

Print & Play DATA ICEBERG

Preparation

Ensure that you have access to a high-quality printer and paper of the appropriate thickness to print the cards. We recommend you use A4 paper, cardstock, or photographic paper of 80gsm or more.

Print the Cards

Print the cards onto A4 paper, ensuring that you select the option to print at actual size, or no scaling. This guarantees that the cards will be printed at the correct dimensions. If your printer has the option to print double-sided, you can select this to print both the front and back of the cards onto a single page. If you do not use this option, you will need to print the face and back of the cards separately.

Cutting the Cards

Once your printed cards are dry, use a ruler and a cutter, or a guillotine to cut the cards out. Make sure to follow the cutting lines indicated within the PDF file and cut as accurately as possible to create cards of uniform size. If you prefer your cards to have rounded edges, you can then use a rounded corner cutter to give them a more professional finish.

Sleeving the Cards (Optional)

Once you have cut out your cards, you may place them into transparent protective sleeves of standard playing card size. If you have printed your card double-sided, place one card into a single sleeve. If you have printed the front and rear of your cards separately, you will need to match the front of each card with the corresponding card back before placing into the sleeve.

Game Board

The game board consists of two separate parts, one each on a page of A4 paper. You will need to use adhesive tape to join the two parts together in order to prevent them moving. This makes it easy to fold the board in half when storing it.

Game Instructions

You may print the instructions onto a sheet of A4 paper for use as reference when playing the game if you wish. However, we advise you read them in digital format to help protect the environment.

INDEX

Instructions _____	2
Cards _____	6
Board _____	20



Co-funded by
the European Union

Dali Data Literacy for
Citizenship Project Number:
2020-1-NO01-KA204-076492



dalicitizens.eu
@DaLi_Citizens

Additional content: Extra cards

If you are playing with children, or for other reasons you wish to change the cards, you can use the set of extra cards provided. To use this alternative version of the game, remove cards 5, 6, 8, 10, 13 and 18 A+B (total of 6x2). Replace these with the extra cards: 21, 22, 23, 24, 25 and 26A+B (total of 6x2).

What is data?

Here you can find an overview of the four different categories of data that you will be organising your cards into while playing the game. The categories are also explained on the personal player board.

Put simply, pieces of data are the building blocks of information. The details from your day that you write by hand in your diary is an example of (1) **human-generated data**. The data created by you as you interact with a digital device, is defined as (2) **human- and machine-generated data**. This type of data is knowingly and actively created by you, for example, when you add your personal details to set up an account for an app, or if you write an e-mail or upload a video on a platform. Data can also be registered by a sensor, for example when your movements are registered by your smartwatch.

'Data about data', or 'metadata', is a type of data that is created without you actively entering information, but as a side effect of your interaction with a digital device. Apps and websites can use algorithms to process and analyse the data that you provide to create new types of data, which can be visible or invisible. (3) **Visible metadata** is easy to access. For example, when you take a picture, the location and time of the picture can be stored and is available for you to see.

(4) **Hidden metadata** is data-about-data created by machines and is often not easy to access. For example, when you visit a website, you don't store the website address, interactions, and movements yourself, but this metadata may be collected by the web browser. The data can be linked to your profile and the web browser can use it to determine the websites you visit most often. This type of metadata is not visualised or shown to you directly, but it may become indirectly visible to you, for example, when the web browser uses this data to personalise your searches or tailor website advertisements based on your interests.

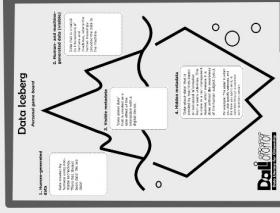
Da

Data Iceberg

Have you ever thought about how much data we generate in our everyday life? Do you want to better understand how data is created, who creates it, and when it is created? Data iceberg is a memory game which will help you to learn about different types of data and how data is generated. By playing this game you will find that there is a huge quantity of both visible and invisible data to discover.

Players 2-4

Components



- Instructions
 - Solutions sheet. (To use during or at the end of the game)
 - 40 picture cards
 - 2-4 personal game boards. (One for each player)
- The board has four rectangular spaces to place the pairs of cards. Each space represents a different category of data.
- Additional content: 12 extra cards

Object of the Game

Find the most pairs of matching cards, and put them in the right category of data on the personal game board. To learn what data is and how data is created we encourage you to discuss your placement of the cards with the other players. The player with the most pairs of matching cards in the right category wins. To learn about the different categories, see the 'What is data?' section.

Setup

You may choose the full setup for the game, or a partial setup for a quicker game.

continue on the next page →

Full Setup

Mix the cards well and spread the cards face down. Form 8 rows of cards across, and 5 rows down. Each player takes one personal game board.

Partial Setup for a Quicker Game

Take out the pairs (A+B) of cards number 6, 7, 9, 10, 11, and 16. Mix the remaining cards well and spread the cards face down. Form 7 rows of cards across, and 4 rows down. Each player takes one personal game board.

End of the game

After the count, the player with the most pairs of matching cards on the right part of the personal game board wins.

The DALI Jokers

There are two pairs of jokers in the pack:

- *Joker cards with a black background:* When a player discovers a pair of black jokers, the player can select another player that will lose a turn in the next round.
- *Joker cards with a white background:* When a player discovers a pair of white jokers, the player can steal a pair of cards from a player of their choice

The Jokers may be used immediately when a pair is found, or they may be saved to be used by the player as part of their turn in another round. The Jokers cannot be used after all the pairs have been found. The Jokers cannot be included as a pair when counting pairs at the end of the game.

Alternative rule for a more creative game: The 'challenge' rule

Before taking their turn, the player that has the least amount of cards can challenge the other players to ask them to provide an example of one type of data. The other players choose the kind ('human generated data', 'human and machine generated data', 'visible metadata' or 'hidden metadata'). The player must provide an example in the style of the cards in the game (players can imagine their own card that could be in the game). If they succeed in the challenge, the player can choose two cards on the board and secretly turn them to see what the cards are before putting them back as they were. By doing so, a player falling behind can improve their data knowledge to gain an insight of the board and increase their chances of catching up to the other players.

Game Play

The person who was born earliest in the year starts the game. In each turn, the player turns any two cards so that the pictures on the cards can be seen. The cards must be turned so that both cards are clearly visible to all players. The cards match when the pictures are identical. The player who made the match takes the pair and places them onto their personal board in the right space. You may discuss your decision with your co-players. Cards are placed onto the personal board each time the player finds a pair. The player then consults the solution sheet. The solution sheet contains the correct placement for each pair of cards. If the pair is placed in the correct category, the player keeps the pair on their board. If it is not, the pair of cards are discarded. Any wrong answer* is an opportunity to discuss and learn.

*Please note: Categorising data is not easy. Metadata is always generated by some sort of 'human and machine generated data'. In this game, only assign a pair to the 'human and machine generated data' category if it couldn't fit either the visible or invisible metadata categories.

The player who finds a matching pair gets another turn. If the player finds another pair, they again get another turn. This continues until the player fails to make a pair.

When two cards are turned over and the images do not match, the player fails and returns the pictures face-down to the same place. Now, that player's turn has ended. Try to remember the image locations for future turns!

The game continues until all the cards have been paired and placed on each player's personal player board, excluding the pairs that have been discarded. All players then count up their matching pairs.

continue on the next page →

Data Iceberg

-Solutions Sheet-

When all the cards have been paired, and placed on the personal player board, all players check if their matching pairs have been placed on the right category of data. Any misplaced cards must be removed. The players can check the cards together, and any wrong answers are an opportunity to discuss and learn. All players then count up their remaining pairs. (The jokers should not be counted). The player with the most pairs of cards on the right space on the personal board wins.

