TinkerLib

Activity Kit for Libraries and Informal Science Education Contexts

2025

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It offers considerations from specific case studies and subjective observations of learning experiences carried out by the partners in different informal settings across Europe. It should be considered as part of an ongoing process of reflection around approaches fostering inclusive learning contexts. The resource reflects the views and opinions of the authors and project partners and does not necessarily represent those of the EU or the Erasmus+ National Agency France. Neither the European Union nor the local authority can be held liable for its content.

Project Website www.museoscienza.it/tinkerlib/

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Stichting Openbare Bibliotheek Amsterdam, The Netherlands
Science Center Netzwerk (SCN), Austria
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Per Leggere – Biblioteche Sud Ovest Milano, Italy
Rural Cultural Centre Markovac, Serbia
Center for the Promotion of Science, Serbia

Funded by the European Union

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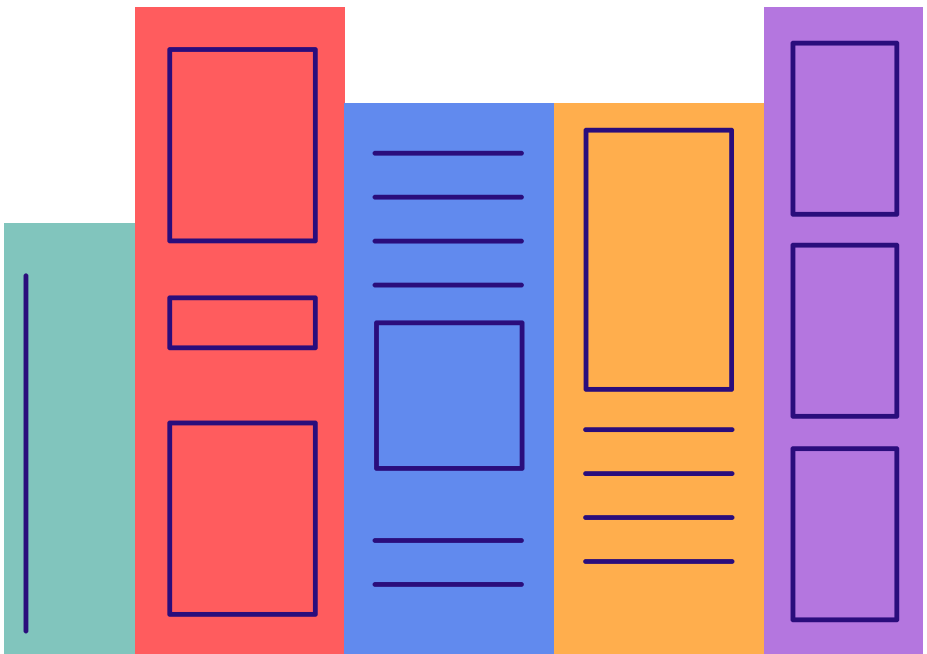
Disclaimer / Warning:

- The practices outlined in this document are based on subjective observations from around ten activities conducted in Europe, involving diverse public audiences.
- It does not provide an exhaustive list of best practices and should not be used as such.
- These guidelines should be adapted and considered as part of an ongoing process of reflection and improvement in creating inclusive activities.



Introduction

Consortium, Methods, and Aims: An Overview of TinkerLib

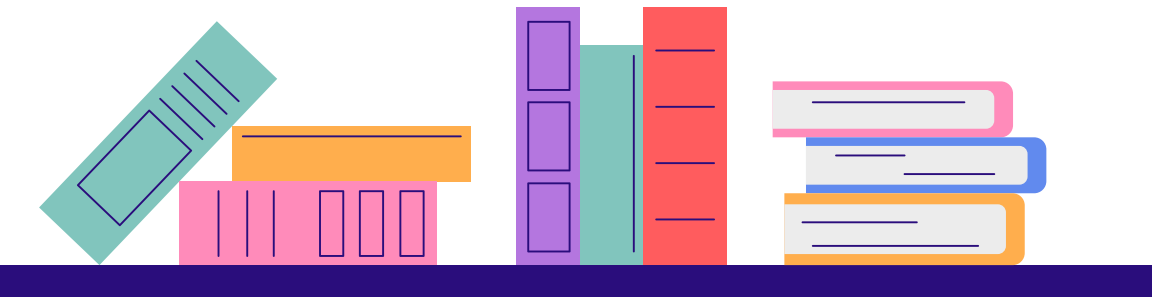
TinkerLib is funded by the Erasmus+ Programme of the European Union and aimed to transform museums, science centres and libraries into (more) inclusive, participatory hubs for adult learning. By combining the learning potential of the Tinkering pedagogy with the welcoming and accessible environments of museums and libraries, TinkerLib seeks to engage in meaningful learning experiences adults, with particular attention to those with fewer opportunities such as migrants, individuals with disabilities or those with low literacy.

TinkerLib builds on the tradition of the three previous Erasmus+-funded projects that helped define and spread Tinkering as an inclusive educational practice in Europe:

- **Tinkering EU: Contemporary Education for Innovators of Tomorrow** introduced Tinkering methodology in European informal education.
- **Tinkering EU: Building Science Capital for ALL** explored connections between Tinkering and science capital, with a focus on disadvantaged students and teachers.
- **Tinkering EU: Addressing the Adults** supported the socio-educational and personal development of underserved adult learners.

TinkerLib's goals consist in:

- building the capacity of informal educators to design and lead inclusive, co-created Tinkering activities.
- developing and testing new inclusive STEAM learning experiences through five national co-design hubs.
- enhancing collaboration between libraries and science institutions at local and European levels.
- promoting a more inclusive model of cultural participation and lifelong learning.



The Consortium

The TinkerLib project is coordinated by **TRACES** (France), a cultural mediation organisation and think-and-do tank on science, science communication, and their relationship with society. Through critical reflection and collaborative experimentation, TRACES works to innovate in science education and public engagement. As project coordinator, it ensures mutual learning across the consortium and contributes its extensive experience in inclusive practice.

Museo Nazionale della Scienza e della Tecnologia "Leonardo da Vinci" (Italy), the largest science museum in the country, leads the development of the project's methodological and activity kits. It brings a dual strength as both a collection-based museum and a dynamic science centre, with 13 interactive labs and a dedicated research centre (CREI) exploring informal STEM education. Its long-standing commitment to hands-on and inclusive pedagogies is a cornerstone of TinkerLib.

From Austria, **ScienceCenter-Netzwerk** (SCN) is a key partner known for its inclusive approach to science engagement. Based in Vienna, SCN coordinates a national network of over 160 partners and leads initiatives such as the "Knowledge°Rooms" —temporary pop-up science centres in underserved neighbourhoods. SCN is also an active participant in European science communication networks and brings strong evaluation expertise to the project.

NEMO Science Museum (Netherlands), the country's largest science centre, serves over 665,000 visitors annually with interactive exhibits and a dedicated Tinkering and Maker Space. NEMO plays a central role in making science accessible through museum-based learning and extensive outreach in schools and communities. It also offers professional development to teachers and educators and has led multiple EU projects on tinkering, inclusion, and science capital.

The **Center for the Promotion of Science (CPN)**, based in Serbia, is a national public institution that supports STEAM education, public engagement, and science communication across the country. With a dedicated makerspace and strong experience in organizing science festivals, workshops, and EU collaborations, CPN plays a crucial role in expanding science access to all age groups and communities.

Fondazione Per Leggere – Biblioteche Sud Ovest Milano (Italy) is a public library network serving 57 municipalities. It coordinates training, interlibrary services, and innovative programming for inclusion, including accessible reading collections and training on Augmentative and Alternative Communication (AAC). As a local hub for digital and lifelong learning, it bridges library practice and community development.

Stichting Openbare Bibliotheek Amsterdam (OBA) is Amsterdam's public library foundation. OBA operates 28 library locations and over 10,000 cultural activities per year. Its makerspace initiative, "Maakplaats 021," integrates design, fabrication, and local problem-solving to foster 21st-century skills, especially for youth and adults with fewer opportunities. OBA is committed to lifelong learning, digital inclusion, and active citizenship.

In Serbia, the **Rural Cultural Centre Markovac (RCCM)** brings a unique rural perspective. Located in a village of 3,000 people, RCCM champions cultural decentralization, gender justice, and eco-sustainable education. Its community library, the "Ekatarina Pavlovic" Library, promotes gender-balanced collections and operates in multiple local venues. RCCM fosters intergenerational

learning and values-based cultural participation.

In France, the **Médiathèque Départementale de Seine-et-Marne** supports a network of over 210 libraries with resources, training, and cultural programming. It promotes equity in access to reading and culture through initiatives addressing digital literacy, social exclusion, and public reading infrastructure. Its work emphasizes local accessibility and inclusive community outreach.

The **Büchereien der Stadt Wien** (Vienna Public Libraries), Austria's largest public library network, operates 38 branches offering access to 1.4 million media items and a robust calendar of nearly 10,000 annual events. These include literacy programmes, language classes, coding workshops, and cultural festivals like "Lesofantenfest." With a strong commitment to social inclusion, the libraries function as open, barrier-free public spaces.

Together, these partners form five national "TinkerLib hubs", cross-sector collaborations that pair science education institutions with libraries. By co-developing and piloting inclusive activities, training programmes, and community-based learning practices, the TinkerLib partnership seeks to transform informal education spaces into equitable environments for adult learners, particularly those who have been historically excluded.

Methods, Aims and Deliverables

At its core, TinkerLib encourages collaboration between the "worlds of books" and the "worlds of science." Each national hub pairs a library with a science education institution to co-create activities and share expertise. This interdisciplinary model fosters mutual learning and allows for the development of inclusive pedagogical strategies grounded in Tinkering, storytelling, and co-design.

A key focus of the methodology was reaching adults who are often underrepresented in informal learning settings. TinkerLib educators worked directly with diverse groups to co-design activities tailored to their experiences and needs. This collaborative development process also enhanced local partnerships and community trust.

