ABC of Technology

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Illustrator
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Business school
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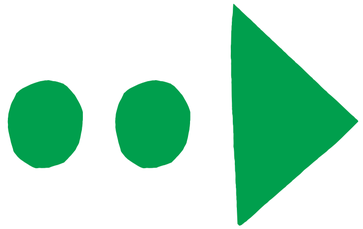
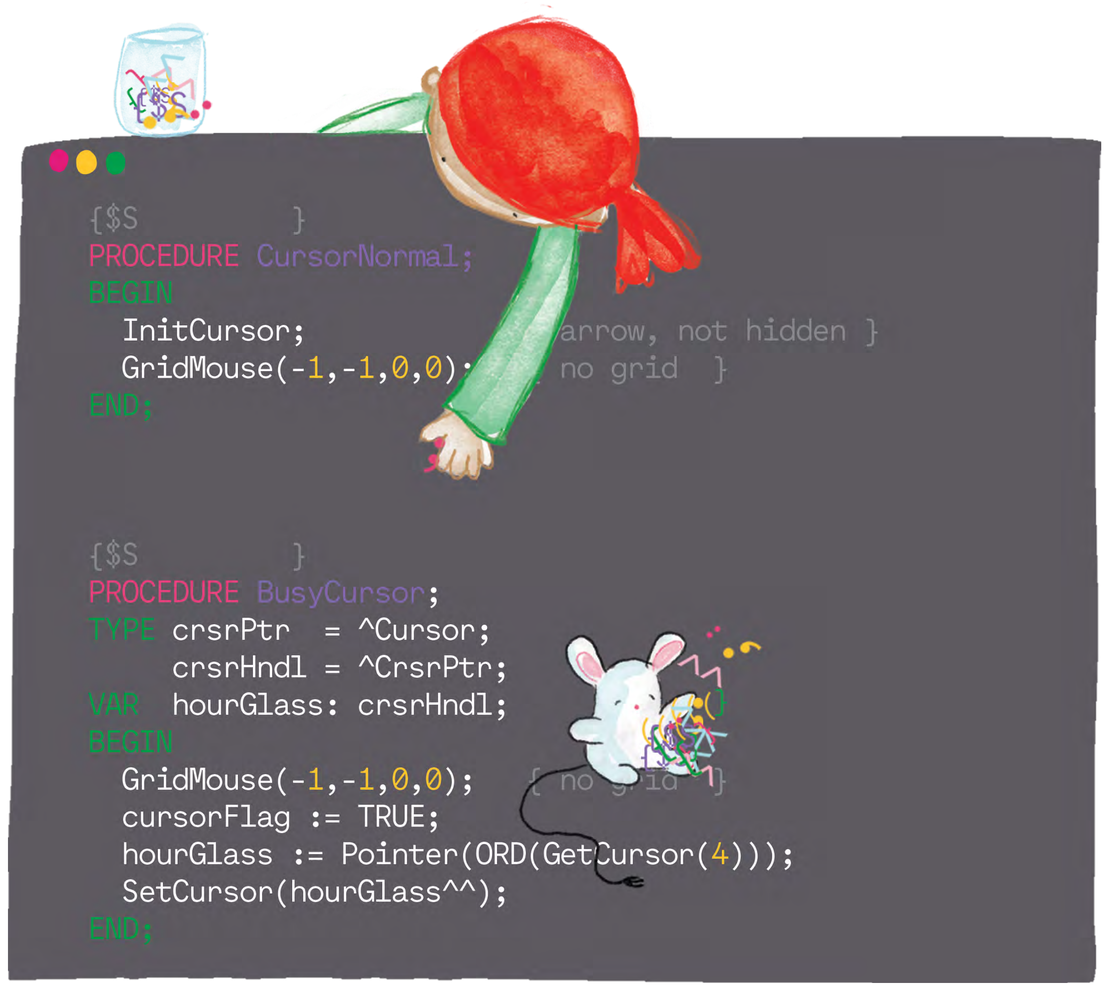
If code is the new lingua franca, instead of grammar classes, we need poetry lessons.



Hi

GAMIFIED TUTORIAL: STEP-BY-STEP INSTRUCTIONS, EASE OF ACCESS

OPEN-ENDED PLAYGROUND: LOW FLOOR, WIDE WALLS, HIGH CEILING

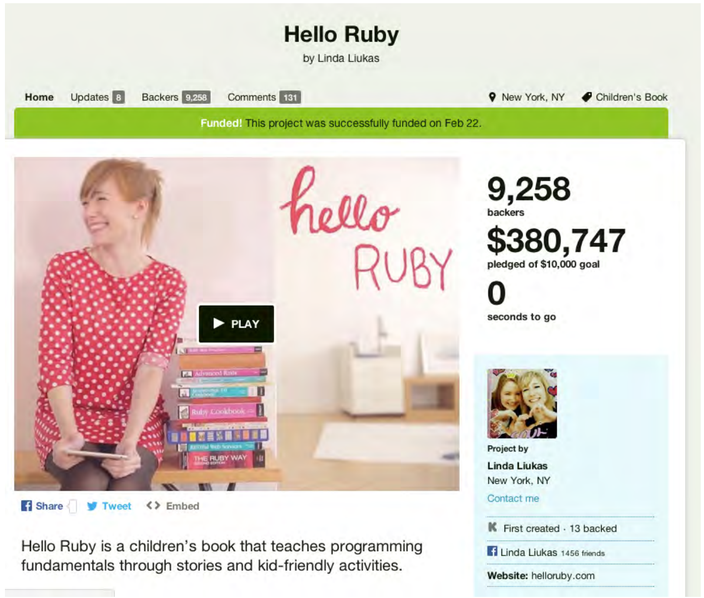


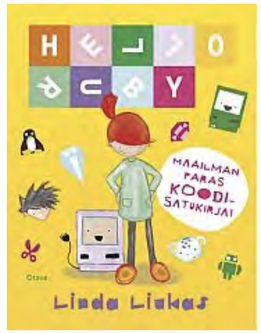
Stories..

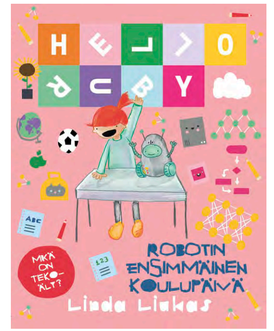
..help us make sense of the world.

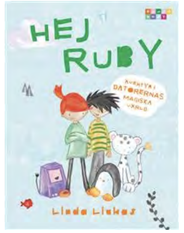
..connect us to ourselves and to each other.

IT ALL STARTED WITH A KICKSTARTER CAMPAIGN









…WHICH REPRESENTED 20% OF ANNUAL BOOK EXPORTS OF ENTIRE COUNTRY OF FINLAND

..TODAY, FOUR BOOKS ABOUT CODING, COMPUTERS; INTERNET AND AI, PUBLISHED IN 25 LANGUAGES

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Preparing kids for a world where so many problems are computer problems.

"Computer Science is no more about computers than astronomy is about telescopes."
- Dijkstra

A is for algorithm

what did we learn?