21A I play an online game...	21B ...I give information about my age.	2
22A I use an app to learn a new language...	22B ...and the app shows me data about my progress.	3
23A I used my laptop to look for new toys...	23B ...and got adverts for toys in my mobile phone browser.	4
24A I use a face filter app...	24B ...and the app collects my location data without displaying it to me.	4
25A I use a website to search for a new job...	25B ...and I registered a profile and added my personal details.	2
26A To prepare for my homework, I search on the internet for related videos...	26B ...and the search engine shows links first based on what it has learned about my preferences from my search history	4

Solution number meaning

1	Human-generated data
2	Human and machine-generated data
3	Visible metadata
4	Hidden metadata

Solution joker meaning

5	Steal a pair of cards from the other player.
6	Choose one player to lose their turn.



Dali Data Literacy for Citizenship Project Number:

2020-1-NO01-KA204-076492

Co-funded by

the European Union

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

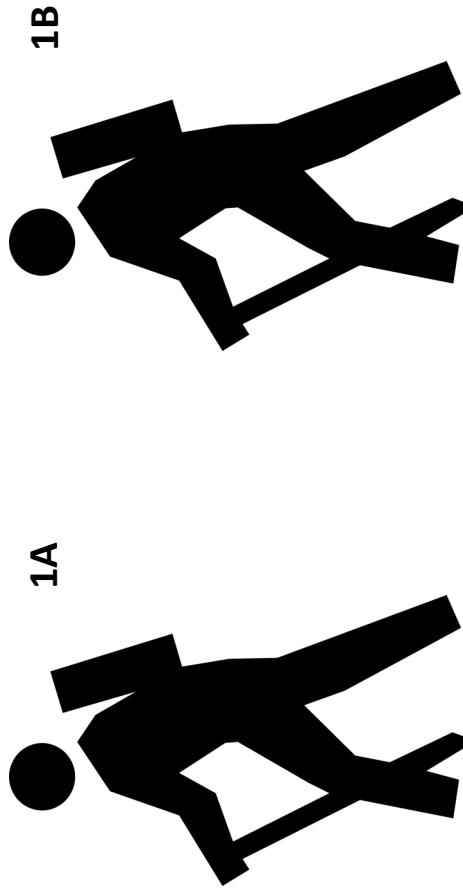
'Data iceberg' is licensed under CC BY 2.0. All images except logos and iceberg are from <https://pixabay.com/>. Instructions and Solutions sheet layouts by Raluca Mănilă.

continue on the next page →

CARD A

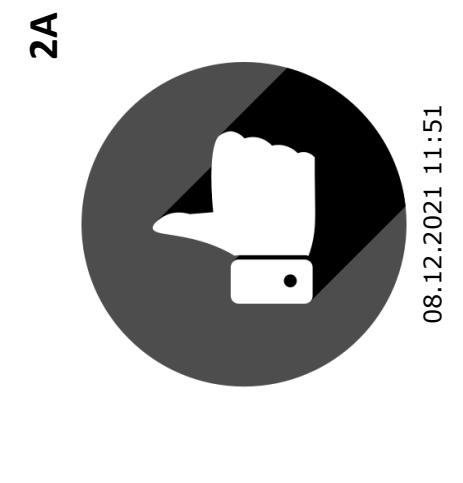
CARD B	
1A I go hiking...	1B ...and I use my phone to register my walking route.
2A I like a friend's photo on a social network...	2B ...and I can see data about the time I liked the message
3A I drive my electric car...	3B ...and the car sends data to the manufacturerS about my driving style.
4A I count all my trips per month...	4B ...and I represent it graphically in a book using a pen.
5A I pay for parking by using a parking app...	5B ...I give information about my car and get a receipt.
6A I use a navigation app while driving...	6B ... and the navigation app shows data about my location history.
7A I take photos of my family while on holiday...	7B ...and I can see data about the location in the image file details.
8A I used my laptop to book a flight...	8B ...and got adverts for hotels in the same location in my mobile phone browser.
9A I use a website to plan my bus journey...	9B ...and I add my bus stop and my destination.
10A I buy groceries online...	10B ...and my choice of products allows the app to know that I like to go for picnics.

CARD A	
11A I use a smartwatch	11B ...and the watch records my heart rate.
12A I use a messaging app...	12B ...and I can see data about the time I sent the message.
13A I use an app to listen to music...	13B ...and I registered a profile and added my personal details.
14A I share photos from my hiking trip on my social media profile...	14B ...and the social media site shows me adverts for hiking boots.
15A To share details from my trips with friends, I used a new app...	15B ...and I registered from scratch without using my social network account.
16A I count using my fingers...	16B ...this is not digital data... but there has always been data. We are data!
17A I walk...	17B ...and my phone registers the data of the places I have been.
18A To prepare for my trips, I search on the internet for the best routes...	18B ...and the search engine shows links first based on what it has learned about my preferences from my search history.
19A White background joker	19B White background joker
20A Black background joker	20B Black background joker



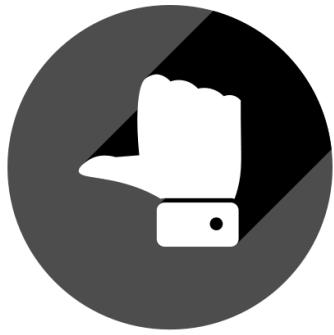
I go hiking...

...and I use my phone
to register my walking
route.

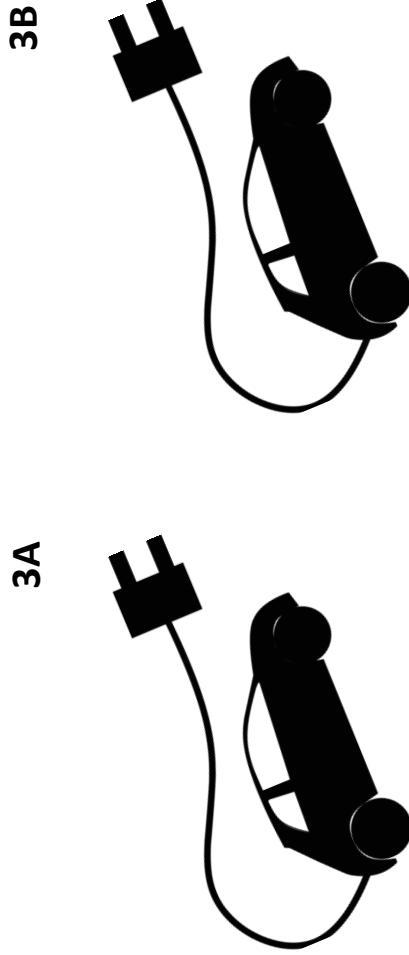


I like a friend's photo on
a social network...

...and I can see data
about the time I liked
the photo.



...and I can see data
about the time I liked
the photo.

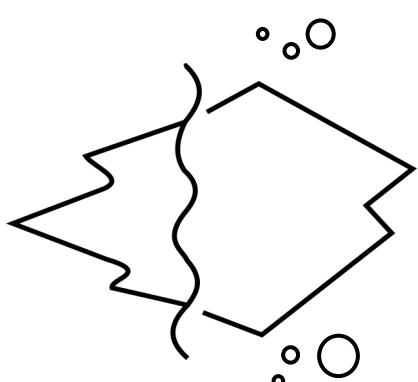
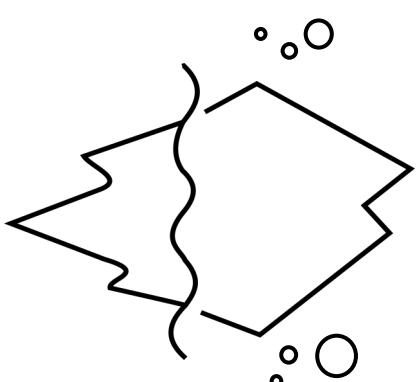
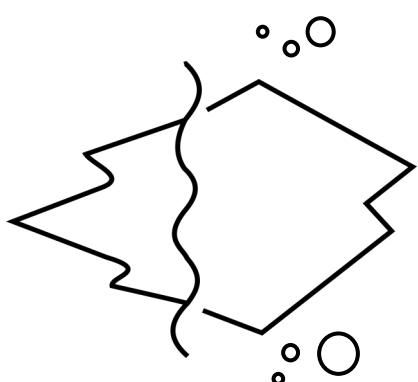
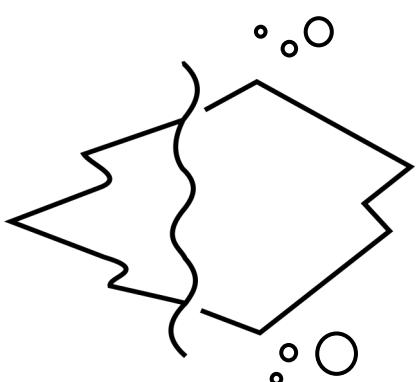
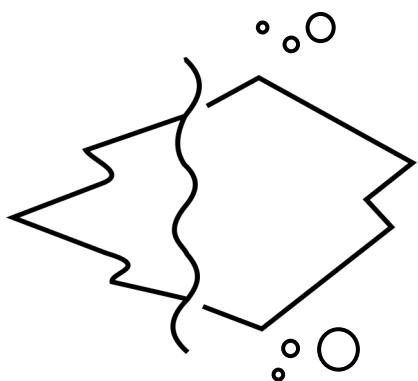
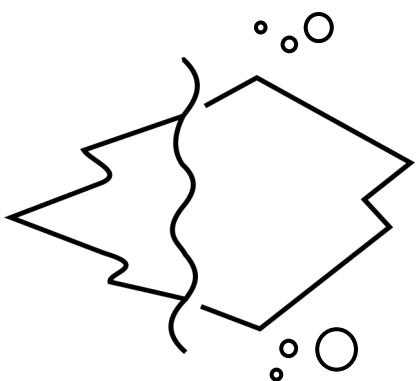
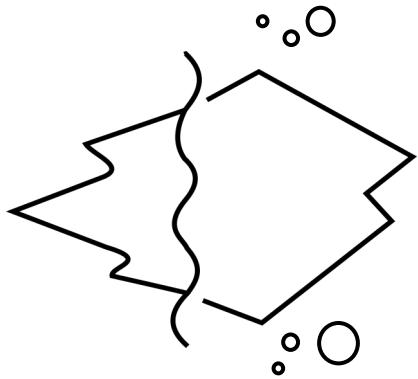
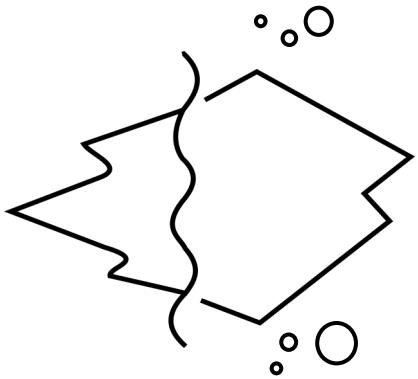