The co-design process involved five national hubs, each working with specific adult target groups:

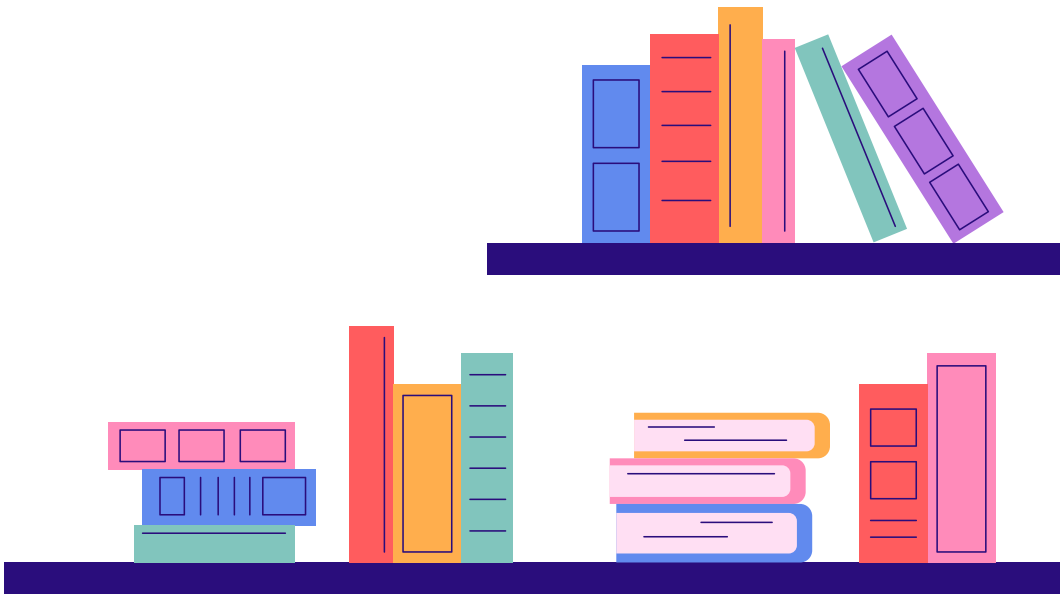
- France: TRACES and Département de Seine-et-Marne co-designed activities with adults in a detention centre.
- Serbia: Centar za Promociju Nauke and Rural Cultural Centre Markovac worked with rural audiences, primarily educators in the village of Markovac.
- Italy: Fondazione Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci and Per Leggere – Biblioteche Sud Ovest Milano engaged with adults with autism, supported by chaperones.
- Austria: ScienceCenter-Netzwerk collaborated with young adults who had migrated or fled to Austria and were learning German at a basic level.
- Netherlands: NEMO Science Museum and Stichting Openbare Bibliotheek Amsterdam worked with elderly adults who regularly meet at a local library.

This collaborative approach ensured that the resulting activities responded to the lived experiences, needs, and motivations of the learners involved.

TinkerLib delivers a set of interlinked resources and outcomes aimed at supporting inclusive learning design:

- Local Co-Creation **Hubs** pairing science centres with libraries to pilot community-based learning practices.
- A **Map-Guideline of Inclusive Practices**, based on field observations across the partnership and translated into six languages.
- **Field Observation Grids** for both librarians and science educators to analyse inclusive practices.
- A **Methodological Kit**, offering principles and tools for designing inclusive, co-created Tinkering experiences.
- This **Activity Kit**, which compiles the inclusive Tinkering activities developed and tested with adult learners across Europe.

The **Activity Kit** is one of the core deliverables of the TinkerLib project. It brings together all the co-designed activities developed across the five local hubs by library and science centre educators working in collaboration with diverse communities. The kit includes detailed descriptions of each activity and provides practical recommendations for adapting them to different audiences, drawing on the experiences and insights gathered by project partners during the piloting phase. The Activity Kit is shared and distributed during national dissemination events in each partner country, as well as through a final European online dissemination event, involving informal education organisations beyond the consortium and encouraging wider application of the TinkerLib approach.



Purpose of the Kit

This activity kit is designed as a practical resource for informal educators, librarians, museum facilitators, and community workers who want to implement inclusive, tinkering-based learning activities with adults who may face social or educational exclusion.

It brings together all the co-designed activities developed within the TinkerLib project across five local hubs, each shaped through collaboration between science centres, libraries, and community partners. The kit provides **step-by-step activity guides**, along with **recommendations for adaptation** based on the real-world experiences of project partners working with diverse audiences.

Beyond offering ready-to-use formats, the kit encourages educators to adapt activities to their own context, considering the specific needs, interests, and strengths of the participants. It supports an approach where learners are not just attending a workshop but are invited to actively shape the experience, reinforcing a model of education that is creative, flexible, and inclusive.

Our hope is that this kit will serve not only as a collection of tools, but also as an inspiration for empowering professionals to foster welcoming learning environments where all adult learners can explore, express, and grow.

Structure of the kit

The following section presents detailed descriptions of the six co-designed activities developed during the TinkerLib project:

1. Haiku Forest
2. Popcorn Book
3. Words Out of the Cube
4. Pneumatic Popup
5. Rolling Wonders
6. Poetry in Stop-Motion

Each activity is structured according to a common template designed to support inclusive facilitation.

The description begins with a clear overview of the activity's objectives, duration, ideal setting, and target audience. It then details the materials required, setup instructions, and step-by-step facilitation guidelines, offering practical suggestions on how to support participant exploration and creativity.
Special attention is given to health and safety notes, accessibility considerations, and strategies for creatingan inclusive environment.

Facilitators will also find insights into how the activity was originally co-designed with a specific community, including reflections on what made it meaningful for that group and afterwards adapted to different target groups.

At the end of each activity description, readers will therefore find a dedicated section titled "Adaptation for Other Audiences." This paragraph gathers recommendations and suggestions from partner organisations who piloted or adapted the activity with different target groups, highlighting what was changed and why. This aims to inspire further adaptations and support facilitators in tailoring activities to their own local contexts.

Activities

Haiku Forest
Popcorn Book
Words Out of the Cube
Pneumatic pop-up
Rolling Wonders
Poetry in Stop-Motion

ACTIVITY PLAN

Haiku Forest

France

Audience	Detainees
Format	Single Workshop
Duration	1h of manipulation (1h30 time slot minimun for this audience)
Staffing	2 facilitators for 15 participants
Participant grouping	Alone or in group

Outline

Prompt: "Build a balanced tree structure that can support Haikus on its branches (as if they were leaves) to build an Haikus Forest".

Collections of Haikus are available for inspiration, and participants can create their own or choose from the books. They can read them to the group at the end, explaining their choice if they wish.

Room preparation

- Need a room with electrical outlets for glue guns.
- Several tables: participants need to be able to sit to tinker and write haikus, plus one table for books, one for glue guns.
- Materials disseminated on the tables, every table must propose some heavy objects (wood pieces...) to stabilise the structures if needed.
- One table for the books. precise participants can take them to their table.

Hazard	Controls
Burning on the glue gun	Use only one glue gun, create a safe space where the participants can use them and supervise accordingly.

Damage caused to tables and/or clothes by glue gun	Give clear instructions that the glue can create stains. Use a wooden placemat or something alike to protect the table surface.
Cutting with tools as saw, pliers, scissors	Explain how to use the tools safely.

Essential materials

Usual tinkering materials, (in our case only what is accepted in the prison, approval asked in advance, no materials forbidden this time). The table sums up materials used a lot in this activity, but the usual tinkering variety of materials is needed.

Item	Comment	Total (for xx persons/pairs/groups)
Papers	Various types of paper (cardboard, printed, rice paper, textured, tracing paper, etc.)	At least 1 sheet of each for 2 participants
Glue sticks	Bonus	5 if there is also glue guns, more otherwise
Heavy materials	wooden blocks for example	At least 1 for everyone, having different shapes, sizes...
Wooden sticks		10 for each participant
Chenille wire		In abundance
Scissors		1 for 2
Cardboards tubes		2 for each participant

Essential tools

Item	Comment	Total (for xx persons/pairs/groups)
Glue guns		2 for 15 participants minimum
Haikus books	On several subjects/themes	1 for 4 participants
Scissors		1 for 2

Preparing materials in advance

We installed the materials as soon as we entered the room, but it was during the arrival of the first participants. Most of the time they helped us.

Introducing the activity

We welcomed participants as they arrived (during the first 15 min more or less) in an informal and warm atmosphere. A respectful environment has been highlighted by several participants as very important. Using several languages might be interesting
While waiting for all participants to arrive, we began explaining the activity. This allowed us to have a "personal" explanation time with a lot of participants.
No examples should be shown in advance.
We let them begin working on the tree or looking at the books to create/choose their haikus.

Managing the activity once it is in progress

It's important to keep in mind several aspects of the activity: the trees must stand upright and be able to support several haikus on each branch. It is sometimes useful to ask to test the structure with several pieces of paper on the branches.
The haikus are an integral part of the workshop: you mustn't neglect them and end up choosing some at random. For participants who can't read or write: A facilitator has read haikus on several occasions, and sometimes you also have to write the haikus that the participants choose.

Managing the end of the activity

10-15min before the end facilitators and participants tidy up the room together.
Remind everyone that the last 5-10 minutes will be dedicated to presenting their work and reading haikus from the trees. If they wish, they can explain why they chose or wrote this haiku, what feelings it induces, if it reminds them of a memory, etc...
The group wanted to keep their objects together and be able to exhibit them, or even invent a follow-up to the workshop.

Target group for which the activity was initially designed

Adults in a detention centre.

Suitability for the target group

Keep in mind some participants might not be able to read or write. Speaking about it at the beginning of the session is a good thing to ensure everyone feels comfortable during the activity. Facilitators are here to help with these aspects (by reading Haikus out loud, helping to write them...).