1. Exact commands.
2. In the right order.
3. Naming things is important (and you can't make spelling mistakes)
4. Instructions should cover all scenarios and be modifiable.
5. **Even the biggest problems in the world are just tiny problems stuck together.**

START

END

BRUSH YOUR TEETH

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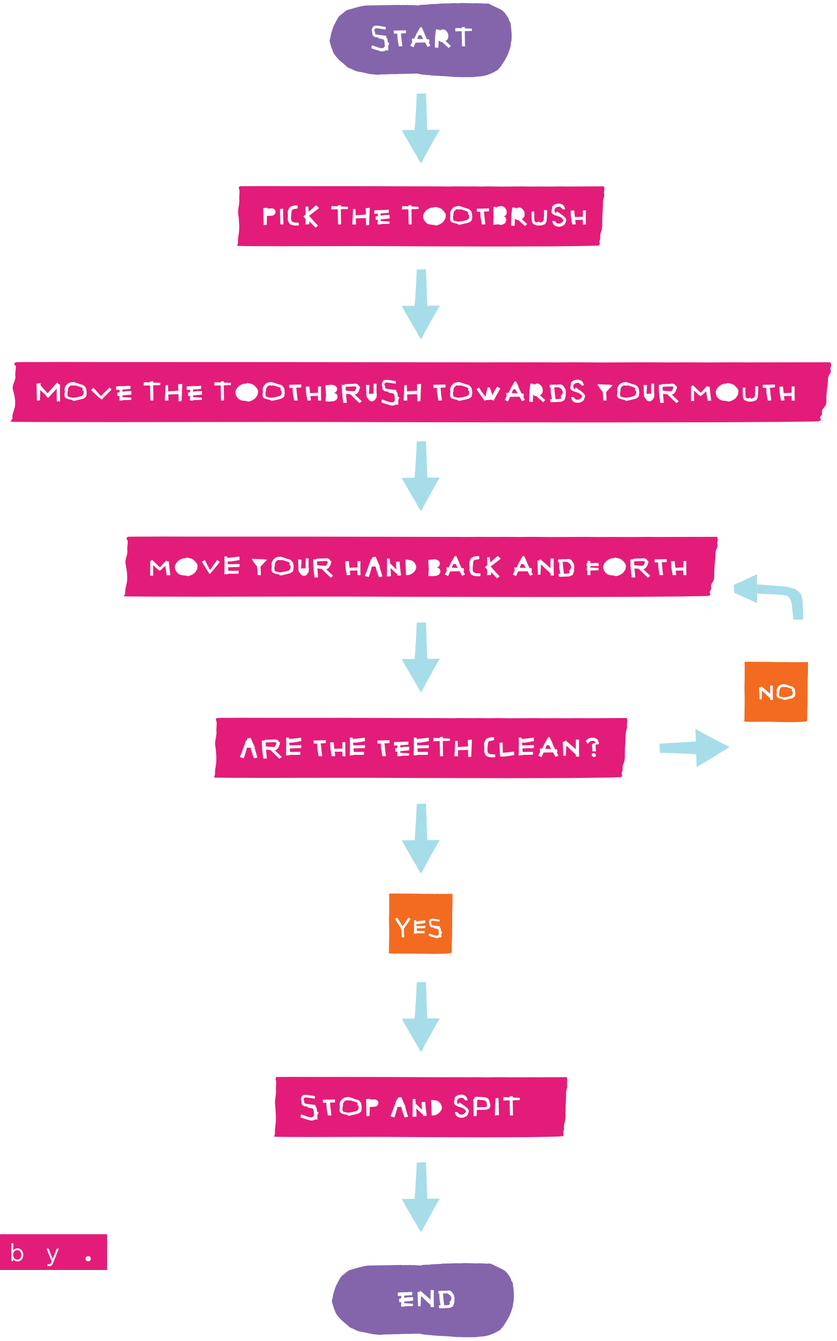

... do we know what a toothbrush is?

.. what about the toothpaste?

.. remember to open the toothpaste?

.. remember to stop moving your hand towards the mouth!

.. defining clean

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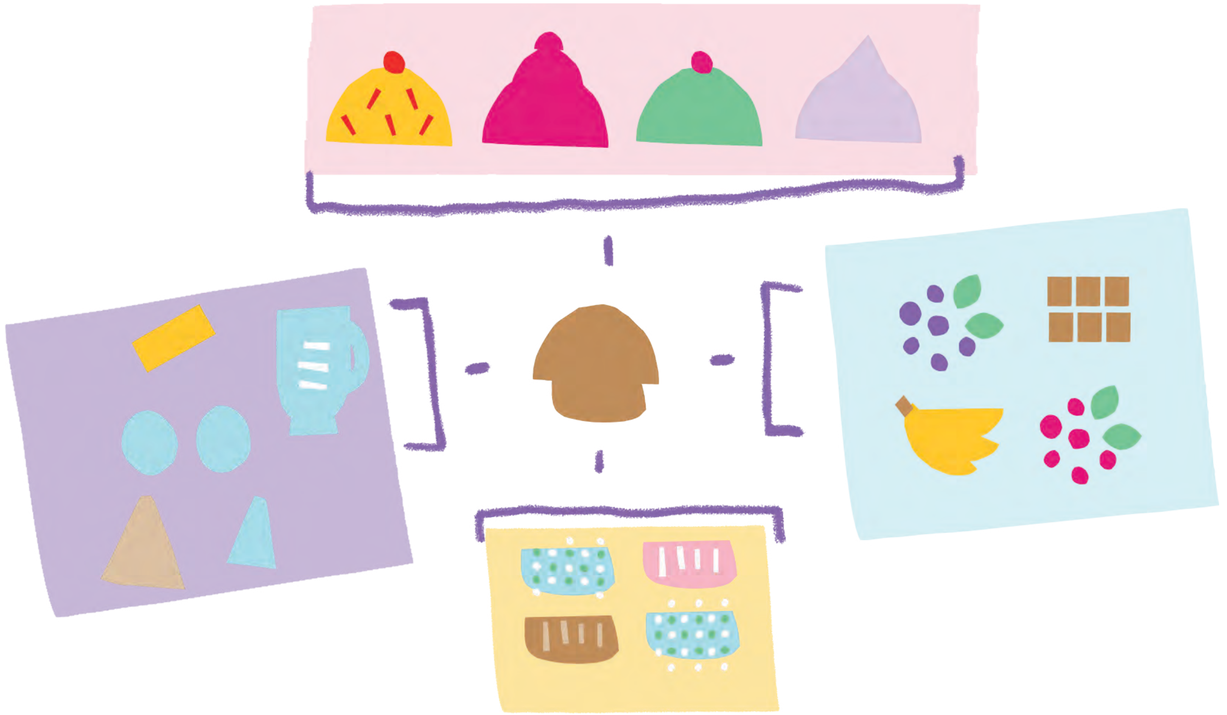