...and the car sends data
to the manufacturers
about my driving style.

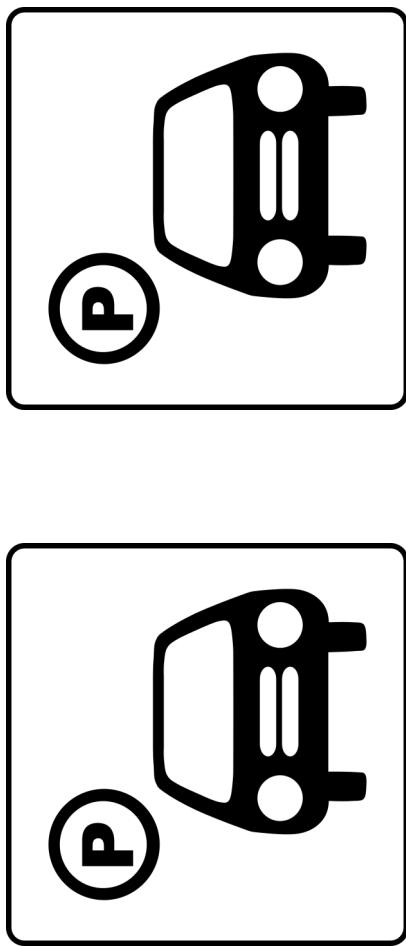


...and I represent it
graphically in a book
using a pen.





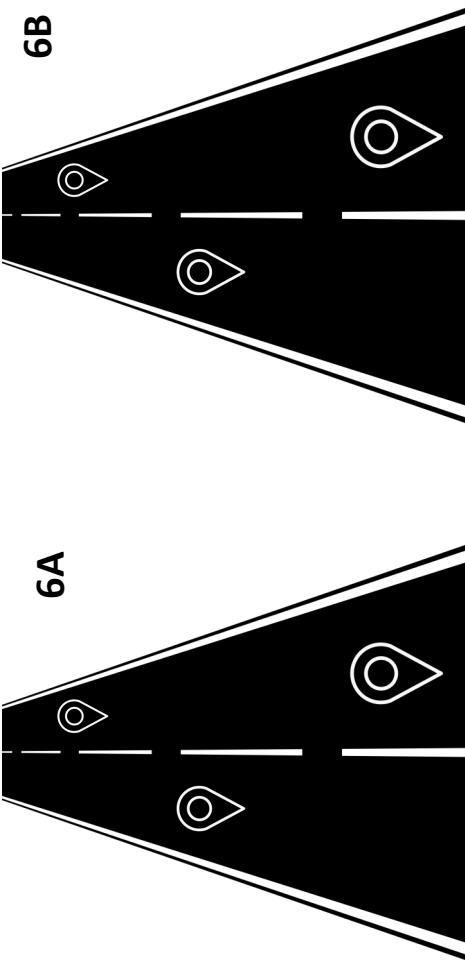
5A



I pay for parking using
a parking app...

...I give information
about my car and get a
receipt.

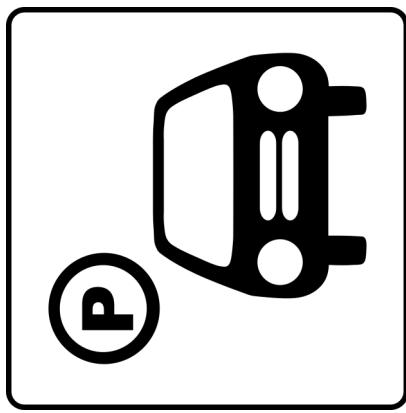
6A



I use a navigation
app while driving...

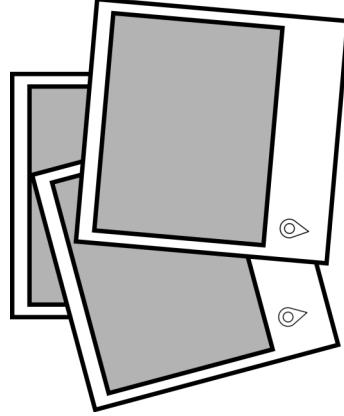
... and the navigation
app shows data about
my location history.

5B



...I give information
about my car and get a
receipt.

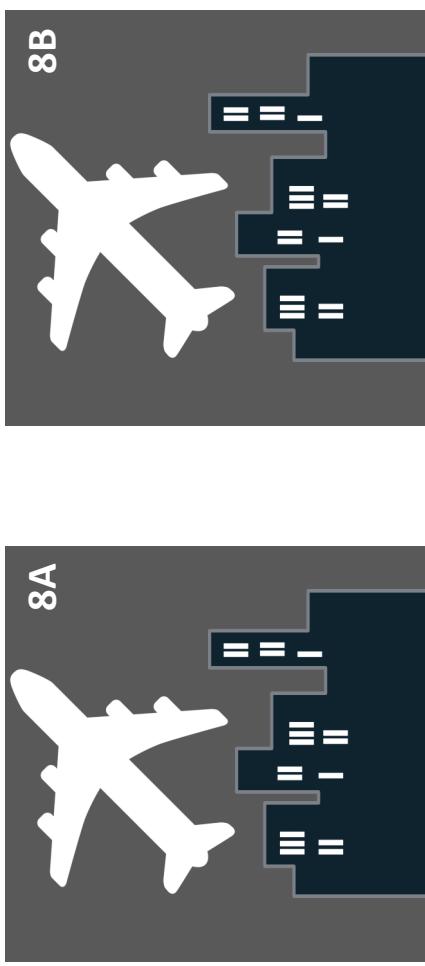
7A



I take photos of my
family while on
holiday...