Adaptations for other audiences: migrants and refugees communities

Based on the experience of ScienceCenter-Netzwerk (SCN), the following adaptations can support meaningful engagement of migrant participants:

- Use a multilingual poem, such as KITE by Mark Klenk, as an initial source of inspiration. This helps introduce the activity in a way that is inclusive and asset-based, allowing participants to express themselves in their first language.
- Present the key characteristics of Haikus in a clear, visual format (e.g. large printouts) and discuss them together as a group.
- Read aloud sample Haikus in different languages, focusing on themes from the poem—such as freedom, friendship, or identity—to spark ideas and emotional connection.
- Provide a simple worksheet for participants to write their own Haikus, offering the choice to do so in German or in their native language.
- Include a hands-on creative element, such as building stable or balancing structures. Participants may also be encouraged to create "Haiku mobiles" that visually combine their texts with materials and movement.


3D-Drucke
Tixo groß
Digi
die Werkstatt
WISSENS°
RAUM
für Neugierige
Holzklötze

ACTIVITY PLAN

Pop-corn book

France

Audience	Detainees
Format	Single Workshop
Duration	1h of manipulation (1h30 time slot minimun for this audience)
Staffing	1 facilitator for 5 participants minimum
Participant grouping	Alone or by pairs

Outline

Anime a book: an object pops out when you open it.
The theme can be related to the book you use, or not.
It can also be related to a personal thought, a memory.

Room preparation

- Need a room with electrical outlets for glue guns.
- Several tables: participants need to be able to sit to tinker, plus one table for books, one for glue guns.
- Materials disseminated on the tables.
- One table for the pop-up books example. precise participants can take them to their table.

Hazard	Controls
Burning on the glue gun	Use only one glue gun, create a safe space where the participants can use them and supervise accordingly.
Damage caused to tables and/or clothes by glue gun	Give clear instructions that the glue can create stains. Use a wooden placemat or something alike to protect the table surface.
Cutting with tools as saw, pliers, scissors	Explain how to use the tools safely.

Essential materials

The table sums up materials used a lot in this activity, but the usual tinkering variety of materials is needed.

Item	Comment	Total
Papers	Various types of paper (cardboard, printed, rice paper, textured, tracing paper, etc.)	At least 1 sheet of each for every participant
Glue sticks	Bonus	5 if there is also glue guns, more otherwise

Essential tools

Item	Comment	Total
Glue guns		2 for 15 participants minimum
Pop-up books	with images if possible but not only	1 for 4 participants
Scissors	Good scissors	1 for every participant

Detailed schedule

10 min	**Introduction** Facilitators present themselves and the aim of the workshop, room setting, available materials and tools etc. Participants arrive one by one all along the activity, mainly during this first step.
5 min	**Presentation of the activity** With all participants, a short explanation and show some examples of pop up books (Don't give it to the participants at the beginning, to let them imagine their own system). Participants can work alone or in a team, during this time they can choose what they want to create and team up if possible (and if they want). They can choose to work on any subject but need to be aware that there will be a sharing session at the end of the activity, where they will be able to explain their choice.

45 min	**First part – Build your book** - Let each participant or group begin working on their creation. - Help people that haven't chosen their subject yet to select one quickly. - Once participants began working on their pop-up system, help them with explanations or give them example books. - If some participants seem more comfortable than others, they can help with the other systems.
15 min	**Second part - Let's share** The final part is the sharing of the results. Participants can show their work, explaining why they choose their subject and what they produced.
15 min	**Evaluation and closing** Evaluating the process. Making space for participants to express what they liked or didn't like in a written or verbal way. And cleaning the space jointly.

Preparing materials in advance

Description of necessary preparations and materials.
We installed the materials as soon as we entered the room, but it was during the arrival of the first participants. Most of the time they helped us.

Introducing the activity

Description of how the activity is presented, materials and initial steps to begin.
We welcomed participants as they arrived (during the first 15 min more or less) in an informal and warm atmosphere. A respectful environment has been highlighted by several participants as very important. Using several languages might be interesting.
While waiting for all participants to arrive, we began explaining the activity. This allowed us to have a "personal" explanation time with a lot of participants.
Show some examples of pop-up books to illustrate, but don't give them to the participants (it might inhibit their creativity).

Managing the activity once it is in progress

Description of facilitation. It is important to move between participants to ensure all are understanding the activity.
Encourage them to test without glue first. (By opening the book and replacing the pasted areas where they are supposed to be.
Be careful of the remaining time: some participants might try to build something too complex, try to simplify the creation to fit in the timing.

Managing the end of the activity

10-15min before the end facilitators and participants tidy up the room together.
Remind everyone that the last 5-10 minutes will be dedicated to presenting their work. If they wish, they can explain why they chose a specific book or theme, what feelings it induces, if it reminds them of a memory, etc...
The group wanted to keep their objects together and be able to exhibit them, or even invent a follow-up to the workshop.

Target group for which the activity was initially designed

Adults in a detention centre.

Suitability for the target group

Aspects to consider with regards to the engagement of the specific adult learners (i.e. how much the activity is suitable for a certain target group - what things to keep in mind before proposing the activity). Keep in mind some participants might not be able to read or write. Speaking about it at the beginning of the session is a good thing to ensure everyone feels comfortable during the activity.

Adaptations for other audiences: migrants and refugees communities

To adapt the activity for migrant and refugee participants, the following adaptations — based on the experience of ScienceCenter-Netzwerk (SCN) — can help create an inclusive and meaningful learning environment:

- Introduce the workshop with a multilingual poem, such as KITE by Mark Klenk, to provide an accessible and inspiring entry point. This supports an asset-based approach where participants feel seen and valued using their first language.
- Begin with a group discussion to clarify the terms "prototype" and "product", helping participants distinguish between experimenting freely and creating a final piece.
- Add a dedicated prototyping phase, encouraging participants to work quickly and without pressure using simple materials like plain white paper. This phase should focus on exploration, getting to know mechanisms, making mistakes, and learning through trial and error.
- Follow with a design phase, where participants create more refined pop-up cards intended as personal gifts for someone meaningful. Participants can choose to add messages or text in the language they feel most comfortable with.

ACTIVITY PLAN

Words Out of the Cube

Rural Cultural Center Markovac, Markovac, Serbia

Audience	Rural audience
Format	Workshop
Duration	2,5 hours
Staffing	At least two facilitators
Participant grouping	Based on the number of total participants, first plenary work, and then best 3-4 participants per smaller working group.

Outline

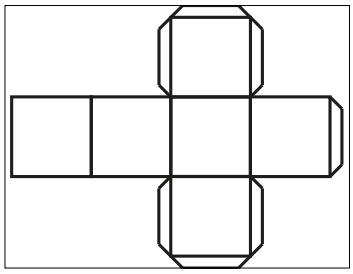
Words Out of the Cube is a workshop for exploring and uncovering new words through tinkering. The aim of this activity is to address the gap in vocabulary and understanding of diverse words and terms among adults. Idea came during our co-design session with adults living and teaching in rural areas, where it is mentioned that children struggle with reading and comprehension and lack vocabulary, while adults may be unfamiliar with technical terms, digital technology jargon, or social media slang. Through a playful and hands-on tinkering approach, participants will explore the meanings of these words, fostering curiosity and collaborative learning. This activity encourages participants to become aware of unknown terminology, search for answers together, enhancing their vocabulary and building awareness of language in a fun and engaging way.

Room preparation

The room should be spacious enough and designed to encourage movement and interaction. Proposal is that, if possible, a large table sits at the centre, providing enough space for everyone to gather comfortably, sit, and work together. Materials and tools are arranged both on the table and around the room, allowing participants to freely explore, tinker, and engage with the activity.

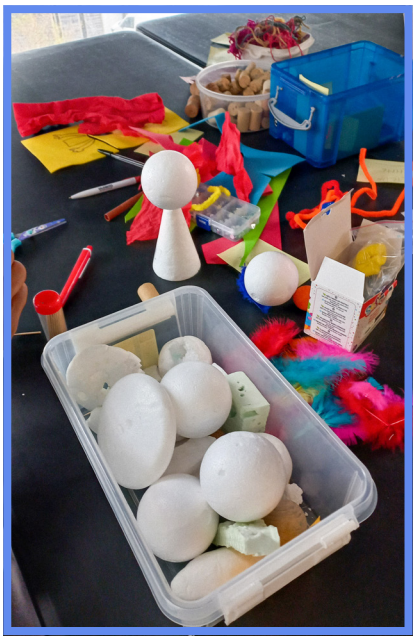
Hazard	Controls
Glue gun	A designated, heat-resistant surface and a secure power source should be provided to ensure safe usage. Participants will only use the glue gun under the supervision and guidance of the facilitator. Additionally, other types of strong glue for different types of material can be used.
Scissors and other sharp tools	Tools should be placed in designated areas to avoid accidents with facilitators supervision. Additionally, facilitators can prepare already cut material and avoid using sharp tools.

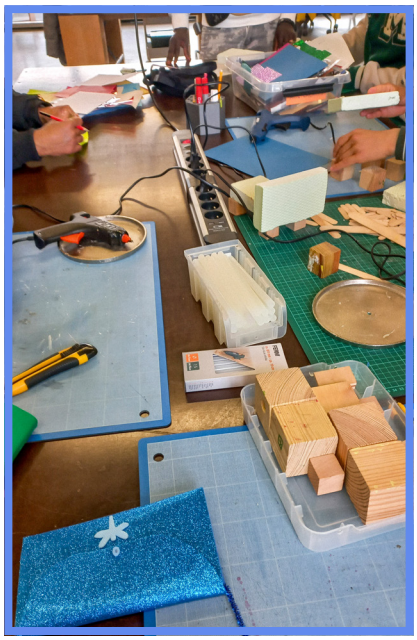
Essential materials

Item	Comment	Total
Markers	Different markers and writing tools.	
	Printed cube on thicker paper. PDF: https://drive.google.com/file/d/1zGF9PTsQssCKqMDGLO8gmRLQZfKpT1gl/view?usp=drive_link	For each group one at least.
Cardboard	Different scrap cardboard, both thinner and thicker, flat or with texture. Different colours.	
Papers	Different colours papers, cardboard, foams...	
Felt	Different colours felt, fabric...	

