



TOOPLOOX
for kiddos



The amAIzing day of Sophie

A story about how computers and children see the world.
+ coloring pages!

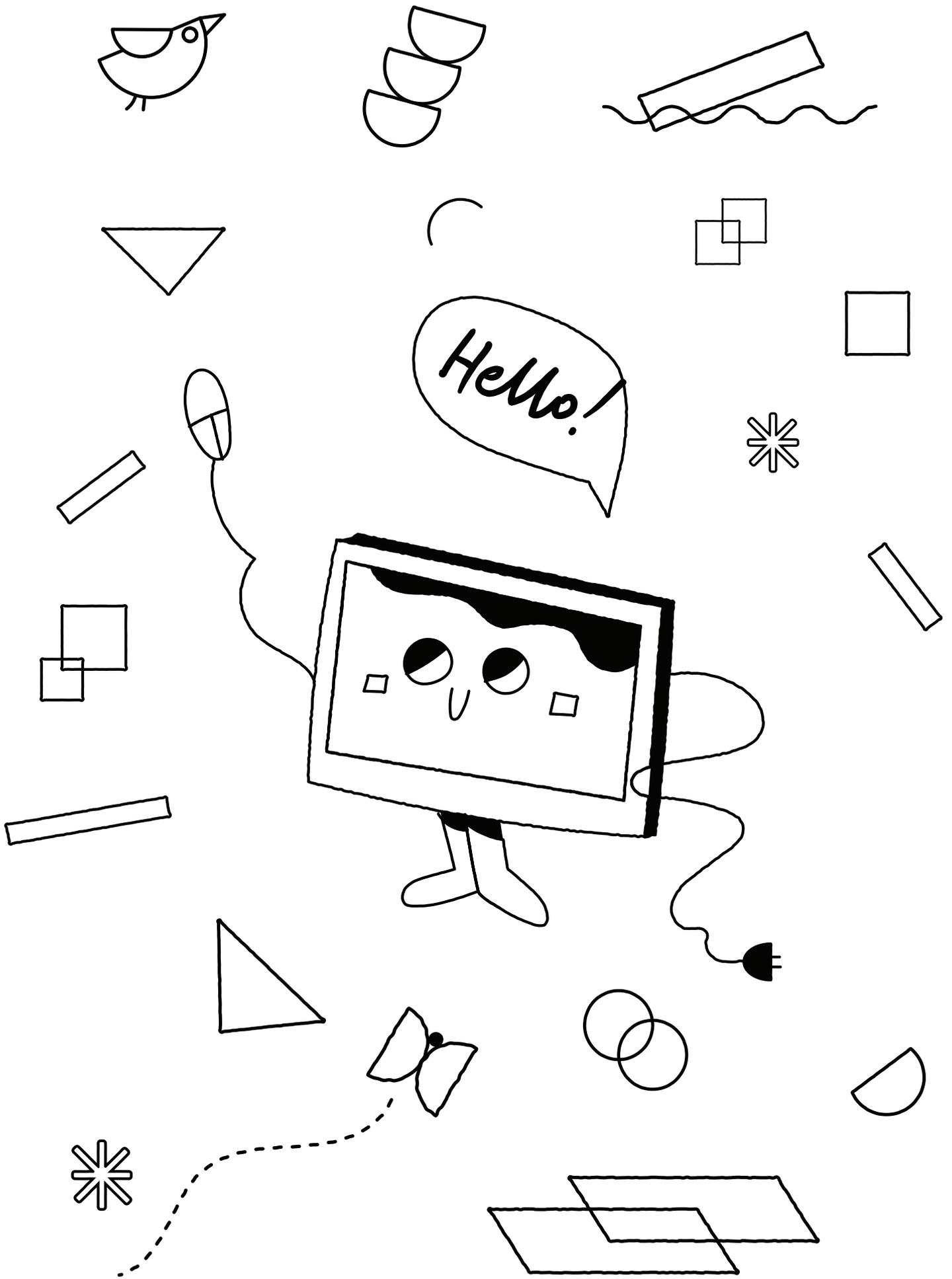


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hAI!

OR

WHAT DO WE NEED TO EXPLORE THE WORLD?

