

Aarhus School of Architecture // Design School Kolding // Royal Danish Academy

## FUTE - Future Teaching in Europe

Gelting, Anne Katrine Gøtzsche

*Publication date:*  
2021

[Link to publication](#)

*Citation for published version (APA):*

Gelting, A. K. G. (2021, Jan). FUTE - Future Teaching in Europe: FUTE Model and Toolkit. <https://www.fute-project.eu>

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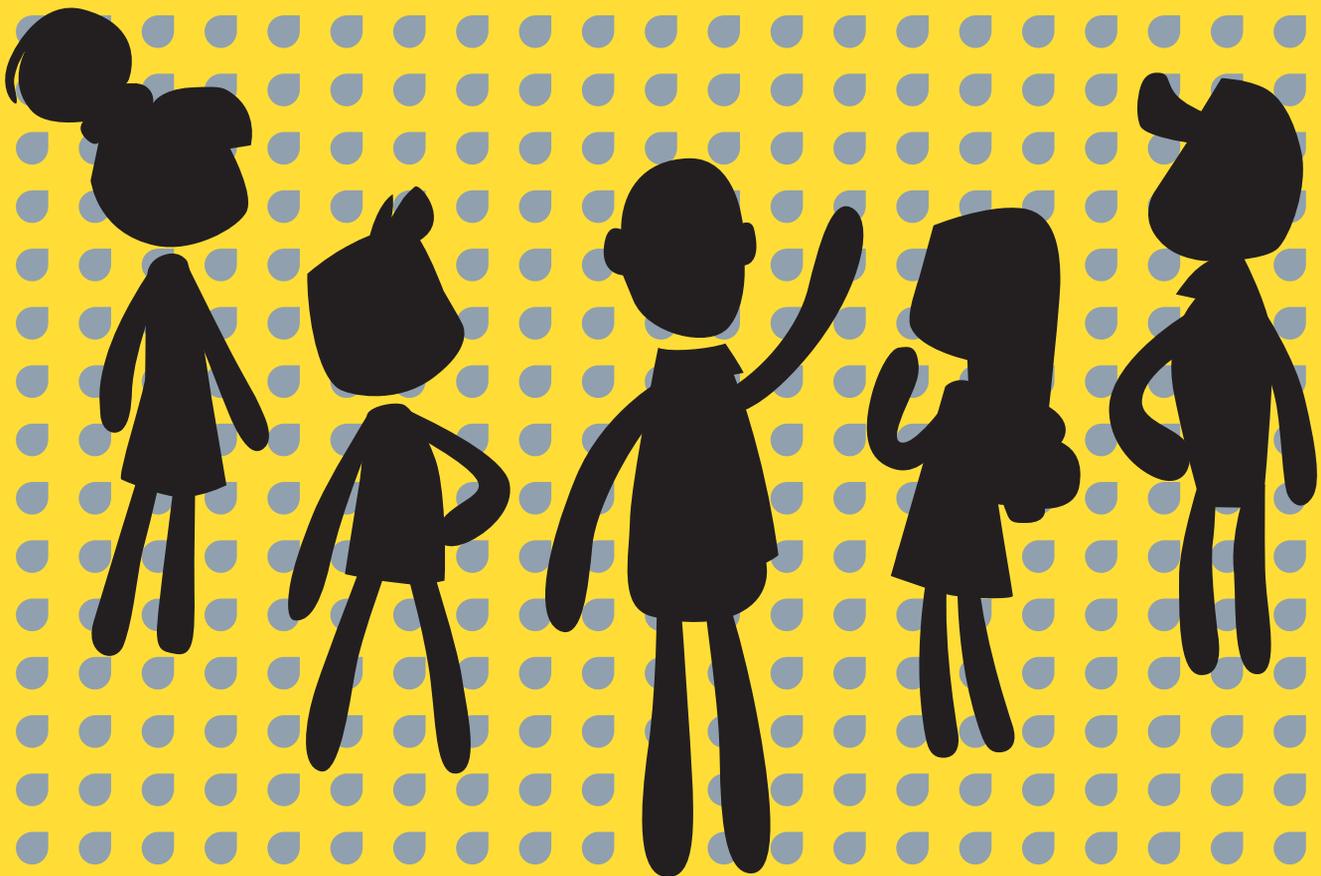
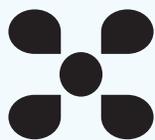
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# FUTE

## FUTURE TEACHING tool



## FUTE: HOW TO USE THE MATERIAL

### WHY?

The FUTE (Future Teaching) material is the result of a collaborative project among teacher educational institutions and schools in France, Belgium, Wales, Denmark and Finland and Design School Kolding, Denmark.

The FUTE hypothesis is that by involving pupils more extensively in the planning and execution of teaching, and by bringing more meaningful and real-life problem solving into the classroom, pupils will be more engaged and teaching can become more collaborative and interesting. The aim of the project is to transfer design thinking and co-creation methods to the classroom, creating a modern approach to teaching where challenge framing and problem-solving skills, which can boost innovative thinking, are put at the forefront.

With support from the FUTE material broader, interdisciplinary issues like understanding climate change or homelessness can become cross-disciplinary project courses using design thinking and design methods. The purpose would be to help teams of teachers and the pupils to frame a problem and create a solution doing research and analysis and then craft a tangible solution to a problem (e.g. a new playground for the neighbourhood kindergarten where children can learn about climate change or a 'Home in a Backpack' for homeless people).

Such an approach to learning and teaching can be incorporated into an engaging collaborative process that also develops innovation skills.

Some problems within the schools are of a more general nature relating to class management or interactions between the school and the surrounding community. The present Method Collection includes some techniques that can be used as a collaborative approach to framing and understanding the problem in depth suggesting new innovative solutions that commit everyone involved in new ways.

Teaching and learning are, of course, still very much invested in specific subjects or academic areas, but the material can help teachers create a more varied and collaborative approach to the subject by using the methods in this collection.

### WHAT IS DESIGN THINKING AND METHODOLOGY?

Over the last 50 years design has changed substantially, from being an activity with the aim of producing physical products – fashion, graphics, interior decors etc. – to becoming an all-round approach to the innovation process. This approach can be used in all kinds of innovation: products, services and experiences, in private companies but also in the public area – what is called a Design Thinking approach.

Design Thinking means creating a relevant or interesting framework or perspective on an issue or problem by "opening it up": asking lots of questions, challenging and possibly reframing it, to discover and identify the real or most interesting problem that needs to be solved. Different visual tools and prototyping tools are then used to research, quickly test and iterate concepts and solutions in the process and to communicate potential solutions.

The design-oriented process and solution combine attention to usability, feasibility and aesthetics.

Design Thinking focusses on doing things, and a design "thinking" process is therefore a very tangible and pragmatic approach to innovation, where insights and results are documented and communicated visually and in a way that is easily understood and shared inside a design team and also outside.

The Design Thinking approach is not a simple five-stage gate process as many Design Thinking maps show, but more like a creative "dance" between different and opposite positions or states that push the innovation process forward from understanding what already exists to developing ideas about what could be and

## FUTE: HOW TO USE THE MATERIAL

will be developed:

- Between finding problems and creating solutions
- Between choosing the framework and dealing with detail
- Between analysis and synthesis
- Between divergent (open) and convergent (closed) thinking
- Between abstract (thinking) and practical/tangible actions
- Between working by yourself and cooperating with others
- Between developing an idea and communicating about it
- Between dealing with aesthetics and with technology and functionality

Design Thinking is complex but fun because it creates the kind of engagement and critical reflection that is needed to truly innovate. If done properly, it is a journey of learning and exploration!

### WHO IS THE TARGET?

The FUTE method collection is a set of materials specifically adapted to teachers and children within primary and secondary education in the EU with no previous experience of using design methods.

### WHO CREATED AND ASSEMBLED THE FUTE MATERIAL?

The methods in the FUTE method collection is an amalgam of accumulated practices, approaches and methods from design practice, applied anthropology, marketing, creativity and organisation theory, management thinking and various other areas.

The model, description and organisation of the methods are adapted from *The 5C Model*

*of Design Methods and Knowledge* and the *DSKD Method Collection* developed in 2011 by Associate Professors: S. A. K. Friis and A. K. G. Gelting at Design School Kolding in Denmark.

A new version of the models and the method collections was launched in 2014: *The 6C Model and The Co-Create Collection*. This material is independently authored by Associate Professor S. A. K. Friis and published by U Press in Denmark. The model and Method Collection have been used since 2011 with great success at design schools and universities inside and outside Denmark.

The present FUTE material has been developed by Anne Katrine G. Gelting and Laila Grøn Truelsøen, who both have design backgrounds and are presently working on teaching and development projects at Design School Kolding in Denmark. Thanks also to Illustrator Kristian Kristensen who developed the character illustrations.

Input for the development, choice of methods and examples of how to use the Method Cards come from the Partners of the FUTE project:

France, Reseau Canopé 42:  
Atelier Director Arnaud Zohou, designer and teacher Charlotte Delomier and design teacher Apolline Roux,.

Belgium, Hogeschool PXL:  
Head of Research at the Centre for Educational Innovation in Educational Sciences Wouter Hustinx, PhD in Educational Sciences Marie Evens and PhD in Educational Sciences Stephanie Lem.

Wales, Cardiff Metropolitan University:  
Professor of Education and Associate Dean for Research Gary Beauchamp and PhD student and research assistant Isabelle Adams,.

Finland, University of Turku:  
Adjunct Professor Päivi Granö and Lecturer of Craft Education Satu Grönman,

Denmark, University College South Denmark:  
Associate Professor Per Holst Hansen and Senior Lecturer Rasmus H. Jensen,

# FUTE: HOW TO USE THE MATERIAL

## WHAT DOES THE FUTE MATERIAL INCLUDE?

The FUTE material consists of a series of documents that can be downloaded from a FUTE website, intended to be printed and shared with teaching colleagues and pupils. It comprises five different elements:

A) The document you are reading right now that describes WHY the material was made, WHO has developed the material, WHAT the material contains and HOW it can be used and for what.

B) Two process maps for printing and posting in the classroom that provide an overview of the method categories and the methods and also a process map that can be used as a guide.

C) A collection of 42 method cards to be printed and distributed to pupils or teams, including reflection cards after each step for reflecting upon the process, the methods used and insights gained.

D) Teacher Training material with further explanation, examples and exercises for understanding and learning to use the material with colleagues and pupils.

## HOW ARE THE METHODS ORGANISED?

The 42 method cards in the FUTE collection of methods are divided into five categories:

EIGHTEEN PROCESS METHODS that are designed to be used throughout the process. Six methods concentrate on collaboration and the dynamics within the team; six methods are about framing a challenge and evaluating the information and ideas, and six methods focus on communication and visual tracking within the team and on presenting to people outside the team.

## Collaboration Methods

01. Team Rules
02. Knowledge and Expertise Map
03. Expectations
04. Do the Opposite
05. Move
06. Flow Writing

## Framing Methods

07. Challenge Framing
08. Fact and Inspiration Finding
09. The 'To Do' List
10. Show and Tell
11. Success Criteria Grid
12. Telescoping

## Communication Methods

13. Road Map
14. Log Book
15. Data Wall
16. Pecha Kucha
17. Pitching
18. Storytelling

TWELVE METHODS FOR UNDERSTANDING WHAT IS: These methods focus on gathering and visually analysing information and inspiration in order to create learning and insights.

## Research Methods

19. Personal Stories
20. Desktop Research
21. The Anthropologist
22. The Photographer
23. The Journalist
24. The Experiment

## Analysis Methods

25. Clustering
26. Visualising Data
27. Biography
28. Day Cycle
29. Personas
30. Analytical Diagrams

## FUTE: HOW TO USE THE MATERIAL

**TWELVE METHODS FOR CREATING IDEAS ABOUT WHAT COULD BE:** After you have completed the research, analysed the information and decided what you want to focus on, you have a base from which you can ideate and create.

### **Ideation Methods**

31. What IF?
32. Inspiration
33. In the Future
34. Multi Perspectives
35. Creative Constraints
36. Brainstorm

### **Creation Methods**

37. Informing by Characters
38. The Muse
39. The Relay
40. Prototyping
41. Video prototyping
42. Role play

### **HOW TO USE THE FUTE METHOD COLLECTION?**

As mentioned earlier, the FUTE material can be used for planning more varied teaching experiences within existing curricula and subjects, involving teams and pupils in co-learning and, most importantly, teaching pupils to work with framing and solving problems or challenges and to develop innovation skills.

The FUTE methods, as proposed here, outline an exact time frame, what kind of material is needed and a specific "how to" step-by-step approach for each method. It is important to understand that these are suggestions only, and the methods can and should be adapted to each team, age group and to specific projects in relation to time frame, materials used and steps taken. When you are intimately familiar with the methods, try to play around with them and adapt them to your needs and preferences.

The Method Collection's 42 methods have different purposes and are placed in different categories to fit into a classic innovation and design process with consecutive phases of research, analysis, ideation and creation. They are intertwined with "pit stops" all along the process for working with collaboration, framing and communication methods (see the FUTE process maps). This way of organising the methods and the sequence might not suit your purposes, and therefore we invite you to reshuffle and change them as much as you need. However, since design methods and Design Thinking may be new to most of you it is necessary to take the time to first understand the Method Collection and then teach the pupils to use the methods progressively and systematically. It is a good idea to select a few methods from each category and try them out first with the pupils.

We suggest two different approaches to introducing the methods when working with a project:

### **When teaching younger pupils:**

- 1) Read through the material.
- 2) If you are doing a project, plan the process, the project or the course, selecting one or two methods from each category (refer to the cases presented later). Plan how you want to work through the phases, if and when you are going to do mini-presentations and how the results will be presented.
- 3) Present the methods that will be used one at a time, help the pupils use the method and be sure to create a tight framing for the use of methods – time spent, results expected and deadlines for mini-presentations and end presentation.
- 4) Start the process!

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### When teaching older pupils:

1) Read through the material and examples of how to use the methods.

2) Plan the process, selecting two methods from each category that the pupils have to use (refer to the cases presented later). Plan how you want to work through the phases, if and when you are going to do mini-presentations and how the results will be presented.

3) Present the process and the different phases to the pupils: Research, Analysis, Ideation, Creation and Process Methods.

4) Print out all the method cards for each team.

5) Point out which methods the pupils should use and then make them do the "Road Map" method from the Process Method category and make each team or pupil present their process map on a poster.

6) Help the teams work through the different methods and phases and be sure to make the pupils evaluate the process along the way; re-evaluate their process and collaboration issues using the different Process Methods.

### A generic suggestion of methods for a typical innovation project in a team could be the following:

Start by establishing **Team Rules** (method no. 01) and maybe talk about your **Expectations** (method no. 03). Use the **Challenge Frame** (method no. 07) to discuss the focus of your work and **The 'To Do' List** (method no. 09) to plan the work and do the **Road Map** (method no. 13).

Then establish a **Data Wall** (method no. 15) and/or a **Log Book** (method no. 14) using either cardboard and books or digital software and boards to create a shared visual representation of the work that has to be done.

Do the initial research using **Desktop Research** (method no. 20) and maybe **The Anthropologist** (method no. 21).

Analyse the research by using **Clustering** (method no. 25) and maybe **Personas** (method no. 29) or **Analytical Diagrams** (method no. 30).

Take a break and revisit some of the process methods: See how you are doing in the group by looking at your team; maybe you need to revisit the **Team Rules** (method no. 01) and also use the **Do the Opposite** (method no. 04) to be more creative or use **Flow Writing** (method no. 06) to learn what each team member is thinking about the project.

Do a second round of **Challenge Framing** (method no. 07), use **Telescoping** (method no. 12) to reframe the challenge and decide which one you are working with. You may also need to revise the **Road Map** (method no. 13), the **Log Book** (method no. 14) and the **Data Wall** (method no. 15).

Continue with the Ideation Methods, maybe using **Inspiration** (method no. 32) or **Brainstorm** (method no. 36). Subsequently use some process methods like **Telescoping** (method no. 12) to choose which ideas you want to develop further. You may have to establish some **Success Criteria** for the project (method no. 11) to make it easier to choose the right ideas.