Go right

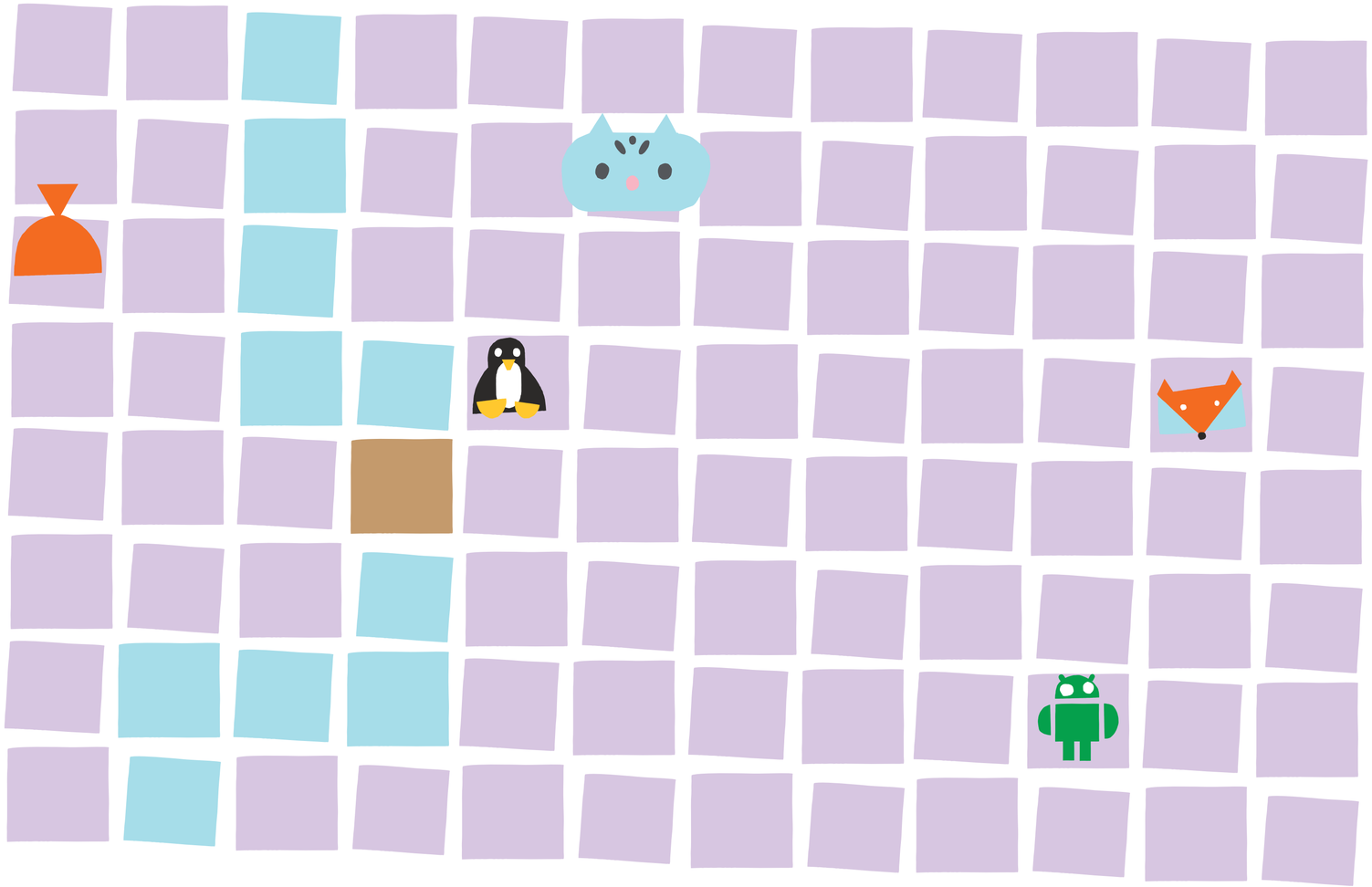
Go left

Go down

Go up

Stop and say hi!

3



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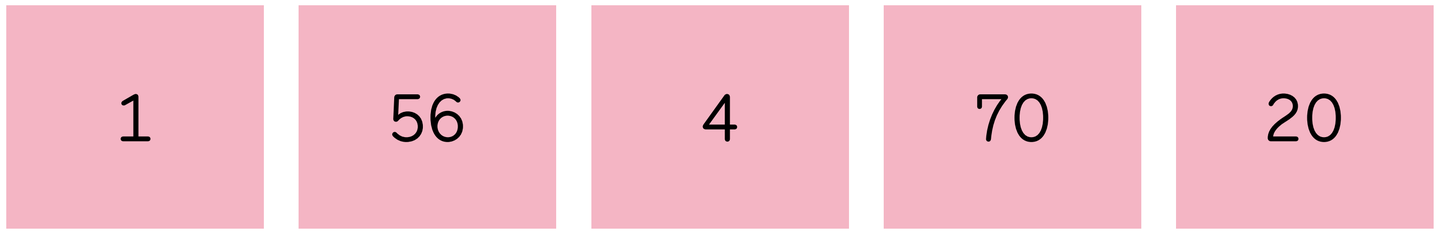

1	56	4	70	20

1	56	8	67	71
78	24	4	33	20
45	81	2	70	10
1	66	98	89	82

	715	1	56	8	67	71	820	71
71	71	455	56	8	67	71	677	712
20	20	78	24	343	433	20	201	20
10	348	45	81	2	470	670	10	10
322	821	1	66	98	89	82	82	82
		71	1	56	435	67	171	71

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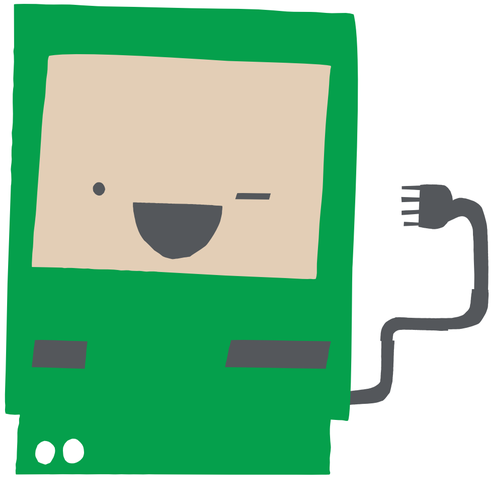
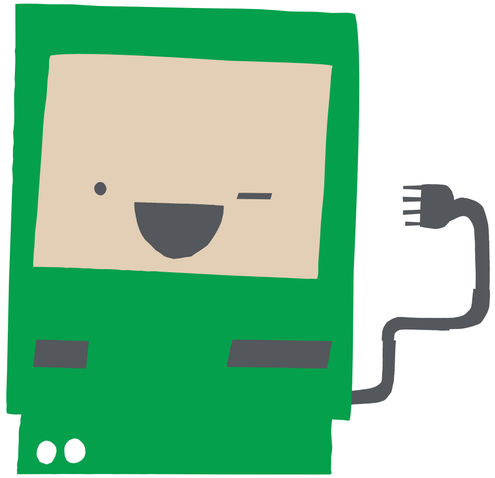


1	56	4	70	20



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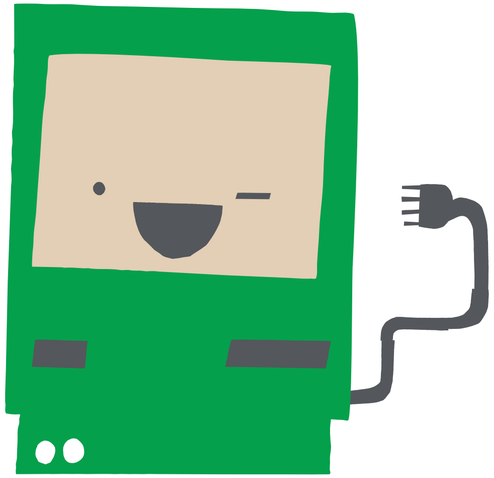
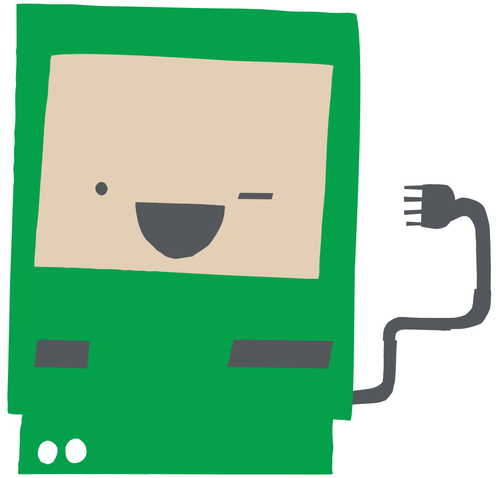
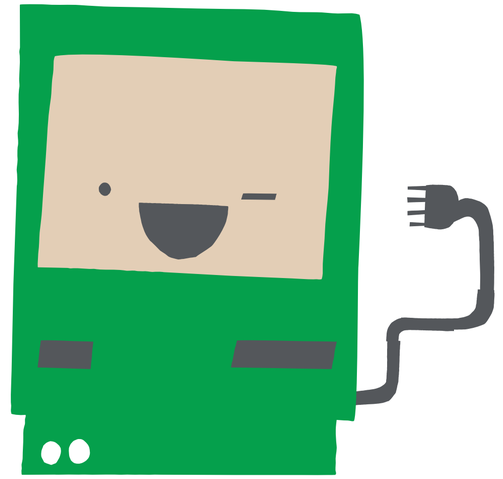