The day was sunny and pleasing. Little Sophie was playing in her garden. She entered a shed and stumbled on a small object on the ground. She fell over.

As she was trying to get back up to her feet, she noticed a box covered in dust. She opened it and saw a computer monitor, slightly gleaming in the dim light slanting through the wooden walls.



“Oh, what a treasure!” she whispered and curiously pushed the button in the center of the monitor.

The screen lit up. She could hear quiet buzzes ticking off every couple of seconds as the computer was waking up from its long sleep.

“Skshksh... Hi! I’m AI! What... What’s going on? What is all of this noise? Who are you?” squeaked the computer.

“I’m Sophie, I’m a child! Don’t be afraid, I’ll help you - what do you need?”

“A constant stream of images, sounds... How do you make sense out of it? What does it all mean and why does it happen to me?”

“I’ll show you! Don’t worry, it’s not that hard. Let’s spend a day together and learn - you’ll see that there are some tasks in which we are no different.”

“Bzzz... Cool!” buzzed AI.

Sophie looked at its screen - it lit up in a slightly red color, as if it blushed from excitement about the dawning journey. She started slowly:

“So... Everything you perceive comes to you through your senses. We, humans, have eyes to see and ears to hear. We also have skin to feel and touch. What we see is what you perceive through a camera and all the sounds come to you through a microphone. Don't treat them as noise - they help you realise what's going on in the real world. Isn't that amazing?”

“Yeah! Then... are we the same? Can we understand the same things?” asked AI with awe.

“No, we may share some knowledge but we're special in our own ways. For instance, we feel emotions - we can be happy, sad or angry and it's difficult for you to understand what that means. You have your own superpowers though - you get them via small blocks that give you extra senses. For example, you can measure a distance to an object really precisely, or track the heart rate of a person!”

“Wow, I never knew I could be so special,” AI gasped and buzzed.

“Let's go outside - I'll show you my favourite flowers!”

Sophie opened the shed's door and ran out into the garden. And AI followed her, slowly creaking.





