 hours divided into 4 times* **(min 6 hours - 2 times in total)**

IMPLEMETATION DURATION: *e.g. 4 weeks*

SCHEDULE: *e.g. 2 hours/week*

SPACE

Specify where the activity will take place

ACTIVITY TYPE: ☐ In-person ☐ At distance ☐ Mixed

PHYSICAL SPACE: *e.g. computer laboratory, classroom*

VIRTUAL SPACE: *e.g. moodle platform, Miro Platform MS-TEAMS platform, E-class*

3.3 SOCIAL ORCHESTRATION

POPULATION

Nᴏ ᴏғ STUDENTS: Nᴏ ᴏғ GROUPS :   Nᴏ ᴏғ TUTORS: Nᴏ ᴏғ ASSISTANTS:

STUDENT GROUPING & INTERACTIONS

Grouping Criteria	*e.g. mixed school performance, student preferences*
Setting	*e.g. 3 students per group using 1 computer per group and sharing 3 tablets between groups* **(min 2, max 5 students/group)**
Roles in the group	*e.g. pre-defined roles; emergent roles; role exchange in the group*
Tutor(s) role(s)	*e.g. intervene; monitor; facilitate; guide; observe*

4.4 SUPPORTING ARTIFACTS & MATERIALS

Digital artifact(s)	*e.g. basic 2D & 3D models created by the teacher in MaLT2 (a pyramid, a cube, a circle)*
Physical artifacts & material	*e.g. a 3D printed model, workbook*
Supporting material	*e.g. MaLT2 video tutorial, teacher's instructions (printed)*

5. IMPLEMENTATION - DESIGN THINKING ACTIVITY FLOW

This section describes how the teaching and learning process is expected to evolve through the 4 phases of the Design Thinking Methodology: Discover, Define, Develop and Deliver[1].The described activities should support the objectives stated and make use of the technologies, supporting material, and teaching and learning processes mentioned earlier in the activity plan. The engagement with the 4 stages should be iterative and not linear.

PHASE 1: DISCOVER

In the "discover" phase students explore (diverge) and understand the problem of their Design Thinking project for which they will develop a final artifact. This involves, for example, empathizing with people who belong to the target audience and understanding the needs of the potential users. In this phase, students can use the ExtenDT2 technologies to understand the topic (e.g. to play a game on the topic predesigned by the teacher) and create online surveys in NQuire asking questions to the target audience to discover their needs.

DURATION: *e.g., 2 hours*

DESCRIPTION:

EXPECTED USE OF EXTENDT2 TECHNOLOGY:

EXPECTED STUDENT CONSTRUCTIONS:

EXPECTED GROUP INTERACTIONS:

PHASE 2: DEFINE

In the "define" phase students define (narrow down / converge) certain features of the final artifact based on the information explored in phase 1. This involves, for example, setting criteria, making decisions and deciding on specific features. In this phase, they can use the ExtenDT2 technologies to ideate and

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[1] Based on the 4Ds or Double Dimond model of Design Council
https://www.designorate.com/the-double-diamond-design-thinking-process-and-how-to-use-it/

conclude the basic criteria and characteristics for their artifact e.g. define the core mechanics of their game or the gaming idea), or define the material and type of their 3D model.

DURATION: *e.g. 2 hours*

DESCRIPTION:

EXPECTED USE OF EXTENDT2 TECHNOLOGY:

EXPECTED STUDENT CONSTRUCTIONS:

EXPECTED GROUP INTERACTIONS:

PHASE 3: DEVELOP

In the "develop" phase students are encouraged to give different answers (diverge again) to the initial problem by designing in their group a range of rapid prototypes for their artifact, testing and redesigning them until a final version is ready. This involves, for example, creating low-fidelity game prototypes, testing in the group while developing, and exchanging prototypes with other groups. It is quite possible that this phase would lead to an iteration through the first two phases (discover and define) as well. In this phase, they can use the ExtenDT2 technologies to develop a range of demos, test them, share them with other students or online and keep redesigning them until they reach a final product.

DURATION: *e.g., 3 hours*

DESCRIPTION:

EXPECTED USE OF EXTENDT2 TECHNOLOGY:

EXPECTED STUDENT CONSTRUCTIONS:

EXPECTED GROUP INTERACTIONS:

PHASE 4: DELIVER

In the "deliver" phase students focus on (converge) their final solution and its delivery to the target audience and the public. This involves making the final decisions to finalize it, presenting and demonstrating the final product to potential users, and developing promotional material (e.g. posters, pitch videos). In this stage they can use ExtenDT2 technology, e.g. NQuire, to create online surveys sharing their final product with the target audience (e.g. other students, teachers, parents) and asking them to evaluate it, giving them feedback.

DURATION: *e.g., 1 hour*

DESCRIPTION:

EXPECTED USE OF EXTENDT2 TECHNOLOGY:

EXPECTED STUDENT CONSTRUCTIONS:

EXPECTED GROUP INTERACTIONS:

6. STUDENT ASSESSMENT

Provide some suggestions for procedures, methods and tools that can be used by the teacher to facilitate the assessment of the learning outcomes stated at section 3.1. (e.g. post activity tests, reflective videos, student worksheets etc).

TOOLS

Describe the assessment tools that will be used

e.g. student evaluation sheet, tutor's notes with a template for evaluating student activity, student worksheet

PROCEDURES & METHODS

Describe the assessment methodology that will be followed

e.g.1 Group evaluation. Each group of students fills in the worksheets during all phases and delivers them to the teacher by the end of the activity.

e.g.2 Individual evaluation. Each student keeps a personal diary which is evaluated at the end of the project. Moreover each students fills in a test after the end of the activity