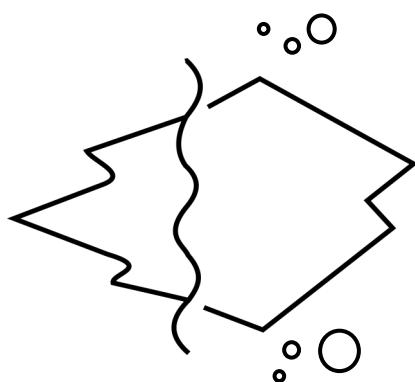
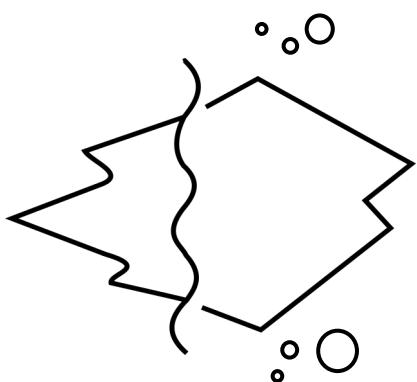
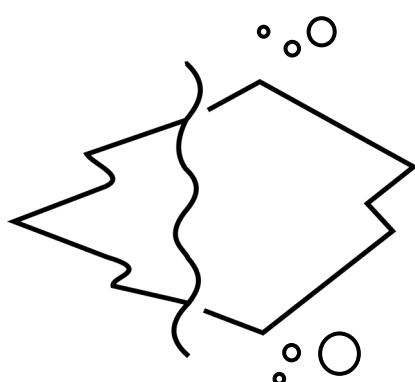
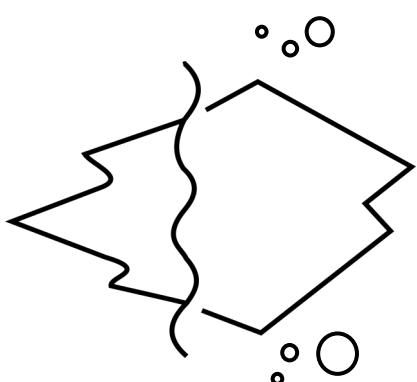
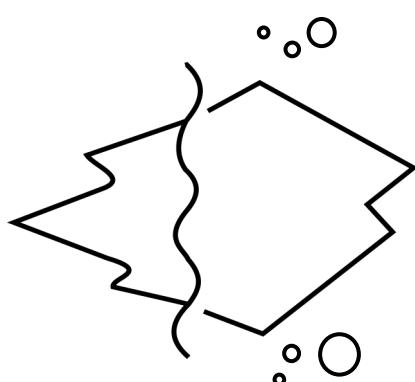
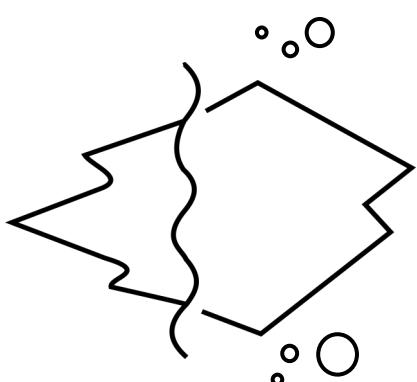
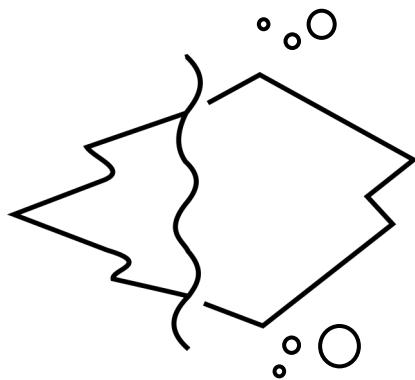
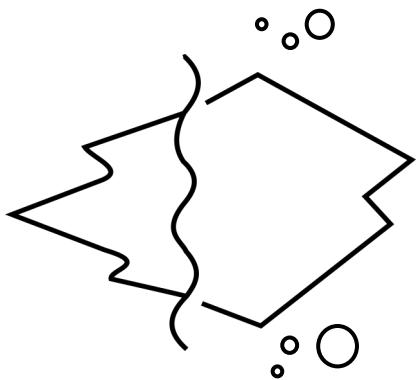
...and I can see data
about the location in the
image file details.

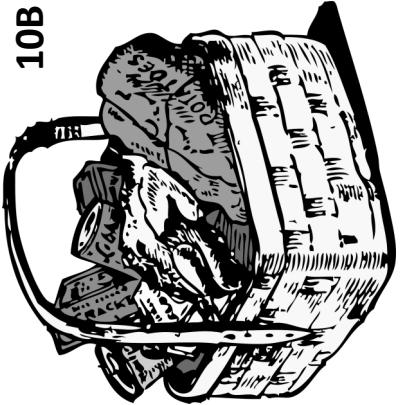
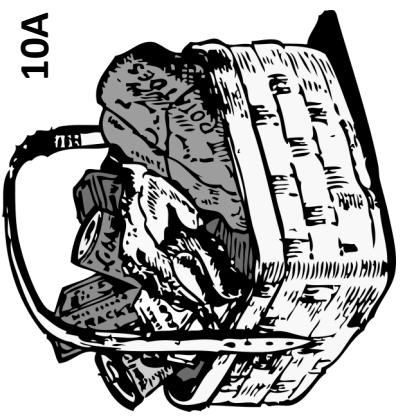
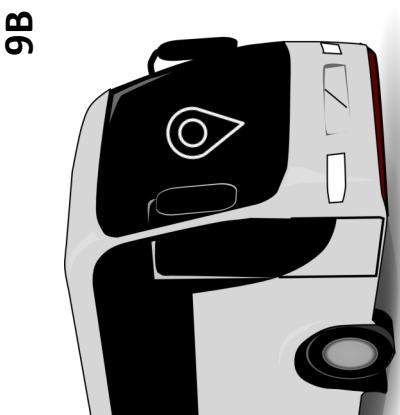
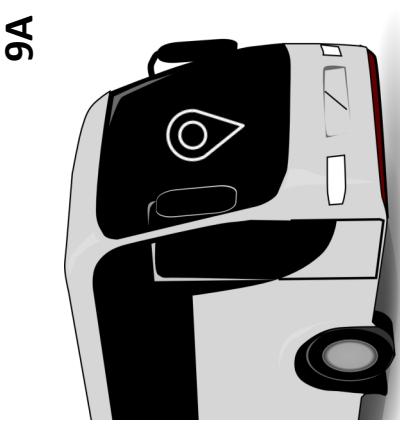
8A



I used my laptop to
book a flight...

...and got adverts for
hotels in the same
location in my mobile
phone browser.



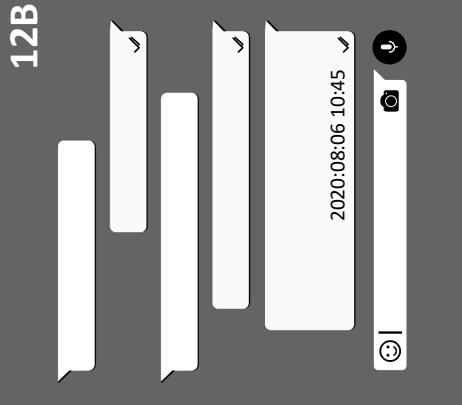
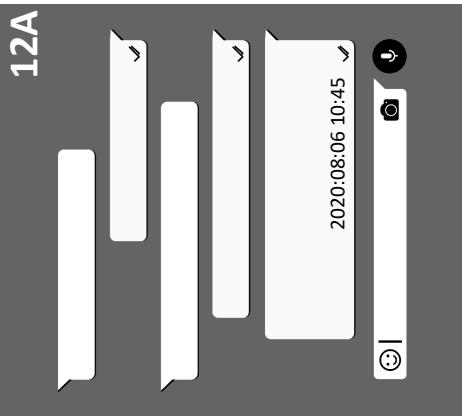


I use a website to plan my bus journey...

...and I add my bus stop and my destination.

I buy groceries online...

...and my choice of products allows the app to know that I like to go for picnics.