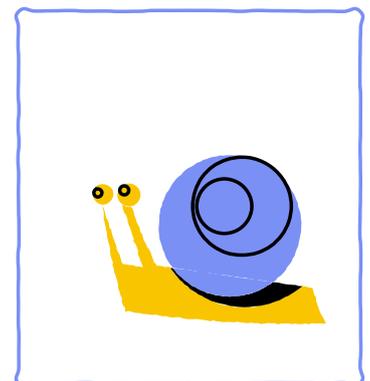
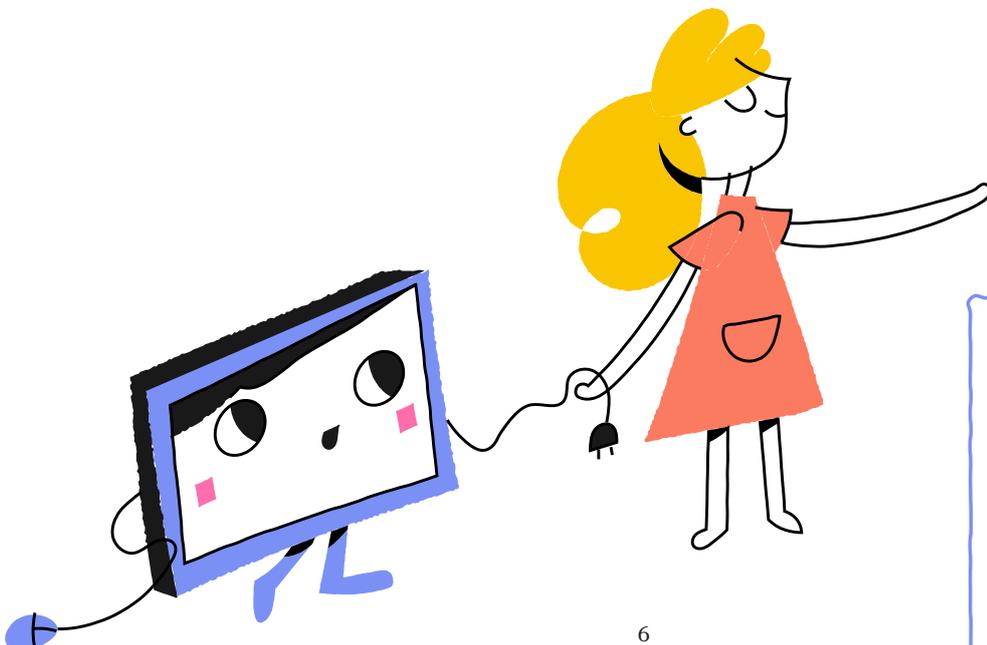
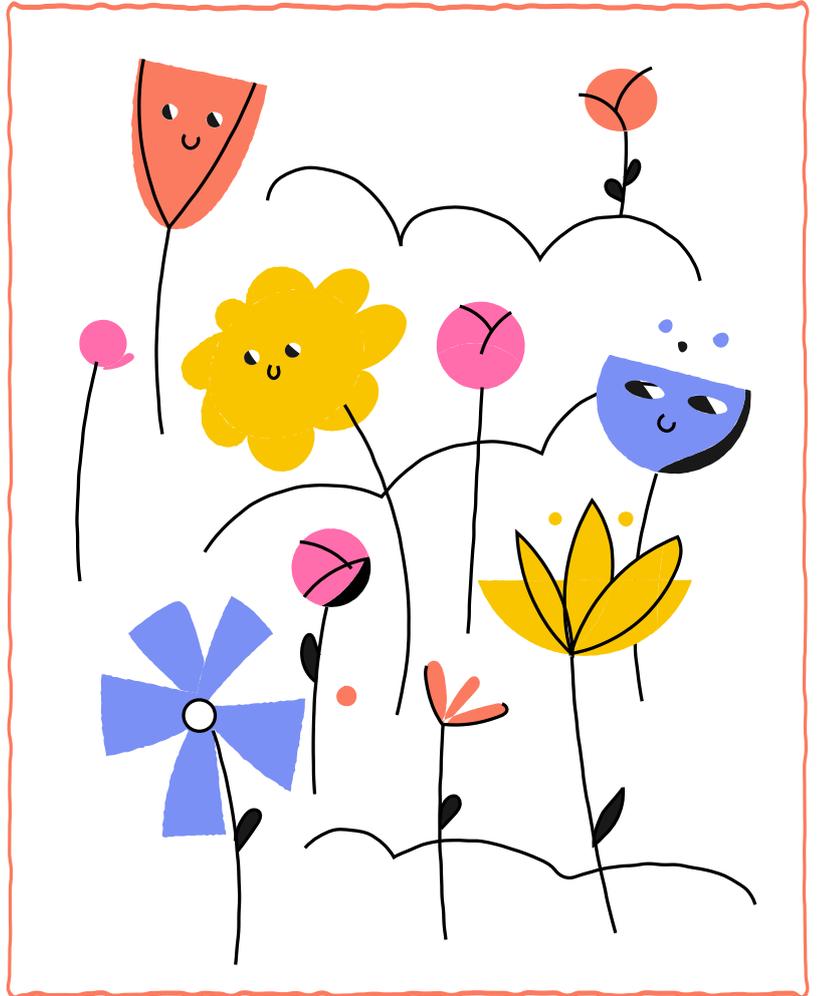
*THE DIFFERENCE BETWEEN
A FLOWER AND AN ANIMAL
OR
WHAT IS SUPERVISED LEARNING?*

They walked together for a while and entered a meadow. It was full of flowers and strange-looking animals. The animals had three legs, one wide eye, and were gray and rough - just like concrete.

The colour of their eye was different in each of them and it seemed like it could be anything, so when the animals gathered in a flock, one could see a layer of dusk-iness close to the ground covered with a beautiful riot of colours.

“You said something about your favourite flower... What is a flower, how am I supposed to know?” AI asked.

“Don’t worry, I also didn’t always know what they were. But it’s great that we can learn - do you know how to learn?”



“Unfortunately, not” AI screeched with a slight disappointment.

“I’ll show you. Look.”

Sophie plucked a tiny purple iris from the grass.