Clay	Different colours of clay	
Sticks	Wooden sticks in different shapes, sizes and colours.	
Other	Other tinkering crafts materials, like pearls, puffy fluffs, etc.	
Foldable wires		
Different tapes		

*All the materials stated are the ones originally used in the co-design activity and can be changed with creative alternatives that organisers have at disposal.





Essential tools

Item	Comment	Total
Glue guns	Glue gun with sticks.	At least one for the whole group.
Scissors	Scissors and other tools suitable for cutting paper, fabric, cardboard... with suitable surface for cutting.	Different tools available, but scissors at least one per group.

Preparing materials in advance

Description of necessary preparations and materials.

The preparations include setting up a spacious and safe environment with a large table and enough room for participants to move freely and explore materials. Necessary materials include paper, markers, scissors, glue, glue guns (with heat-resistant surfaces and secure power access). Supplies, such as cardboards, paper in different colours, felt, foams, fabric, and small tinkering materials, should be provided for creative exploration.

For the first part of the activity, if possible, facilitators should print cube layout on thicker paper or even cut it out in advance.

Introducing the activity

Description of how the activity is presented, materials and initial steps to begin. Include the prompt used to set the work and clarify the objective.

Facilitators should introduce themselves and present the aim of the workshop: to explore language creatively, collaboratively, and playfully, especially focusing on words that may feel unfamiliar, confusing etc.

Participants are given a brief tour of the space, including where to find materials, tools, and any other practical information (toilets, coffee, etc.). The schedule is outlined to give participants a sense of timing, but with a reminder that flexibility is part of the process. To break the ice and start building a sense of trust and connection, participants are invited to take a sticky note and a pen or marker of

their choice and write down one word that represents them best. They're encouraged to interpret this freely, writing multiple words or drawing is completely welcome. Each person then introduces themselves through their chosen word in a relaxed group sharing moment.

Participants should take a moment to think about words they've heard but don't fully understand, or words that they find awkward, annoying, or just don't like using. These can be slang, formal terms, abstract concepts—anything that stirs a bit of uncertainty or discomfort. Once they've thought of a few words, write them on the sides of a paper cube they cut out and assemble. It can be done on its own cube or create one as a small group. Cubes should be thrown like dice to randomly select a set of words for each group. Those words will be the basis for the next part of the workshop, where something creative together to represent or explore those words will be built. Task is to create something on a square (like "coming out of one side of the cube", hence the Title of the workshop) surface using the materials provided, that reflects those words. Participants can build a story, a scene, a collage, a strange machine, or something completely abstract. What matters is how the group explores and interprets the meaning of the words together. Talk about what the words mean to each of them. How do they feel? Are they funny, uncomfortable, confusing? What do they associate them with? They should also be welcome to look up their definitions online or in a dictionary but not feel limited by official meanings. They should be used as a spark, not a boundary.

Encourage participants to get creative with the materials! Try things they wouldn't normally use. Ask each other questions. If something doesn't work, try another approach. We're not aiming for perfection—we're aiming for play, curiosity, and discovery.

Note from the co-creation sessions: Facilitators (We) prepared a kind of book with illustrations through which we described the cooperation between the Center for the Promotion of Science in Belgrade and the Rural Cultural Center in Markovac within the TinkerLib project, the process through which we co-designed the workshop we are attending, as well as the description of the workshop itself.

Managing the activity once it is in progress

Description of facilitation.

In the introduction part, facilitators should maintain flexibility in the guidelines and in the range of possible answers. Not everyone may immediately understand what is expected, and some participants, especially shy ones, might find it difficult to introduce themselves. In such cases, the facilitator can begin by introducing themselves as an example or simply ask if someone would like to start first.

In the first part, when discussing unfamiliar words, it's helpful to offer a few examples to initiate the thought process. However, these examples should not be presented as the only acceptable answers. During this stage, participants were given a cube cutout to handle. This hands-on task served two purposes: to engage them physically and to shift focus away from the pressure of "having the right answer," helping them feel freer to express their thoughts. If participants are unable to use scissors or have difficulty assembling the cube, facilitators can help, or other participants can help each other. It's also acceptable to have only a few cubes made, or facilitators can even make them in advance.

In the second part of the activity, illustrating chosen words, facilitators should encourage participants to create whatever comes to mind. They should be invited to use both familiar materials and ones they've never considered before. While facilitators can help spark ideas, particularly in how elements are mounted or connected, participants should be given space to explore and find their own solutions. If someone asks for specific materials that are not available, facilitators can respond with guiding questions like, "What could be an alternative?" to support creative thinking.

During the sharing phase, participants can decide how they wish to present their work. Presentations can be silent, informal, or more "public," depending on their comfort levels.

The co-creators of this activity suggested reading all the written words aloud, as they were curious to learn and understand them better. Since the session is exploratory in nature, this can become part of the experience. Participants can guess meanings, consult a dictionary, or use the internet to support their learning, rather than just giving the answers "on the table".

Managing the end of the activity

Conclusion and final remarks.

The presentation of participants' work should be adapted to suit the group's preferences and comfort level. It can be informal, silent, or shared publicly — depending on what they feel most comfortable with.

At the end of the session, it's important to ask for feedback. This not only helps participants reflect on their experience but also provides valuable insights for improving or adapting the activity in the future. Encourage them to share thoughts on what worked well, what could be changed, and how the session might be tailored to different contexts or needs.

Target group for which the activity was initially designed

Rural audience in Markovac (Serbia) village, that consisted mainly of persons involved in education (like preschool or elementary school teachers, art teachers, elementary school librarians etc.).

Suitability for the target group

Aspects to consider with regards to the engagement of the specific adult learners
(i.e. how much the activity is suitable for a certain target group - what things to keep in mind before proposing the activity).

To ensure the activity is accessible, provide clear instructions, offer examples, and allow time for reflection and discussion. It may also be helpful to tailor the activity to their specific interests or professional backgrounds, fostering a sense of relevance and motivation..

Adaptations for other audiences: migrants and refugees communities

The activity can be easily adapted for use in a detention centre; however, it is essential to carefully assess institutional constraints in advance, as some materials may not be permitted within the facility.

Detailed schedule

Include a detailed description of the structure of the session.
Proposed structure of the workshop Words Out of the Cube.

15 min	**Introduction** Facilitators present themselves and the aim of the workshop, room setting, schedule, available materials and tools etc.
15 min	**Get to know each other** Participants were asked to choose sticky paper, marker or pen they want and to write one word that presents them in the best way, then they presented themself through that word. (writing several words, or even drawing something were allowed)
30 min	**First part - Unknown words** - Participants were asked to think of words that trouble them - words they often hear but do not know the meaning of. They were also encouraged to consider words they find uncomfortable or dislike using in daily life, or other people using it. Some examples were given (example: cringe, LOL, extravagance, transit etc.) - Discussion was going on while participants were cutting out the paper with a printed cube and constructing it (find printout in material list). - Those words were then written on the sides of the paper cube, on each side – one word. - Groups can be divided beforehand, where each group can fill out its own cube. Or groups can be made based on the chosen words. - Then, cubes are thrown and with that words are chosen. - n our case, we had tree filled cubes, all thrown at the same time, with it we got three words that were used by one group to make something out of it. We repeated the process until all the participants were divided into groups.
45 min	**Second part - Let's make it** After each group selected three unknown words, they were asked to create a story and a fun way to explore and present the meanings on a square surface using the provided mParticipants were asked to think of words that trouble them—words they often hear but do not know the meaning of. They were also encouraged to consider words they find uncomfortable or dislike using in daily life, or other people using it. Some examples were given (example: cringe, LOL, extravagance, transit etc.). - Discussion was going on while participants were cutting out the paper with a printed cube and constructing it (find printout in material list). - Those words were then written on the sides of the paper cube, on each side – one word. - Groups can be divided beforehand, where each group can fill out its own cube. Or groups can be made based on the chosen words.

	- Then, cubes are thrown and with that words are chosen. - In our case, we had tree filled cubes, all thrown at the same time, with it we got three words that were used by one group to make something out of it. We repeated the process until all the participants were divided into groups. Materials and tools. It was highlighted that group members should discuss their thoughts on the words, their meanings, and how they feel about them. They were encouraged to express their impressions of the words creatively. Additionally, participants were allowed to look up the actual meanings online or in a dictionary from the library.
15 min	**Presentation of the Tinkerers' Works** After finalising the works, groups should present what they came up with and we discuss unknown words.
15 min	**Reading the rest of the words** Since only a few words were chosen and explored, it can be discussed in plenary whether all the words should be read and discussed at the end. The group can jointly decide on their meanings or even consider organizing a new workshop to explore the remaining unknown words.
15 min	**Evaluation and closing** Evaluating the process. Making space for participants to express what they liked or didn't like in a written or verbal way. And cleaning the space jointly.

ACTIVITY PLAN

Pneumatic Pop-up

Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci

Audience	Adults with autism
Format	Workshop
Duration	90 - 120 min
Staffing	2
Participant grouping	Work individually or in pairs

Outline

The aim of the activity is to build and explore a pneumatic system. Participants build a pneumatic circuit that can transfer energy from one point to another using a syringe as a source of movement and activating movements in one or more syringe. This movement could be used to open one or more popup scenes or to activate other mechanisms.

The final purpose is to tell or show other participants a short story created by the participants.

Room preparation

Prepare the room by arranging the materials (divided by type) on the tables.
Make sure the room is accessible to everyone, allowing people to walk around the space to look for materials and try them out. The organisation of the room should also allow to walk around and look at the work of other groups, to encourage mutual inspiration.
Put on the table the tools.