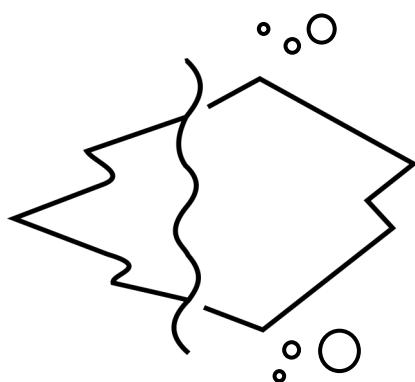
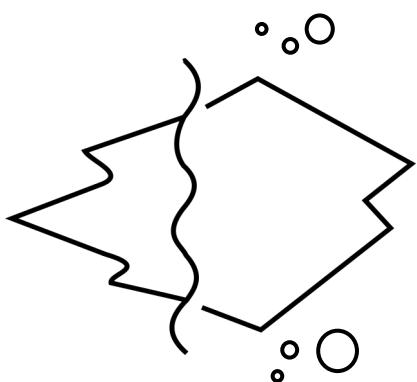
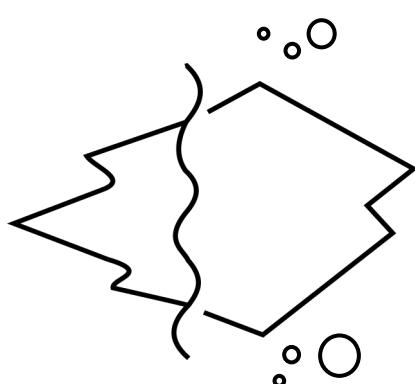
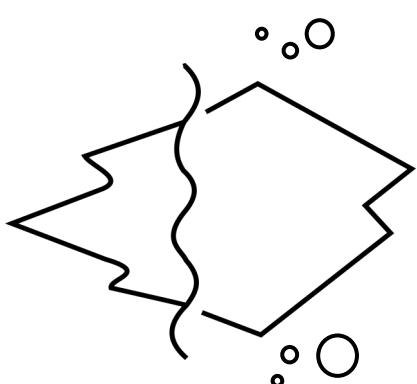
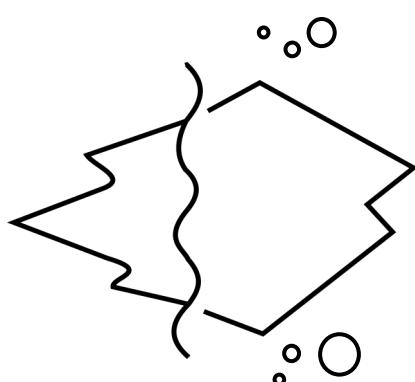
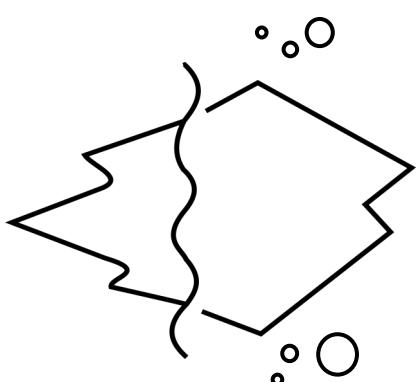
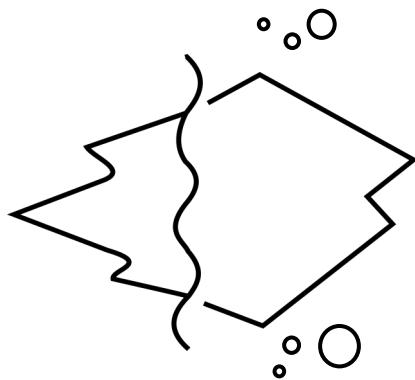
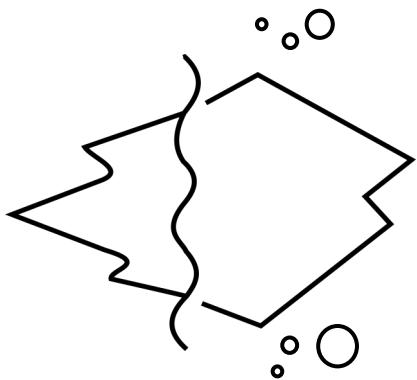


I use a smartwatch...

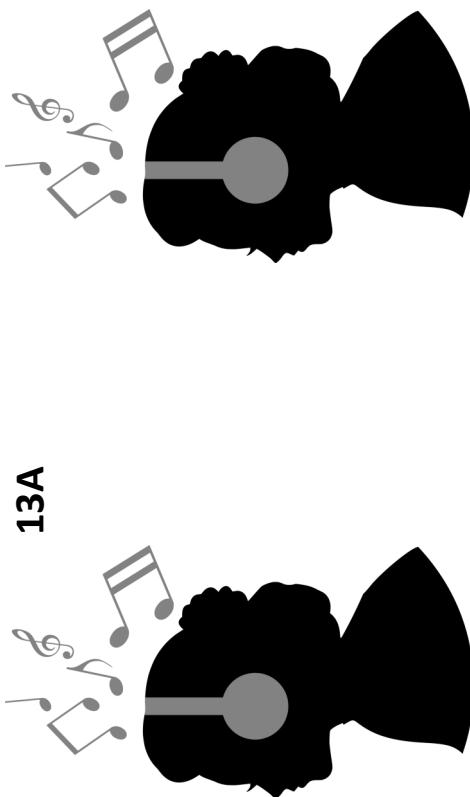
...and the watch records my heart rate.

I use a messaging app...

...and I can see data about the time I sent the message.



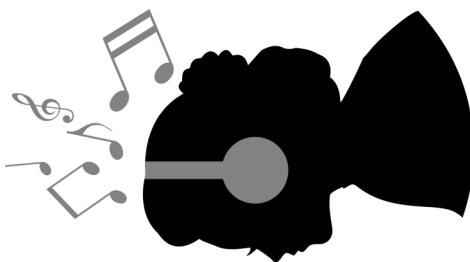
13A



I use an app to listen to music...

...and I registered a profile and added my personal details.

13B



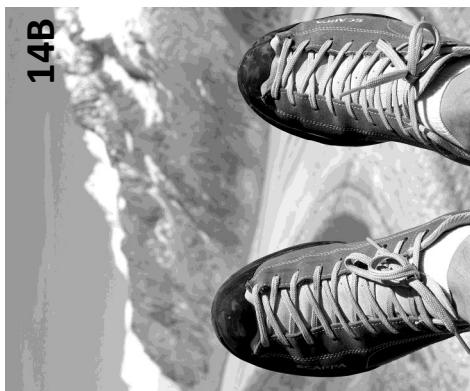
I share photos from my hiking trip on my social media profile...

14A

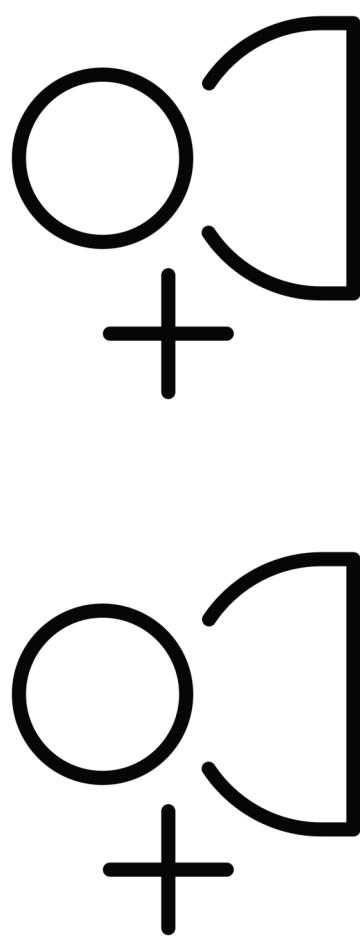


...and the social media site shows me adverts for hiking boots.

14B

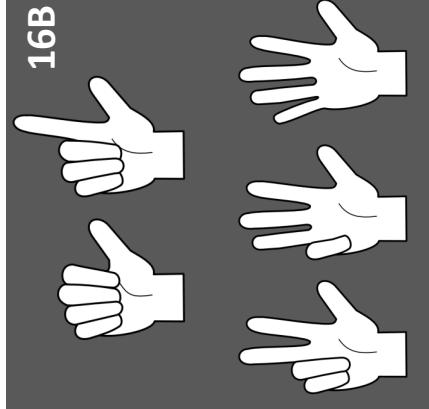


15A



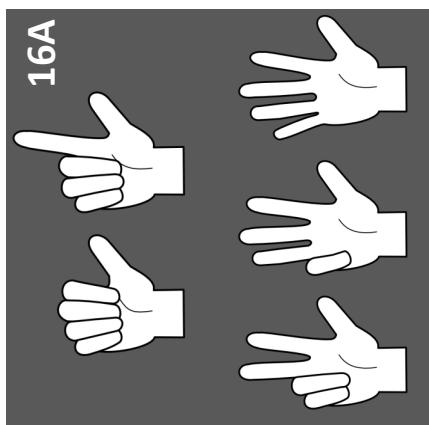
To share details from my trips with friends I used a new app...