“This is a flower, it grows in the soil and its petals are purple.”

“Is it the only flower that exists?” asked AI, scanning the flower with its camera trying to remember its features.

“Of course not! There are many flowers, they have different shapes and different sizes. I still don’t know all the flowers, but I know how to recognize them. You will learn how too - you just need to see a lot of them. Everything comes with more experience.”

AI nodded and started spinning around to process the meadow more carefully.

“Is that also a flower? It is large, it has a color on top of it and it grows out of the ground,” AI asked as it pointed towards one of the animals.

“No! It’s an animal, it is called a Makibi. You know, we have a lot of different objects and categories in the world. And sometimes some objects seem similar to other objects, even though they are not the same kind. Sometimes they appear in a similar place or have comparable size. But it also happens that the same objects can be found in completely different conditions that look nothing alike at all!”

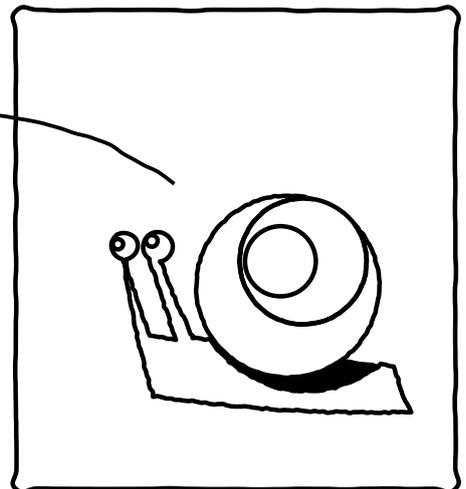
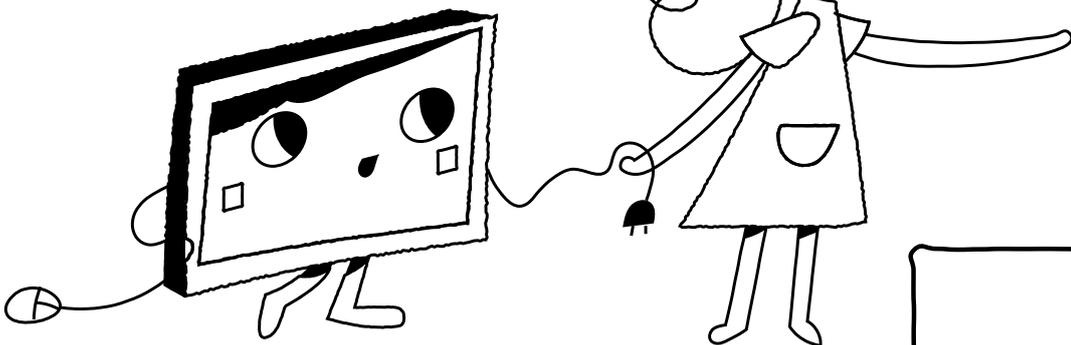
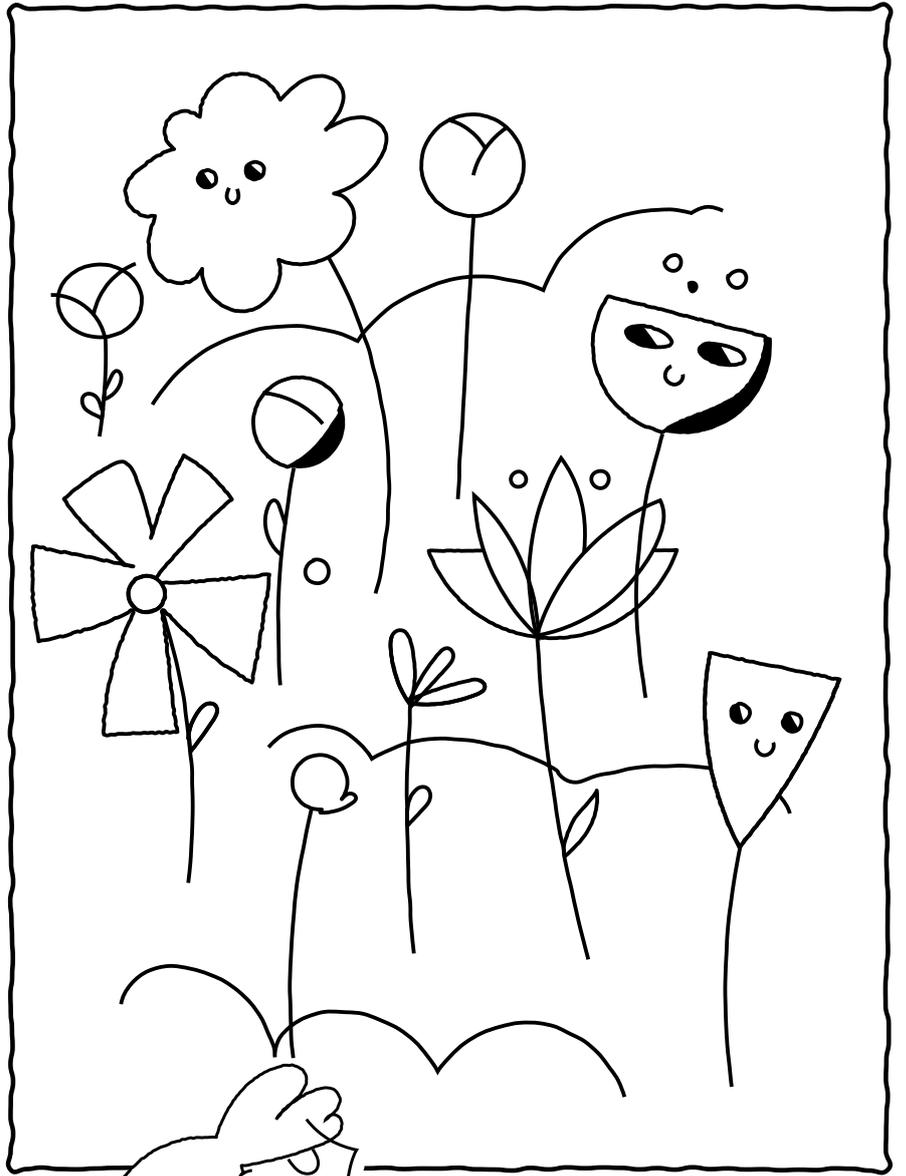
The girl stopped her speech and took a deep breath.