Hazard	Controls
Some tools can be dangerous (cutter, scissors)	Tell participants about the hazard at the beginning. If you do not feel at ease with the use of some tools, do not let people use them freely.
The level of sound and noise in the room must be maintained low (this is particularly important for individuals with autism)	Invite everyone to speak up without raising their voices

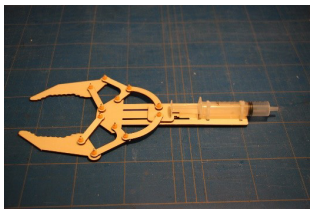
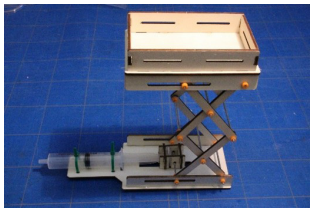
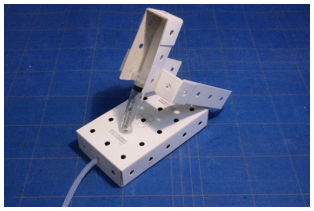
Essential materials

Item	Comment	Total (for xx persons/pairs/groups)
Luer Lock Disposable Syringes	Different size 5,10,20,50 ml	3
Disposable syringes	Needle-free, Different size 5,10,20,50 ml	3
Disposable Syringe	Needle-free, 300 ml	1
Clear PVC pipe	ø 6/4 mm, (ø ext/int) it is important that this pipe connect the syringe.	Usually, the pipe is sold in rolls of 5-10 meters. You must cut it in pieces with different length 4-20 cm. For each group/person consider a total length of 2 meters.
Clear PVC pipe	ø 4/2,5 mm. It is important this tube can fit into the previous large tube making a seal for the passage of air. It is used as a connector.	5-8 It depends on circuit built by participant.

3-way valve with lever and Luer lock		4 It depends on circuit built by participants
Luer Lock attachments, female		6 It depends on circuit built by participants
Luer Lock attachments, male		6 It depends on circuit built by participants
Check valve for aquarium	This valve works only in one direction. Air hole diameter: 4 mm, total Length: 5.3 cm	2 It depends on circuit built by participants
Kraftpaper	A3/A4, 300 – 400 g/sm This is to build the base	3
Corrugated Flat Cardboard	3-4 mm thickness, A3 or use old boxes and cut them to size	1
Paper sheets, white and coloured	A4 80 g/sm or use recycled paper to craft with. Collect magazines, wrapping paper and small cardboard packaging.	It depends on participants
Masking Paper tape		1
Double-sided tape		1
Glue	Stick glue	1
Template for popup	These are A4 paper with preprinted sign to cut simple popup, or ready popup structure to use. See also: Pop-Up Tutorial https://www.youtube.com/watch?v=aGJZbNh9Phs	3

Kraft material	Thinner foam sheets, feathers googly eyes, textile..... Use recycled materials like; fruitnets, candy wrappers or seccond hand textiles. Note: provide light material so as not to make the popup too heavy because the syringe may fail to open it.	
Mix	Boxes, cups, foam, toilet paper tubes, magazines.	
Pop-up Book	Some pop-up books as example	

Optional materials

Item	Comment	Total (for xx persons/pairs/groups)
TechCard Reusable Rivets	To link TechCard cardboard or simple cardboard	15 It depends on use
TechCard cardboard	Cardboard with holes	2
Model preassembled activated by syringe. Here some examples:   	These are models that user could add to his circuit. These models are prepared before the workshop	1

Essantial tools

Item	Comment	Total (for xx persons/pairs/groups)
Scissors		2
Cutter		2
Coloured marker or crayons	Many colours	2

Preparing materials in advance

Cut pipes into smaller parts of length 5 to 25 cm.
Prepare 3-4 complete examples with vignettes or pop-ups to show participants at the beginning.
Prepare 2-3 examples of pneumatic circuit but showing only how the mechanism functions.
Divide materials by type in containers and place them on the support tables around the room.
Prepare the worktables with the tools and consumables.
For each pair or individual participants prepare the basic starting set: 2 syringes (20 ml) and one 25 cm tube, not connected.

Prepare the simple base (see at the end of this document).

Introducing the activity - 20 min

Before distributing the basic set of starting materials to each pair, explain: "In this activity we will explore pneumatic circuits, that is, those systems that use compressed air (or liquids) to transfer motion from one point to another. We will start with 2 syringes (20 ml) and a small tube; try to see what happens by connecting them".

Facilitators should ask "What questions can I investigate with these materials?"

When the individual explorations end, add more materials on the table as an invitation to complexify the work: a 3-way valve, then a third (200-300 ml) much larger syringe.

Facilitators should keep asking: "what questions can I investigate with these materials?"

Go around among the groups observing the trials and explorations the participants are doing, asking: "have you tried pushing the piston?", "what happens?", "have you tried pulling the piston?", "what happens?", "How does the 3-way valve work?".

At the end of this phase of exploration on pneumatic circuits, participants are invited to observe the already-prepared examples showing some pneumatic circuits and their use to open popups or activate a vignette. They are introduced to the material they could use.

Managing the activity once it is in progress - 60-90 min

Invites all the participants to build their pneumatic pop-up starting from simple base model; these could be already cut out or if the participant would like to start from the beginning, the template can be offered to be cut out.
After they have added the syringe and verified its good working, they can build up the pop-up elements.
Facilitator goes around observing the participants and interacts with them asking "what is your idea?" "what are you trying to do?" "What do you want to represent?".
If the participant is working with 2 or 3 syringe to open multiple pop-up, facilitator can suggest, for the control syringe, to use the big syringe, so they have more air to inflate in all the other syringes.
If they use the valve with 2 or more syringe (that is, 2 or more pop-up), they must turn the valve, depending on what they want to show in different moments, to let go the air in the right direction.

Managing the end of the activity - 20 min

When all participants have finished their work, the group is called back for a presentation and demonstration of the vignettes or objects produced.
When all participants have finished their work, there is a time of sharing where everyone shows the vignettes or object and tells their own little story.

Suitability for the target group

Don't put too much input or too high of a goal/target and don't use too many materials.
Try to have a quiet environment and a relaxed schedule.

Adaptations for other audiences: seniors

For senior adults the following adaptations could be introduced.

With seniors it is good to think about the layout of the room and balance accessibility to the materials with also encouraging them to stand up and walk around the room. For example: make sure the essentials are placed on the tables, place extra materials and tools on a table in the room.

Senior participants found getting the system working quite difficult because sometimes the tubing would come loose, and it would stop working. A suggestion maybe making the card first and then the pneumatic system would work better or emphasize that it is possible to create the 'card' separately from the pop-up template and combine them later.

Aspects to consider with regards to the engagement of the specific adult senior learners:

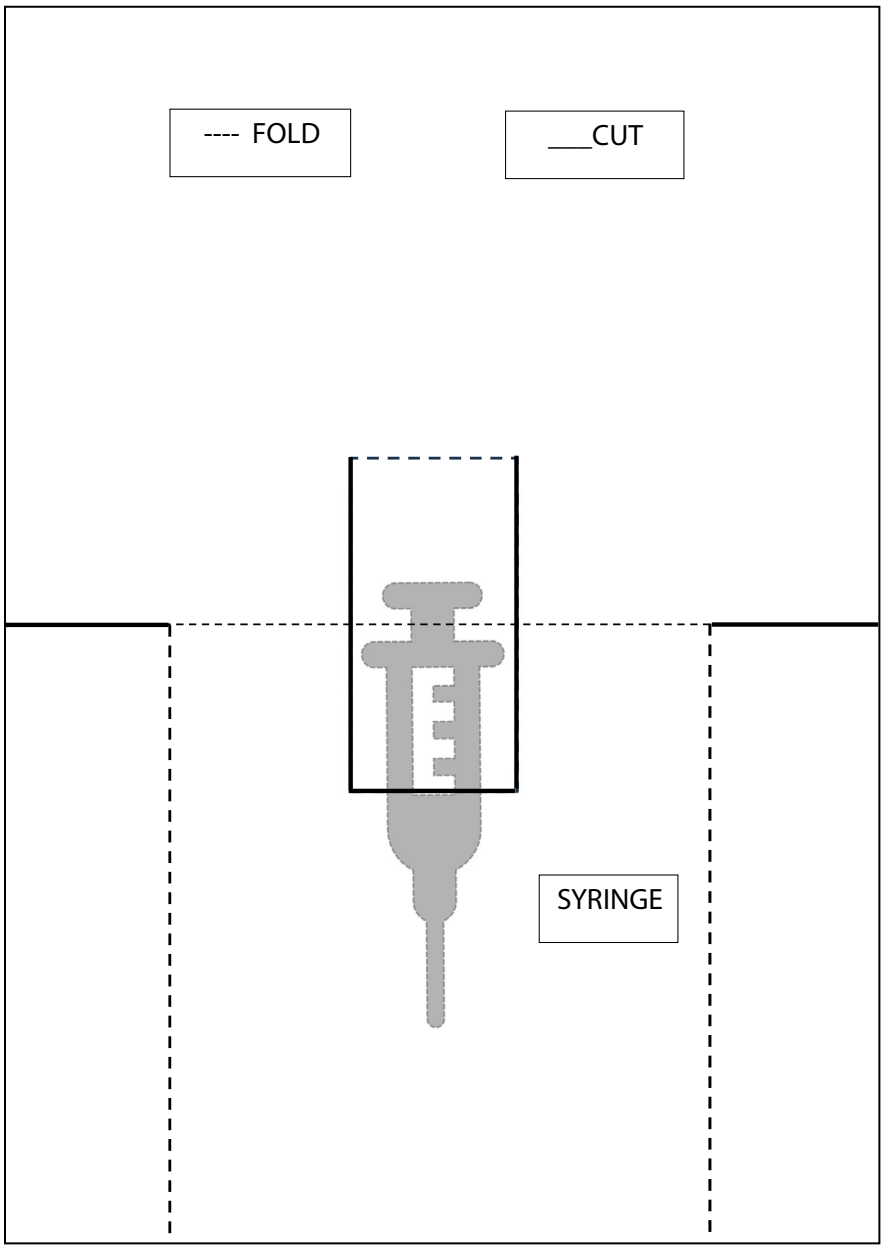
Introducing the activity

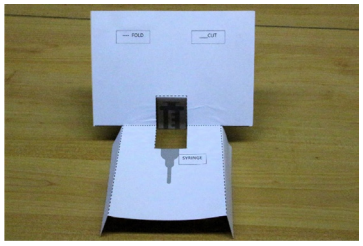
For this target group it could be good to add some context to the activity. Senior adults ask for more scientific content for activity; so, before starting the activity it might be useful to introduce a short presentation on the following items:

- What is Tinkering and its pedagogy
- The history of pneumatics
  - Prehistory: blowpipes
  - Bronze age: bellows for stoking fire
  - 3rd century BC - Ctesibius of Alexandria
  - c. 10 - c. 70 Heron (or Hero) of Alexandria: Pneumatica - Automata
  - 1602-1686 Otto von Guericke: Vacuumpump Magdeburg Hemispheres
  - 1829 Invention of the compressor: Pneumatic tools
  - 1867 Pneumatic subway in New York (Alfred Beach)
  - 1875 United States post office: tube mail, tube systems for money in supermarkets
  - After 1960 many things are controlled digitally instead of pneumatically
- How does pneumatic work in the real world?
  Office chair https://www.youtube.com/watch?v=tmbIVJgsmPk
  - A demonstration experiment, showing lifting up a stack of books with a plastic bag connected to the big syringe.

