



Accident Prevention in our School

The children in this DOIT action in a school decided that accident prevention is an important topic for them. Hence, the children were asked to identify dangerous spots in their immediate surrounding, in this case in their school building. The children presented their potential solutions using their cardboard prototypes based on simple LEDs to their parents and teachers.

Topic: Health and Fitness (UN SDG 3)

Setting: Daycare of a primary school

Group-size: 20

Age group: 5 to 10 years

Time frame: You can do this workshop in one session of 4 to 6 hours or split the steps onto different days/weeks. This example was performed over a period of 3 weeks (one day a week for 1,5 hours).

Special technologies and materials:

- Camera for photos
- A lot of cardboard, tapes, glue and colors, scissors, hot glue
- LEDs, batteries, copper tape

Objectives:

The children learn to feel responsible for their direct environment, their school, and how to be a successful innovator. They as well get to know the steps of an innovation project from exploration of the problem to the presentation of solutions. They familiarize themselves with a relatively open challenge and setting, which strengthens their corresponding personal and social competences such as the ability to work in a team or perseverance. Within the activity, the children will train their presentation and feedback skills and they train manual skills while cardboard prototyping and learn to build a simple LED with copper tape and battery.

Source: This action was carried out by Salzburg Research (Austria)



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Preparation

To prepare the action, you might collect and prepare the makerspaces materials and technologies as described, especially a lot of cardboard is needed. If you have limited resources for hot glue, please see this as a challenge to share and act polite with a limited resource.

The following materials from the DOIT toolbox should be helpful for your preparation:

- Please check the **DIY Clipboard** if you want to build a DIY clipboard as an icebreaker
- If you want to build a first **LED pocket light** (because the children are not used to simple LED), please print at least one instruction for per 2 children.

Please

- print the **Feedback Cube** once and tinker it
- print **First One Colour Draft** – at least one per child or use blank paper for the sketches



Photo: Instruction and examples for DIY Clipboards

Preparational Unit: Co-Design of the action

Within our pilot activity, the children themselves decided that the topic of accident prevention is relevant for them and their school. This was a little surprising for us as we did not foresee such a topic.

To co-design relevant topics we discussed our more general topic of „health and fitness“ for their school with a small group of 7 children of the target group in the daycare. We collected topics with sticky notes, sorted them and then asked, which topics are of biggest relevance – and also, which topics are the ones they would love to work with.

We would recommend to ask as well for favourite topics within your action. The described activities can also be easily adapted to topics such as:

- Develop ideas for climate action in your school.
- How to re-design your school for better teamwork.
- Etc.





Unit 1: Explore the school for dangerous spots (90 minutes)

The goals of the first unit are to sensitize the children for the challenge and to feel responsible innovators for their school. For the first unit, you do not need a full makerspace setting but a camera, paper and pens.

Welcome and aim of the workshop (10 minutes) – Meet while sitting in a circle, explain what you are going to do (topic, method, working on a solution for problem)

Exploring (20 minutes) – Discuss the questions: Have you ever been injured? What happened?

Photo Reporter (40 minutes) - Split the participants into smaller groups (2-5 kids per group). Now they should explore their environment: Where could accidents happen or where could you easily get hurt? Ask them to find dangerous spots in your school building and note your findings on a sheet.

Let them answer these questions: Where is the danger? How could you get hurt? Can you already think of possible solutions? You might ask the children to take a picture of the spot, if possible. If you have limited resources, for example only one mobile phone or camera, you can first ask the children to explore and then to take a photo tour altogether.

Variation (at least 10 minutes extra) – You could also make a short introduction on how to take photos and or a DIY clipboard for the notes. The building of DIY clipboards might be of special interest, if the children are not used to a makerspace setting as icebreaker activity – **See DIY Clipboard**

Presenting results to each other (20 minutes) – Again sitting in a circle: Discussion of first ideas. Facilitators should be aware that this should be done in a motivating setting, in which children love to share their ideas.

Unit 2: Designing first prototypes (90 minutes)

The goal of this unit is to collect and share the findings of the first unit, to bring together children in teams of 2 to 4 and to develop first ideas.

Preparation: We printed the photos of the spots detected by the children and prepared a workshop setting with a lot of materials such as hot glue, cardboard, toilet rolls, tape etc.

Presentation of findings (15 minutes) – After a one-week break it's helpful to refresh the memory by re-presenting the findings. For this, show the taken pictures on a screen or, if possible, lay down the print-outs. Each group should present their findings.

Building teams (15 minutes) – Children are asked for which spot they want to develop a solution. Note that more than one group can work on one topic, but not more than 4 in one group). Please do not force children to work together if they do not feel comfortable with their partners and support the formation of groups if the child exhibits an interest in a specific topic.

For a more intense teambuilding – especially if the children do not know each other – you should start with teambuilding activities such as to build a group sign with a name of the group and the names of all children.





Sketches of solutions (15 minutes) – each group gets a poster and is asked to sketch their ideas - **See First One Colour Draft**

Plain Prototyping (45 minutes) – the children use the prepared workshop surrounding and build first cardboard prototypes with hot glue – **See plain prototyping**



Photo: First sketch of a safer stage

Unit 3: Re-Design and Presentation (90 minutes)

The goal of this unit is to enhance the first plain prototypes, to give and get feedback and hence to see this as a chance to enhance the groups results. Please prepare again a workshop setting with materials such as hot glue, cardboard, now additionally: colours, stickers, coloured paper, LEDs, batteries, copper tape.

Getting back to work (5 minutes) - Since it has been over a week, we met sitting in a circle, for about 10 minutes and presented the ideas again

Reflection (15 minutes) - Each group should get feedback from the others. You can use the DOIT Feedback Cube for this step. You can also give the students some time to reflect on their work in their groups. After this, the groups continue to work on the prototypes (add changes from the feedback, improvements). - **See Feedback Cube**

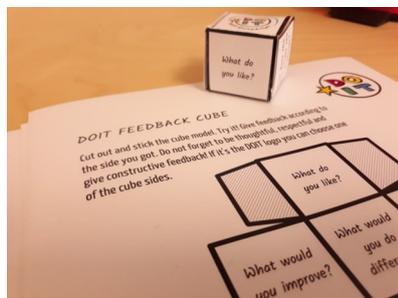


Photo: The feedback cube is available as paper version or for a laser cutted version.

Variation (at least 60 minutes extra) – If your children never developed simple LED solutions with copperboard, you could introduce LEDs by crafting a **Simple DIY Pocket Light**

Work on Prototype (30 minutes) – The children use colours and LEDs to enhance their prototypes. Some of them started new prototypes and changed the groups. The role of the facilitator is to motivate the children to stay focused and to not start tinkering without purpose.



Photo: Final prototype for a safe school stage

Prepare a presentation (5 minutes) – Ask the children to prepare how they will present their prototype to the other groups, by asking them to introduce themselves, the addressed location/danger, and their solution.

Test presentation while sitting in a circle (20 minutes) – give feedback for the presentation itself.

Variation: Final presentation (3-5 minutes for selected solutions) - In our case these three units were part in a longer activity which a final presentation of all results developed within DOIT. After this, the prototypes were shown in a exhibition in the school's hall for several weeks.