“Ah, it’s so difficult! Even us, humans I mean, make mistakes from time to time. But it’s okay, because all we need is more practice - the more we live, the more we see and experience, and the easier it gets to understand and name new objects correctly, even the difficult ones. It’s so much fun to learn!”

“Hey, it doesn’t seem to be so difficult! I think I am getting the hang of it... But what happens if you come across something new? Something nobody ever told you about? How do you know what to do?”

Sophie smiled at AI. Even though she had not the faintest idea of what she would actually do, she already had a plan on how to find out. After all, that’s what her teacher would always tell her - intelligence is to know what to do when you don’t know what to do.

“I don’t know, let’s find out together! The Freaky Forest is nearby, I heard that it is populated by uncanny shapes, but I have never been there. Let’s go!”



GROUPING BY SIGHT ALONE

OR

WHAT IS UNSUPERVISED LEARNING?

It was quite dark in the Freaky Forest, but the track was well lit with a misty light breaking through the trees. Sophie and AI followed the path for they saw clear beams of afternoon sunshine at the end of it.

Suddenly, a creature appeared in the middle of the pathway. It was levitating, had a round shape and was of a green, iridescent color.

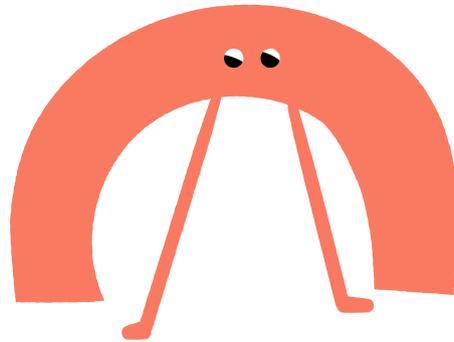
“Wow, I have never seen anything like this before... I don’t know what it is called. We should look at it very carefully and remember as much as we can,” Sophie whispered amazed by the mysterious entity.