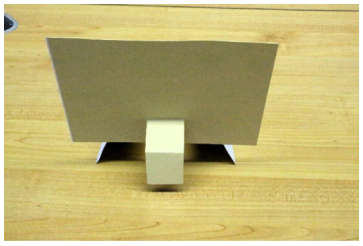
Simple base

This is the main tool to start with, on which you can develop your pop-up or vignette. Participant can build more than one, depending on the needs of their stories and the pneumatic circuit they have built.

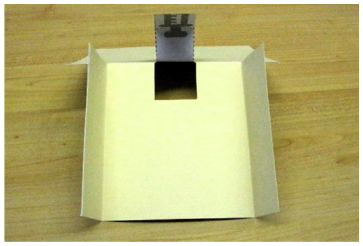




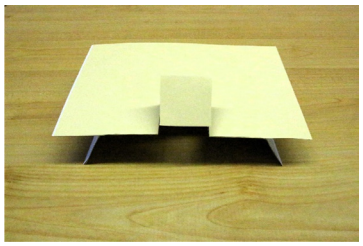
Base open, front



Base open, back



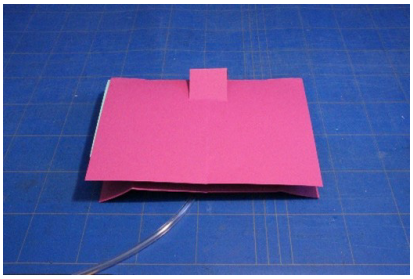
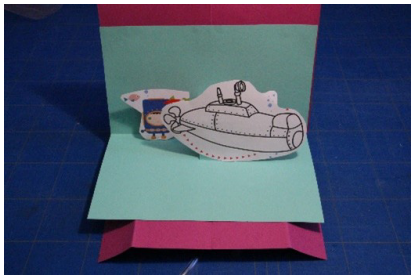
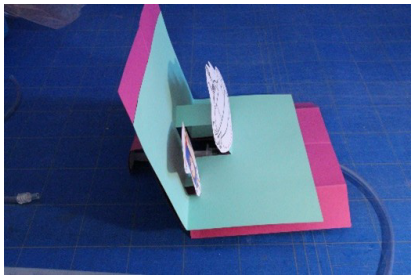
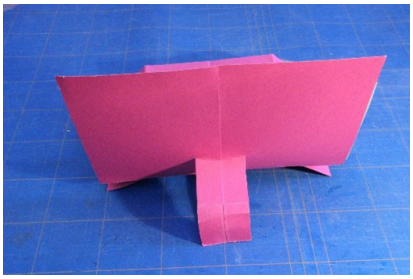
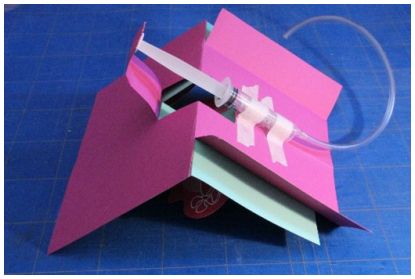
Base from below



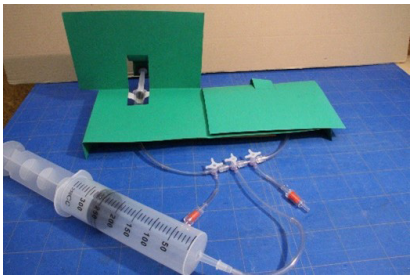
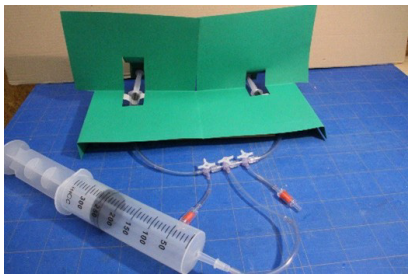
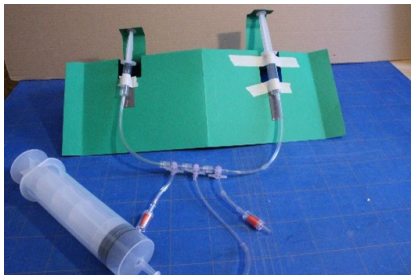
Base closed, back

Here Pop-Up Tutorial 1 - Introduction – Materials and Basic Theory you can find a simple tutorial for DIY popup: https://www.youtube.com/watch?v=aGJZbNh9Phs

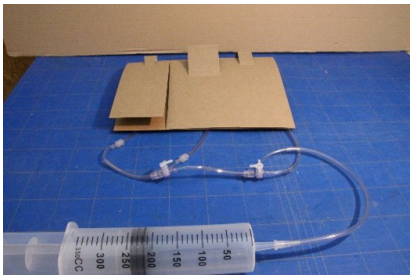
Some examples of outcomes.

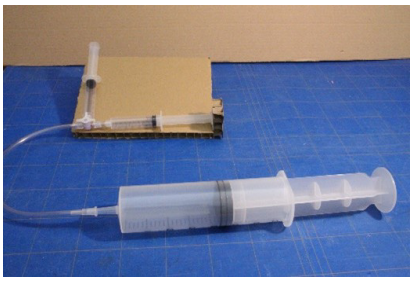

Some examples of pneumatic circuits without vignette/pop-up.
Double popup, you can independently open each.

Mechanism for three independent vignettes.



Assembly of two syringes to achieve composite movement: right to left and bottom to top.




ACTIVITY PLAN

Rolling Wonders

Netherland; OBA Public library Amsterdam / NEMO Science Museum

Audience	Adults - seniors
Format	Tinker Workshop
Duration	40 to 120 minutes
Staffing	3-4 in total; 1 facilitator for each group (2-6)
Participant grouping	Groups of 2-6

Outline

The participants create a roller that rolls down a gentle slope in a funny, quirky or unexpected way. By creating a gentle slope and not placing the slopes next to each other, experimentation and research are stimulated (and not a competition).

The activity has 3 levels:

A. Ready-made rollers; let them roll, watch and be curious.
B. Variation of rollers that can be easily assembled by the participants and can be adjusted.
C. Participants make a roller with personality from scratch (cardboard/cans/tubes etc.)

Room preparation

Set up the room: group tables so there are 3 groups where about 2-6 participants can sit. Each group is sitting or standing at a group of tables. Each group has their own set of materials and a ramp. Put extra materials and tools on an extra material table.
Optional: place the larger ramp on a separate table that is clearly visible by all.

Hazard	Controls
Burning on the glue gun	Use only one glue gun, create a safe space where the participants can use them and supervise accordingly.
Damage caused to tables and/or clothes by glue gun	Give clear instructions that the glue can create stains. Use a wooden placemat or something alike to protect the table surface.
Cutting with tools as saw, pliers, scissors	Explain how to use the tools safe.

Essential materials

Item	Comment	Total (for xx persons/pairs/groups)
Books	Stack of books or something else to give height to the ramps	About 5 per group
Ramp	About 100 x 25 cm and one larger 150 x 25 cm. If possible, with raised edges	1 per group and optional 1 larger at the front of the group
Wheels (premade)	Different forms e.g.: round, oval, egg form, flower form, rounded triangle. Different material e.g.: EVA foam and wood (4 mm). Different premade holes: for the foam the holes can be smaller than the axles. For the wood the holes need to be almost the same size. For example, made by laser cutting.	About 10 per group
Axle metal	Metal (width 6mm, length 10 cm) with screw thread.	About 10 per group

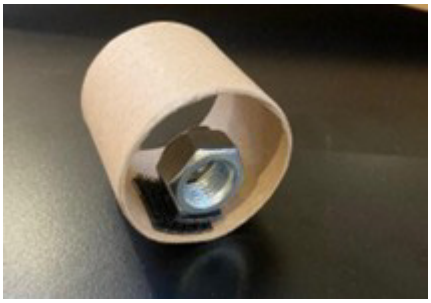
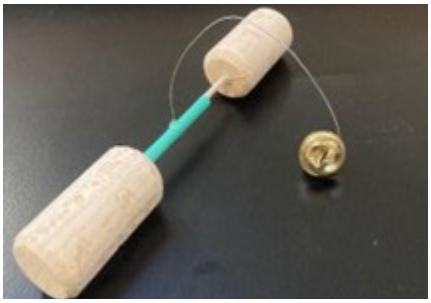
Axle wooden	Wood (width 6mm, length 10 cm)	About 10 per group
Nuts and wingnuts	For fixation on the metal axles	About 20 per group
Skewers	Can be used as axle	About 20 per group
Skewers (paper)	Can be used as axle	About 20 per group
Rubber rings	Can be used as fixation, width corresponding with axles	
Toilet paper rolls	Building material for part C	
Paper cups	Building material for part C	
Corks	Building material for part C	
Lids/caps	Building material for part C. Various sizes e.g. from drinking bottles, jars etc.	
Cardboard	Building material for part C, recycled form cardboard boxes	
Paper (thick)	Building material for part C	
Clothes pegs	Building material for part C, can also be used as weight	
Paperclips	Building material for part C	
Cotter pins	Building material for part C	
Rubber bands	Building material for part C	
Metal wire	For attaching and building	
Masking tape		
Marbles	Weight	
Can	Building material for part C, recycled	
Tubes, cardboard	Building material for part C, in smaller parts.	

