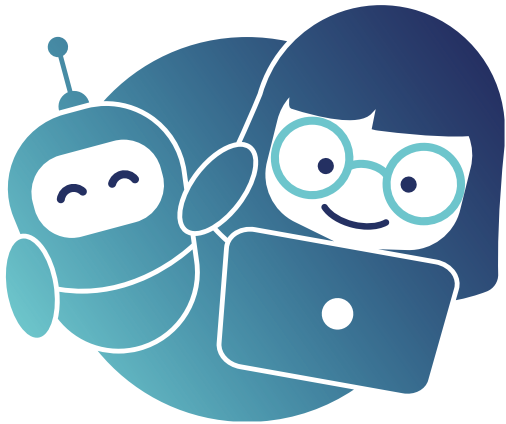


10

I'm not a Robot



Toolbox #10

**How can a robot help?**

## Introduction

### What is this about?

This toolbox is about exploring purposes and areas in which robots can help us - and in which they cannot. In the discussion with the materials and didactic offers, children gain an insight into different areas of application of robots. By talking about the intended use and the result of the help, children can decide whether the robot is reliably doing a good job. In addition, they have the opportunity to identify side effects and make suggestions for improvement. In this way, the view of a robot changes: a mere existing object becomes an object to be designed. These activities and conversations will raise awareness of the technology and how to deal with it critically.

### Children's point of view

- What is help?
- Where do people around the world need help?
- What does a robot need technically to help?
- How does a robot need to be programmed to help?

#### Questions from Children

- How can I help? How can other people help? How can robots help?
- Can robots also do sports/homework/dishes for me?
- What tasks or problems can a robot not solve?
- Are robots only made for a specific purpose?
- What happens when you use a robot vacuum cleaner to mow the lawn?

# 10

## What we know

### Applicationfields of robots and AI controlled technologies

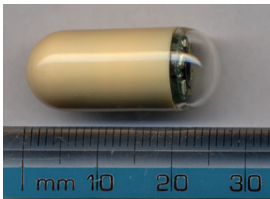
They can enter collapsed buildings and map them, fly over fires or measure radioactive radiation and thus sound out the potential danger for the rescue forces on site. Even the cleaning up of certain - for example contaminated - areas is conceivable with semi-automated robotic vehicles. The area of application is sometimes only of very specific use or of general social value.

### Autonomous driving



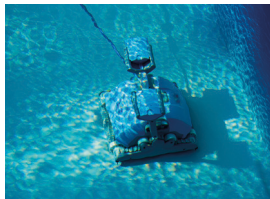
Source: Adobe Stock | Scharfsinn86

### Endoscopie-Bot



Source: [https://en.wikipedia.org/wiki/Given\\_Imaging](https://en.wikipedia.org/wiki/Given_Imaging)

### Pool cleaning robot



Source: Adobe Stock | Gianmichele

## Goals

# Pedagogical professionals

### Technical competences

Knowledge about voice-controlled digital assistants, automated vehicles and facial recognition

### Didactic competences

Reflecting on different pedagogical methods in the context of promoting knowledge about robots and AI

### Metacognitive competences

Reflecting own reservations and inner conflicts about seeking help for yourself and dealing with people needing help

## Children

### Technical competences

Understanding the different forms of technological assistance to humans

### Technical and design competences

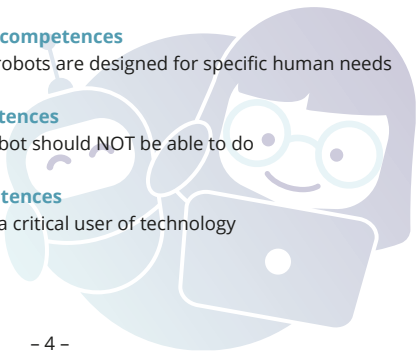
Understanding that robots are designed for specific human needs

### Informational competences

Discussing what a robot should NOT be able to do

### Metacognitive competences

Learning to become a critical user of technology





# Assisting robots

## Materials

**iPad or camera**

## Preparation

No special preparations needed

## Implementation

- Send the children on a discovery in which they have to find situations where a robot could help.
- They can document the situations with help of photos or videos.
- As a second step let the kids discuss how a robot could help in the situation.
- Example for a comic story where a robot device could help.

## Reflection

Robots are always developed for a special purpose. To play the role of a developer the first step is to identify situations in which robots could be helpful.

## Variation

1. As an alternative the children could play the scenes as a small theater or draw a little comic.
2. Do the exercise in reverse and describe for already existing robots in which situations they help.

## Exercise

Level



# Crazy Inventions

### Materials

**Nothing special equipment needed**

### Preparation

No special preparations needed

### Implementation

- The children shall develop imagine a machine to sort toys in the kindergarden (for example a machine to sort LEGO).
- How would this machine look like?
- Which parts are needed?
- Don't look for realistic answers and imagine all kind of futuristic or crazy solutions.
- Create a carton prototype of it or a big picture or poster about it!

### Reflection

All robot inventions start with an idea. Feel the process of development!The children should reflect on other technological inventions.

Can they imagine a world without smartphone?

How was the idea of a smartphone created?

# Visit a local center for robot development

## Materials

**Nothing special equipment needed**

## Preparation

No special preparations needed

## Implementation

Visit a local center for robot development with your class. This can be for example a local Makerspace, RepairCafé, FabLab, University, company, media centers etc.

Book a tour and ask if they can show you their work in a interactive way.

## Reflection

Get to know how people develop robots and reflect with the kids about their experience. What can be limits for inventions? What is important to know as a developer?

## Variation

Invite a local robot development institution to your kindergarten.

# Tips for in-depths study

## Literatur

### Medienpädagogik in Kindergarten und Grundschule

by Antje Bostelmann, 2019

### Einfach machen. Den digitalen Wandel im Kindergarten gestalten

by Antje Bostelmann, 2021

### Hello Ruby. Wenn Roboter zur Schule gehen

by Linda Liukas, 2019

## Imprint

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Co-funded by the  
Erasmus+ Programme  
of the European Union

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