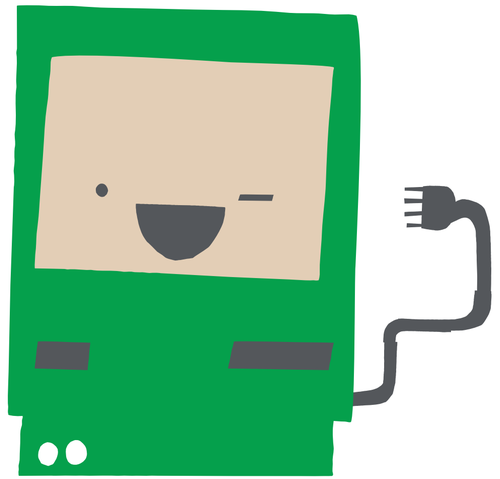
1	4	56	70	20



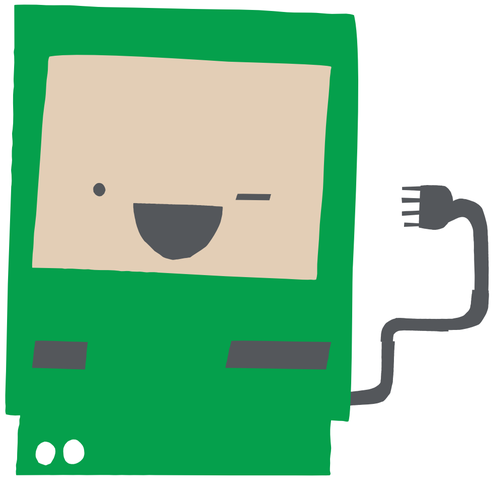
1	4	56	70	20



1	4	56	70	20



1	4	56	20	70



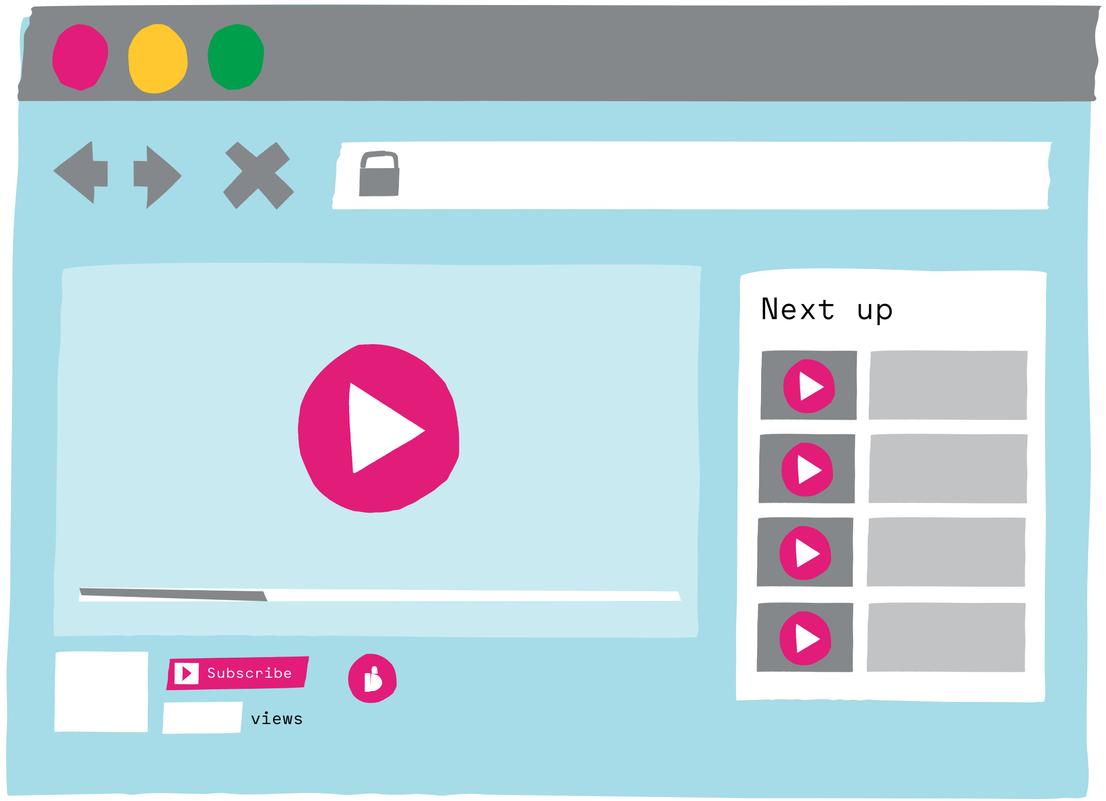
1	4	56	20	70

This is called bubble sort algorithm.

Where is the algorithm?

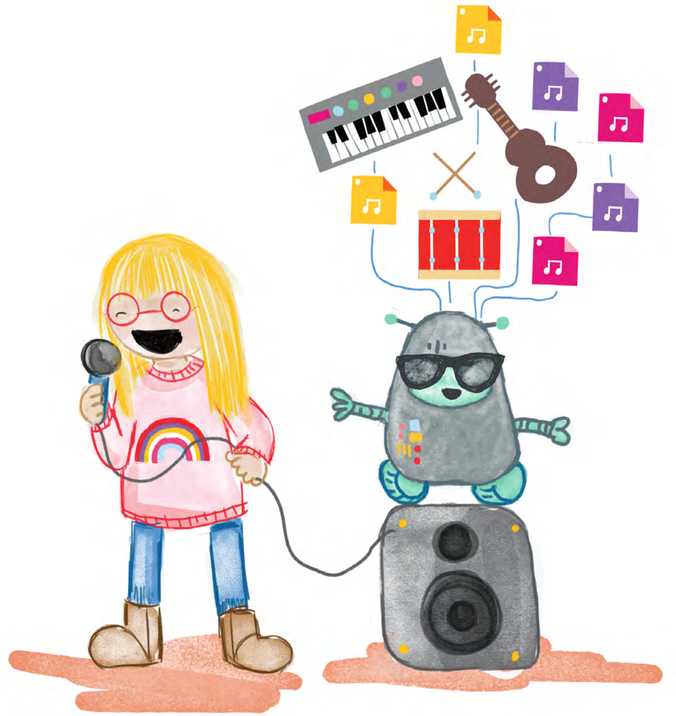
Where is the algorithm?

Where is the algorithm?



