CodeWeek
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# Hunting for Smiles: discovering Face Sensing

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## Author

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## Purpose of the challenge

- *Experiment with artificial intelligence in a playful and accessible way, discovering how facial recognition works through Scratch Face Sensing.*
- *Discover Scratch as a tool for self-expression through creativity and the design of interactive projects.*
- *Develop coding skills using a visual block-based programming language.*
- *Learn to integrate analog and digital techniques to create projects and express oneself.*
- *Develop social-emotional skills through peer cooperation, play, free exploration, and sharing one's projects with the group.*
- *Create an inclusive learning environment where children are free to experiment, make mistakes, try again, and build solutions incrementally.*

## Description of the challenge

In this challenge, children are involved in a creative and playful workshop to discover and experiment with artificial intelligence, specifically Face Sensing, through the Scratch Face Sensing platform. It's an opportunity to create animations or small games that react to their face.

This challenge offers a space to explore and experiment with artificial intelligence creatively. Be inspired by existing projects and create new ones with passion, among peers, while playing.

## Target audience

Elementary school children: mainly 7–8 years old; with possible adaptations for 6-year-olds and 9–10-year-olds.

## Experience

Beginner

## Duration

50/60 minutes



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# Recommended tool

- 1 computer per 3 participants, to work in small groups and encourage collaboration
- Paper and markers to draw and prepare unplugged activities
- Printed Scratch Face Sensing Create Card with block descriptions
- A computer connected to a screen or projector to show the demo project and give collective instructions
- Access to the Scratch Face Sensing website: https://lab.scratch.mit.edu/face/