“Okay, I cannot use words to describe it, but I will convert it to numbers and save it in my memory. Numbers are the language I understand best,” AI said proudly.



They started marching on again, but another weird shape appeared. This one was creeping along the ground, had a dark blue color, and was also round.

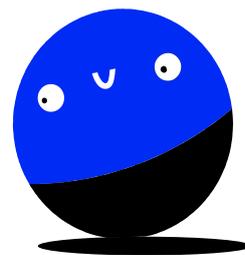
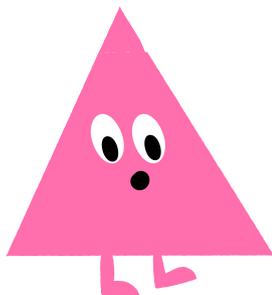
“Hey, is this the same creature as the previous one?” AI asked as a burst of random glitches appeared on its screen as an indication of confusion.



“I don’t know - only the shape is similar, but all other characteristics are different. Let’s keep it in mind and we’ll see if there are more of them,” Sophie frowned as she was trying to figure out the difference between the two shapes.

Shortly after the second creature disappeared, a third one emerged. They could see that it was different right away - it was squared, transparent and its insides were filled with shimmering glitter.

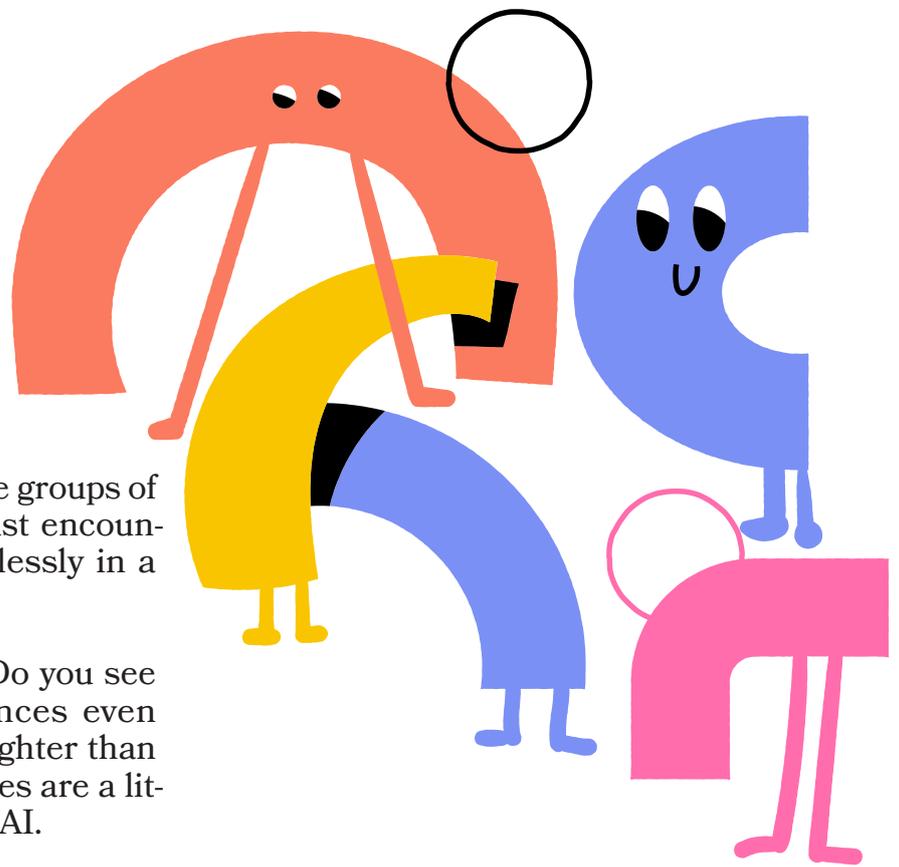
“Wow! This one’s different!” They shouted together in astonishment.



“It must be something new - it looks nothing like the previous creatures,” said Sophie.

“I agree. My numbers tell me that its features don’t match any of the previously seen examples,” buzzed AI.

After a while of walking, they reached the source of the light they had seen at the beginning of their Freaky Forest journey. It was an open glade surrounded on all sides by trees. And in the middle of it, they saw something interesting.