B is for

better pedagogy



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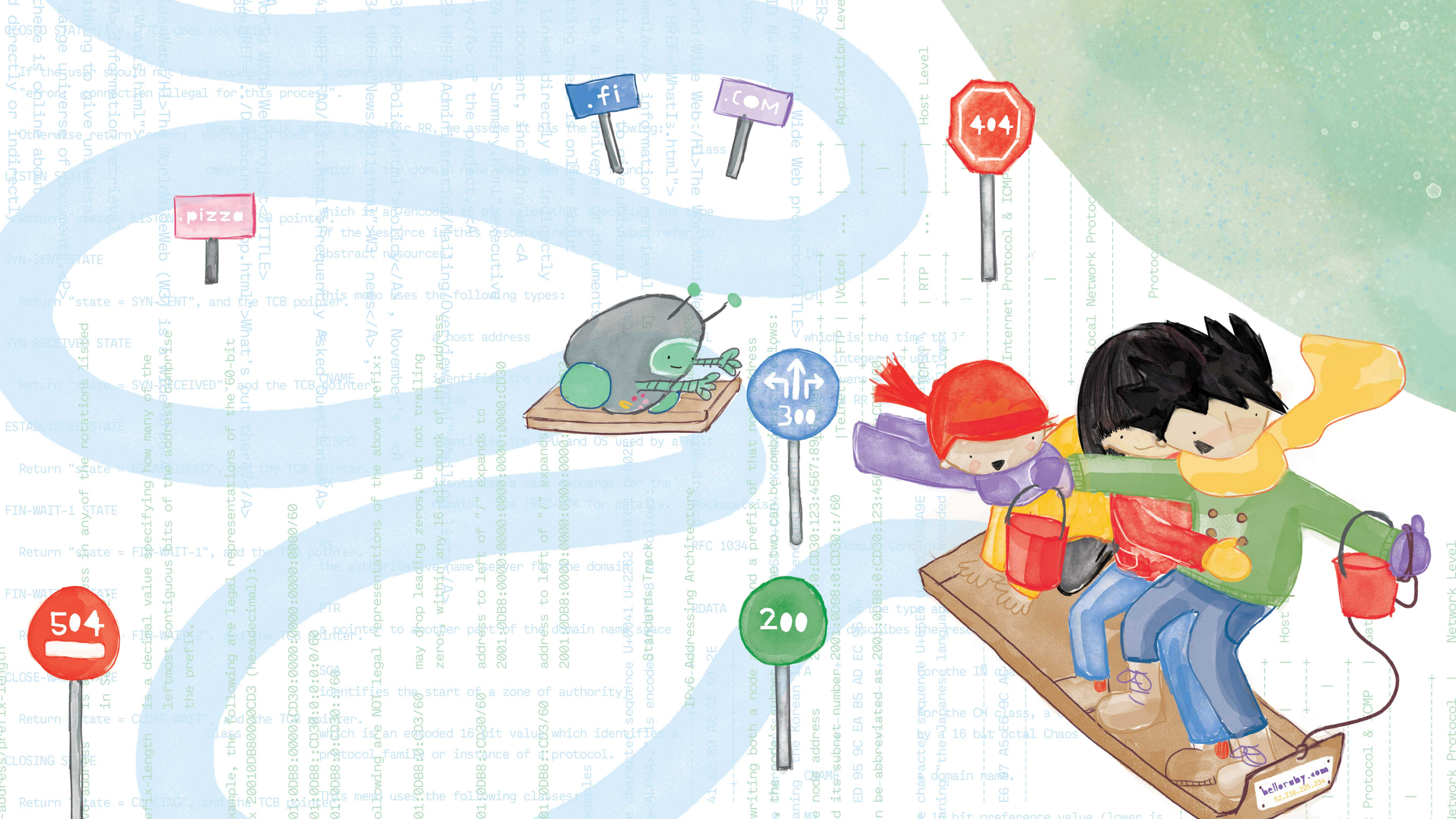
What happens in a world where we don’t have the vocabulary to express what is around us?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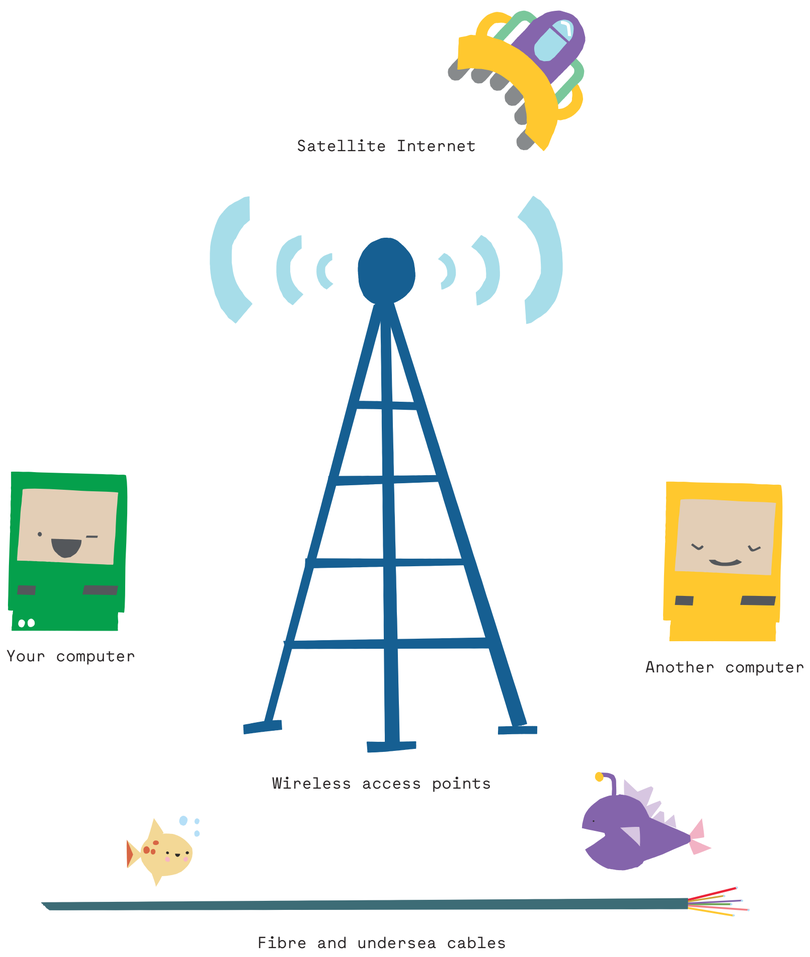
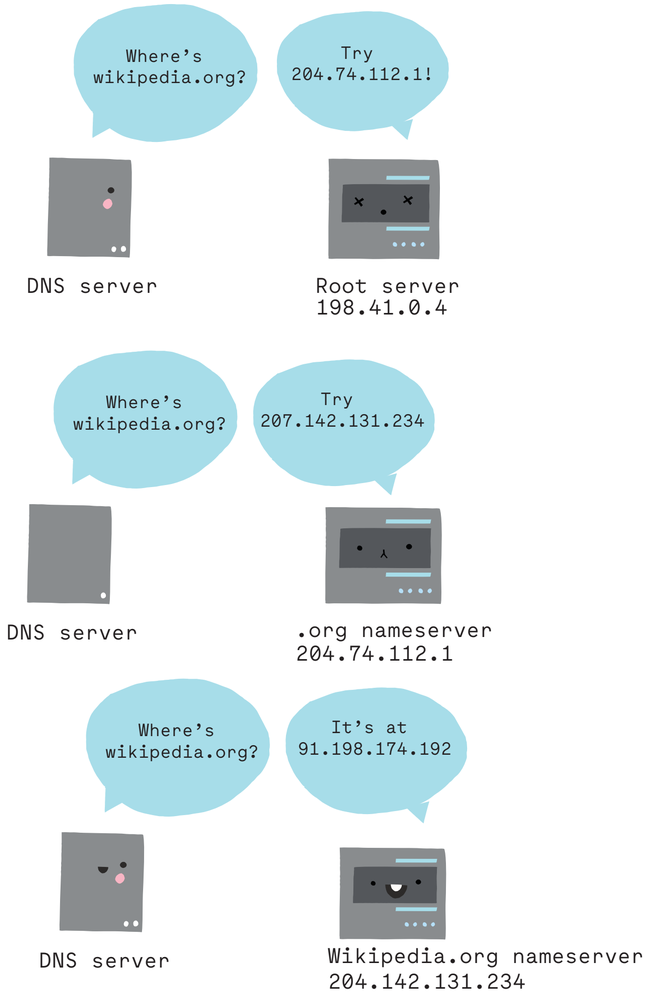
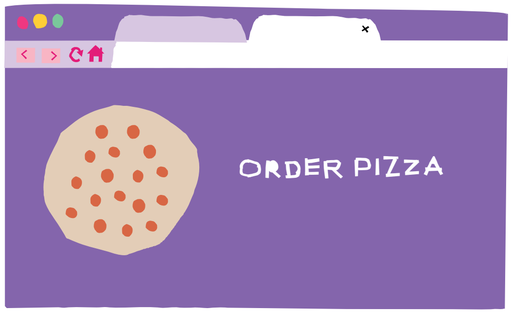


Hardware



Software



Impact

"In most mathematical lessons the whole difference lies in the fact that the student is asked to accept from outside an already **entirely organised intellectual discipline** which he may or may not understand"
- Jean Piaget

"Don't present students with **pre-organised vocabulary and concepts,** but rather provide students with a **learning environment grounded in action.**"
- Jean Piaget

How does a loop feel?

Computers are good at repeating tasks. They like performing the same task over and over again until specific criteria are met (or even infinitely if that is what is required). One thing that computers are very bad at, however, is doing anything without being told to do it.

This is one of Ruby's favorite dance routines. Can you dance it to the beat of your favorite song?

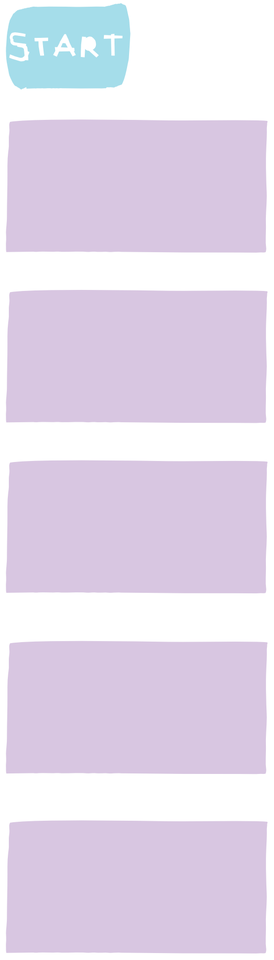
- Clap
- Clap
- Stomp
- Stomp
- Clap
- Clap
- Jump

This is how Snowleopard loves to waltz.

- Swirl
- Jump
- Jump
- Clap
- Clap
- Clap

And this is how the penguins like to boogie.