Magnet	Building material for part C, can be used as fixation and adding weight	
Ping-pong ball	Building material for part C	
Velcro	Heavy duty e.g. from 3M	
Feathers	To give personality	
Wobbly eyes	To give personality	
Chenille	To give personality	
Bells	To give personality	
Anti slip mat	To experiment with a different surface	Parts that onto the ramps

Example of material organisation.

Example rollers for part a

Feel free to adjust accordingly to the participants or materials available.

Item	Comment	Total (for xx persons/pairs/groups)
One wheel roller with weight not in the middle		1 per group
Two-wheel roller with two axles.		1 per group
Two-wheel roller with non-round wheel that are asymmetrical connected		1 per group
Roller that makes sound		1 per group

Tumbler (large marble inside)	 	1 per group
Roller made of metal wire		1 per group
Tumbler made of a cardboard box, paper and a marble		1 per group

Essential tools

Item	Comment	Total
Scissors	Also scissors for left-handed and ergonomic scissor	2 per group
Small saw	For cutting the cardboard tubes/ ping-pong ball etc.	1
Hammer and nail	For making holls in cans	1
Glue gun	Box cutter	1
Ferret drills	Small hand drills	1 per group
Pilers		1

Preparing materials in advance

Prepare the room.
Prepare the materials.
Make the example rollers.

Introducing the activity

The introduction sets the atmosphere and makes the participant feel welcomed and encouraged to get started and explore. So be friendly, inviting and enthusiastic.

Prompt, introduce the activity; make something that rolls down the ramp that moves in a funny way, makes a sound or is a bit quirky. Encourage the participants to give their roller a personality or character for example from a book. Introduce the ramp on each table.
Level A: hand the example rollers to each group and tell them that in the upcoming 5-10 minutes they can try the example rollers. Encourage the participants to observe the roller closely. How do they move?

After about 5-10 minutes (or sooner/later depending on the group) explain that now they can make their own roller. Introduce the materials and tools.

Managing the activity once it is in progress

Level B and C; the facilitators go around the room. Observe the participants while they are building. Encourage fast trying of their roller on the ramp.

Possible things to think about when facilitating:

- Offer ideas or materials. An extra or additional prompt can be: Try to add sound.
- Ask them if they have an idea how to make/adjust their roller. E.g.:
  - Weight
  - Wheel size
  - What would happen if you chose two different sized wheels.
  - How might you add some personality?
  - Maybe try to do something with weight.
  - What happens if you change the wheel size?
- Fuel divergent thinking by encouraging new ideas 'That is interesting, I'd love to come back later to see how this will work'.
- Write down interesting things to point out during the end of the activity.
- Offer the anti-slip mat to experiment with another surface.
- Encourage changing the slope of the ramp (with more or less books) to see if the roller moves differently.

Practical:

- You can use straws or paper tubes to make the axle move separate from the wheels or vice versa.
- Keep track of time and atmosphere in the group. If the groups finish earlier, adjust the time. Make sure the participants know how much time they have to finish their work.

Managing the end of the activity

Take some time to share projects of the participants. Ask; who wants to show their roller?
Let those participants show the roller on a ramp that can be seen by everyone. Tell something about each roller that is shown, if possible, refer to an aspect during the making process or something striking of the roller.

Take some time to explain about centre of gravity and refer to some of the rollers.
Use for example additional materials like balancing bird to explain it). Ask participants to clean up.

Suitability for the target group

This activity is co-created with a group of elderly who regularly meet (once a week) in the local library. Specific features of this activity regarding the elderly:

- After the test the part about the centre of gravity is added as the participants expressed that they missed explaining about the science.
- Be aware that elderly often feel that they are not taken seriously, a tinker workshop can add to this feeling. A tinker workshop that is not aimed to be about exchanging scientific knowledge is a different image than they originally may have of a workshop run by a science museum. Even though this activity is done in a co-creation process and (some) of the elderly have been in charge of voting in which was chosen which activity was being developed.
- When it comes to guiding this target group, this target group may need a push in the beginning to try out new things and, for example, to physically get up and walk to the tools.
- Most of the materials are placed on the group tables because of (lack) of mobility.
- Each group has their own ramp because of the mobility.
- This activity has fast feedback and the possibility of different levels. The aim of that is that everybody can join. Not everyone can make their own roller, if you have less power in your hands it is hard to make a roller. But even then the participant can join by telling what they see or help their neighbour with ideas or suggestions.
- In this case one facilitator for each group is needed, to encourage and demonstrate a range of possibilities and ideas.
- Make sure there are left-handed scissors.
- Make sure there are ergonomic scissors for participants with less power in their hands.

Adaptations for other audiences: prisoners

Based on the experience of TRACES (the French hub), detainees not only enjoyed the activity but were able to complexify it through creative and technical experimentation. When adapting activities for a detention centre, the key consideration is to carefully assess institutional constraints, as certain materials may not be permitted inside.

Adaptations for other audiences: autistic adults

- For the reference group - young adults with autism spectrum disorder - the explanation about the centre of gravity was not included, as they were less interested in listening to technical content. In general, however, this aspect depends greatly on the interest of the individual participants and their degree of autism.
- The facilitator must be flexible in adapting the timing of the various phases and the sequence of the different parts of the activity.
  For example, it is not always easy to reach the final phase of sharing individual work and the related questions or comments from facilitators and other participants.
- The minimum number of facilitators for the activity is two for a group of six participants, in addition to individual personal assistants who support those who need it.

Detailed schedule

5-10 min	**Introduction (level A)** Set the atmosphere and make the participant feel welcomed and encouraged to get started and explore. Introduce the activity; make something that rolls down the ramp that moves in a funny way, makes a sound or is a bit quirky. Introduce the ramp on each table. Hand the example rollers to each group and tell them that in the upcoming 5-10 minutes they can try the example rollers. Encourage the participants to observe the roller closely. How do they move? After about 5-10 minutes (or sooner/later depending on the group) explain that now they can make their own roller.	One facilitator introduces, after that each facilitator walks around the room to encourage. Decide between the facilitators how to divide the groups.
30-50 min	**Level B and C** Explain that now they can make their own roller. Introduce the materials and tools. Tthe facilitators go around the room. Observe the participants while they are building. Encourage fast trying of their roller on the ramp.	One facilitator introduces, after that each facilitator walks around the room to encourage.
10-20 min	**End of the activity** Take some time to share projects of the participants. Ask; who wants to show their roller? Let those participants show the roller on a ramp that can be seen by everyone. Tell something about each roller that is shown, if possible refer to an aspect during the making process or something striking of the roller. Take some time to explain about centre of gravity and refer to some of the rollers. Use for example additional materials like balancing bird to explain it).	One facilitator, with input from all facilitators and participants.

ACTIVITY PLAN

Poetry in Stop-Motion

Vienna

Audience	Migrants
Format	Workshop
Duration	90 - 120 min
Staffing	2
Participant grouping	Work individually or in pairs

Outline

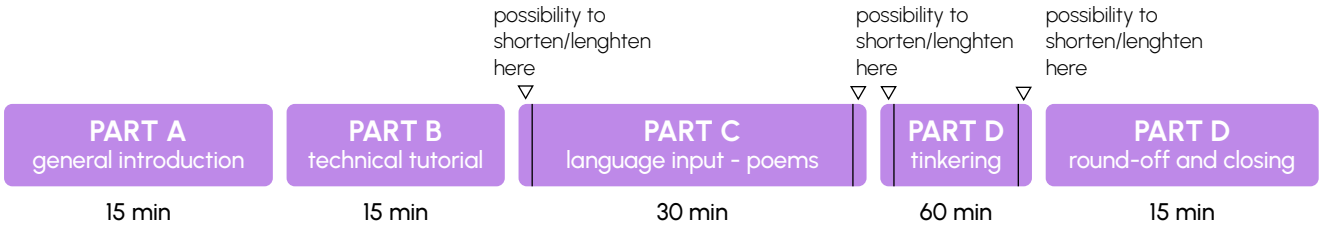
The activity aims to combine elements of multilingualism, storytelling and tinkering methodology by creating stop-motion videos. Participants of the workshop will a) engage in a critical discussion of a multilingual poem, serving as possible inspiration for their own videos, and b) get creative in making their own short stop-motion videos.

Main aims of the workshop (as co-created with a group of adult learners of German) are:

- Creatively expressing themselves in various ways
- Practicing their (German) language skills
- Having fun

Parts of the workshop

The workshop consists of five parts (A-E), which can be modulated in duration, making the workshop adaptable to different requirements and constraints. The figure below shows a schematic overview of a prototypical outline of the workshop and the arrows indicate possibilities to shorten or lengthen individual parts of the workshop.



In more detail, the individual parts contain the following steps and activities:

PART A: **General intro**
- Getting to know each other
- Learning about stop-motion videos

PART B: **Technical tutorial**
- How does the Stop-Motion-Studio-App work?
- Show a simple example of a stop-motion video
- Show how you could make a figure move through a scene by demonstrating it live

PART C: **language input – poems** (KITE – Mark Klenk)
- ntroduce a short poem to the audience and read it out aloud.
- Discuss the main themes of the poem by asking for the participants' opinions (e.g. through a vote using sticky dots).
- If applicable, hand out prints of the poem in different first languages and ask, if anyone would like to read the poem in their language. Discuss if there are any differences in meaning created through the translation.