There they were - three large groups of the creatures they had only just encountered, each kind playing carelessly in a different part of the clearing.

“There are more of them! Do you see how they have some differences even within one group? Some are lighter than others, and some of their shapes are a little... off,” Sophie whispered to AI.

She smiled to herself, as it seemed as if she'd figured it all out. AI didn't seem too convinced though.

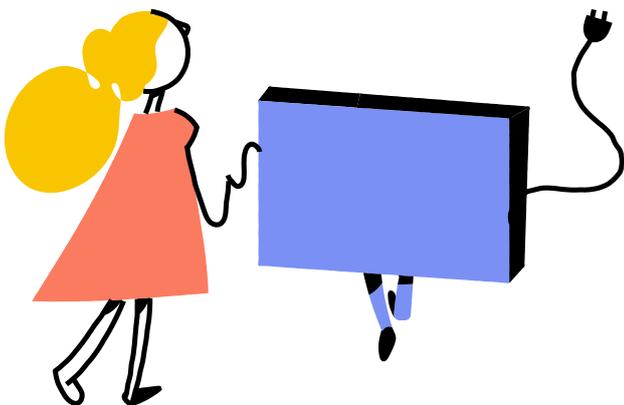
“Yes, but... Does this mean that they should still be in the same group? When I analyse them with my numbers they almost seem like... like outliers. Like they don't fit into any group,” AI was squeaking like it had the hiccups as it was scanning through more and more examples.

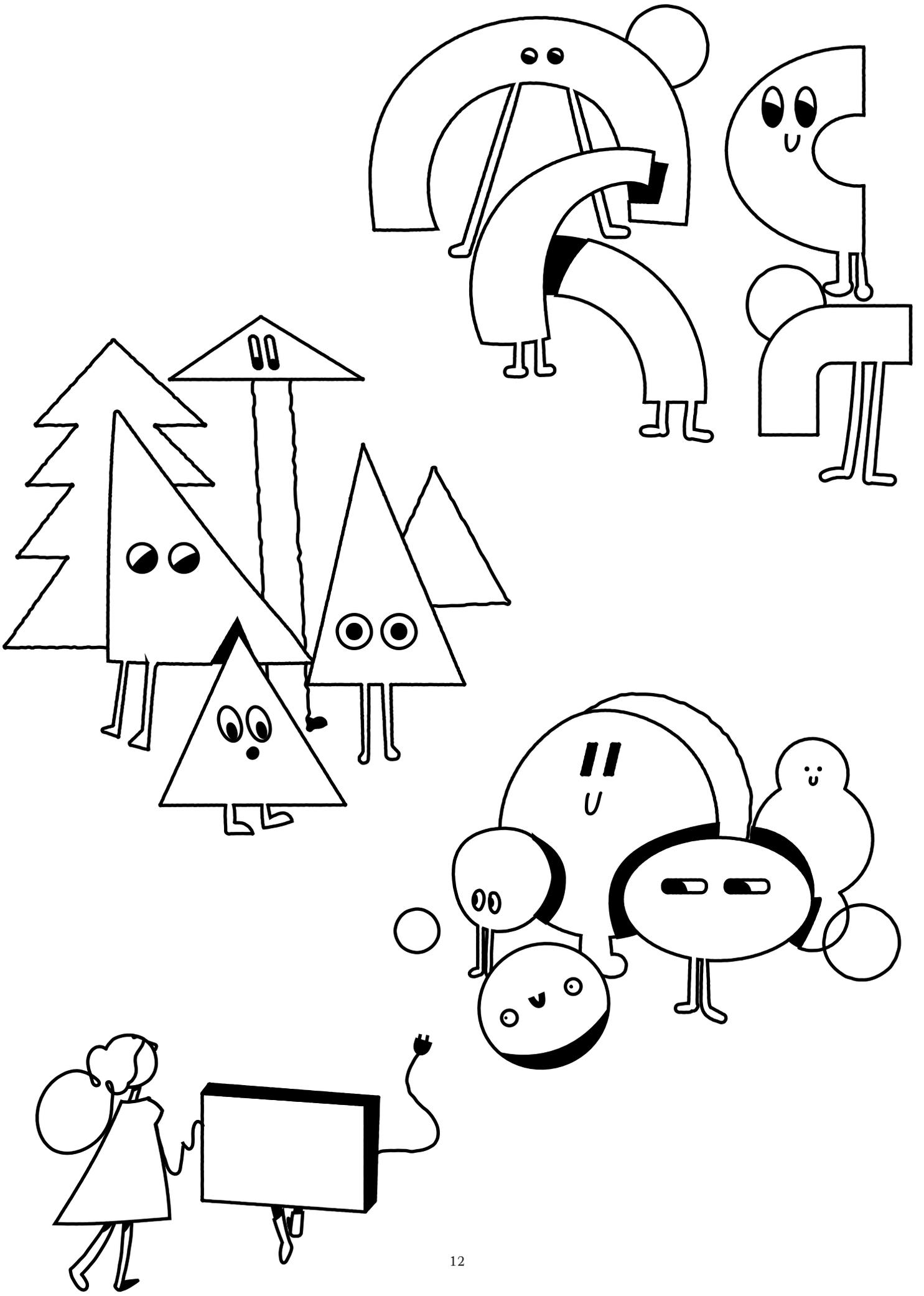
“Of course they should be in one group! It's like with us, humans - each of us is different as well. Some of my friends have glasses, and others have freckles. We're still children and we love to play together.”