- Clap
- Kick
- Stomp
- Stomp
- Jump



For loop!
While loop!
Until loop!

a FOR loop

When you know how many times
to repeat something.

Let’s repeat this three times!

a WHILE loop

Makes the loop repeat WHILE the condition is true.

Let’s repeat this code WHILE I’m standing on one leg.

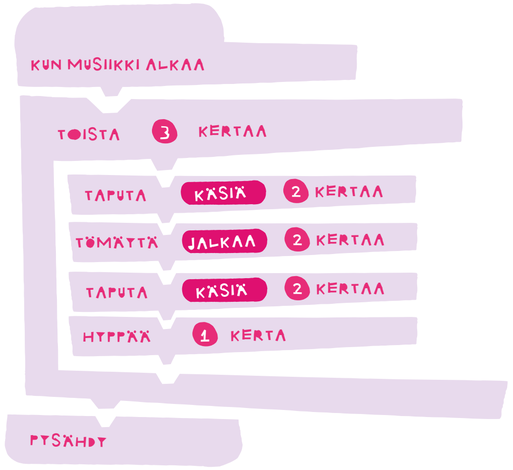
an UNTIL loop

Makes the loop repeat UNTIL the condition is met.

ABSTRACTIONS OF COMPUTING

Kinetic

Visual



Code

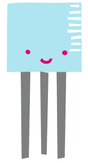
```
for i in 0..1
   puts "Clap"
end

for i in 0..1
   puts "Stomp
end

for i in 0..1
   puts "Clap"
end

puts "Jump"
```

Practice



A thermometer.

A game.

A website.

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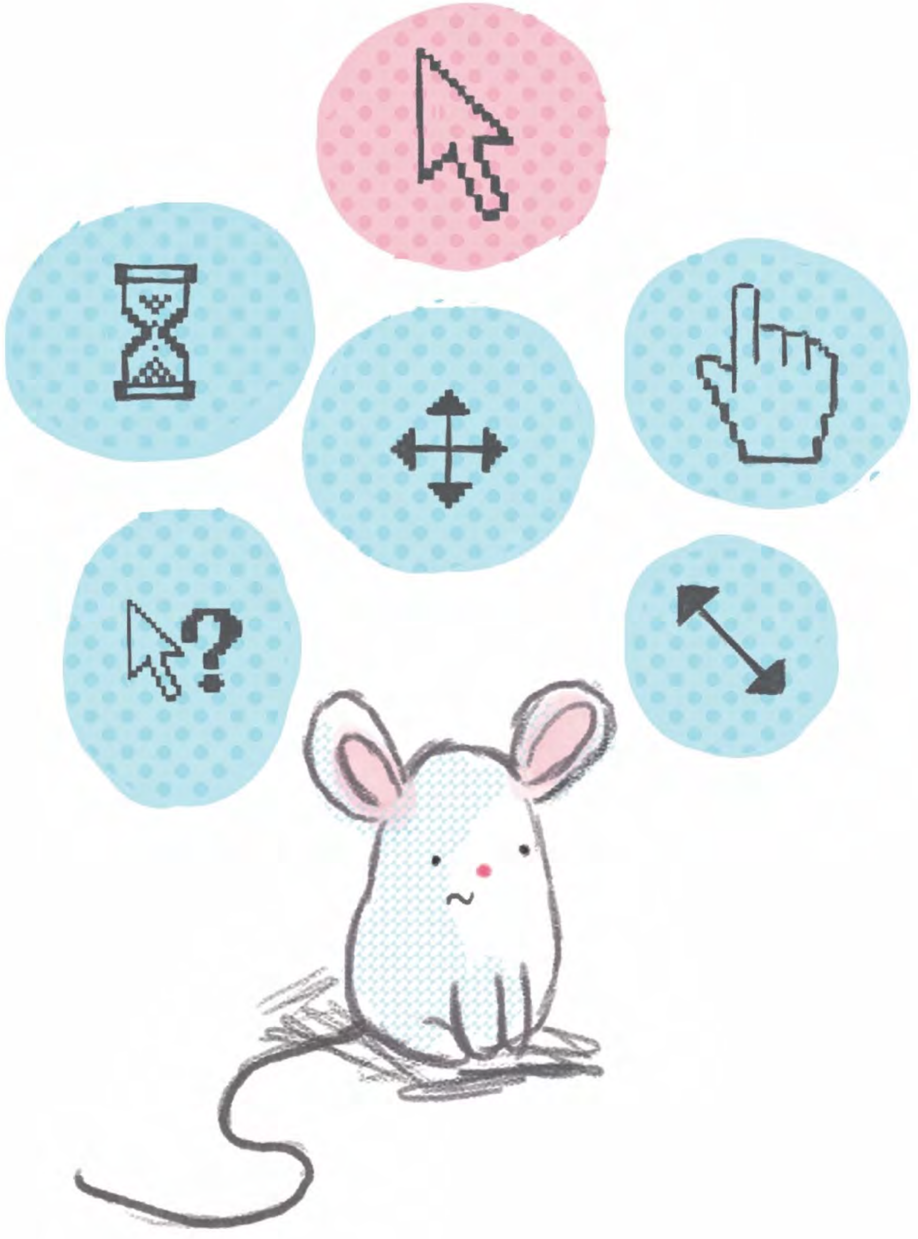
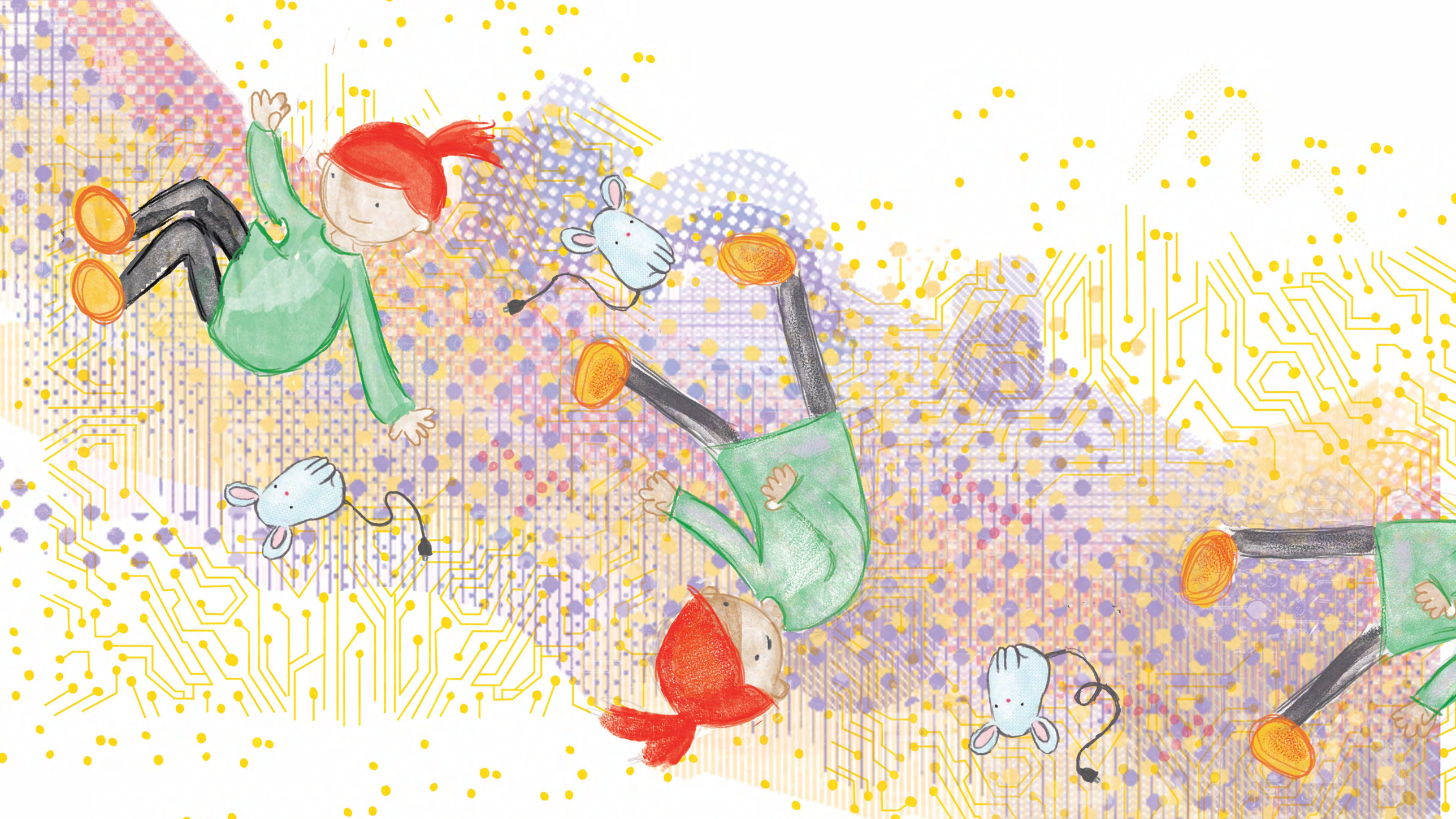
C is for creativity anc computers

Computers
are
abstraction
machines.





