
Awards system

MAKER BADGES

Makerspace
for Inclusion



**Makerspaces4Inclusion
project over a period of two
years we will produce one
set of open educational
resources which are based
around the maker field and
digital fabrication.**

Who made this award system?

This award system has been made by the consortium of the European Project, Makerspace for Inclusion N° 2018-I-BE0S-KA205-002425, with the participation of the following associations:

Digijeunes (France), Timelab (Belgium), Horizonlab (Italy), Nod Makerspace (Romania), MakerConvent-Trànsit Projectes (Spain).

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Digital Edition

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Award System for Making Activities : Engaging young people

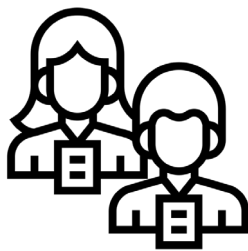
Award system for making activities

"Imagine something never done before by a method never before used whose outcome is unforeseen".

Allan Kaprow

Award System Engaging young people

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Engaging young people in Maker Educational Activities

Makerspaces are providing more and more spaces for learning around the world, however the skills that the participants tend to learn in these spaces are outside of the required school curriculum. The traditional education system has difficulty recognising student achievements and skills which are learnt outside of the standard setup and procedures. However, there is a tried and tested way to allow participants to recognise their achievements in these makerspace environments which can largely benefit the young participants.

Introducing a badging system into the makerspace can provide students with a chance to be recognised for the skills and competences they have learnt and developed whilst working in the space.

Open badges are recognition and certification systems which can certify that a new skill or piece of knowledge has been learnt.

The badges are a combined empirical and conceptual effort, which when applied to the makerspaces and learning processes that occur in these environments, can help encourage the engagement of younger people in them.

This proposal for such a scheme is flexible and adaptable to any space and activity that is developed around Educational making activities.

M4Inclusion: Award System

The award system is made up of three different elements; the level belt, competency badges and skill badges. These aim to work together to provide Youth workers with a tool to aid planning, facilitation and evaluation of activities for young participants, helping them remain interested and motivated within a Makerspace environment.

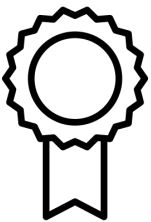
Skill Badges

Activities can be planned with the intention that they will help a young person gain a Skill badge. Skill badges are rewards that show that a certain skill has been developed, through completion of a task or activity.



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Examples:

* A skill badge could be awarded after a young person has taken part in some form of training and been able to apply what they have learnt. Such as completing 3D printer training and being able to print their own design independently.

* A skill badge could be awarded after a young person has been able to apply a certain skill to a project or task, such as designing and building a project based on recycled materials.

* Several skill badges could be awarded after a larger project, where several skills have been developed simultaneously. A project such as the Mighty Maker Level Belt, which brings together textiles and electronic prototyping, could mean that participants are rewarded with a textiles badge as well as an electronic prototyping badge.

As part of this project, ten initial skill badges have been developed, each for a common skill that a Maker might need in a Makerspace.

These are:

- Textiles
- Laser cutting
- 3D printing
- Painting
- Recycling
- Wood work
- Independent work
- 2D design
- Electronic prototyping
- Workshop Safety

3D printable designs for these badges can be found on TinkerCAD following this [link](#). After being printed they should be mounted onto a standard pin so that they can be worn by the young person or attached to their level belt.

These printable designs provide a template for other skill badges to be created by facilitators or the young people themselves by editing the TinkerCAD files. This allows skill badges to be made for young participants that are more specific and relevant to their Makerspace environment, as well as targeting exactly what they want to learn and improve on.

It is suggested that these skill badges are seen as achievable to the young participants. Learning a new skill should be exciting and encouraged by facilitators. By providing a reward which recognises the ability to learn and gain an understanding of a certain skill, young participants will hopefully be able to register the benefits of learning in a more hands-on and experimental way.

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Competency badges

Competency badges are to recognise and reward young participants for their growth in certain areas which are thought of as being important to Makers. Competency badges are larger than skill badges and have space for level indicators to be added over time. Each competency badge has space for five level indicators, therefore giving young participants five levels to progress through. Again these level indicators can be awarded after a participant has completed a training, activity or project which has shown to the facilitator that they have progressed to a higher level in that certain competency.

These competency badge designs can be changed or redesigned to be more suited to any specific Makerspace environment or members.

The table below provides an example of how competencies can be separated into different levels, which once reached, can be awarded by adding the level indicator to the badge.