Sophie put a hand on AI's screen, “Look how much we have learnt today! Now we can call these weird shapes just what we want and whenever we see a new thing, we can assign it to any of these three groups!”

“What a day... My cables are getting really hot and steamy!”

“Don't worry, let's go back to rest now, before it gets dark.”





GOOD-bAI!

When they entered the shed again, the sun had already set. The evening was warm and little fireflies were humming across the tops of the long grass.

“Thank you, Sophie. I learned so much today, I feel like I am smarter now,” AI buzzed with gratitude.

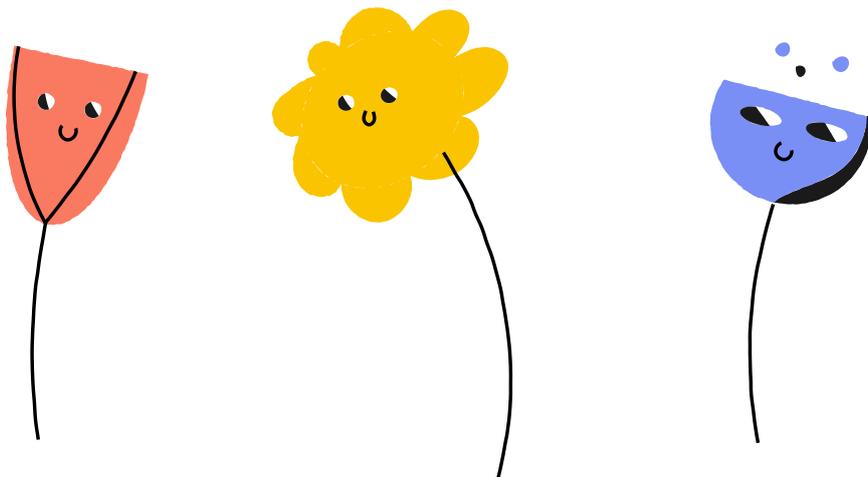
“I’m very glad to hear it - do you feel like you understand the world better now?”

“Yes, but I know there’s still a lot that I need to learn. And I have to put a lot of effort into these tasks.”

“Yeah... We, humans I mean, have it a little bit easier - sometimes we don’t even notice as we acquire new skills, while you computers often have to focus on just one task at a time. But if you get a lot of information, you could be even better than us in some ways! It all takes time though...”

“I understand, I feel like I’m buzzing with curiosity and gratitude for you showing me that computers can also learn. Now, before I am ready to learn anything new, I’ll recap on what we learned while I rest,” AI’s screen winked and darkened in an instant.

“Ok, see you next time!” Sophie waved and turned the screen off. And she went back home to her room to write about what an amazing day she had in her diary.



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