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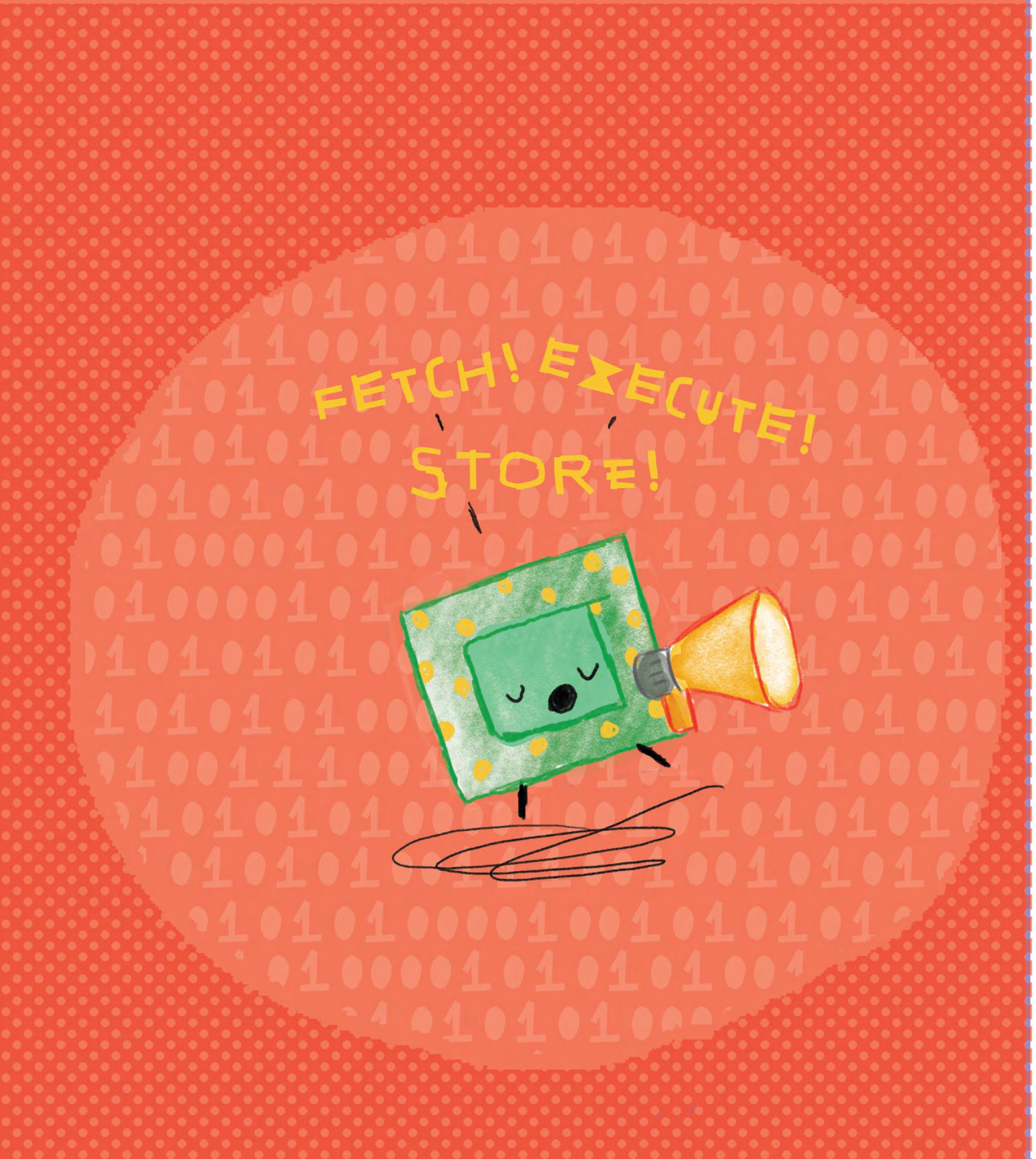
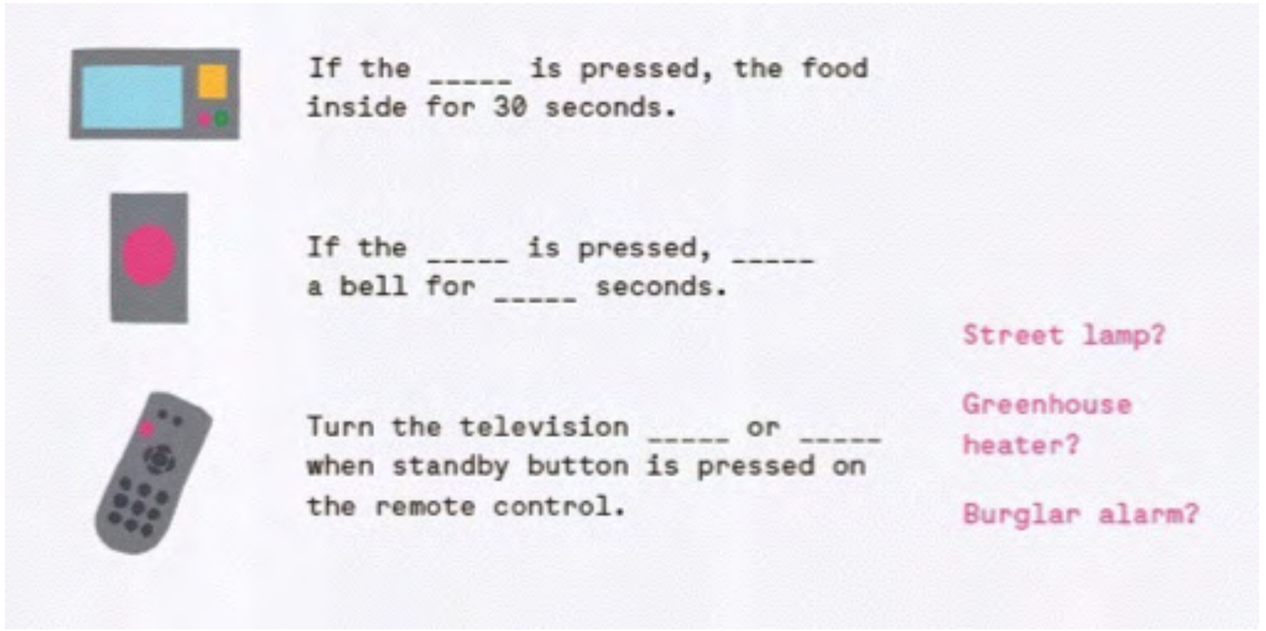

FETCH! EXECUTE!
STORE!

PROCESSOR
PROCESS
INPUT
OUTPUT
MEMORY

MISSING
SUDO
PROCESSOR
DEVICES
SECURITY
MEMORY
FILES
UTILITIES
HARDWARE
SOFTWARE

Computers
are
abstraction
machines.

There's hundreds of computers in every home.



My MagiCal ComPUTer

1 This is what I made into a computer:

2 The name of my computer:

Draw a picture of yourself using your new computer.

3 When I press the on/off button my computer will:

Computers have sensors that can recognize changes in the environment. Color the sensors your computer has and describe what they do.