16B



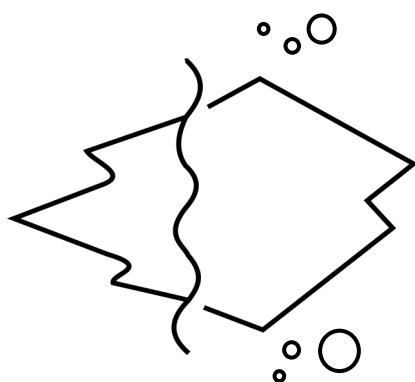
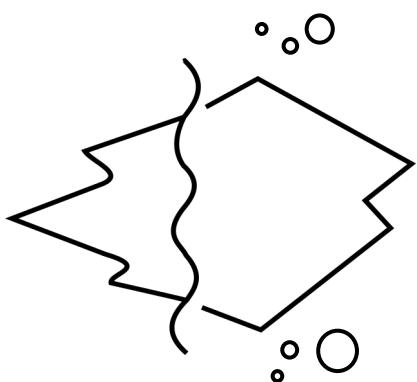
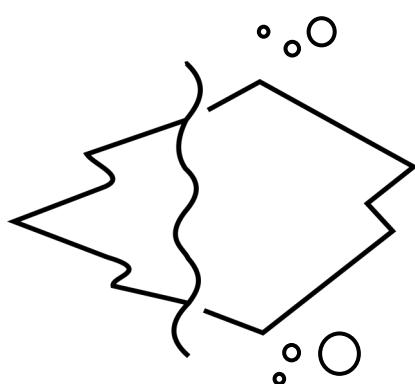
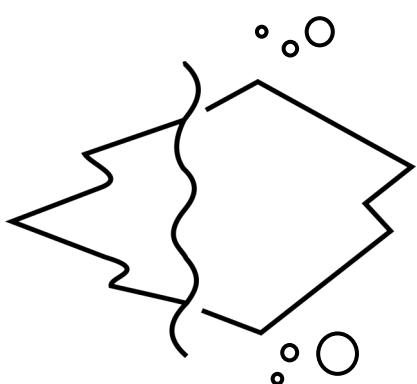
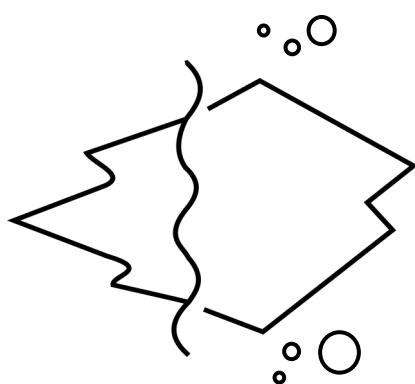
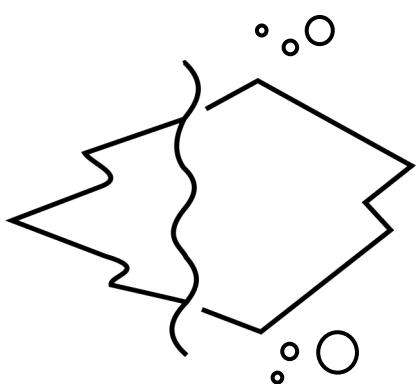
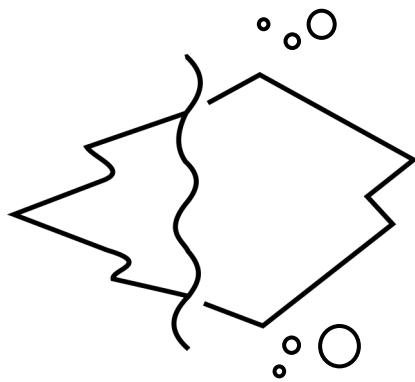
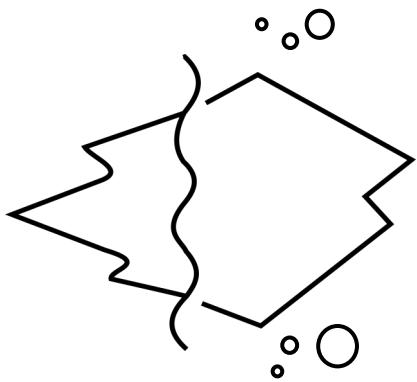
I count using my fingers...

16A

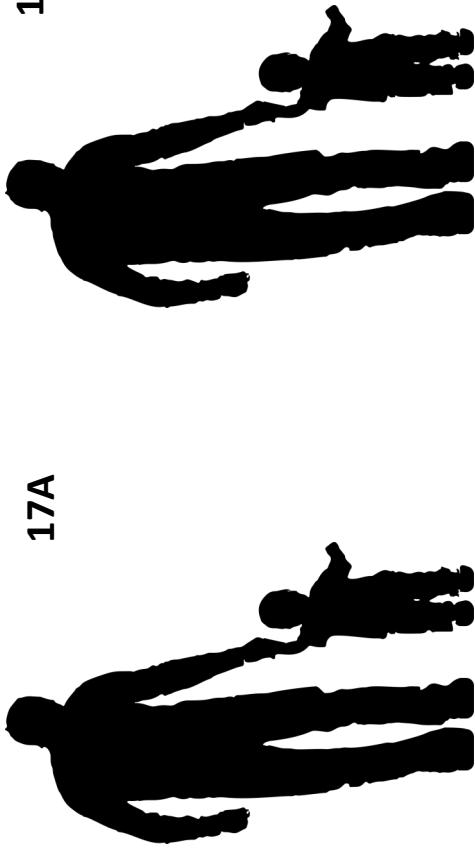


...and I registered from scratch without using my social network account.

...this is not digital data... but there has always been data. We are data!



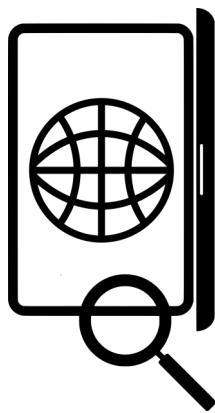
17A



I walk...

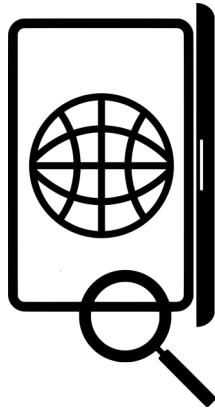
...and my phone registers
the data of the places I
have been.

18A



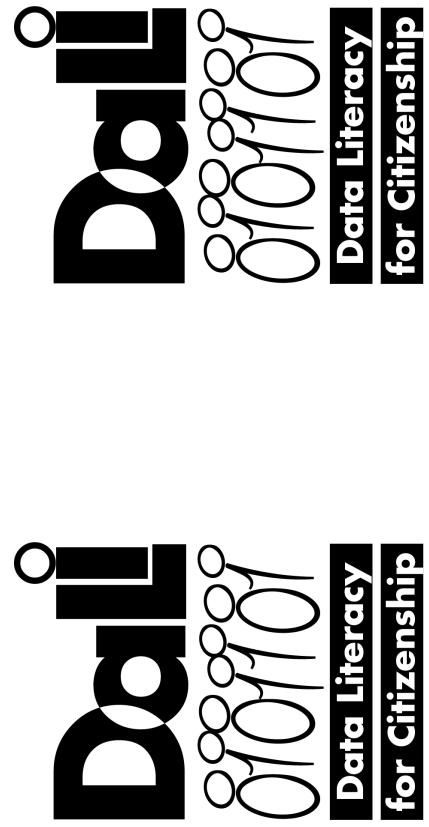
To prepare my trips, I
search on the internet
about best routes...

18B



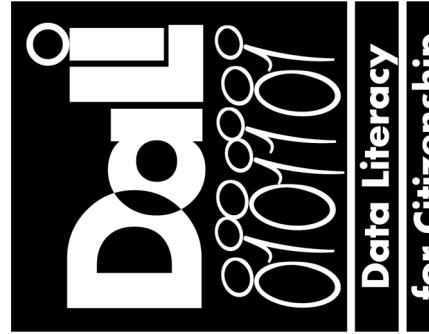
...and the search engine
shows links first based
on what it has learned
about my preferences
from my search history.