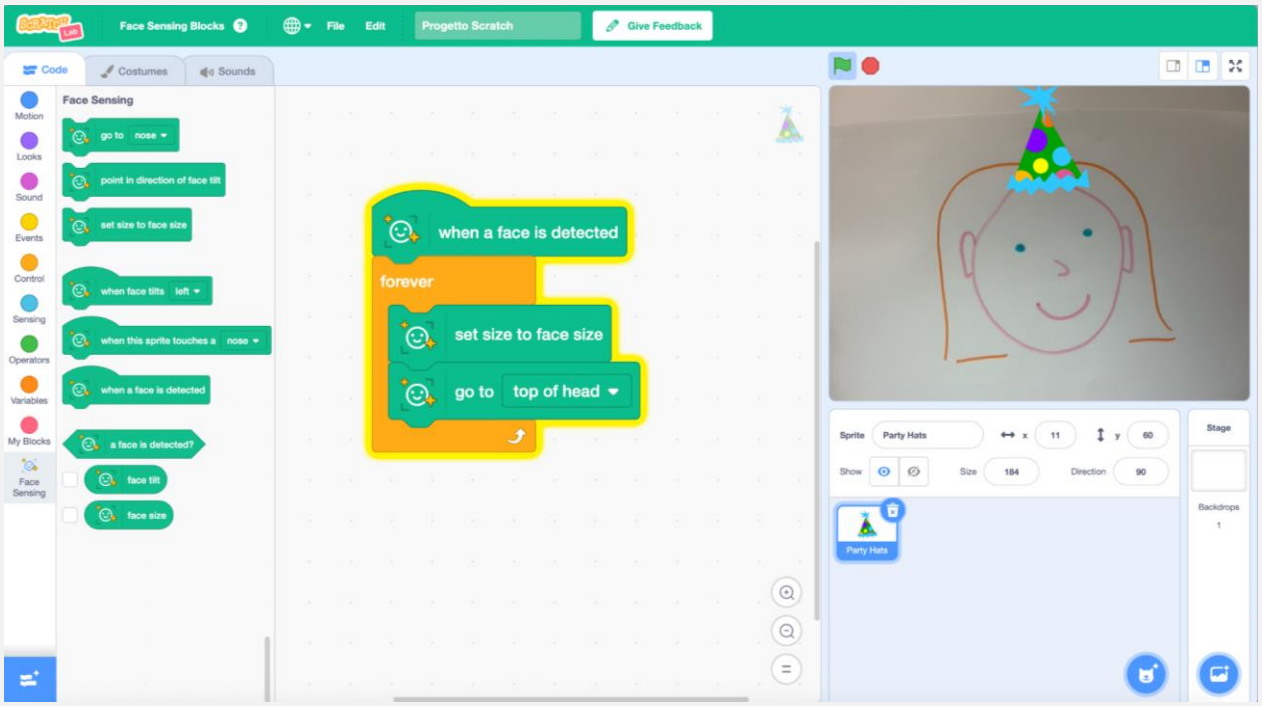
# Instructions

## Main activity

### 1. Imagine phase

Start with a **5-minute introduction**: show Scratch Face Sensing with a project that places a hat on your head. Ask: What's happening? Why is the hat right here? How does the machine recognize the face? Explain that there's research behind it: scientists "trained" the machine to identify facial parts, teaching it to place the hat on the head, not between the eyes or on the nose. Emphasize that this makes it "intelligent."

To demonstrate, switch the person in front of the webcam and show how the hat adjusts. Then, draw a rough sketch of a face and show that the AI also recognizes drawings.




Move on to the **10-minute demo**: show the pre-set Scratch code. The blocks contain instructions that tell the hat what to do: they have been programmed and therefore follow specific and ordered instructions to do what we ask. Highlight blocks like "when a face is recognized, forever place the hat above the head" and test the blocks with them. Invite the children to choose a character, select glasses, and try adding blocks to modify the accessories' position and appearance.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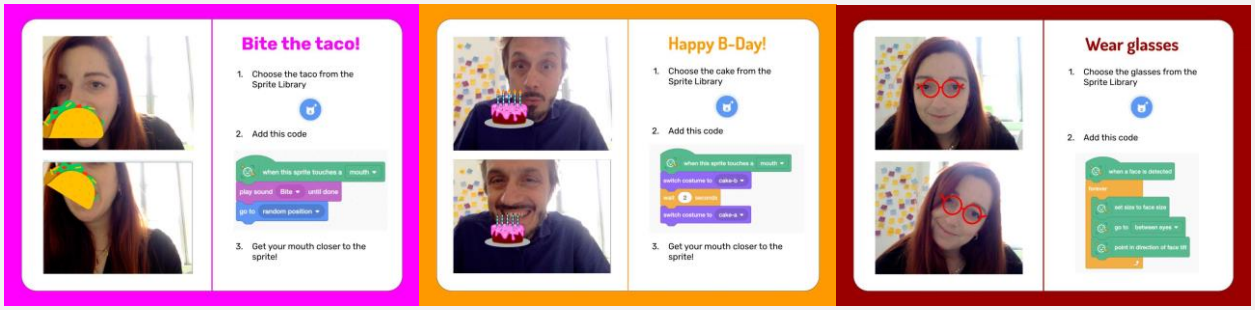
### 2. Create phase

For the **first task** (10 minutes), guide children in groups: ask them to change the glasses' costumes or adjust parameters in the code (e.g., size, position). Help them with the Face Sensing Create Card and support them if they have questions.




For the **second task** (10 minutes), hand out paper and markers. Invite them to draw a face and test if the AI recognizes their sketch. Ask: Do you think the machine is clever enough to recognize your drawings? Let's find out!

For the **third task** (10 minutes), let them explore Scratch freely: suggest adding sounds, movements, or new objects, always using the Create Card. Encourage creativity: Now it's your turn! Invent something unique!

### 3. Share phase

End with a **5-minute reflection**: ask questions like What did we do today? Help them rephrase: we created a Scratch project by adding colorful blocks to program the characters (sprites), giving them precise instructions on what to do; we discovered that AI works because researchers trained it to recognize faces; we found that even drawings can work if they follow certain rules!
Create a fun moment by asking: "*What did you like most and why?*"
If there's time, propose a simple "word wall": ask each group to write or draw a word, phrase, or image on a sticky note that represents what they discovered or felt during the activity. This will be a nice and visible way to share the collective experience before saying goodbye.

If possible, leave a small keepsake: the cards with the code blocks they used. This way they can continue working on their project at home.