- **Orientation.**
- **Temperature.**
- **Vibration.**
- **Moisture.**
- **Internet.**

YOU ARe GREAT!

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WHAT YOU'LL NEED:

- Scissors or a craft knife.
- Duct tape and glue.
- Brightly colored pens or pencils.
- Scrap paper for decoration.

BUILD YOUR OWN COM-PUTER!

Tell your parent that it's ok if they don't know everything about computers. Curiosity is important! You can figure things out together from the Internet.

INSTRUCTIONS:

1

Start by cutting out the computer and then keyboard, following the lines. Be careful and precise.

2

Next, cut out the components. Put them aside in a neat pile.

3

Cut out the the operating systems, files, stickers and website.

4

Fold the computer in half and find the right place for each component inside the computer.

5

Choose which operating system your computer runs and put it on the case.

6

Make a funny sound when you turn on the computer for the first time.

7

Now you can design your own program or website. Maybe a shop? Or a game? Or a movie app? So many fun choices. You can also design an operating system and put the files on your desktop. (But beware of the virus file!)

8

Finally, decorate your computer with stickers. Ta-da!

More things to do with your computer:

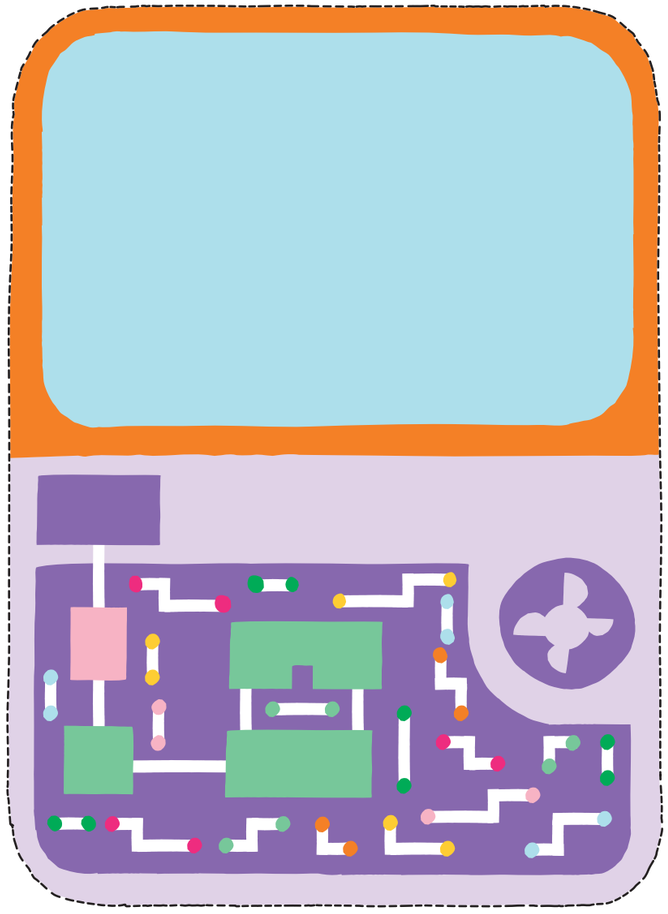
STUDY

- What are computers good at? What are they bad at?
- What happens inside the computer when you click on a button?
- How does the computer remember things?
- What are your favorite games/apps/websites?

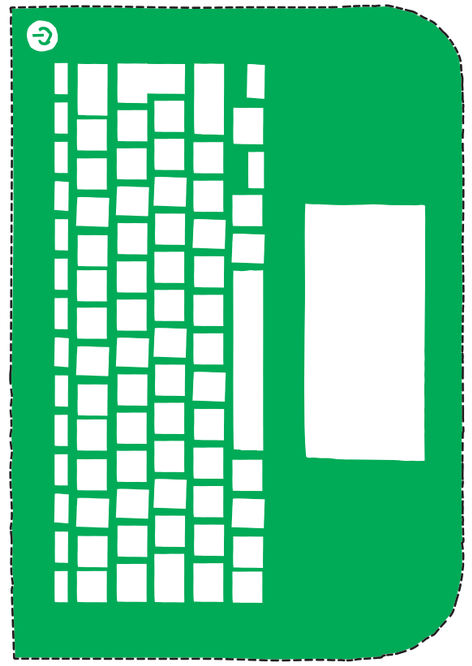
PLAY

- Design an application for an astronaut or a dolphin doctor. Where might they need computers?
- Be a computer doctor! What happens when the CPU gets a cough? Or Hard Drive is full?
- Design a mouse, a power chord or a video camera for your computer.

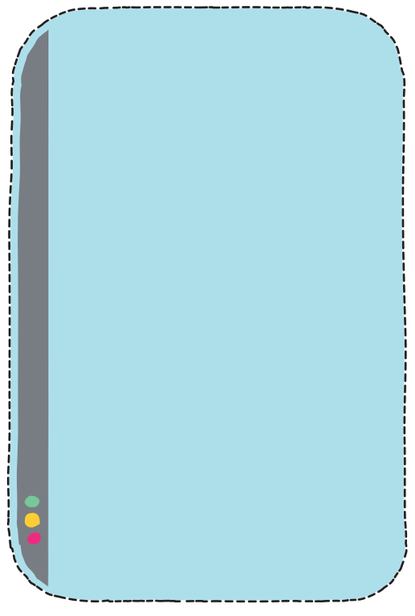
COMPUTER CASE



KEYBOARD

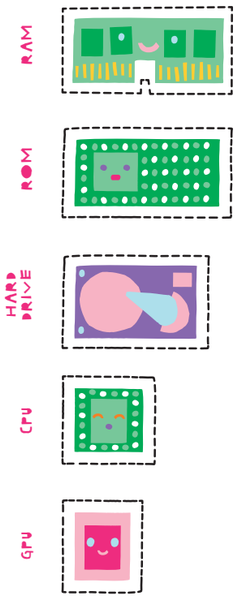


WEBSITE



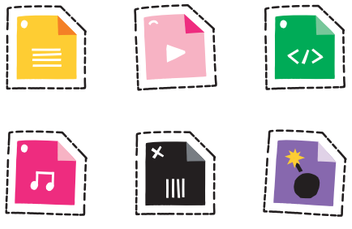
Follow the dashed line!

COMPONENTS



OPERATING SYSTEM

FILES



STICKERS

HELLO
RUBY
Mit Bastel-
anleitungen
und Spielen

Technology is built on humanity.

Computer *(km-pytr)*
n.
person who makes calculations or computations; a calculator, a reckoner; spec. a person employed to make calculations in an observatory, in surveying.

Technology (from Greek τέχνη)
Techne, "art, skill, cunning of hand"; and -λογία, -logia[1]. Techniques, skills and competencies alongside the tools needed to do the job. Agriculture is a technology; democracy is a technology.

Exercise 3

Explain!

What is technology? What is it used for?
And who uses it?

Technology is electricity that moves. It is used to play. I use it to have a conversation with my mom, we use a WhatsApp application. People uses technology.

else
if
else
else
else
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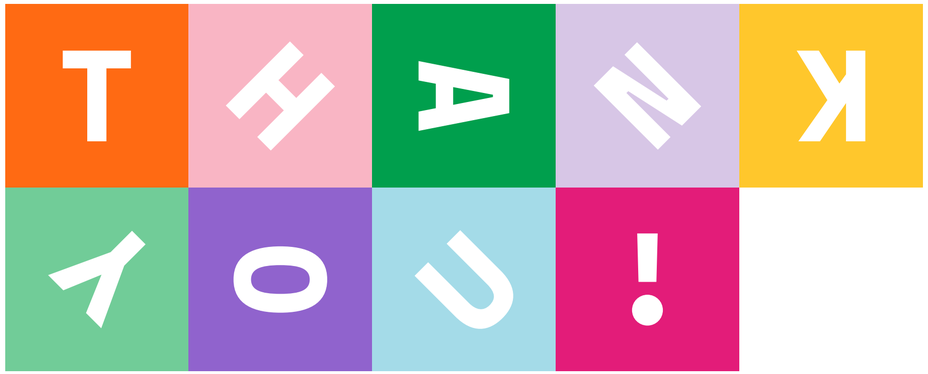

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