19A

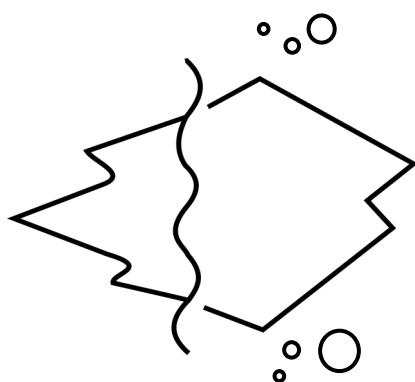
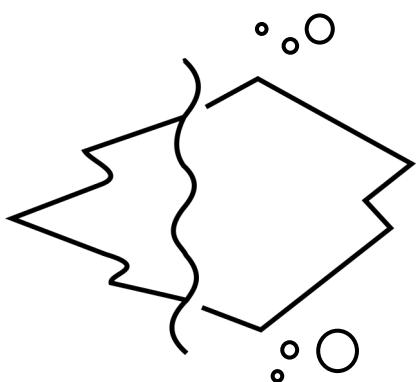
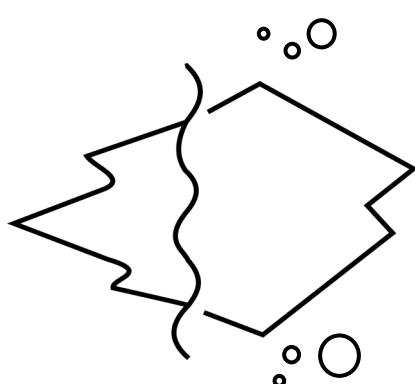
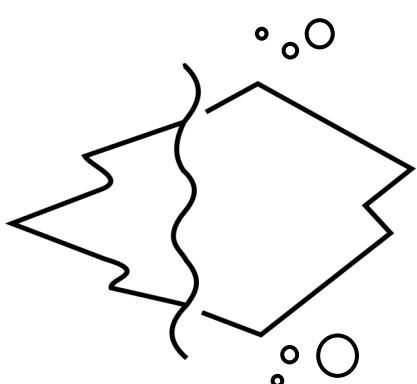
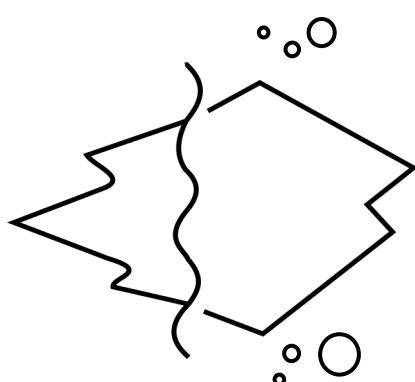
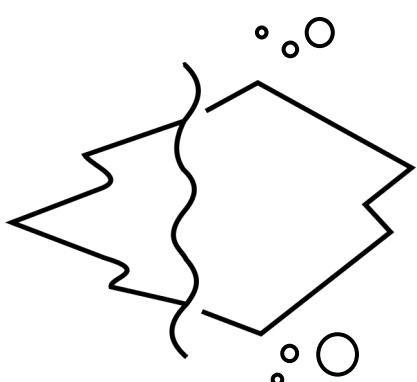
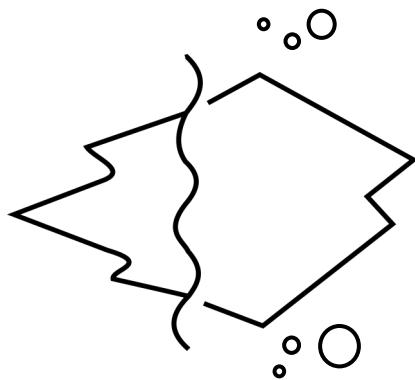
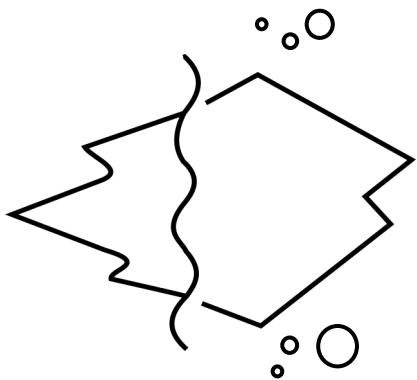


The White Joker
Steal a pair of cards
from one player.

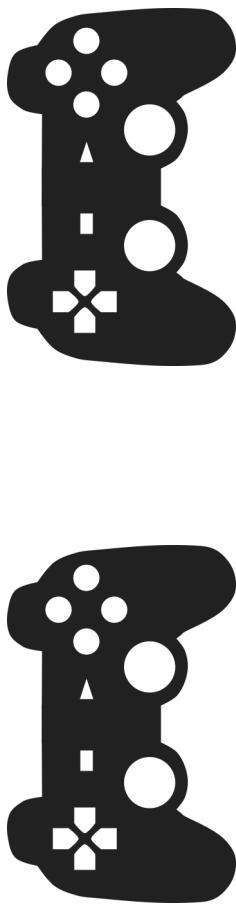
20A



The Black Joker
Choose one player to
lose their turn.



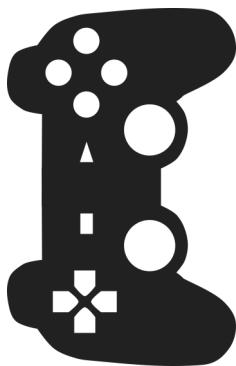
21A



I play an online game...

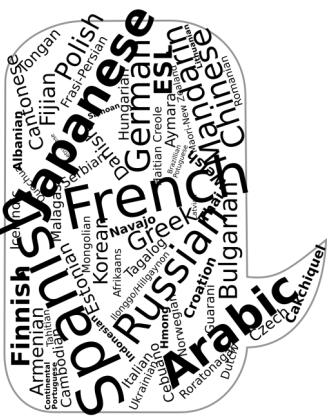
... and I give information
about my age.

21B



... and I give information
about my age.

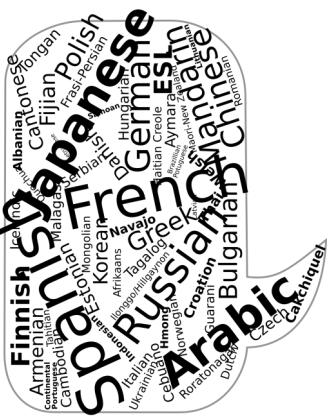
22A



I use an app to learn
a new language...

... and I give information
about my age.

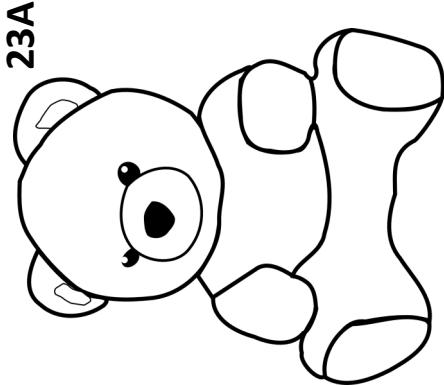
22B



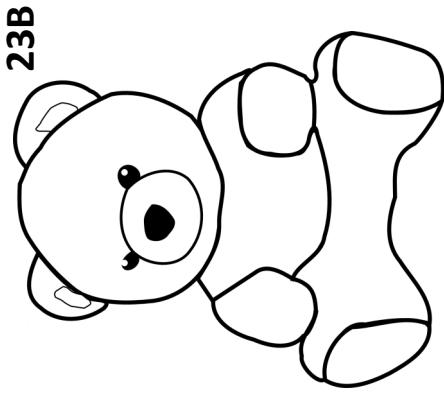
... and the app shows me
data about my progress.

... and the app collects
my location data without
displaying it to me.

23A

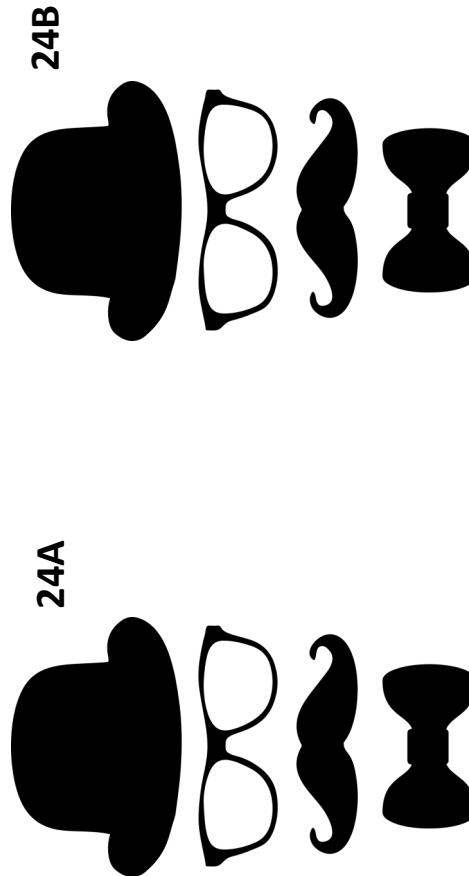


I used my laptop to look
for new toys...

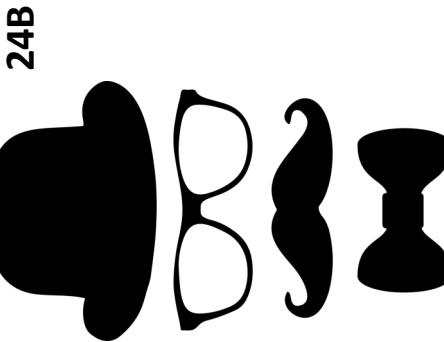


...and got adverts for
toys in my mobile phone
browser.