# Age-based variations

### For 1st grade children

At this age, children are still learning to read and use digital tools. We suggest preparing the projects in advance on the computers and offering the activity in a very guided and reassuring way.
After the initial demo, guide the children step by step in customizing the project: choose a character, change the color or costume, add a hat or glasses. The main goal is to explore through play, without requiring reading or writing skills.
Avoid using textual support cards and dedicate more time to the unplugged part: drawing a face and seeing if the program recognizes it.
Here, the facilitator plays an active role in guiding and providing constant encouragement.

### For 4th and 5th grade children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At this age, children are more independent and technically curious. After the initial demo, encourage participants to explore the code more freely and propose optional mini-challenges.
Some challenge ideas:

- How could we make a character move by tilting our head?
- How could we add a score to our project, turning it into a small video game?
- Invent your own!

Always allow freedom of choice: some may prefer exploring only visual elements, while others will be ready to tackle the "hard fun" — in other words, the more technical challenges. In any case, always maintain a relaxed, exploratory, and playful atmosphere.

## Notes for the facilitator

This activity was designed by Fondazione LINKS – EdTech Research Unit as part of EU Code Week to offer children a space for creative and playful exploration of artificial intelligence using Scratch Face Sensing.
The underlying idea is inspired by the Creative Learning approach of the MIT Media Lab: we learn best when we can create something we truly care about, working together, experimenting, and sharing with others.
The proposed path follows three simple steps: Imagine → Create → Share.

- Imagine is when we imagine an idea, ask a question, or get inspired by something.
- Create is when that idea takes shape: we try, build, experiment.
- Share is when we show others what we've done, tell our story, and learn from others' projects.

But beware: it's not a linear path. Often we go back, try something different, make mistakes, and start over. And that's what makes the experience fun and meaningful.

**The role of the facilitator**

In all this, the role of the teacher or facilitator is not to explain everything right away or to have all the answers.
On the contrary, the facilitator's job is to:

- create a welcoming and curious environment
- encourage questions and exploration
- support children during difficulties
- leave room for personal creativity

The facilitator is a guide, not a technician. They should not "direct traffic," but rather help children discover and understand how things work on their own.

**What questions to ask?**

Some example questions to stimulate curiosity and participation:

- "What would you like to happen in your project?"
- "What do you think this block does?"
- "How could you solve this problem?"
- "What kind of face could you draw to test the AI?"

Instead of giving answers, ask questions! Simple, open questions that help children observe, imagine, experiment.


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**Encourage an exploratory approach**

The best way to work with Scratch is to try it firsthand. Make this clear to the children:

> *"Try it! If you don't know what a block does, click on it and see what happens."*

It's not important to know everything before starting. In fact, it's much better to discover along the way. This applies to both children and facilitators.

*Get ready to start!*
Before the session begins, make sure the computers are ready with Scratch Face Sensing in advance, load the hat project on your device, place the printed illustrated cards on the tables, and have paper and markers ready to hand out.
Remember: the goal is to stimulate their curiosity as they discover AI and coding. Smile, listen to their ideas, and... enjoy the magic of their creativity!

*The demo project is the starting point.*
It's important to have an initial demo project that allows all children to observe, understand, and gain the basic knowledge to then work independently. However, be careful: the demo project should not become a model to copy. The goal is to inspire, not to produce identical copies. Always aim for a balance between showing how it works and leaving room for creativity.

*Suggest without limiting*
Show that inside Scratch there are many sprites (characters), backgrounds, and objects to discover and use. Give ideas and inspiration, but avoid offering single or "correct" solutions: every participant should feel free to create something personal and unique. Diversity in the final projects created by children can be a positive indicator: it suggests that everyone was able to follow their own personal inclinations during the exploration and learning process.

*Be essential and gradual*
When building or showing the demo project, add one code block at a time. Avoid overloading with new elements right away: no more than 2 or 3 "cognitive elements" at a time. For example: one character, a hat that moves with the head, and one simple action (like changing color). Adding sprites, background, green flag, eye and nose detection, size changes, rotation, and a forever loop all at once may be too much and create confusion.

*Scratch Face Sensing and the Scratch community*

Remember that Scratch Face Sensing is a special experimental version of Scratch, designed to create projects using artificial intelligence. If you want to show children the full world of Scratch — with many shared projects and an online community of Scratchers from around the world — you can also show them the full version of Scratch here: https://scratch.mit.edu


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