The next step is to develop the chosen idea or ideas using some Creation Methods: If you need some inspiration for stimulating the process you could do **The Muse** (method no. 38) and then perhaps **The Relay** (method no. 39) to begin creating solutions and detailing the idea together as a team after which you proceed to **Prototyping** (method no. 40).

Eventually you need to present your idea, and here you can use **Pecha Kucha** (method no. 16) for a short dynamic round of presentation.

In a typical design process one would go through this process several times rather quickly, iterating through phases of collaboration, challenge framing, researching, analysing, ideating, creating and communicating. The methods can be used in that order but again, this is a suggestion, and you must establish how and in what sequence you think the methods can be used in your teaching,

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and which ones are suitable for the age group and learning journey you are on. You need to try different approaches and also allow for trial and error, as having a hands-on experience and allowing for mistakes are vital elements of a design-oriented innovation journey.

As mentioned in the introduction, one of the main goals of introducing Design Thinking in schools is to create an innovative mindset and therefore to teach pupils and teachers to work with **challenge framing and idea development**. Here are some examples of how it can be done starting with different types of motivation:

### **Projects or courses based on the pupils' perspectives or interests:**

Start by making the pupils ask themselves or each other what they are interested in, what they do in their spare time, what they like and what they are good at.

They then formulate problems, issues or challenges and try to understand whether they all face the same challenges and problems. The next step is to develop solution concepts and prototypes.

For example, if there is a keen interest in computer games, what are the challenges: limited time to play, social isolation, lack of physical activity, areas of the body that hurt because of monotonous use of arms and fingers? The solution and the concept presented could be a training programme for gamers or a new piece of furniture. Developing this concept involves doing research into what kind of damage gaming can do to the body, learning about sports training programmes, biology and physiology or the many different subject areas that would be involved in designing, constructing and launching a new piece of gaming furniture on the market: materials, applied geometry, form and aesthetics as well as socio-cultural issues of creating a material object that needs to fit into daily life and a home's interior decor.

### **Projects or courses based on cross-disciplinary problems or challenges:**

Broad concepts like biodiversity or sustainability, immigration, inequality or "peace" but also more specific issues like social media, food waste, stress or lack of areas for children to play in the city could be interesting starting points for a cross-disciplinary course.

Based on these broad concepts the pupils should ask each other how they experience the issue, do research amongst their family and friends and engage in further desktop research on the subject chosen.

On the basis of those results they formulate specific challenges to investigate and work with, for example, "How can young girls be made aware of how social media influences them?" or "how might we create habitat areas for bees and insects in our schoolyard?"

Working with such problem areas would require the pupils to gather knowledge about the functionality and programming of social media, to study the natural habitats for bees and insects and the impact of a lack of biodiversity on humans.

This would create a motivation for investigating certain aspects of for example biology, psychology and computer programming.

To create solutions the pupils would also have to learn how to create a website, design a campaign, build a bee hive or plant flowers that would attract bees and insects and other kinds of subject areas.

### **Projects or courses based on academic concepts, phenomena or objects:**

The methods in the collection can also be used to create a learning experience and a course based on specific academic subjects like history, arts and crafts, home economics and math. For example the teacher of history could ask the pupils to research different wars or revolutionary periods and events in their own country and then create a board game that would illustrate the relationships that lead to the situation.

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Another way of working with the methods in the collection could be in mathematics, where pupils could be asked first to define, research and then plan a holiday making them learn about distance calculation, VAT, use of percentage, time calculation etc

In arts and crafts the pupils could be asked to design a product that would keep people warm in a cold winter. The teacher could take the class to a sledding hill for the next lesson to observe what kind of products are used there and then frame challenges and opportunities for new products that the pupils can then develop and craft.

**To give you more inspiration, here are two case studies highlighting two types of challenges. They exemplify specific methods and applications and are derived from ideas and actual experiences collected from the partner schools in the FUTE project.**

Challenge 1: Using design method for "making the school a better place"

A large team of teachers and pupils across a school began to plan a project to make their school a nicer place for everybody. They used **Expectations** (method no. 03) for sharing what specific changes they would want the project to bring to their everyday school life: An end to bullying, better physical surroundings, better eating and exercise habits, etc. In a **Challenge Framing workshop** (method no. 07) the problems were reformulated as challenges such as: "How can we improve every classmate's enjoyment of school days?" or "How can we ensure that everyone has a friend?" "How can we make lunch break a calmer experience?" "How can we make it more fun to exercise during school?"

A team of eighth graders was in charge of the project to improve pupils' eating habits. They started by gathering information they already had about the topic using **The Anthropologist** (method no. 21) and **The Journalist** (method no. 23). The next step was using **Clustering**

(method no. 25), to sort the information into three categories: physical space, food and behaviour. They also mapped their insights using **Day Cycle** (method no. 28) to learn how the canteen was used during the day. They used **Personas** (method no. 29) to create four fictional characters who represented different types of pupils in the school, for instance "Thomas," a 16-year-old in his final year of school, who loves fast food and hanging out with friends and "Sarah," a 13-year-old quiet girl, who prefers to chat with her friends and brings her own food to school, etc. This approach allowed the team to identify new possibilities for creating different areas of the canteen for different types of behaviour and also using the canteen outside of the lunch hour for different activities. The team then used **Prototyping** (method no. 40) to create three prototypes, scale models of the new canteen made out of paper, cardboard and small objects. The approach enabled the team to discuss and evaluate the design of the new canteen. Finally, the strongest elements of the three prototypes were combined into one prototype that was presented to several stakeholders such as pupils and teachers.

Challenge 2: Using design methods in arts and crafts teaching

As part of the arts and crafts programme at a nearby secondary school, the staff of a retirement home had invited a class to help redecorate the home's lounge, which the nursing home staff found boring and clinical. The craft teachers and pupils used **Fact and Inspiration Finding** (method no. 08) to plan how they could gather inspiration and knowledge about the needs of the residents and their taste in colours and themes. First they created a process map using **Road Map** (method no. 13). The average age of the residents was over 90, so the pupils had to carefully plan how to initiate a conversation with them about a pleasant lounge environment. As a result of thorough consideration, the pupils used **The Journalist** (method no. 23) and conducted interviews, asking residents about their favourite seasons, colours, landscapes and childhood memories. They also used **The Photographer** (method no. 22) to collect pictures of favourite belongings at the retirement home. The project continued as art workshops with the pupils,

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residents, family and staff using **Multi Perspectives** (method no. 34). Along the way the pupils also used **Challenge Framing** (method no. 07) and **Success Criteria Grid** (method no. 11) to specify that they wanted to create a decoration piece that related to the residents' stories and lives and also clarified what aesthetic criteria it should fulfil.

The arts and crafts teacher felt that the pupils' original design ideas lacked richness and personality, so she gathered the pupils to do **Show and Tell** (method no. 10) during the sketching and designing segment, but also during the testing and making part. As a result the pupils came up with new ideas by sharing their work with others, which allowed the class to evaluate, elaborate, inspire and ideate together.

## PROCESS METHOD – *COLLABORATION*: 01. TEAM RULES



### 01. TEAM RULES

*TEAM RULES* is a method for agreeing on a set of rules for how to work together and behave towards one another during a project or team work. This is important for the team in order to work properly and avoid discussions and conflict.

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 30–45 minutes, and revisited for 15 minutes regularly throughout the project.

#### How?

**1)** Ask team members or the class to come up with suggestions for rules that they think are important to make the team work or to make the class a better place. Make sure that everybody has an opportunity to voice their opinion.

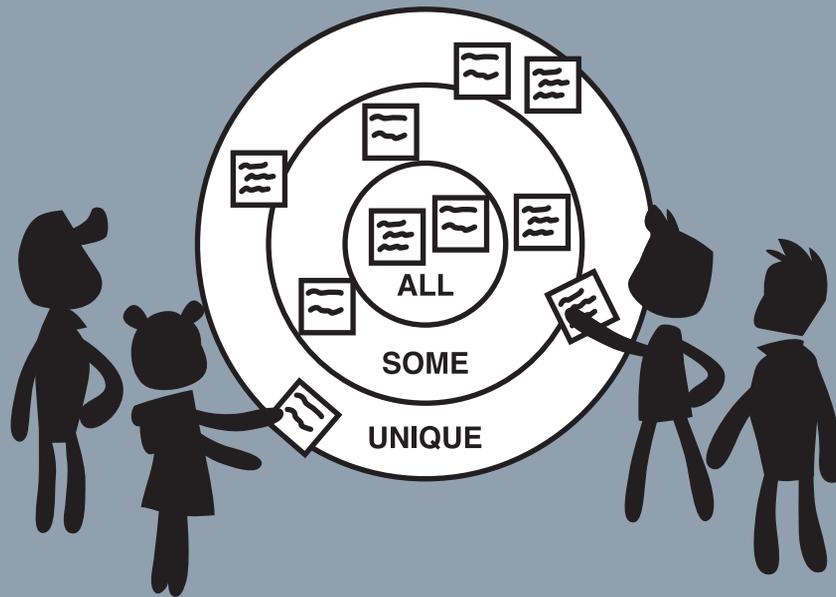
**2)** Write each suggestion down on the blackboard.

**3)** Conduct a session with the team or the pupils where they vote on the most important rules. Make sure to discuss each rule so that everyone agrees on which are the most important.

**4)** Write down the 5-8 most important rules and save them or put them in a place where everyone can see them.

**5)** Be sure to go back to the rules regularly and discuss them in the group to see if they are being respected. If they are not, discuss why that is. They might need to be revised or changed along the process and during the teamwork or in the course of the school year.

## PROCESS METHOD – COLLABORATION: 02. KNOWLEDGE AND EXPERTISE MAP



### 02. KNOWLEDGE AND EXPERTISE MAP

*Every member of a group has different experiences and skillsets, and this method aims to discover what they are and mapping them out for all to see. In this way they might be put to better use in the class and in the project at hand. This method is also a convenient way to come to know one another in a group.*

**Materials needed:** A large sheet of paper, post-it notes and pens in different colours.

**Time required:** 45 minutes.

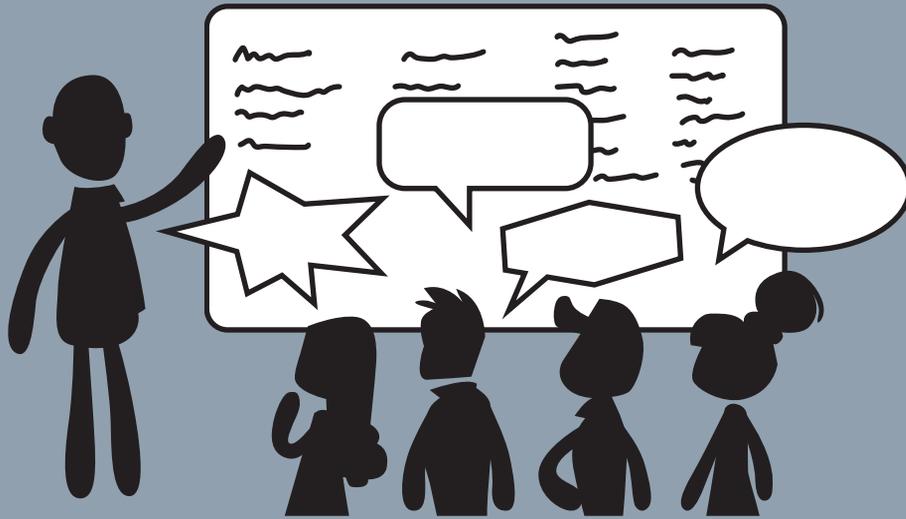
#### How?

**1)** Start by taking turns to interview all members in the group about their knowledge areas, skills and experiences. Every item must be noted on a separate post-it note. The experiences, knowledge and skills of each participant can be noted on a post-it note of a particular colour or with a special coloured pen.

**2)** Draw a diagram with three overlapping circles showing the knowledge, skills and experiences shared by everyone in the inner circle, skills and experiences that some have in common in the second circle and individual, unique skills and experiences in the outer circle.

**3)** Put the different post-it notes in their correct places while discussing the specific knowledge, skills or experience that have been revealed in the group. What are they? Discuss how these skills would be useful for the project or if there is something missing. If some knowledge or skills are not present, how can you compensate for them?

## PROCESS METHOD – COLLABORATION: 03. EXPECTATIONS



### 03. EXPECTATIONS

*Different people might have different ambitions, expectations and goals, and sharing the expectations of each individual involved in a project, a team work or in a class makes it easier to work together. It helps to avoid misunderstandings and creates common goals for the whole team.*

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 45 minutes–1.5 hours.

#### How?

**1)** All members of the group must decide what they want to get out of the present project: what they want to learn more about or what they want to achieve in the project or the class: Do they want to learn something specific? Is it important to have a better atmosphere in the group? Is there a specific goal?

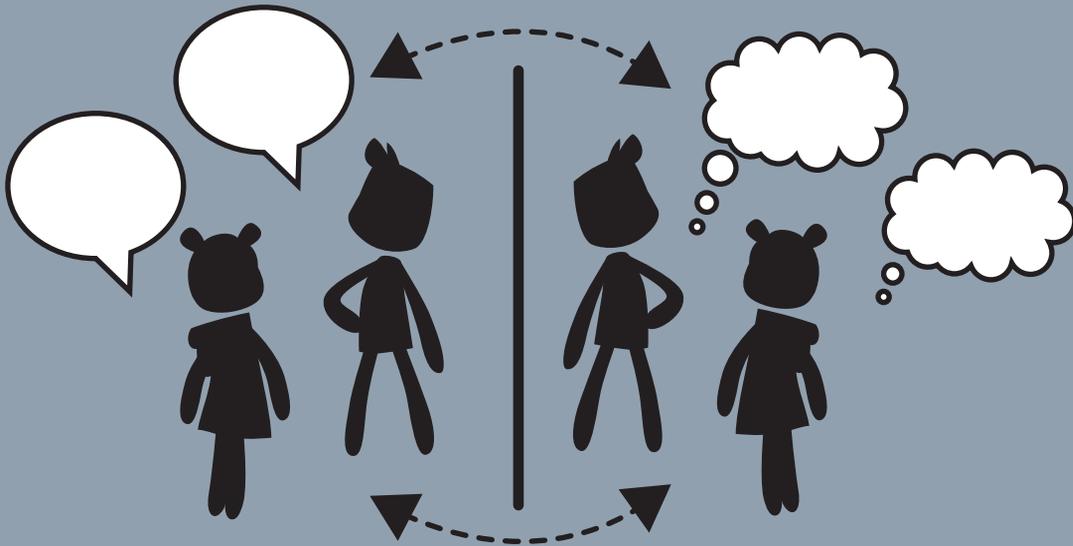
**2)** A facilitator, who could be the teacher or a pupil, leads the subsequent group session where thoughts are shared and noted down on the blackboard or a large sheet of paper. Be sure to ask questions such as: what will you have gained from that goal? Why do you want to achieve that? Talk about the goals and wishes so that you understand each other well.

**3)** Discuss the differences that may have emerged in terms of expectations, goals and wishes and how to handle those differences in a constructive way.

**4)** Write down the most important expectations and goals and put them in a place where everybody can see them.

**5)** During the project or during the whole school year you can get back to the list and discuss whether you are achieving these expectations, goals or wishes.

## PROCESS METHOD – COLLABORATION: 04. DO THE OPPOSITE



### 04. DO THE OPPOSITE

*Alternating between opposite states of mind and activities is beneficial for moving the creative process along. This method is useful for creating self-awareness of these different states of mind and activities and trying to switch between them, creating a more dynamic and creative process.*

**Materials needed:** A piece of paper, pens.

**Time required:** 15–45 minutes

#### How?

**1)** If the project has come to a halt or tension has developed in the group work, take a break and look at what you are doing right now and how you are doing it. Write it down on a list: Are you working at the same table all the time? Are you constantly inside the class room? Are you thinking, discussing and talking all the time? Are you collecting knowledge and analysing that data most of the time? Are you working for many hours at a time? Are you working very slowly?

**2)** Write down the opposite: Working individually and in different locations? Going outside to talk or going somewhere else. Drawing, building or going out into the world to observe and being playful and intuitive. Working quickly, but for shorter periods of time, where you set a timer, etc.

**3)** Discuss which ways of working you have been neglecting to do and which ones would be useful or fun to try out. Then go ahead and try them out. You might need to agree on a game plan for how long you want to do it before trying other ways of working, alternating between different media like writing and drawing or modelling or choosing different locations for working or time frames for doing it.