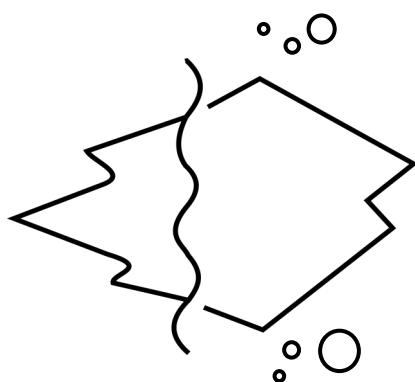
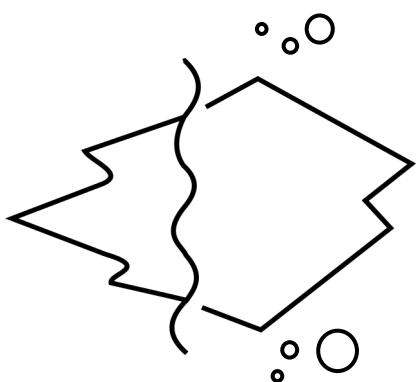
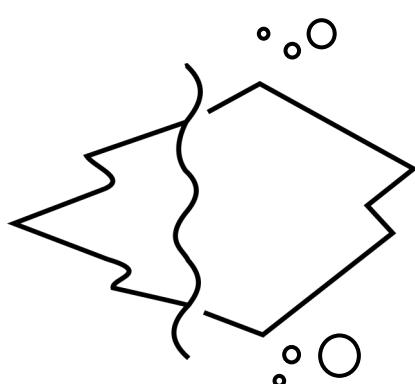
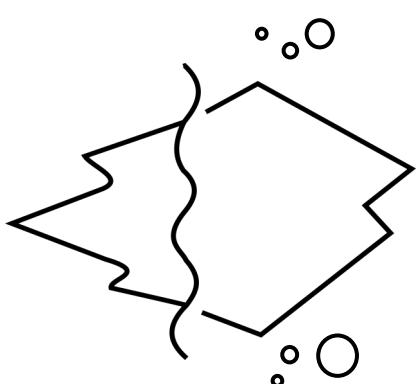
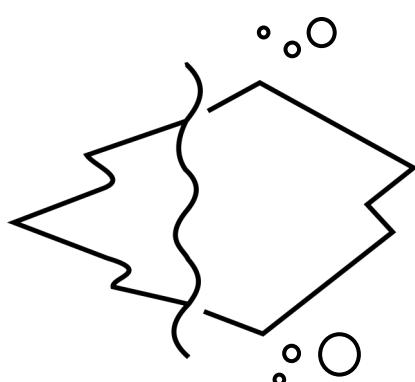
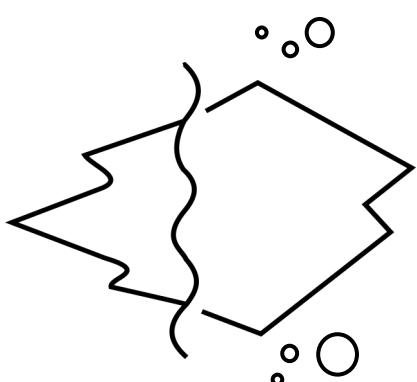
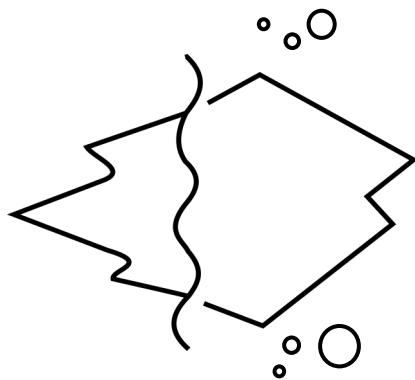
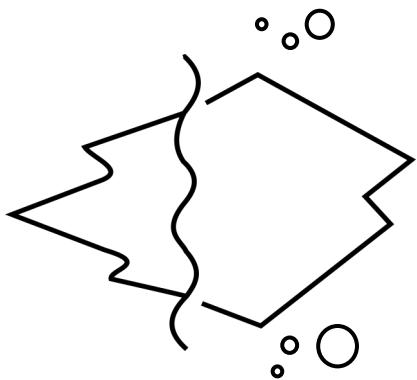
23B



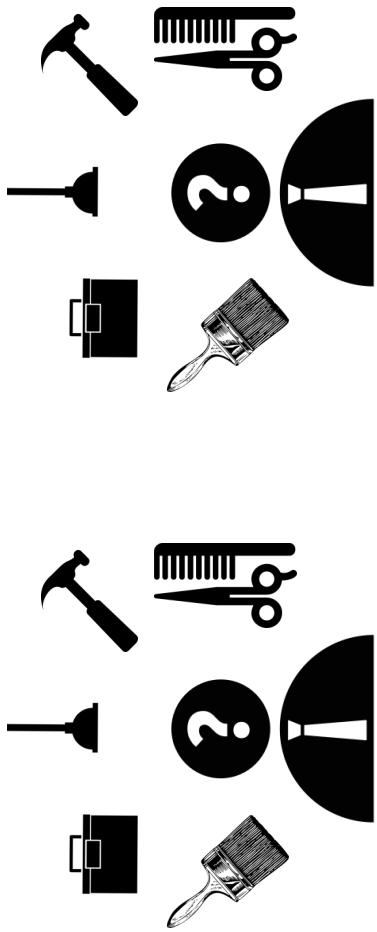
I use a face filter app...



...and the app collects
my location data without
displaying it to me.



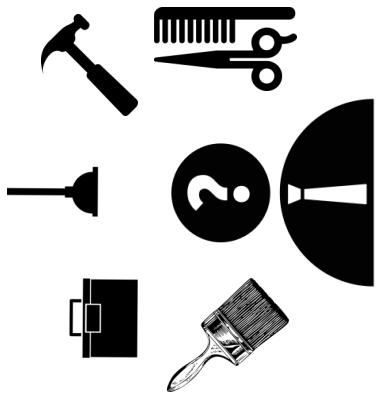
25A



I use a website to
search for a new job...

...and I registered a
profile and added my
personal details.

25B



To prepare for my
homework, I search on
the internet for videos...

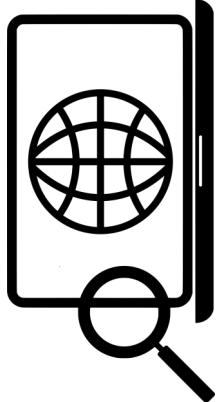
...and the search engine
shows links first based
on what it has learned
about my preferences
from my search history.

26A

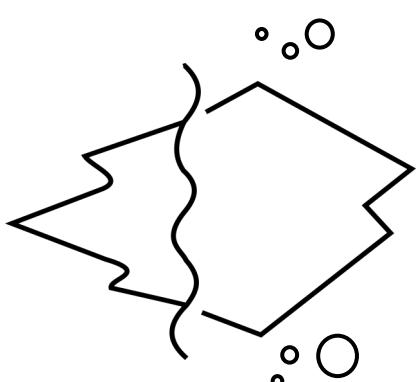
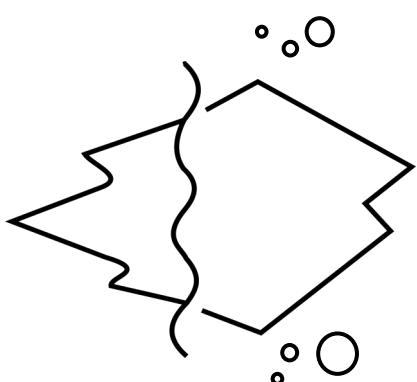
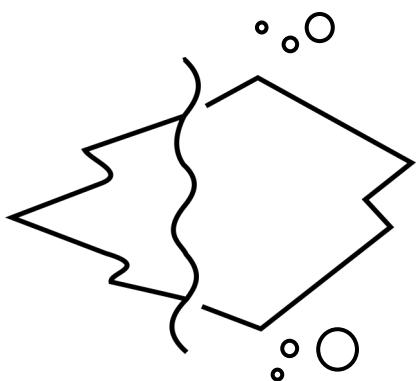
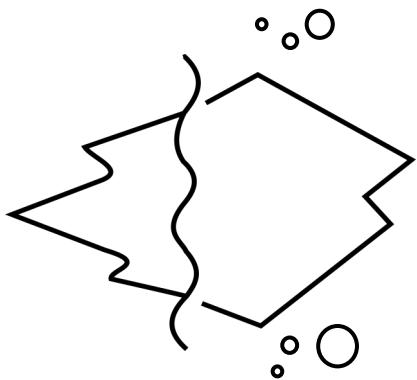


To prepare for my
homework, I search on
the internet for videos...

26B



...and the search engine
shows links first based
on what it has learned
about my preferences
from my search history.



Data iceberg

Personal game board

1. Human-generated data

Data created by humans using non-digital technology, such as a pencil. There has always been data! We are data!

2. Visible human- and machine-generated data

Data that is created by interactions of humans and machines, where the human knowingly provides the data to the machine.

3. Visible metadata

'Data about data' that is created as a side effect of the interaction with a digital device.

For example: The comment you wrote in a social media app

For example: The time and date displayed alongside the

comment you posted
in the social media
app.

4. Hidden metadata

'Data-about-data' that is created by machines based on extracted information from a users activities. This is done in a non-transparent manner, which means it is done without the awareness of the human subject (you).

For example: The order in which you visit specific websites, and the time you spent on it, is collected through a common web-statistics service.