PART D: **Tinkering**
- Let participants form groups of 2-3 people
- They can now use whatever materials they like to tell a story in a stop-motion video.
  If they want, the previously read poem can serve as an inspiration, but they are free to choose whether they want to use a different source of inspiration or not.
- In the end, the videos should be shared with the group, by uploading it to a shared folderor to a padlet.

PART E: **Round-off and closing**
- The videos of each group are shown to everyone (unless a group does not want that).
- Each group is encouraged to present their ideas, talk about possible difficulties in creating the videos...
- Then, there is time for a general round-off and feedback.

If needed, these parts can be separated by various short breaks (we did one larger 15 min. break after the first hour).

Room preparation

It would be good if the workshop took place in a room which:

- is bright and has a lot of natural light.
- provides enough space for up to 5 groups of 2-3 people filming a video
- is easily accessible

As to specific preparation for the activity, prepare 1 workstation for each small group of 2-3 people – depending on the overall number of participants, this can vary.

Each workstation should be equipped with a tablet/phone, tripod, a blank storyboard, some pencils and pens, a pair of scissors and should have access to electricity. There should be enough space on each workstation to create a nice background for their video-projects and to film their videos.

To be able to watch everyone's videos in the end, it would be good to have a bigger screen to share the final results. Alternatively, a laptop and a projector also work.

Hazard	Controls
Scissors	Use scissors with a round tip to ensure that no one can be stabbed by accident
Cutter	Provide an instruction on how to safely use a cutter; use a cutting mat to ensure safe handling of the cutter
Hand drills	Provide an instruction of how to safely use them; ensure that people only use hand drills at their working space turned away from others

Essential materials

Item	Comment	Total (for xx persons/pairs/groups)
Print outs of the poem "KITE" (Mark Klenk) in any spoken language	Can be substituted for a different poem if you find that better suitable for your context	1 print per participant
Large colourful paper (A2)	Can be used as background for videos	2 sheets per group, different colours
Different types of colourful paper/cardboard		A selection of 2-3 different colours and designs per group
Play-Doh		3-4 different colours
Small figures	Some related to the content of the poem read aloud (in our case, kites, dragons, butterflies...	10-15 figures in total
Natural materials (rocks, leaves, feathers, etc.)		A selection of 2-3 different colours and designs per group
Pieces of fabric	Different types of fabric, different colours	2-3 pieces per group
Cotton wool, pipe-cleaners, marbels, balls, etc.	Basically, any creative DIY material you have	A selection of different materials for each group

You can add as many materials as you like/have available, the activity works with a large array of possible items and the selection of materials also depends on the poem you choose

Essantial tools

Item	Comment	Total (for xx persons/pairs/groups)
Scissors		1 per group
Cutter		1-2 in total, with security cutting mat
Tablets	If not available, could be swapped for mobile phones	5 (for 5 groups of 2-3 people)

Tripods to fix tablets	Could also be part of the tinkering to build a stable stand for the tablet	5 (for 5 groups of 2-3 people)
Stop Motion-Studio App (free version)	Downloadable for iOS and Android	1 per tablet/phone
Blank storyboard, printed		1 per group
Pencils		1-2 per group
Colourful pens		Several colours per group
Large screen/projector	To share final results	1 in total

Preparing materials in advance

Prepare a workstation for each group and distribute across the room (as described above in "room preparation")
Display all the materials at a central and easily accessible place within the room so that everyone can see the selection and decide which materials they would like to use. Make sure all the tablets/phones are fully charged and the Stop Motion Studio App is installed.

Introducing the activity

- General introduction: everyone states their name and states how many languages they speak (can be substituted with a different opening question if that fits your context better)
  - "In today's workshop we will create stop-motion-videos on whatever topic you like." What are stop motion videos? → Show some examples of simple stop-motion videos (there are many examples on the website of the Exploratorium or you make some example videos yourself)
- Technical tutorial: Ideally, connect your mobile device to a larger screen and demonstrate the basic functions of the app "Stop Motion Studio"
  - How do I create a new film? (press the + icon on the starting page)
  - How do I take individual photos? (works exactly like any camera app on a phone)
  - How do I zoom in? (click on settings before taking a photo and select the zoom)
  - How do I edit my pictures? (click on the play icon and watch the projects; individual images can be selected and by clicking on settings they can be edited)

Remind everyone that this workshop is not about producing a perfect result but that it's about fun and experimenting and self-expression.

Managing the activity once it is in progress

There are 2 main aspects in this – the language input (A) and the Tinkering (B)

Remarks on A:

- Read the poem out aloud at slow pace and with a loud voice so that everyone can hear it
- If needed, have definitions/explanation of different words ready, in case some participants have questions about some words
- When discussing the possible themes of the poem, remind everyone that interpreting literature is subjective and that there cannot be a correct answer, encourage participants to share their opinions and thoughts on the poem
- If you work with a multilingual group, ask them which languages they speak and if someone wants to read the poem in another language – give applause to everyone who wants to read aloud

Remarks on B:

- Keep in the background and support the participants if they have questions or difficulties with their videos
- Offer additional ideas or ask reflective questions if participants seem stuck and might need a different impulse
- Let participants discover the possibilities of making stop-motion videos themselves and encourage them to get creative – there is no right or wrong way to create such a video.

Managing the end of the activity

- Ask every group to upload their videos on a shared folder/padlet and ask if they are okay with sharing their video with everyone else.
- Show each video and ask the respective group to talk about the process behind their video
  - What was easy? What was difficult?
  - Where did you get the idea? What was your source of inspiration?
  - What would you have done differently if you had more time?
- If a group did not manage to finish their video, encourage them to show their status quo and ask them how they would have liked to complete the video.
- Say something positive about each video and highlight something you liked about it.
- Have a round of applause for each group.

Target group for which the activity was initially designed

(Young) adults who have migrated/fled to Austria and are in the process of learning German as a foreign language. Their language levels in German were basic to intermediate and the activity was therefore designed with a limited amount of text-based instructions. Providing room for the expression of different languages and raising awareness for the beauty of multilingualism was also a specific aim based on the needs of the target group.

Suitability for the target group

The activity can be adapted to many different contexts. One thing to consider beforehand is that the activity is not suitable for people with visual impairments, since it largely relies on visuals.

Handling the app could be challenging for the elderly, since making stop-motion videos requires a steady hand and adjusting the scenery you would like to show requires a certain degree of fine motor skills. However, by using tripods these challenges could be avoided/decreased.

In general, a basic level of digitals skills is helpful, but not essential, as the use of the app is explained by the facilitators and exporting the video and uploading it to a shared padlet can be learned on the spot, with support from the facilitators.

Adaptations for other audiences: seniors

- Instead of zooming in on the language and the poem, zoom in on the technology and history behind stop motion/animation. Additional goal for the senior target group: Learning about science
- Make all technical steps as accessible as possible:
    - Sufficient facilitation (about 1 per group of 6)
    - Show some very simple examples.
    - Provide a very clear, step-by-step explanation of the stop-motion app.
    - Use a QR code for uploading the videos on the padlet site. Print this code so they can take it home to show the results to their loved ones.

Other recommendations (not specifically for this target group) are using whiteboard markers and little whiteboards this way you can very easily make a drawing-based stop motion.

Adaptations for other audiences: autistic adults

The main objectives were as follows:
- To express oneself creatively
- To have fun
- To promote inclusion by allowing autistic adults to work alongside library visitors

The linguistic aspect wasn't central. Instead of working with poems, stimulus reading has been introduced. The group reading session featured the following book:
STORIE BREVI by Silvia Borando, published by Minibombo, EAN: 9788898177875

The purpose of this moment is to offer a possible source of inspiration for the creation of the video. The book contains very short stories of which only the beginning and the end are told and represented, leaving the story of what happens in between unfinished. At the end of the reading, the facilitator invites participants, without imposing anything but always leaving open the possibility of deviating from the invitation, to use stop motion to tell the story, imagining what might have happened in between. Other books are available for free consultation and inspiration.

The facilitator must be flexible in adapting the timing of the various phases and the sequence of the different moments of the activity. The times should be considered slightly shorter than those indicated, but always in the same proportions.
The minimum number of facilitators for the activity is two for a group of six participants, alongside individual personal assistants who support those who need it.

Detailed schedule

10 min	**Introduction, getting to know each other** "Today, we will be making stop-motion videos together" **Introductory game** - stand up if... ...you speak more than 2 languages ...you like going to the library ...you feel tired today ...you feel happy today	1 facilitator
30 min	**Language input - poem "KITE"** read the poem out loud - Which words don't you know? - Which words are difficult? - Should I read it again? - discuss the main themes of the poem together - show a flipchart with all main themes as pictures - vote with sticky dots, which theme seems most important for the participants - help with explanations in simple language if needed - hand out the poem in different first languages of the participants and encourage some of them to read them out - What is different in the poem in your language?	library partner (in our case with expertise in language teaching and learning)
10 min	**Break**	
10 min	**Technical tutorial** show how the "Stop Motion Studio" app works → make a simple figure move by taking 3-5 photos and showing the result to the participants - How can you design a good picture frame? - What is necessary for a stable video? - How can you create movement?	1 facilitator
60 min	**Creating stop motion videos** in pairs (or groups of 3 max.), participants get a tablet and create their own stop motion videos they can use whatever material and inspiration they want in the end, they upload their videos on a padlet.	at least 2 facilitators

10 min	**Break**	
15 min	**Gallery walk** all videos are watched together on a screen. After each video, the corresponding group should talk about their ideas for the videos. After each video, there is a round of applause for the group! - Where did you get your idea from? - What was your source of inspiration? - What do you like best about your video? - What would you have done differently if you have had more time? - What did you find difficult?	both facilitators, taking turns
15 min	**Round-off and goodbye**	1 facilitator