## PROCESS METHOD – COLLABORATION: 05. MOVE



### 05. MOVE!

*Sometimes it is a bad idea to keep on doing what you are doing: sitting around the same table in the same room, or in front of a computer, digging yourself into a hole by researching on and on, arguing about the same issue or trying desperately to come up with an idea in the same manner. This is why you need to break away from the chair and the table and do things in a different way by using your body: You can go for a walk or a short intense run, or go and feed the ducks in a nearby park! OR put on some music and do stretching exercises or dance together. Use your body, release your minds and boost your energy!*

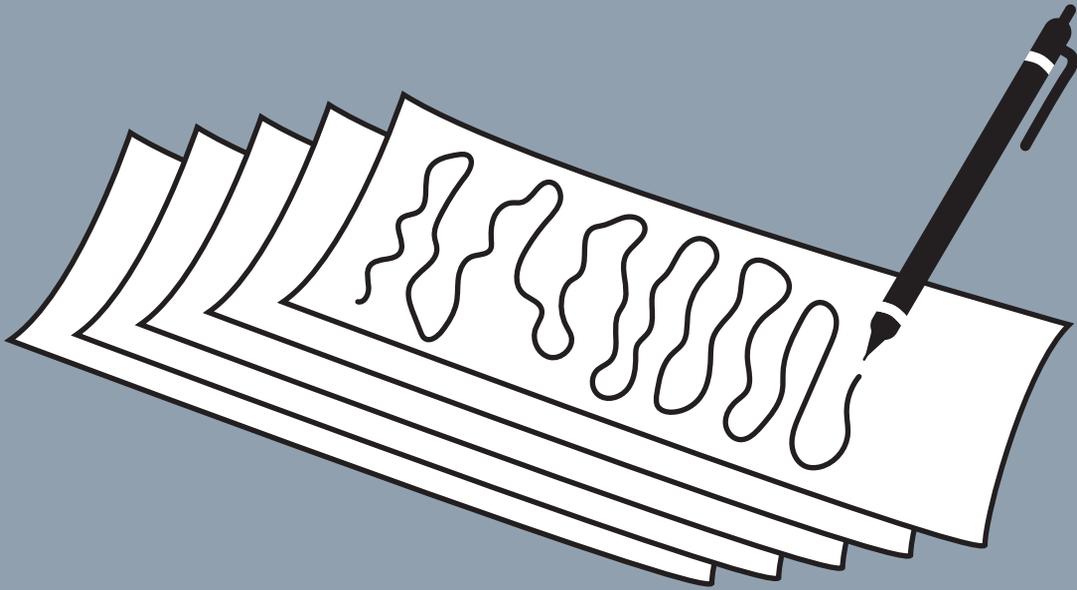
**Materials needed:** Some space outdoors or inside in the classroom, corridor or gymnasium.

**Time required:** 10–30 minutes.

### How?

- 1) Decide how much time you want to spend and whether you want to go slow and meditate or talk quietly or walk, skip, run or dance.
- 2) Keep the focus and do what you set out to do maintaining a balance between having fun but also being serious about completing the activity!
- 3) When you have finished, gather in the group and share your thoughts.
- 4) Remember to take these breaks and activate your body regularly!

## PROCESS METHOD – COLLABORATION: 06. FLOW WRITING



### 06. FLOW WRITING

*Flow writing is an excellent method at any time in a process, as it gives your brain a break where you just "pour" your thoughts out on paper for a short while without judging or evaluating the content. It can be used to give voice to problems or conflicts you might experience in the team, or to formulate questions about the project. It is also useful for brainstorming, to get ideas for a challenge or to find a new approach to a challenge if you feel that you are stuck.*

**Materials needed:** A smart phone with a timer app, or an alarm clock, paper and pen or a computer.

**Time required:** 5–20 minutes.

#### How?

**1)** Find a quiet place where you will not be disturbed and take out your writing tools.

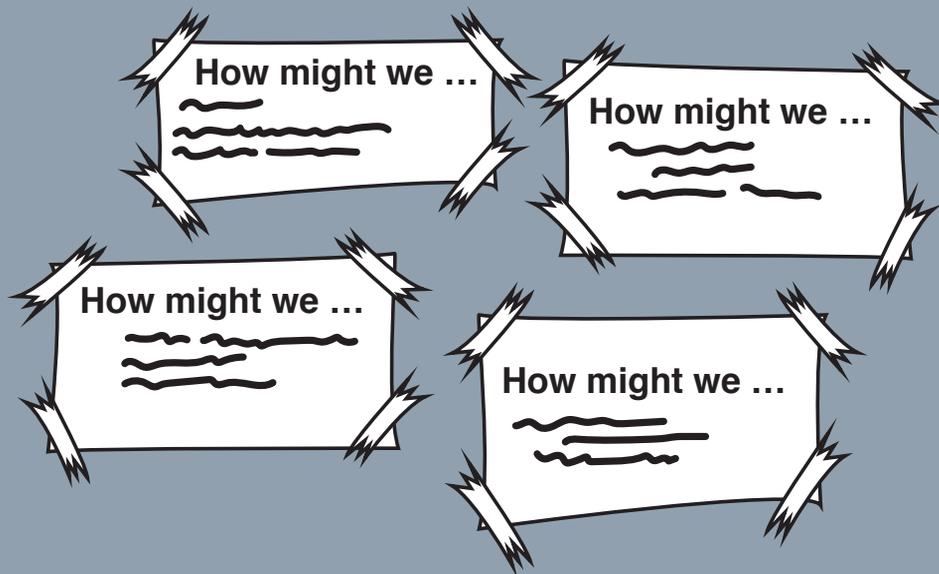
**2)** Set a time limit of 5, 10 or 20 minutes max. on a clock or a phone that will mark the time and signal the end of the allotted time.

**3)** Keep writing for the entire time whatever you do! Do not read through your text or pause. Do not pay attention to grammar, spelling or the disposition of your text. Write nonsense text or express why it is difficult to write something if you feel stuck or are unable to write something meaningful.

**4)** When the time is up, read through your text and mark the most important or interesting passages.

**5)** If you want, you can do a short flow writing session on each of the interesting words or sentences you have highlighted, thus going deeper into your thoughts or ideas, if necessary.

## PROCESS METHOD – *FRAMING*: 07. CHALLENGE FRAMING



### 07. CHALLENGE FRAMING

*This method is about transforming problems into challenges by asking "How might we..." This is a helpful approach to problem solving because, rather than struggling with difficult problems, it is easier and more fun to break a complicated problem down and deal with interesting challenges that relate to the problem. Challenge framing must be done both at the start of a project and regularly as the project progresses, as formulating, discussing and reformulating the challenge make the project and the objectives clear for everybody!*

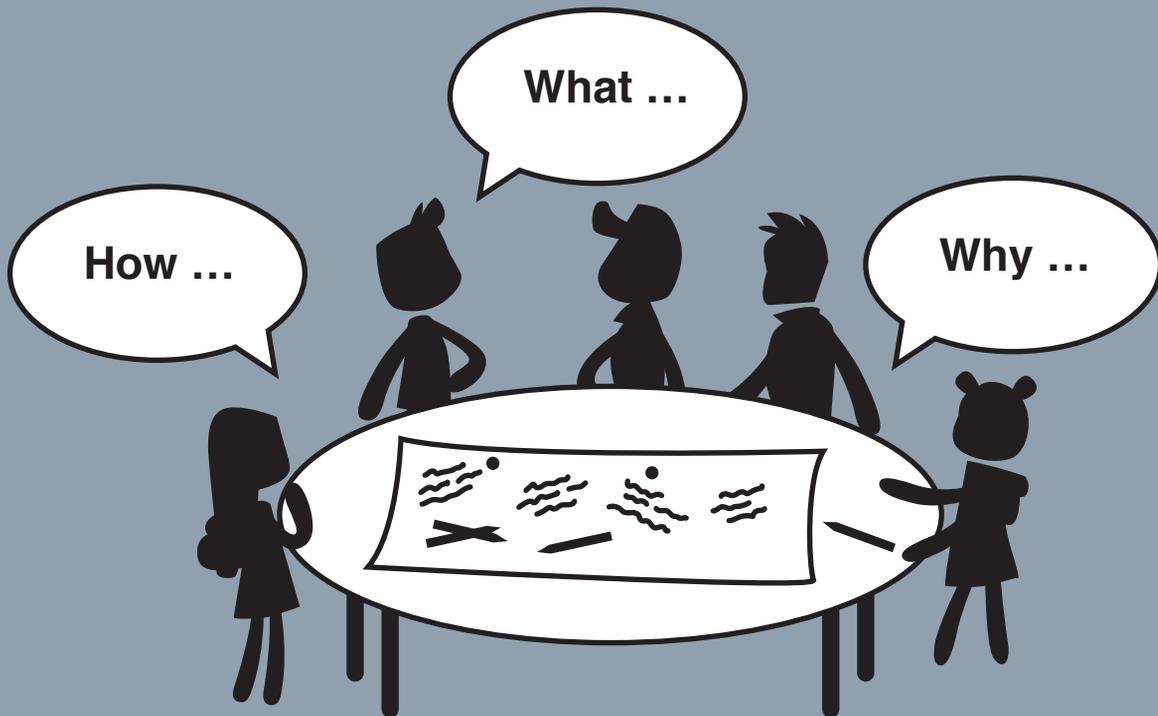
**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 45 minutes–1.5 hours.

### How?

- 1)** Write up a list of all the problems that can be identified related to a challenge.
- 2)** Turn each of them into a challenge by using the sentence "How might we..."
- 3)** Generate ideas for many challenges before deciding on the most important one(s) and writing it down.
- 4)** If you feel it is difficult to identify the most important challenge(s) try to do some Challenge Analysis by asking "Why?" this is a challenge and also "What is stopping us?" to each formulated challenge. This helps you realise how different challenges are related and which ones are most important and must be solved first.

## PROCESS METHOD – *FRAMING*: 08. FACT AND INSPIRATION FINDING



### 08. FACT AND INSPIRATION FINDING

*Before doing research about a challenge this method is a way of discussing and identifying what kinds of information and inspiration might be needed to develop a solution to a challenge, deal with a project or study a specific challenge.*

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 45 minutes–1.5 hours.

#### **How?**

- 1)** Choose a person to lead the session and make notes on a shared piece of paper
- 2)** Discuss and answer the following questions:
  - What do you know about the challenge or the present situation?
  - What would you like to know more about?
  - How might you be inspired and by what?
- 3)** Note the most interesting answers and discuss how you might gather information about them: observation, interviews, engaging people in sketching together, etc. (see other research and ideation methods).
- 4)** Evaluate and try to choose what to do considering the available time, how many you are, where you could go and who you could talk to.

## PROCESS METHOD – FRAMING: 09. THE 'TO DO' LIST

to do	who	when	
collect			
research			
field study			
order pizza 			

### 09. THE 'TO DO' LIST

Making a 'TO DO' list is a way of avoiding the overwhelming sensation of having lots of things to do by creating a visual, shared overview of things. It makes you think through the decisions and actions needed and also help you structure and prioritise them. The list can serve as a shared memory and communication tool in a group and should be put up on a wall and be a shared visual list at all times.

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 45 minutes–1.5 hours.

#### How?

**1)** Find a shared space, blackboard, large sheet of paper or a big screen/smartboard that you can print from.

**2)** Brainstorm about the things you need to do

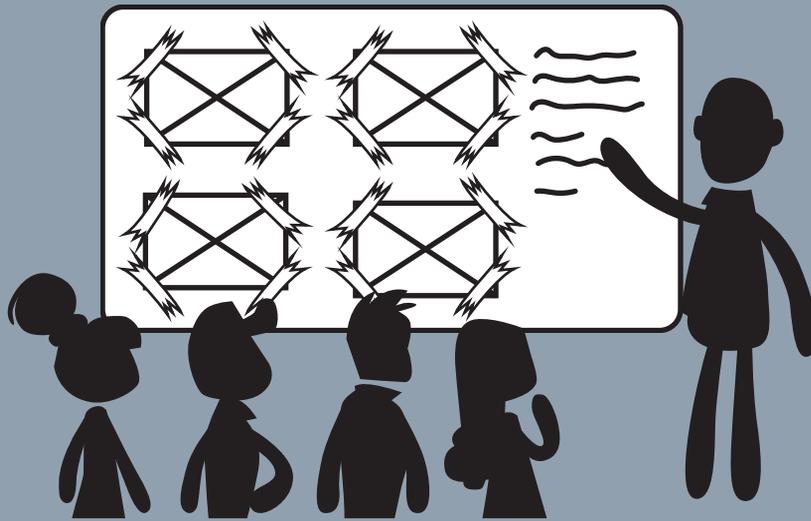
**3)** Categorise them into different types of activities: things to be collected, research, readings, activities, field study trips etc.

**4)** Decide which are the most important, which are more time consuming and which ones you need to do at a certain time. Also agree on how long you will do the activities.

**5)** Assign people to the different activities.

**What's next:** Visually plan the upcoming activities and results you want to achieve using the Road Map (method, no. 13).

## PROCESS METHOD – *FRAMING*: 10. SHOW AND TELL



### 10. SHOW AND TELL

*The Show and Tell method allows individuals some personal space to express their thoughts, ideate and experiment and then present it back to the group. The method can be used at different stages of a process. When giving feedback it is important to think carefully of both positive and negative aspects of what is being presented, and also being as sincere and constructive as possible.*

**Materials needed:** A calm space where everybody can sit and observe.

**Time required:** 30–45 minutes.

#### How?

**1)** Choose a format for the Show and Tell: where to do it, how much time to spend, and what kind of material should be presented.

Then assign a timekeeper. Keep the number of presenters low in order to create a close-knit and cosy session.

**2)** Keep an open and relaxed atmosphere to encourage everybody to share their ideas.

**3)** Take turns telling each other your ideas or concepts.

**4)** Make sure that everybody receives feedback. You may ask the other pupils to take turns commenting by using a series of pre-designed constructive questions: What are the good things? What could be further developed?

**5)** Take notes or record the session and help keep pace and concentration by arranging small breaks or keeping the session short and fun.

## PROCESS METHOD – FRAMING: 11. SUCCES CRITERIA GRID

	criteria A 	criteria B 	criteria C 	criteria D 
idea A 	••••	•	•••	•••••
idea B 	••	••••	••••	••
idea C 	•••••	•••	•	••
idea D 	••	••••	•••	••••

### 11. SUCCESS CRITERIA GRID

*This method focusses on discussing and selecting the most important aspects or criteria for a specific project, learning experience or challenge, providing the pupils and teachers with a tool to guide their work and also to evaluate the process and the end result*

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 30–45 minutes to generate; should be used to evaluate the whole project.

#### How?

**1)** Generate ideas for different criteria that seem relevant for the challenge or the project.

**2)** Select the most important criteria by voting (max. five criteria).

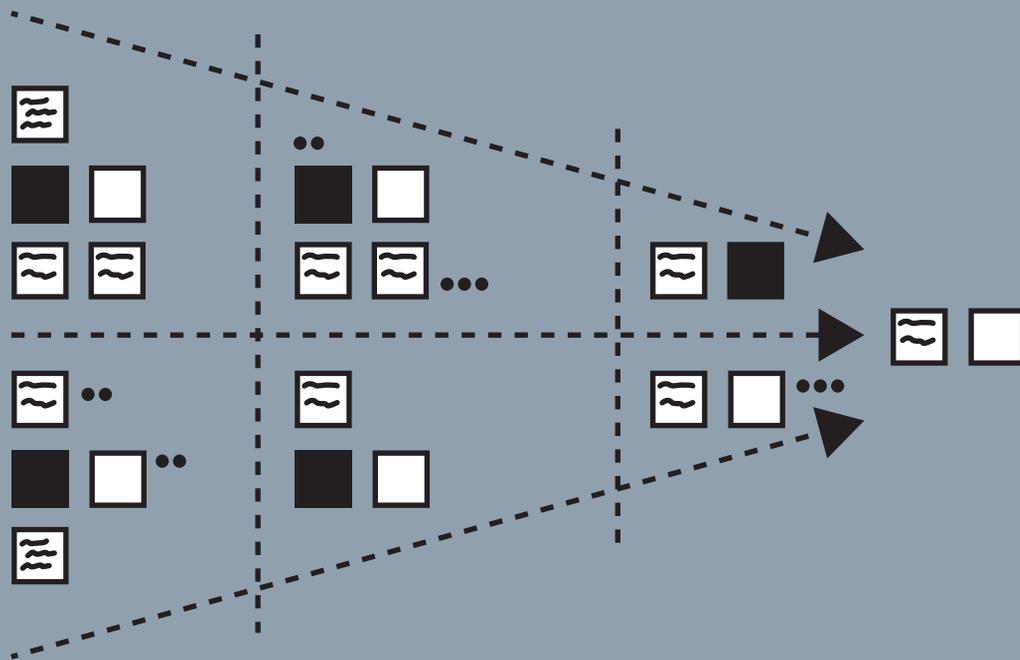
**3)** When developing or evaluating the project, use these criteria to assess how you are doing and whether you are achieving what you want. You need to create a matrix listing the criteria at the top and the ideas on the left.

**4)** Rate the ideas, using points from 1 (low score) to 5 (highest score) within the different success criteria that were chosen.

**5)** See which ideas get the highest score and use that to discuss which ideas score highest and how to proceed.

**6)** Ideas that score highest may not be the ones you want to choose, but scoring according to criteria and discussing these clarify potential problems that need to be addressed.

## PROCESS METHOD – *FRAMING*: 12. TELESCOPING



### 12. TELESCOPING

*This method is useful when you have many options, ideas or possible solutions and you need to evaluate and restrict the team's choices. It is a matter of displaying the options, voting individually and giving each person an opportunity to explain and argue in favour of their preferences before making a common and informed choice.*

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet..

**Time required:** 30–45 minutes.

#### How?

**1)** Create a list or a selection of options that are displayed for everyone to see.

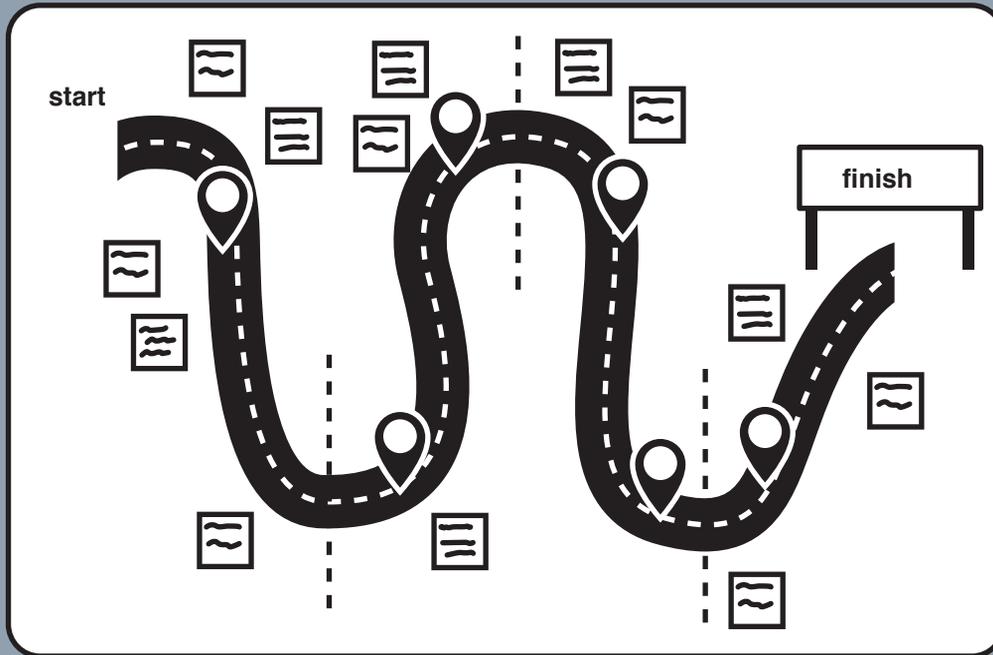
**2)** Make the whole team select a restricted number of options (3 to 5) by placing a sticker, dot or coloured sign close to the selected option.

**3)** Discuss each selection to understand why it has been selected, and if more than one person has chosen an option they must explain their choice.

**4)** Underline or box in the options that have the most votes.

**5)** Discuss and agree on which one(s) you will be working on.

## PROCESS METHOD – *COMMUNICATION*: 13. ROAD MAP



### 13. ROAD MAP

*When working together with other people it is important to have a shared understanding of what you are doing and where you are heading. One thing that can help you achieve this is creating a visual, shared illustration of the road you are on, which methods you will use, when you will do things and for how long: A road map.*

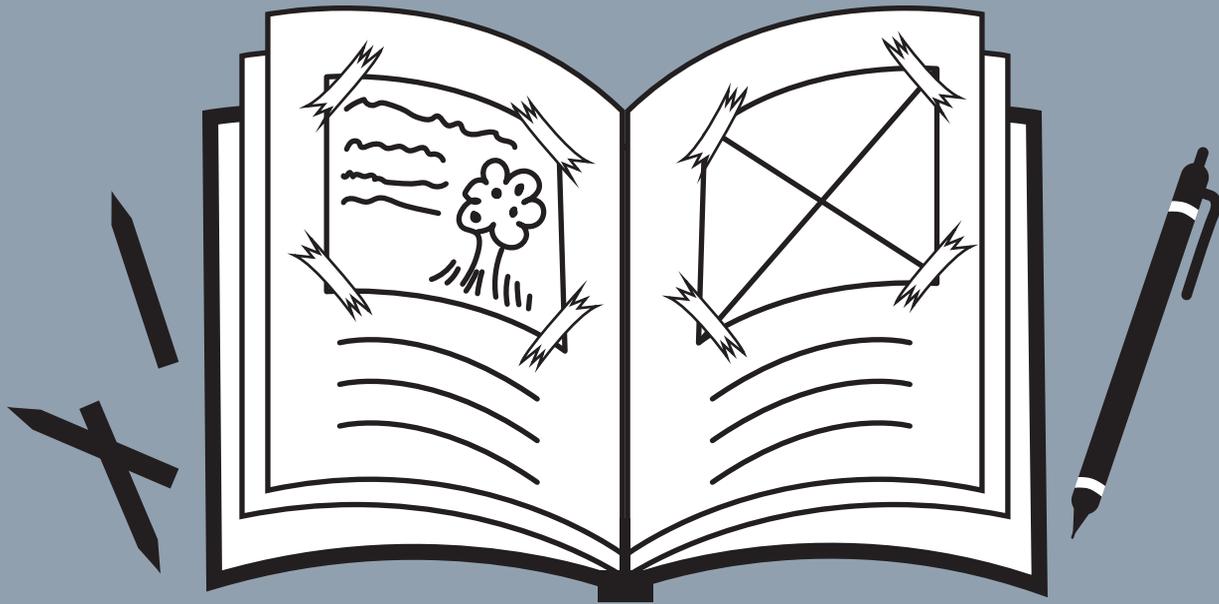
**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 45 minutes to generate; remember to revisit and revise in the course of the project

### How?

- 1)** You might want to use The 'To Do' List (method no. 9) to decide what you need to do first.
- 2)** Note down actions, activities, methods, the tools you need and discuss and plan time use and when you plan to do what, mark them or list them or draw them.
- 3)** Place all the elements on a timeline or in a diagram that fits your purpose: a rocket, onion or landscape diagram. Mark the different phases and deadlines in the process, the persons in charge and maybe the methods used.
- 4)** Keep the road map in a place visible to all, and go back to it when the team needs to reconsider the work being done and how it is going.

## PROCESS METHOD – *COMMUNICATION*: 14. LOG BOOK



### 14. LOG BOOK

*A Log Book can be either a physical notebook with blank pages or a digital log, but the important thing is that it must be easily accessible and be able to include sketches, pictures and notes or text. Most of us have a short-term memory, and keeping a log book, noting down interesting ideas or collecting pictures and sketching ideas is a great memory booster and process tracker!*

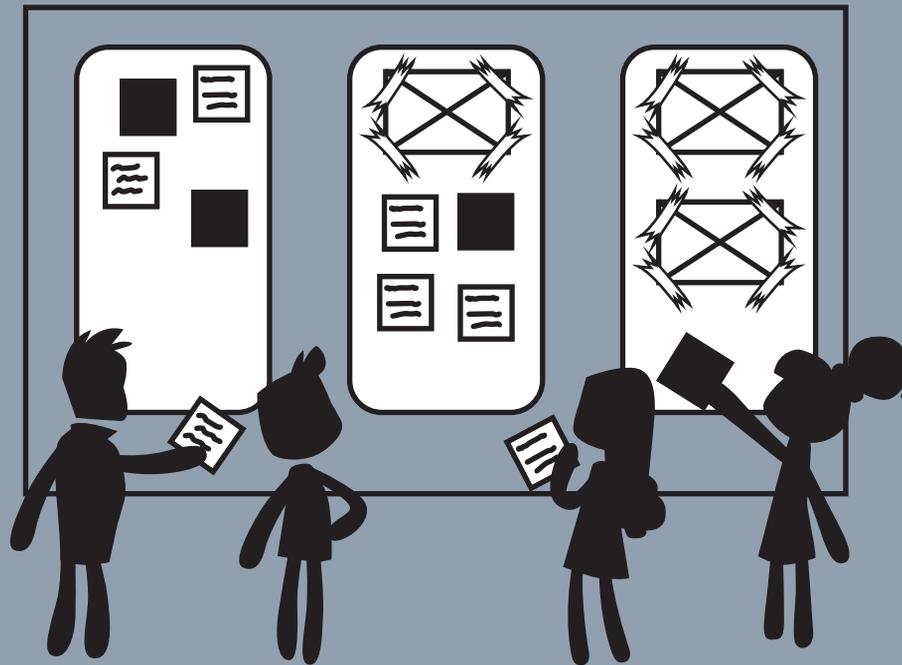
**Materials needed:** A book with blank pages or an online blog app or piece of software that allows writing and collecting different types of documents, pictures and sketches and accessing them easily.

**Time required:** The duration of the project or class.

### How?

- 1)** Decide what type of software, blog app or book size you want to use and dedicate it to the project at hand.
- 2)** Be sure to note, register and collect material in it every day or as often as possible and have it always accessible (a physical book and a pen are sometimes more convenient).
- 3)** Note down your thoughts, the questions you are asked and ideas you have. It need not look neat and tidy. Create a system of note taking, for example written notes on one page and illustrations or pictures on the other, dates on top, etc.
- 4)** Use the notebook when preparing presentations and when discussing the work in the team or in the class.

## PROCESS METHOD – *COMMUNICATION*: 15. DATA WALL



### 15. DATA WALL

*The Data Wall is a method of obtaining an overview and an understanding of different complex information by collecting and displaying collected photos, notes and objects relevant to a project. Displaying and sharing information in a visual way is a powerful tool because displaying information so it is visible and can be moved around enables you to discover relationships, patterns and hierarchies that are otherwise not immediately apparent.*

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet.

**Time required:** 45 minutes for start-up. Should be used and updated regularly during the project

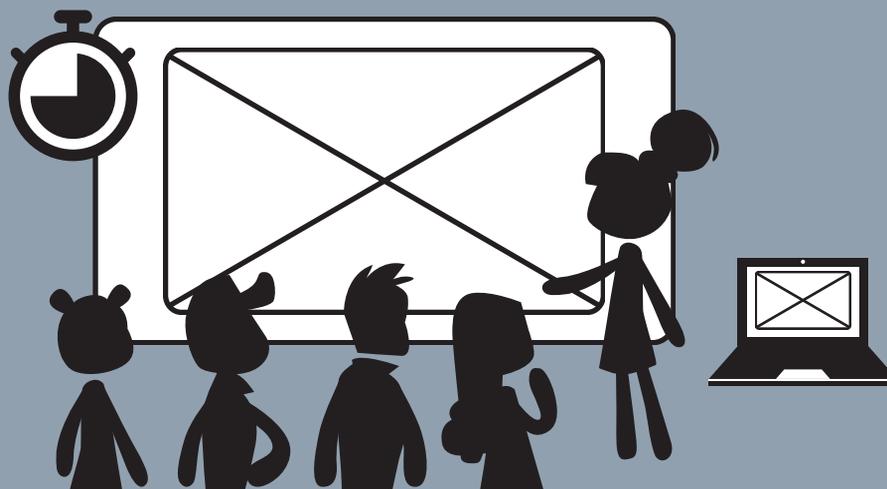
### How?

- 1)** You need to have a space available on a wall or a board for pinning or attaching things.
- 2)** Start by putting up all the different photos, drawings and notes that all the team members agree are relevant and interesting.
- 3)** Shuffle all the items around until everybody is satisfied that they are placed correctly and are clearly visible.
- 4)** Keep refreshing the data wall throughout the project by adding new information and removing non-relevant information and data. Also use it in teamwork sessions to discuss the progress of the project.

**What's next:** Try to look for hierarchies, relationships or categories between the items by using Clustering (method no. 25).

## PROCESS METHOD – *COMMUNICATION*: 16. PECHA KUCHA

20 x 20



### 16. PECHA KUCHA

*Pecha Kucha – Japanese for “chit-chat” – is a method of presentation where both the amount of material and the time is heavily restricted. This forces the presenter(s) to clarify their thoughts and aims and formulate and present their findings in a precise and clear manner. It generates an energetic and short presentation session.*

**Materials needed:** Computers and overhead projector, OR 10 to 20 large sheets of paper and a timer

**Time required:** 1 day of preparation time and 6 minutes and 20 seconds per project or group.

#### How?

**1)** First choose a format and a time frame: The classic Pecha Kucha format is 20 slides or posters that are shown for 20 seconds each (6 minutes and 40 seconds in total). You can also do a shorter presentation: 10 slides or posters that are each shown for 10 seconds. At the early stages of the project you might have less

material making it easier to do shorter presentations.

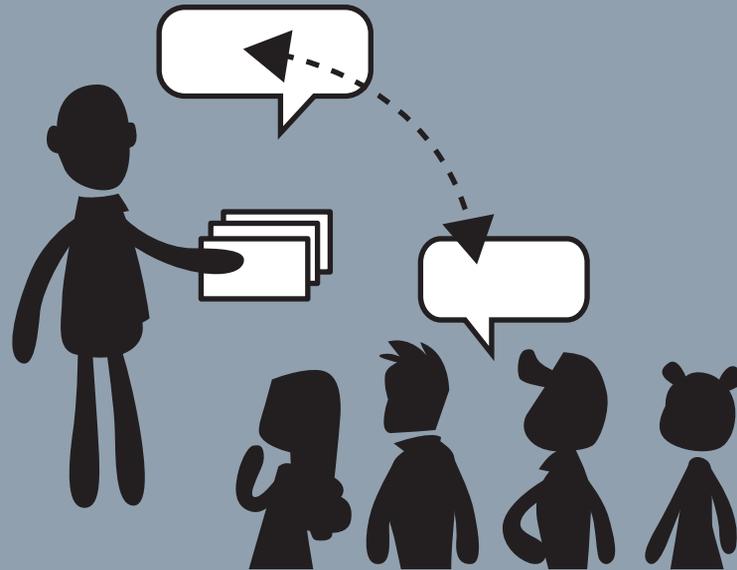
**2)** The teacher specifies the content of the 10 or 20 posters or slides, for example: presentation of the team, the project and the challenge, the findings, analysis, ideas and solutions and conclusions.

**3)** The teams or pupils prepare the presentation carefully, rehearsing what they are going to say, who will say what and the timing of the slides, either by making the slides time themselves or by appointing a time keeper.

**4)** There must be a facilitator who keeps track of time for the presentation, which must be kept fast-paced and tempo-filled with clear cues, use of hand signals, a timer or an alarm app.

**5)** After each presentation other groups can be pre-appointed to comment and reflect, again within a specific time frame – not to exceed the presentation time.

## PROCESS METHOD – *COMMUNICATION*: 17. PITCHING



### 17. PITCHING

*To pitch originally means to throw something, but it is often used in the meaning: a speech or an act that attempts to persuade someone to buy or do something. Pitching is a method of presenting your idea, project or research insights in a short, dynamic and interesting way.*

**Materials needed:** You need to know where you are pitching and for whom!

**Time required:** A half day to prepare and five minutes to present!

#### How?

**1)** Know who you are presenting for; discuss what you think they will be looking for or are interested in. Where are you going to present and how much time will you have to do it?

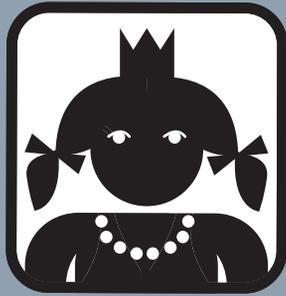
**2)** Discuss, brainstorm ideas for your presentation. What will make the main points clear and the form of the presentation interesting? Think of how you can engage the audience by using music, storytelling, enactment, props etc. that will make the presentation lively and interesting.

**3)** What communication techniques do you think will match the audience? Discuss and select.

**4)** Plan the pitch very carefully; think about any props you will need; what do you plan to do and say and what are the roles of the individual team members? Be visual and communicative in your design of the presentation.

**5)** Make a script of the pitch and rehearse it carefully several times ahead of time.

## PROCESS METHOD – *COMMUNICATION*: 18. STORY TELLING



### 18. STORY TELLING

*A good story touches you and is more easily remembered than just a series of facts. Pupils can write stories about things they have developed or learned using storytelling because it helps processing and remembering the information and presenting information and facts in a more engaging manner.*

**Materials needed:** Computers, paper and pens, shared digital board e.g. padlet.

**Time required:** 1- 2 days to prepare and a half day to present, all depending on how many people are presenting.

#### How?

**1)** Think about how you can use storytelling in relation to your project. Is the purpose to transform a historical fact into a film narrative that you will act out? Or is it a story of how somebody's life is transformed by the solution or the idea you have developed?

**2)** Think about different genres of stories and which ones you think are fun, engaging or dramatic. Discuss the choices, then borrowing the approach.

**3)** When you have chosen an approach, develop the content of your story by writing or drawing different aspects, actions and scenes on post-it notes or pieces of paper and then place them in a specific order.

**4)** Use this to discuss: Who are the characters? Where is the setting? What is going to happen and when in the story? What will you tell first and what will you keep for later as an element of surprise or suspense? How will the story be wrapped up?

**5)** You can use the Flow Writing method if you feel you are stuck (Method no. 06).

**6)** Agree on a way of presenting, either with one person doing the talking, or several people playing roles or sharing the presentation.

## PROCESS METHOD – REFLECTION



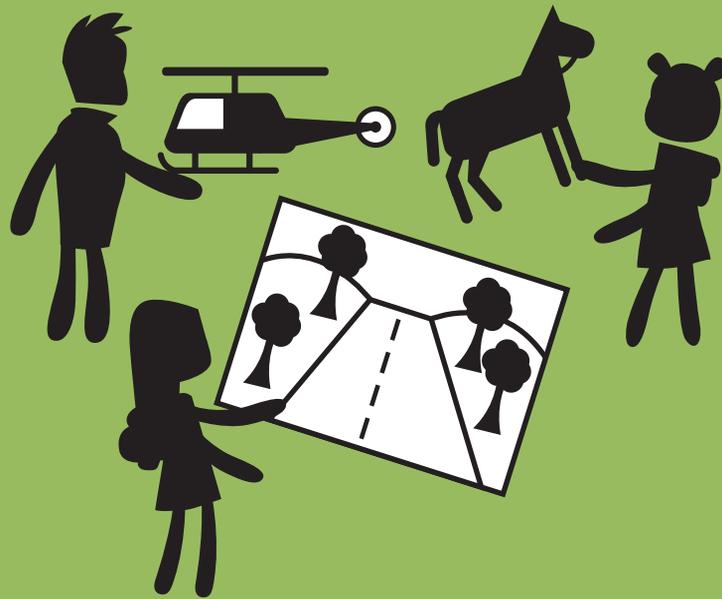
### **REFLECTION**

*There are 18 methods for keeping the process on track. Six methods concentrate on collaboration and the dynamics within the team; six methods are about framing a challenge and evaluating the information and ideas, and six methods focus on communication and visual tracking within the team and on presenting to people outside the team.*

### **Guide questions for evaluation of the proceses:**

- What have you learned about yourself?
- How well have you worked together in the team?
- How well have you planned the work?
- Have you formulated and answered a challenge?
- Have you clearly communicated within the team during the process?
- Have you clearly communicated your solution, idea or project all along the project and at the end of the process?
- What have you learned about the subject and project?

## RESEARCH METHOD: 19. PERSONAL STORIES



### 19. PERSONAL STORIES

*Most people have some personal insights and experiences that relate to the work or project in question, and this method can expand individual perspectives in any school subject. Stories or objects from home or from close family members can be brought to school and become a personal starting point for example for a history lesson.*

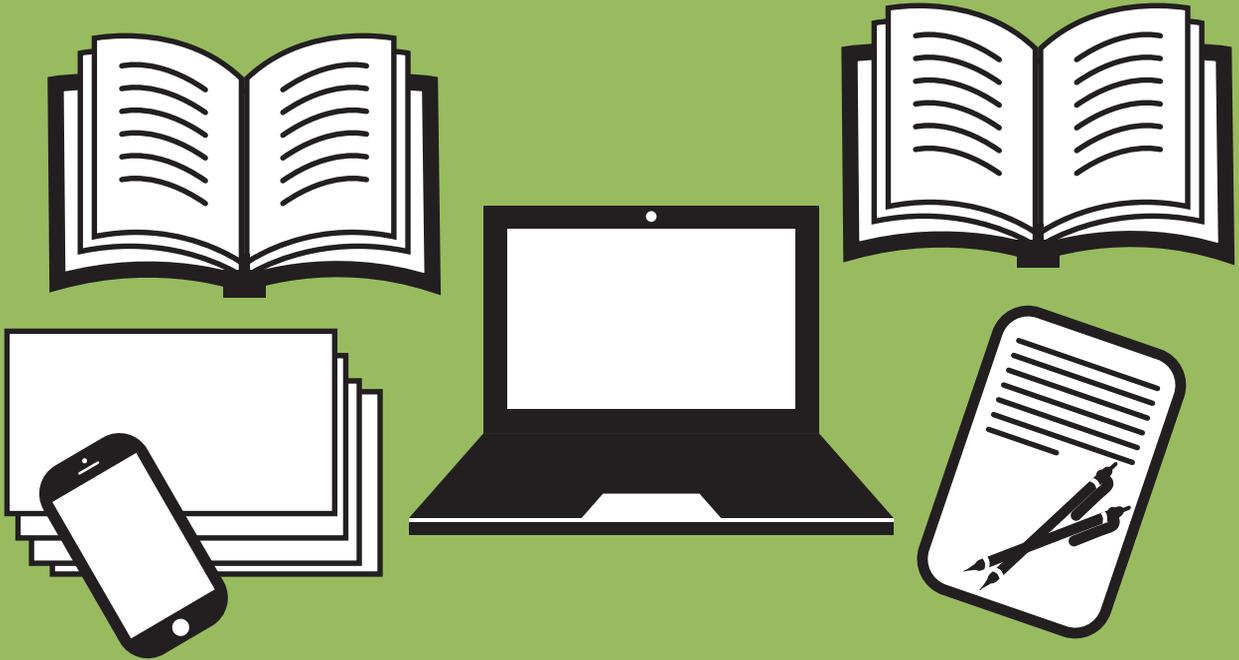
**Materials needed:** Doing some homework identifying stories or objects related to the challenge.

**Time required:** Some hours during the weekend or school week to collect the object and become familiar with the stories, and 45 minutes in class for everyone to present.

### How?

- 1)** Every member of the groups is asked to think about the challenge at hand, to find and collect stories or objects that are relevant and bring them to school at a set date and time.
- 2)** Plan a sharing session where everybody has the same amount of time allotted to share their stories.
- 3)** The other group members take turns asking questions and note down answers.
- 4)** Are there any common themes or threads of thought that seem interesting? Write them down and be sure to take good pictures of the objects or write down the stories being told to bring them with you forward in the upcoming project or assignment.

## RESEARCH METHOD: 20. DESKTOP RESEARCH



### 20. DESKTOP RESEARCH

*The world is bursting with knowledge, information and inspiration, and most of it is readily available in libraries and on the Internet. Doing desktop research is a way of accessing lots of knowledge very quickly to better understand a challenge at the start of a project.*

**Materials needed:** A computer, a desk, maybe a qualified librarian! A shared poster wall or digital blog area that everyone in the group can access and see.

**Time required:** 30–45 minutes. Can also be done as homework.

#### How?

**1)** You might want to start by using The 'To Do' List (method no. 9) to realise what you need to research.

**2)** Brainstorm and decide what kinds of material you want to look for and where to find them. You must aim for diversity and quantity: articles in the news media, TV, research articles, reports and other earlier assignments, websites, blogs and books.

**3)** Find a way of sharing the material with members of the group.

**What's next:** Do some Clustering (method no. 25) to organise and analyse the material and acquire insights into where you need to dig deeper or where the interesting questions or challenges lie.

## RESEARCH METHOD: 21. THE ANTHROPOLOGIST



### 21. THE ANTHROPOLOGIST

*This method involves going out into the world to experience and observe. It is inspired by how anthropologists study behaviour and culture in a non-judgemental and holistic manner noting all the different details of how other people live. This is a great inspiration and an important tool when creating solutions to problems or learning about a specific challenge.*

**Materials needed:** A notebook and a pen and/ or a smart phone with camera and a recorder or recording and photo equipment.

**Time required:** 45 minutes to half a day. Can be done as homework.

#### How?

**1)** Select and visit places relevant to the challenge you are dealing with (be sure to ask permission).

**2)** Use your senses to register as many details as possible and note: What does the place look like? How are people behaving and greeting you? Hang out and do some of the activities that the “locals” are doing.

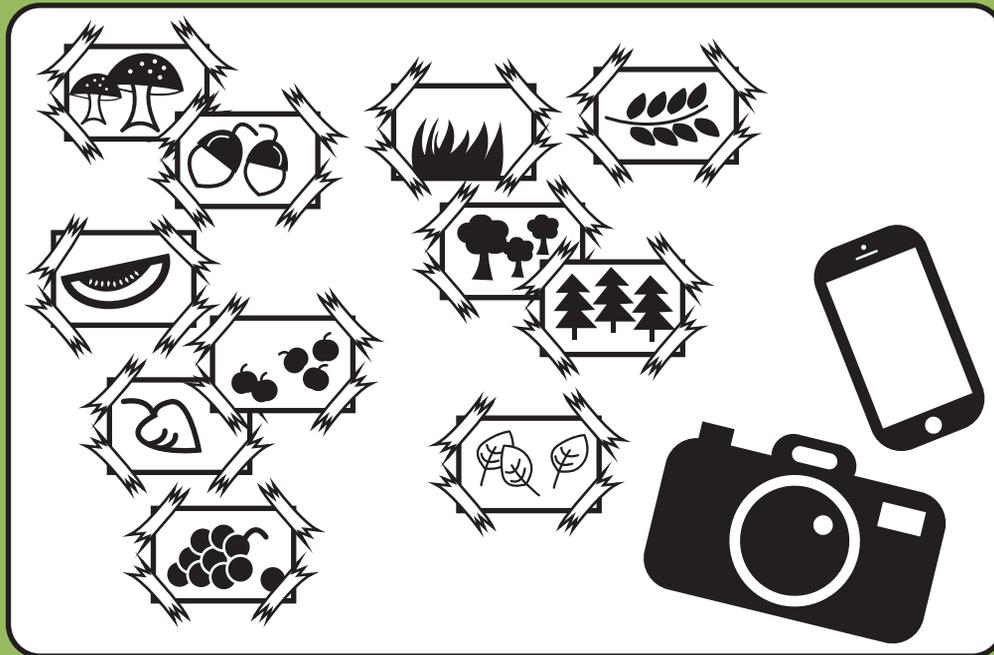
**3)** Note your impressions and thoughts on a note pad, draw sketches of the surroundings and the people and objects or record impressions and thoughts on a cell phone.

**4)** Keep an open and non-judgemental mind while doing this activity!

**5)** Sort and analyse the information: what are the insights?

**What's next:** You could use Personas (method no. 29) to make insights more present and tangible.

## RESEARCH METHOD: 22. THE PHOTOGRAPHER



### 22. THE PHOTOGRAPHER

*This method is very simple but none the less very powerful. Take lots of photos at the relevant site or of things that connect to what you are doing. Print them out and bring them back to school and have them mounted on the wall close to where you are working! Looking at a situation through a camera lens makes you aware of details and aspects of a situation you might not normally notice, and having the photos nearby constantly reminds you of the situation, the context or the challenge in a direct way*

**Materials needed:** A smart phone or camera, printer, cardboard or a shared digital online board e.g. padlet.

**Time required:** 45 minutes to half a day. Can be done as homework.

### How?

**1)** Before going out, plan what and who you will be taking photos of; collect the necessary permission to do so, especially if you are accessing a private home or an institution.

**2)** Take lots of photos of different kinds of objects, activities, preferably at different times of the day.

**3)** Place or print out the photos and pin them up, move them around. Use Clustering (method no. 25).

**4)** What interesting themes can you see? What is going on? Do you need to take more photos because you have become aware of new areas of interest?

**5)** Keep going back to the photos, looking at them during the work to remind you of the challenge you are working with or the reality outside of the classroom.

## RESEARCH METHOD: 23. THE JOURNALIST



### 23. THE JOURNALIST

*We all have a tendency to feel that we know the world and what is true or not, but we may have different opinions and preconceptions that prevent us from really understanding what is going on. This method focusses on getting out of the classroom and talking with people, asking questions or doing longer interviews to gain knowledge, insights and inspiration and get past one's own views*

**Materials needed:** A notebook and a pen, a smart phone with camera and a recorder or recording and photo equipment.

**Time required:** Some time to prepare, maybe as homework and 30–45 minutes to conduct the interviews.

#### How?

**1)** Start of by discussing what you want to learn from the interview and what you are going to do: a) Who do you want to talk to? How many people? Do you want to do a group interview or an interview with two different interviewees:

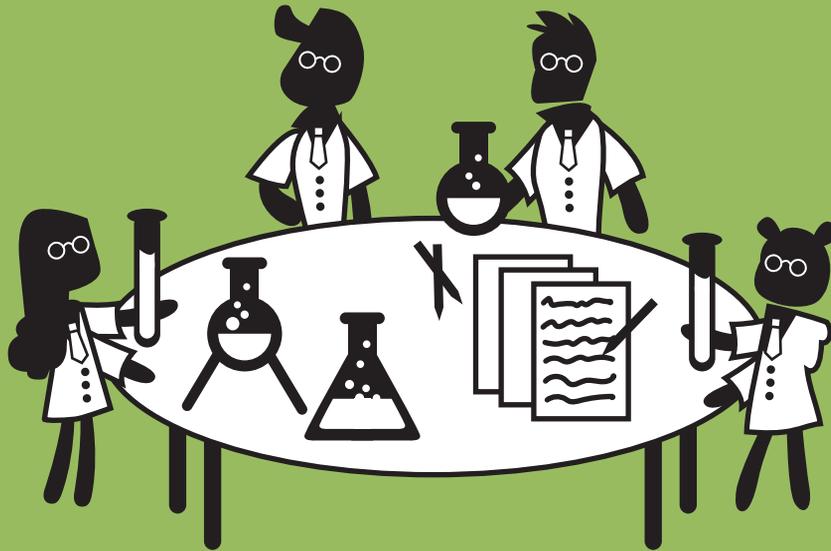
a child and an adult, a woman and a man, old and young? b) Where do you want to conduct the interview, in the street? In the interviewee's home? During a lunch break? This is important for how formal or unformal the interview will be. c) How much time do you have? Will you do a quick "Vox pop" or a lengthy interview? d) Do you want the interviewee to do something during the interview: make a collage or a drawing, walk you through their workspace, show you how something works, or solve a small assignment? e) Are the questions you want to ask factual and quantitative: How, when, where? Or "softer" and more qualitative: Why?

**2)** Rehearse the interview to see if the questions make sense and prepare notes on paper.

**3)** While interviewing, note down keywords on a note pad, record the interview on a cell phone, but be sure to ask for permission to do so.

**4)** Keep an open and non-judgemental mind while interviewing!

## RESEARCH METHOD: 24. THE EXPERIMENT



### 24. THE EXPERIMENT

*Sometimes it is impossible to learn about things by observing or talking because people are not aware of their own actions or habits. You need to do what scientists do: experiment! They start by having a hunch or forming a hypothesis about something and then they do experiments to learn whether they are right or wrong*

**Materials needed:** This depends very much on what it is you want to test, how much and where.

**Time required:** 1.5 hours to 1 day.

#### How?

**1)** Start by formulating the central question or hypothesis you want to experiment with: School toilets are filthy because the children don't feel responsible for them.

**2)** Brainstorm different ways you could find out if this is true: Make children clean the toilets they are using for one day and record their thoughts.

**3)** Record the data carefully by interviewing the children after they have either cleaned or used the bathroom. Repeat the experiment with older or younger children or other groups.

**4)** After doing the experiment, be as objective and critical as possible in analysing the results: was your hypothesis validated by all groups or was it disproved because the relationship between maintenance and considerate use of toilets was not clear or applicable across all groups? Did you conduct the experiment properly in order to discover the relationship between being responsible and cleanliness?

**5)** Can you now refute or validate your hypothesis?

## RESEARCH METHOD – REFLECTION



### **REFLECTION**

*There are six methods for doing research, gathering information and inspiration.*

### **Guide questions for evaluation of research:**

How have you done the research?

Have you done enough research?

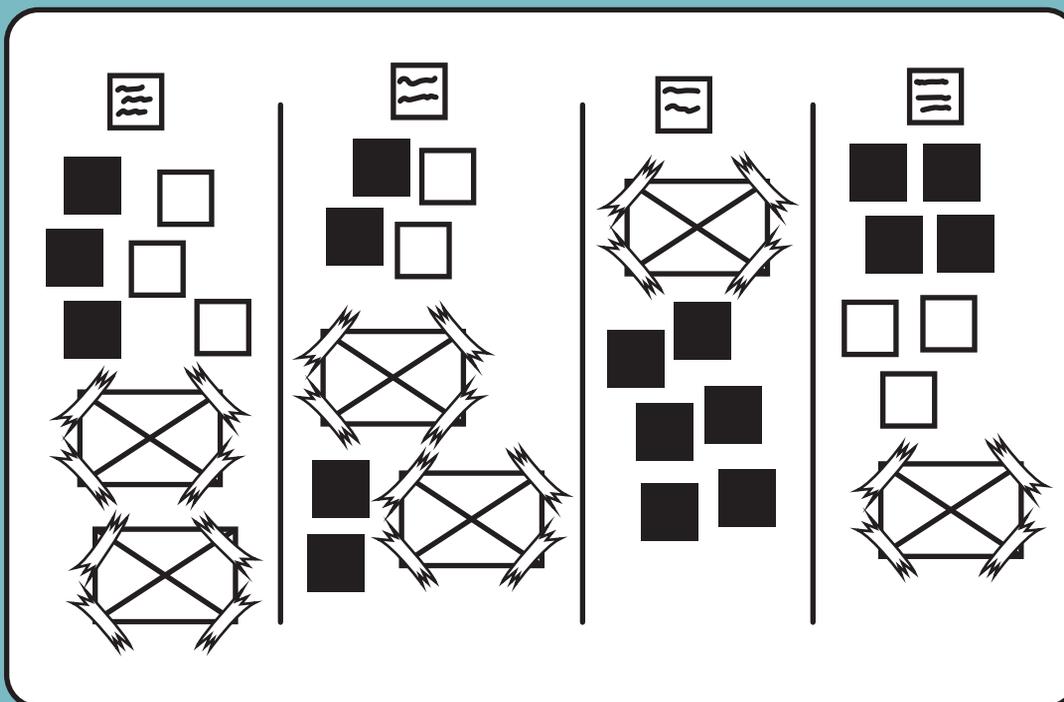
What have you found out?

Which insights are most important?

Why are they important?

What have you learned about the research subject or people you have done research on?

## ANALYSIS METHOD: 25. CLUSTERING



### 25. CLUSTERING

*This method is a way of discovering what categories emerge from the research collected. You sort and place the collected information and research on a shared board, using closeness or distance to map out and clarify relationships and differences between research data in a visual and tangible way. This makes it easier to understand a subject and create new knowledge or develop ideas in project work.*

**Materials needed:** Either a large sheet of paper or cardboard, printed photos and paper or a digital online shared board e.g. padlet, where you can upload and move photos and notes around.

**Time required:** 30–45 minutes.

### How?

**1)** Find a space on a wall or on a desk and put up the information gathered in the form of notes on post-it notes, small photos or drawings, pieces of text, etc.

**2)** You can do Clustering in different ways:

– Cluster the bits of information by placing information/pictures close to similar material and then find titles or headers that emerge for the different clusters and find relationships between them.

– Choose some predefined categories like: “location, time and size”, or “facts, opinions, ideas and challenges” or: hierarchies like “often, seldom, low and high” and categorise the information accordingly.

**What’s next:** You could use the Analytical Diagrams (method no. 30).

## ANALYSIS METHOD: 26. VISUALISING DATA



### 26. VISUALISING DATA

*A diagram, pie chart or other graphic elements that depict relationships or the relative size or percentage of something is often easier to grasp in one glance and communicate than a lot of data and statistics explained in a long and complicated text. Data visualisation can create new insights because the relationship and the categories and hierarchies are immediately visible. Graphics are also an excellent communication tool.*

**Materials needed:** Paper to sketch ideas and computer software to create illustrations and diagrams.

**Time required:** It depends on the number of and complexity of the data visualisation.

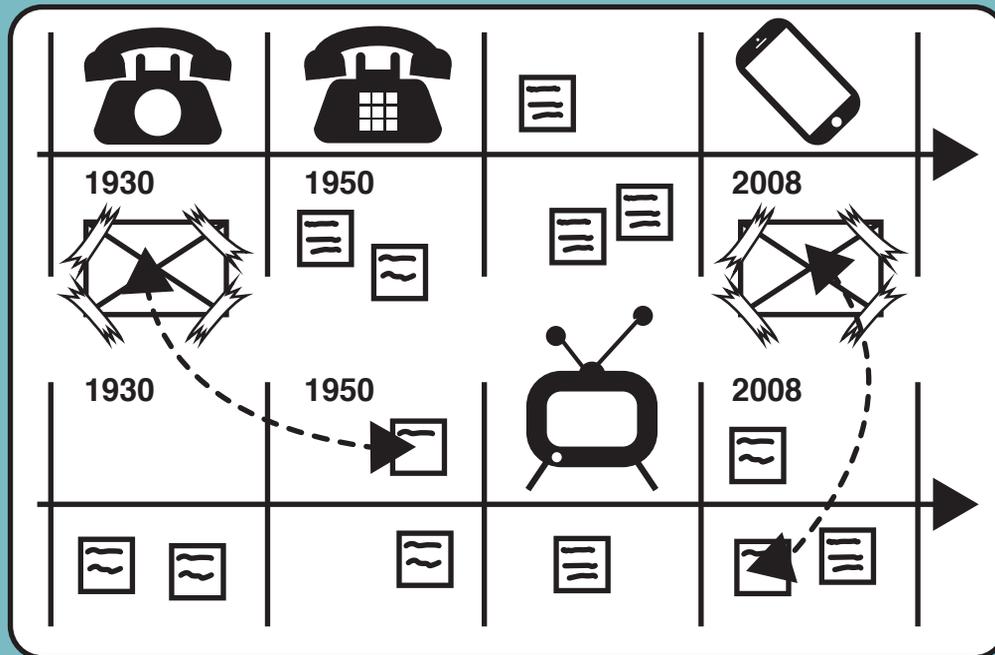
#### How?

**1)** Start by studying the data and the information collected. Which data is the most interesting and relevant?

**2)** Generate ideas for how to visualise the data. Here you can use traditional diagrams like pie charts or bar charts or columns. You could also get inspiration by looking on the Internet and seeing how data visualisation experts are doing it. Think of new ways of illustrating percentage, size and relationships, etc. by using for example objects and photos that would be relevant to the challenge. Use colours!!

**3)** Look at what you are doing with a critical eye: is it easy to understand, helpful and simple? Is it a truthful representation of the data and the information? If not, then continue developing the visualisation.

## ANALYSIS METHOD: 27. BIOGRAPHY



### 27. BIOGRAPHY

*The biography method looks at the challenge and related subject areas and what has happened historically, finding relationships, topics and patterns in what has happened to better be able to understand what is going on today and also what might happen in the future. Learning from the past!*

**Materials needed:** Computers, the Internet, a library, paper, pens or an online shared digital board e.g. padlet.

**Time required:** 45 minutes to half a day.

#### How?

**1)** Gather historical data: photos, statistics, articles about themes, information and facts that are relevant to the project.

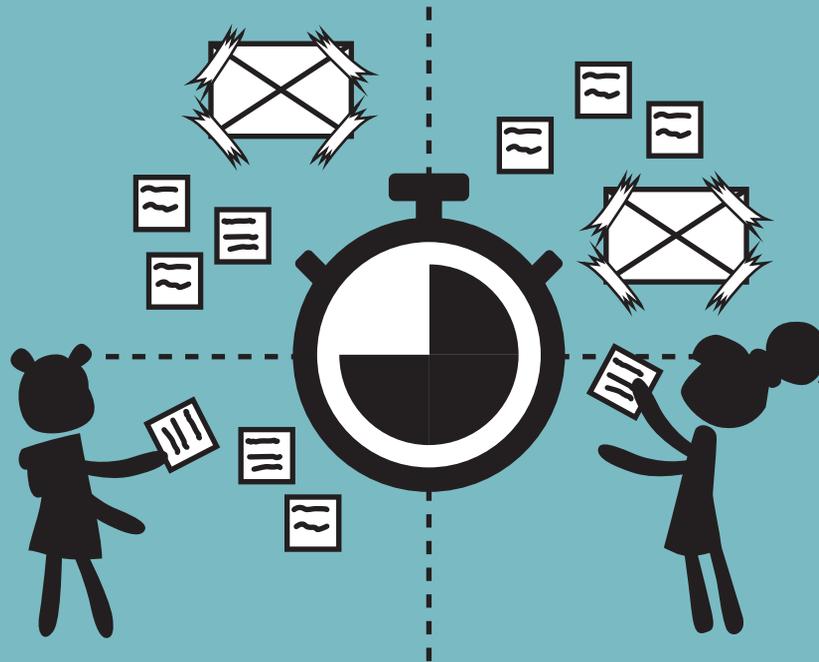
**2)** Create a timeline where you highlight the important dates or events, objects or individuals you have discovered.

**3)** Create a second timeline containing for example technological changes, historical events and cultural trends that occurred during the same period and compare the two timelines.

**4)** Can you see any patterns or relationships between the two timelines, for example in the way important technological changes or cultural trends have influenced the facts or data collected? What does it mean in relation to your challenge? Are there any other insights that have resulted from this exercise?

**5)** Take pictures or save the timelines and write down the discussion and insights gained and consider what you want to do with that new knowledge.

## ANALYSIS METHOD: 28. DAY CYCLE



### 28. DAY CYCLE

*The Day Cycle is quite simply a way of looking at for example a phenomenon, a person's activities or what is happening at a specific site during a day and then mapping those occurrences visually. This approach often uncovers challenges or patterns that might be interesting and relevant for your work or the challenge you are interested in.*

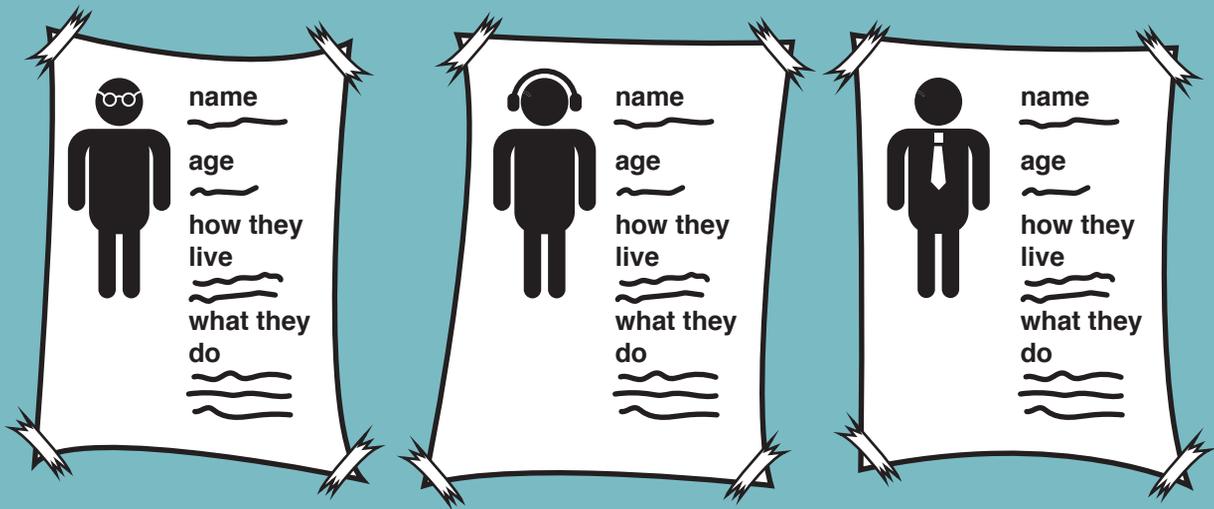
**Materials needed:** Board and tape/pins, pens or computer software that allows you to assemble, show photos and draw diagrams.

**Time required:** 45 minutes–1.5 hours.

### How?

- 1)** Take the information or data you have gathered – photos, statements and objects and organise it according to a timeline of 24 hours or a day cycle.
- 2)** Ask yourself: Where are the persons, the objects, or what is the situation at specific moments of the day or night? Who are they with? What are their thoughts and needs? What kinds of objects are they using? What is happening?
- 3)** Look at the 24-hour timeline and information posted and discuss what you can see: are there any moments of the day where there are some interesting issues, actions or things happening? Is there a pattern or a challenge that becomes apparent?

## ANALYSIS METHOD: 29. PERSONAS



### 29. PERSONAS

*This method transforms research and information collected into fictional characters that give an impression of how real people might relate to your project or use the product you are creating.*

**Materials needed:** Photo equipment, notebooks or paper and pen, paper, glue and pencils or picture editing and layout software.

**Time required:** 1.5 hours to half a day.

#### How?

**1)** Start by collecting data about different target groups that are relevant to your challenge by using The Anthropologist (method no. 21) or by using Desktop Research (method no. 20). You need to collect data about several people within each segment or target group to make the information valid.

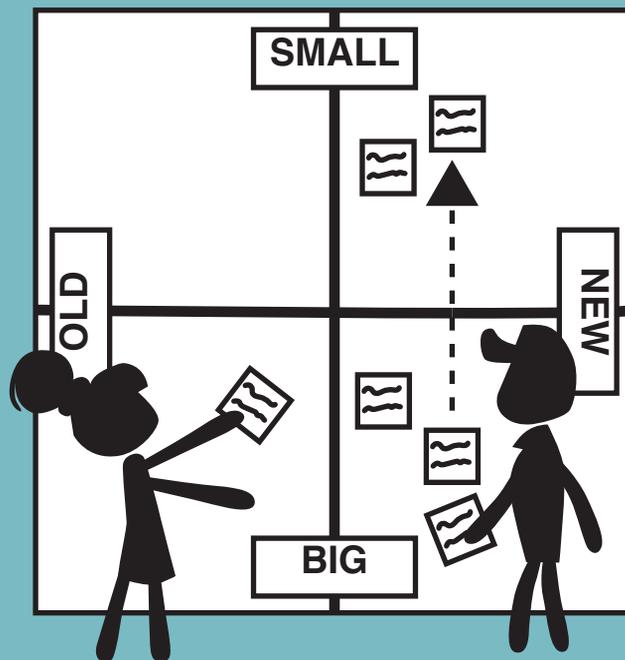
**2)** Cluster the information about each group on a large sheet of paper or on a computer using notes, photos and illustrations.

**3)** Brainstorm about every target group and try to describe their daily life, hobbies, their values and dreams, their tastes and preferences.

**4)** Create a fictional person for each target group that includes the general characteristics you have brainstormed about, with as much detail as possible: name, age, appearance, how they live, what they do, etc.

**5)** Place these personas on a shared space so you can see them at all times. This can inspire and guide you in developing a solution or provide answers that fit your needs and the challenge in a more tangible way than statistics, or a series of statements from the research would do.

## ANALYSIS METHOD: 30. ANALYTICAL DIAGRAM



### 30. ANALYTICAL DIAGRAMS

*One way of analysing a set of elements, data and information is by organising and visually placing the elements collected in different diagrams: three overlapping circles, one axis or a double axis placed in a cross with opposite analytical criteria. The criteria emerge from the analysis of your research and what you find relevant to the challenge.*

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet, where photos and notes can be uploaded and moved around.

**Time required:** 45 minutes.

#### How?

**1)** This method is often useful after doing Clustering (method no. 25). Where Clustering is looking for emerging patterns in the research material this method makes you relate the research data to certain criteria you decide are relevant for the challenge you are working on.

**2)** Discuss and agree on which two, three or four criteria you want to use to map out the data or information: Different groups of people who have different but also overlapping opinions, bright versus dark, teens versus adults, small versus big and organic versus geometric. The possibilities are endless and can be really simple analytic criteria or more abstract ones.

**3)** Use post-it notes, images or notes and place them one by one in the diagram discussing along the way whether they are being placed in the right spot.

**4)** Step back and discuss if each element is placed correctly, move them if necessary and look for patterns and relationships or differences.

**5)** Are there any empty spaces or tendencies or patterns that you can see? What are they? Why?

## ANALYSIS METHOD – REFLECTION



### REFLECTION

*There are six methods for analysing, visualising and understanding the information and inspiration that has been gathered.*

### Guide questions for evaluation of the research:

How have you analysed your research?

What are the results of the analysis?

Which insights will you use onwards?

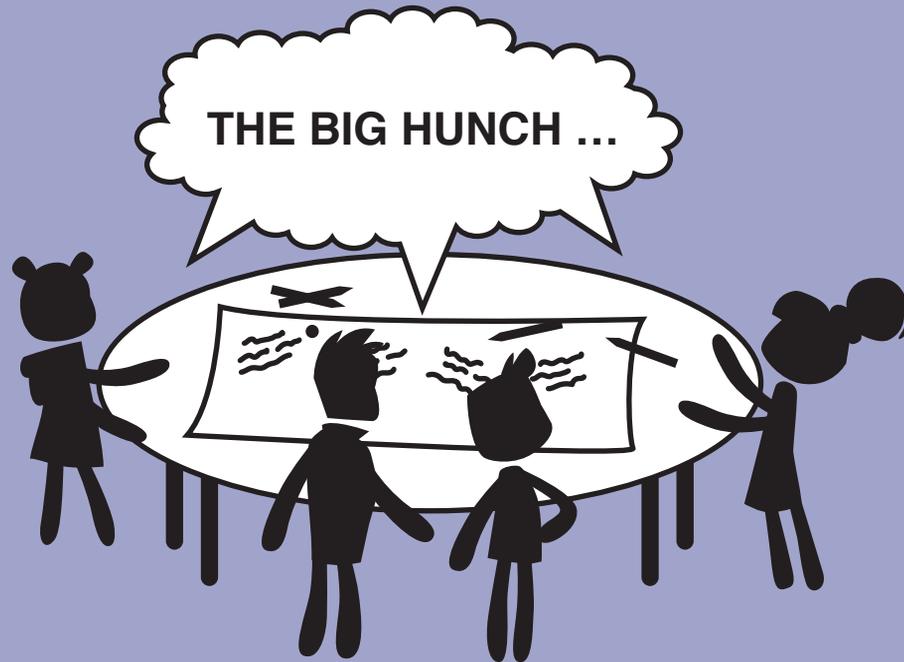
What will be the focus in the project?

Will you need to do more research and analysis?

Why do you need to do more research? In what subject?

What have you learned about the subject or about other things, through analysing the research?

## IDEATION METHOD: 31. WHAT IF?



### 31. WHAT IF?

*Often, when embarking on a development project or study area, we may have some immediate ideas that might be interesting or revealing. This method allows an initial brainstorm where everybody can express their immediate "Gut Feeling", "Hunch" or "Intuition." Let's not forget that even scientists start their work by forming a hypothesis!*

**Materials needed:** Blackboard, cardboard, smartboard or sharable online board e.g. padlet

**Time required:** 45 minutes.

#### How?

**1)** Gather the team at the start of a class or project and create an open-minded, relaxed atmosphere where everybody's thoughts and ideas are encouraged. It might be a good idea to relocate to a cosier place than the classroom or eat fruit or cake while doing this exercise!

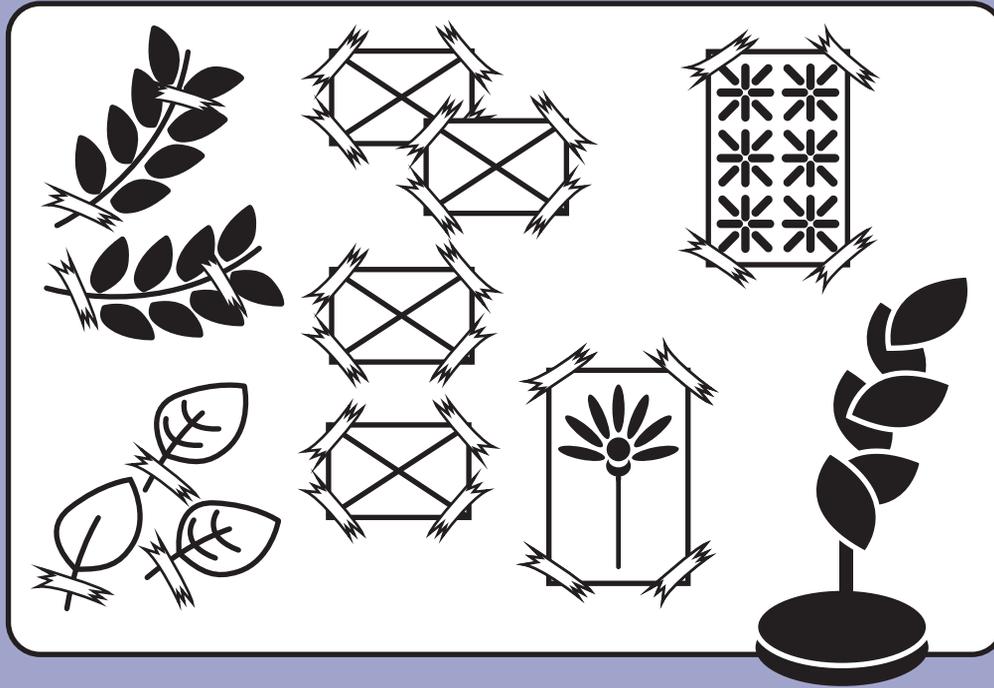
Sit in a circle or on the floor. Be sure to have a shared whiteboard, blackboard or screen to write on for everyone to see.

**2)** Ask questions like: What do you think of this challenge? What do you expect to learn? What would you like to do with it? Where do you think the interesting challenges are? What kind of project or product do you think we need to develop? Where do you think the important potential is for learning?

**3)** Appoint a facilitator or take turns with older pupils who take notes and illustrate the suggestions and "hunches." Encourage everyone to express what is in their hearts and minds.

**4)** Read aloud from the list at the end of the session and see if anything really interesting has come up. Try to transform that into a hypothesis you can research afterwards. If you cannot, be sure to save the ideas for later in some form.

## IDEATION METHOD: 32. INSPIRATION



### 32. INSPIRATION

*No man (or woman) is an island – we are all influenced, intrigued and inspired by what others have done before or by things we can find in nature or in the man-made world. Inspiration can come from observing how an egg shell protects the yolk, how other people have solved issues, but you can also be inspired emotionally or aesthetically by looking at vintage posters or autumn leaves. Avoid imitation, do not steal other people's solutions but transform inspiration into new ideas!*

**Materials needed:** Camera, smartphone or notebook or paper and pens.

**Time required:** 45 minutes–1.5 hours.

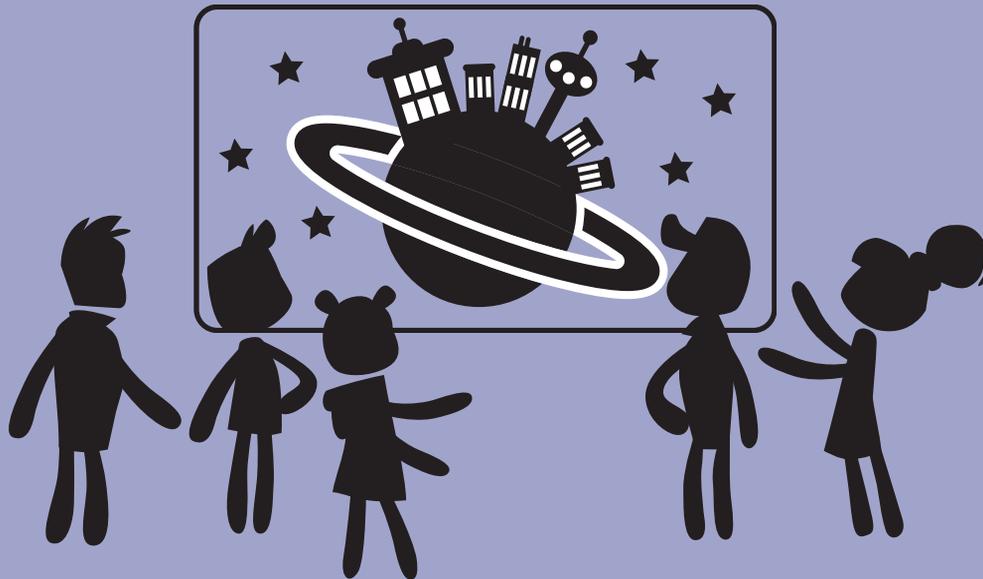
#### How?

**1)** Start by brainstorming about what kinds of inspiration you would like: specific functions and solutions in objects, beautiful details, colours or pictures or old photos.

**2)** Go out and collect items or/and take pictures that you organise on the computer or print out and assemble a large collage of the items you have clustered. You can also collect physical objects and items and cluster them or make an exhibition of them.

**3)** Evaluate and analyse what you have gathered and try to transform the inspirational material into new ideas. **Avoid imitation by transforming the material!** For example, if you are looking for aesthetic inspiration, transform some autumn leaves first into two-dimensional patterns, collages with newspaper or small sculptures so that you “extract” the essential properties from the inspirational material and use it in a new, innovative or beautiful way in your own project.

## IDEATION METHOD: 33. IN THE FUTURE



### 33. IN THE FUTURE

*This method focusses on creating a small number of stories about how we think the future will be and use that to understand, plan, develop or work with a challenge or a theme that is being researched or taught in class.*

**Materials needed:** Paper, glue and pencils or picture editing and layout software, large sheets of paper and post-it notes or sharable online board e.g. padlet.

**Time required:** 45 minutes.

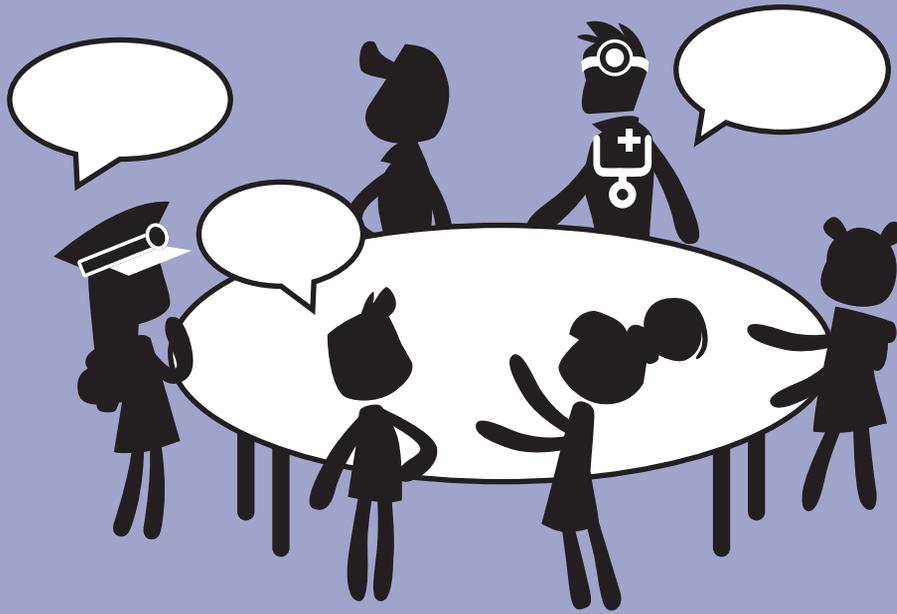
### How?

**1)** Start by doing some research into technological and cultural trends, how society and daily life is changing by using Desktop Research (method no. 20) and Clustering (method no. 25) or some of the other research and analysis methods. Write a series of small “scenarios” or stories of the future depicting what will happen in the future if we follow these trends and changes.

**2)** Ask yourselves: How might these changes and trends affect the theme, challenge or object we are interested in and working with? How might this create new challenges or opportunities?

**3)** Note, list the different ideas and insights. You can also write or draw small stories of “Future Fictions,” where the challenge or the theme you are interested in is described in relation to technological and societal change.

## IDEATION METHOD: 34. MULTIPLE PERSPECTIVES



### 34. MULTIPLE PERSPECTIVES

*This method is concerned with acquiring ideas, opinions and insights from a group of different people who are experienced or specialists in a specific theme or challenge and using that diversity of knowledge and opinions as inspiration for idea generation. The more diverse the group members are the better!*

**Materials needed:** Pens and paper, recording equipment and camera or smart phone.

**Time required:** A half to a whole day to prepare, 45 minutes to do the workshop and 1.5 hours to analyse the material. This may be done as homework.

#### How?

**1)** Plan an ideation session by scheduling small exercises like collage making, building mock-ups with Play-Doh, LEGO bricks, or drinking straws or answering different questions. You could also plan an activity that is relevant to the theme in some way.

**2)** Learn who are the people who would have knowledge, experiences or ideas about the challenge you are working with. You might also invite people who have no particular experience but have strong opinions or views on things.

**3)** Find a location for the session that offers a relaxed and fun atmosphere or decorate your classroom so that it is inviting to be in.

**4)** Invite the participants and explain carefully beforehand what you intend to do and what you will use the results for.

**5)** Conduct the workshop encouraging the participants to explain and visualise their experiences, opinions and ideas about the challenge at hand.

**6)** Gather as many and as varied insights, opinions or ideas as possible.

## IDEATION METHOD: 35. CREATIVE CONSTRAINTS



### 35. CREATIVE CONSTRAINTS

*Limitations can actually enhance creativity! When everything is possible and no limits are set it can be difficult to get started on a project or be creative. This method stresses the need to create a stimulating framework or set of "constraints" that will promote the necessary focus and boost creativity.*

**Materials needed:** Paper and pens.

**Time required:** 45 minutes–1.5 hours.

#### How?

- 1) Contemplate the project at hand individually for five minutes and what you would like to happen.
- 2) Start a shared brainstorm session to come up with ideas for constraints or limitations or rules. Everything is on the table, and the constraints can be about how much time you can spend, how something should look, the materials and colours used, the activities that can be planned or how you work with the project.
- 3) Evaluate the constraints that suit the project and are also fun and engaging together as a group. Choose a limited amount of constraints that create a framework for the ideation and project work.
- 4) Proceed with idea generating solutions following the constraints you have imposed.

## IDEATION METHOD: 36. BRAINSTORM



### 36. BRAINSTORM

*This is a classic ideation method that can help you develop multiple ideas with other people quickly. The important thing here is to avoid criticism and keep an open mind towards all ideas and suggestions. It is important to have a responsible person as a facilitator to keep the energy and motivation high and to respect the time limit. A fun twist to the exercise is to do an "inverse brainstorm" where ideas for creating really bad solutions or to enhance problems are ideated. This creates lots of fun and laughter and often reveals relevant aspects of an issue. It is also a good warming up exercise!*

**Materials needed:** Pens and paper post-it notes or a shared online digital board e.g. padlet.

**Time required:** 30 minutes.

#### How?

**1)** Appoint a person responsible for keeping time and for collecting/posting all the ideas on a blackboard or piece of paper.

**2)** Write the challenge down in a place for everyone to see.

**3)** Respect these rules and explain them to all participants: everybody must speak up, keep ideas coming, the more unusual the better, the more the better. Be playful and encourage one another, and do not criticise each other's ideas. Build on the ideas and listen to one another.

**4)** Decide on a time frame, 30 minutes max. Then start!

**5)** Everybody states their ideas, and the facilitator writes them on a shared piece of paper or puts them on post-it notes or on an online digital board for all to see.

**6)** If the rules are not respected, take a break and get back on track.

## IDEATION METHOD – REFLECTION



### **REFLECTION**

*There are six methods for doing ideation, creating many ideas and stimulating the process of ideation.*

### **Guide questions for evaluation of the ideation:**

Which ideas did you get?

How many ideas did you get?

How will you select the ideas you will develop?

Why did you choose them?

Do they fit with the challenge you have formulated?

What have you learned about the subject or about other things, through ideating a solution?

## CREATION METHOD: 37. INFORMING BY CHARACTERS



### 37. INFORMING BY CHARACTERS

*This method is a way to uncover brand new ideas for teaching, learning and designing products. Fictive characters or real persons will inspire you and stimulate your imagination and creativity.*

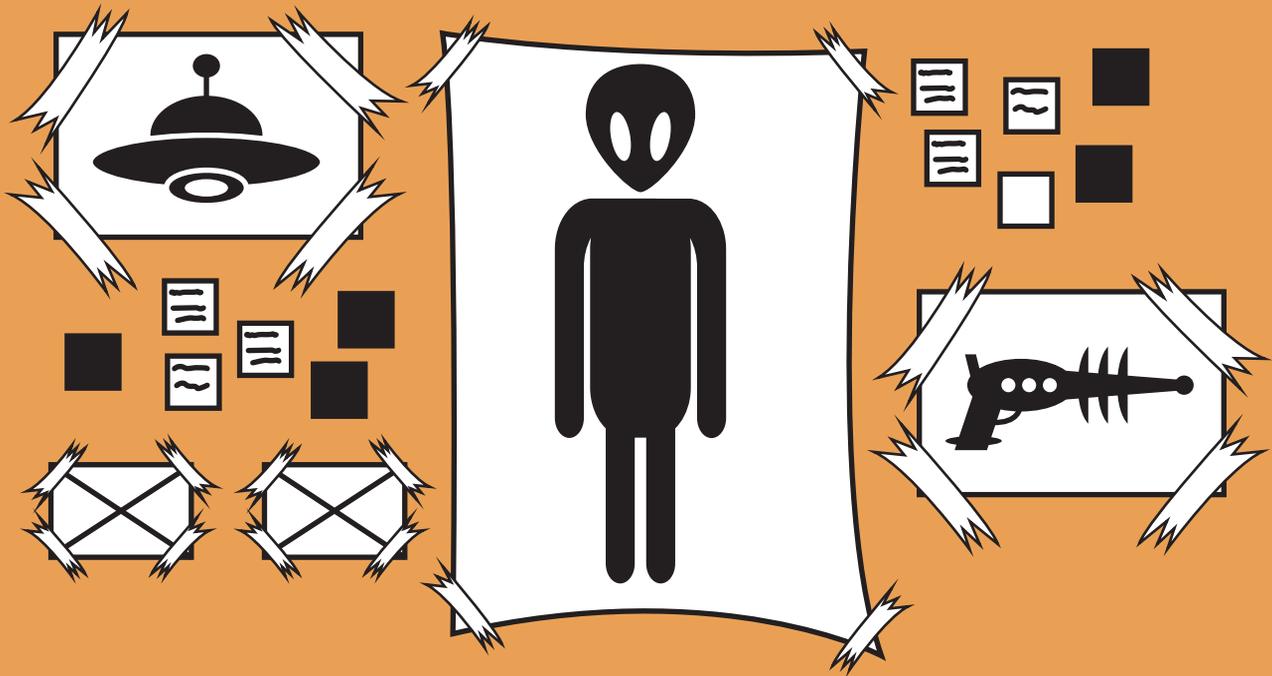
**Materials needed:** Images of inspirational characters, pens and paper or a smartboard or a sharable online board e.g. padlet.

**Time required:** 45 minutes to half a day.

### How?

- 1)** Pick three inspiring characters who are either fictive or real. Gather pictures of them and describe what their characteristics are.
- 2)** Create ideas inspired from the way they look, behave or what skills they have or focus on issues from their perspectives. Be as detailed and visual as possible and try to be true to the character even though it seems crazy or silly. The wilder the better!
- 3)** Look at the ideas developed and gather new insights, ideas and perspectives.

## CREATION METHOD: 38. THE MUSE



### 38. THE MUSE

*Sometimes having a specific goal or target group is not enough when you want to be really innovative. This method uses a fictive or a real character as a creative stimulus and inspiration for a project. The Muse provides a visual, aesthetic, intuitive approach to keeping the focus and a common thread running through a project, providing a sense of where you want to go with the result*

**Materials needed:** Magazines or pictures for cutting and making a collage, paper, glue and pencils or a computer, picture editing and layout software.

**Time required:** 30–45 minutes.

### How?

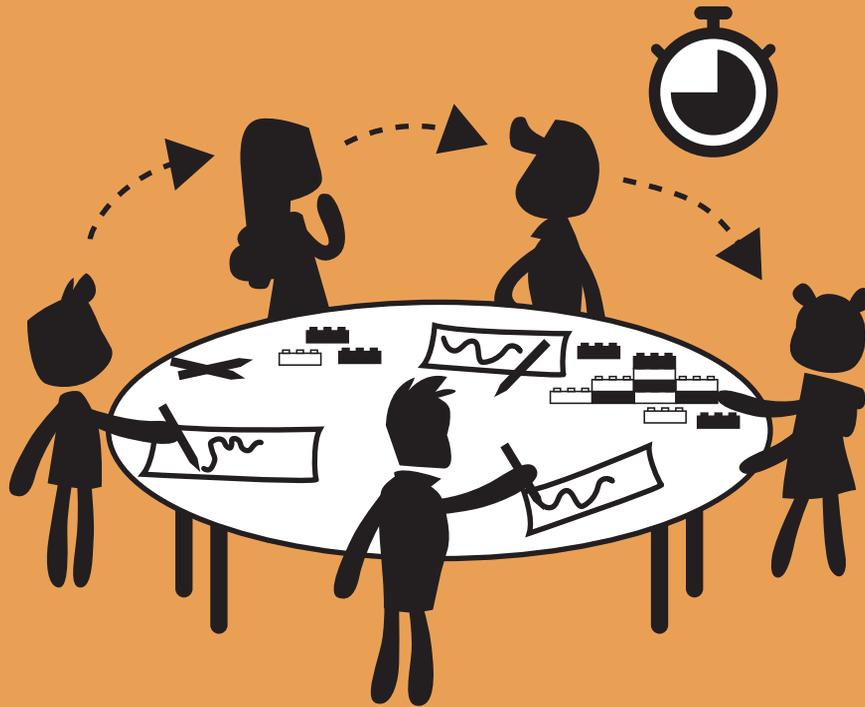
**1)** Do some Desktop Research (method no. 20) to find interesting people you can use directly or indirectly as inspiration for developing a fictional character.

**2)** If you are developing your own fictional character, start by writing a little story about her, making a picture of her through collage, drawing or desktop software.

**3)** You must have a picture of your Muse close by, on the desk or on the wall, and it must be a muse that is inspiring, interesting and matches the theme, challenge or project you are working with and who can function as a driver.

**4)** Use the Muse when working, discussing and evaluating your work: What would the Muse say or think about your challenge, research and ideas?

## CREATION METHOD: 39. THE RELAY



### 39. THE RELAY

*A method of engaging in shared creation by combining short bursts of individual work and switching that work between team members to share and develop ideas. This method can be applied in different media such as writing, drawing or building and it allows for new combinations and perspectives. This method also creates a good team spirit when developing ideas!*

**Materials needed:** A table for the team to sit around, drawing paper and pens, Play-Doh, LEGO bricks or clay, a timer.

**Time required:** 45 minutes.

### How?

- 1)** Get your material out on the table. There must be enough material for everyone on the team.
- 2)** The whole group must individually draw, make a collage or model or write about the challenge or the idea you are developing together for five minutes.
- 3)** When the time is up, pass on your work to the team member sitting next to you, and set the timer again to five minutes letting the next team member work on freely interpreting what is going on and developing new ideas. You are not allowed to interfere or explain too much even if your work is being changed a lot.
- 4)** Keep on passing the work along until the whole team has worked on each other's ideas.
- 5)** Select the best idea/ideas and write them up and discuss how they could be developed.

## CREATION METHOD: 40. PROTOTYPING



### 40. PROTOTYPING

*Prototyping is used to build a three-dimensional model of an idea to either develop the idea further by testing the shape, the idea, details or functionality or to show others what an idea or solution would look like and how it would work. Prototyping is crucial for idea development. You do not need to use expensive materials or a lot of time. You can use paper, cardboard, LEGO bricks or bits and pieces of waste or scrapped materials. Building, moulding and gluing also gives those pupils who are not talented in writing and abstract thinking the opportunity to shine in class.*

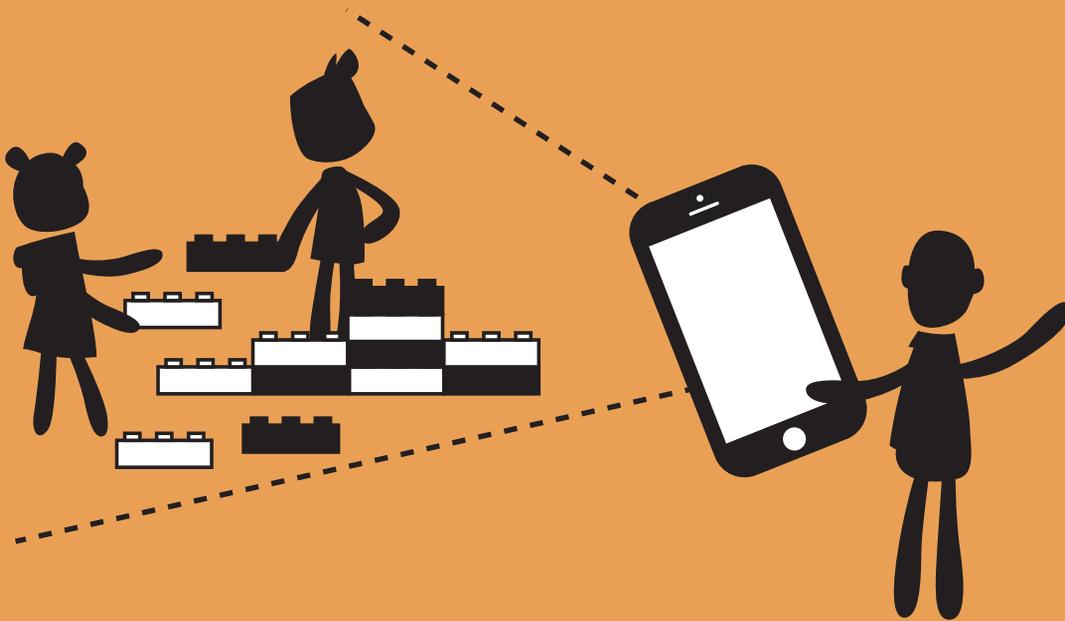
**Materials needed:** Clay, cloth, paper, cardboard, milk cartons, drinking straws and all kinds of waste products and materials you can find, glue or glue guns. Go wild and use anything that can be glued together.

**Time required:** 45 minutes to one day.

### How?

- 1)** Collect an assortment of materials for model and prototype building. Different materials and waste products can often be used in the most surprising way.
- 2)** Before making a more complicated prototype/model, make a scale drawing of the object.
- 3)** Remember to do prototyping early in the project, as it can be really simple and cheap but still very useful.

## CREATION METHOD: 41. VIDEO PROTOTYPING



### 41. VIDEO PROTOTYPING

*Video prototyping is a method for both testing and communicating how something will function and be experienced by a potential user. It can also be used to illustrate or explain the result of a project work or cross-disciplinary challenge.*

**Materials needed:** Video-camera, smart phone, cardboard props, paper, pens, editing and rendering software.

**Time required:** Half a day to one day.

#### How?

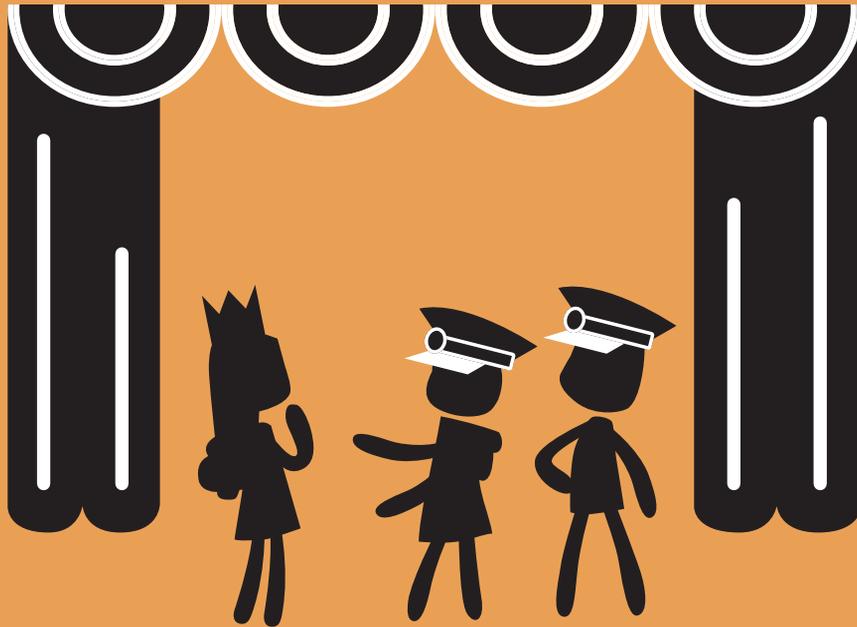
**1)** Start by making a storyboard showing a situation, the product or the results of the project or research.

**2)** Think about the following questions: How will you display and demonstrate the important details or insights? Do you want to film with real people? Will you do a stop motion film with animated objects? Do you need to build some props or objects? Do you need to film at a specific location?

**3)** You can easily use very simple tools like a smart phone camera, props made of paper and cardboard and post-it notes.

**4)** Use the computer or smart phone app to edit the film, including rendered objects or stop motion techniques to communicate your ideas, insights or products.

## CREATION METHOD: 42. ROLE PLAY



### 42. ROLE PLAY

*Role play has always been a way of experiencing what it would be like to be a horse, a prince or a wizard. This method uses role play and acting to try to experience something and develop ideas and solutions in relation to a challenge or a project.*

**Materials needed:** Paper, pens, costumes, settings, props (or not!).

**Time required:** 1 hour to 1 day.

#### How?

**1)** Start by discussing the following: what do you want to learn and develop through acting it out? What kind of situation or scene would be interesting to act out? What do you need to do it and get in the mood? Do you need props and costumes? Do you want to create a storyboard to act from or will it be improv theatre where the different characters are clearly defined but you will develop the dialogue and actions on the fly?

**2)** As role play and acting is something many people find a bit difficult it is important to have fun while still being serious enough to actually act and commit properly to the exercise!

**3)** Follow the story board or the characters you have chosen as faithfully as possible and be respectful towards one another. Make the others relax and try to follow their ideas and experiments if you are improvising.

**4)** Act out different scenes, situations and roles.

**5)** Step back and evaluate what happened. What possibilities and situations arose from the role play or acting that seemed interesting? Did you become aware of new things you had not thought of before? Explain!

## CREATION METHOD – REFLECTION



### **REFLECTION**

*There are six methods for developing the ideas you have developed and chosen, creating concepts, solutions or answers to the challenge.*

### **Guide questions for evaluation of the creation:**

How have you created the solution?

What was the concept or solution?

How will the solution look like?

How will it work?

Who is it for?

How can they use it?

What have you learned about the subject or about other things, through creating a solution?