In this project we have created designs for four different competency badges. These can also be found on the same TinkerCAD profile. These are 3D printable designs which can then be attached to a standard pin and worn by the young participant or attached to their level belt.

Level	Competency			
	Problem Solving	Creativity	Community	Coding
1	Able to identify a problem and break it down into components.	Able to express creativity through aesthetic means (eg. decorate an object).	Able to work with others.	Able to use visual coding software to create basic programmes.
2	Able to identify a problem and dissect it into components. Able to brainstorm possible ideas for solving it.	Able to customize outputs that come from recipe-like making activities.	Able to engage and share with the digital making community.	Able to use visual coding software to create more complex programmes. Able to complete small tasks and challenges using visual coding software.
3	Able to identify a problem and break it down. Able to brainstorm possible solutions. Being able to work with others to identify what may be the most appropriate solutions.	Able to use items, objects and materials in novel ways to make a simple project more interesting or personal.	Able to support others and work together with those around them. Able to provide help and assistance when those around them need it and allow others to help and support them.	Able to use visual coding for more complex tasks, that can be integrated with a project or physical item. Able to understand lines of code written in more complex language such as C language (used with arduino).
4	Able to identify the problem, brainstorm ideas for a solution and imagine a strategy that would be able to test different ideas. Be able to complete the testing and implementation with support from those around them.	Able to connect projects to their own personal interests and experiences. Using tools and materials to create imaginative and personal outputs.	Able to collaborate and work well together with other makers on larger, more complex projects. Be able to share and discuss ideas and methods to others around them in the Makerspace.	Able to assemble lines of code to create a computer programme that is able to fulfill a simple task.
5	Able to identify a problem, break it down into necessary components and to identify where solutions need to be found. To be able to independently brainstorm ideas and solutions before testing and implementing them in a real life scenario.	Able to create and imagine their own projects, which use a mixture of elements and skills which have been learnt from previous projects or even outside of the Makerspace, helping them to create something original.	Able to support and teach others new skills or help them to solve new challenges. Be able to explain more complex ideas in a clear and understandable manner. Be able to share projects and methodologies clearly on online maker platforms.	Able to create and implement more complex computer programmes, and able to integrate these into a project for an output which is more advanced and interactable.

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Mighty Maker Level Belt

The level belt hopes to bring skill badges and competency badges together and be a way for young people to register their overall progression as a Maker over time. The levels of a Mighty Maker Belt are used in a comparable way to Martial art belts, where a new colour is awarded once a certain predefined criteria is met.

aTinkerCAD account and log in, in order to access the designs., showing how to make the belt. There are two different designs; one based on a pouch made from fabric and one based on a 3D printed holder.



The Mighty Maker Level Belt is a making activity in itself. It should be a project that participants can work on and complete over time, whilst learning and developing maker skills which can help them obtain Skill and Competency badges.

3D printable designs for these badges can be found on TinkerCAD following this [link](#) or at the following address <https://bit.ly/2J-Dzl7p>. It is necessary to create

The belt uses an Arduino and RGB strips which are programmed to glow the correct colour to indicate what level the young participant has reached.

The young participant progresses through the colours, by gaining more skill badges and achieving higher levels in the different competencies, as shown in the table below.

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Belt colour	Skill and competency requirements
RED	- Level 1 reached in all 4 competences - 2 skill badges obtained
BLUE	- Level 2 achieved in all 4 competences - Obtained 2 further skill badges (4 in total)
GREEN	- Level 3 achieved in all 4 competences - Obtained 2 further skill badges (6 in total)
YELLOW	- Level 4 achieved in all 4 competences - Obtained 2 further skill badges (8 in total)
VIOLET	- Level 5 achieved in all 4 competences - Obtained 2 further skill badges (10 in total)

The Might Maker Belt should be a presentation of what each young Maker has achieved, by illuminating in the correct colour and being a place for them to pin their badges. The belt has been designed to be wearable by participant themselves, but should be a personal project that's adapted to their vision.

Together, this set of tools hopes to give facilitators a framework for praising good work achieved by participants and provide goals and objectives for young people throughout their time at a Makerspace. The requirements for each badge, level or colour is completely adjustable to become more appropriate to any group but hopes to provide an example of how young makers can gradually progress in developing their skills.

**We recommend actions to develop
robust, equitable and inclusive
assessments of learning in STEAM
learning-through-making environments.**

#M4Inclusion Team

Makerspace for Inclusion

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Digijeunes



HorizonLab



COFINANCED BY:

