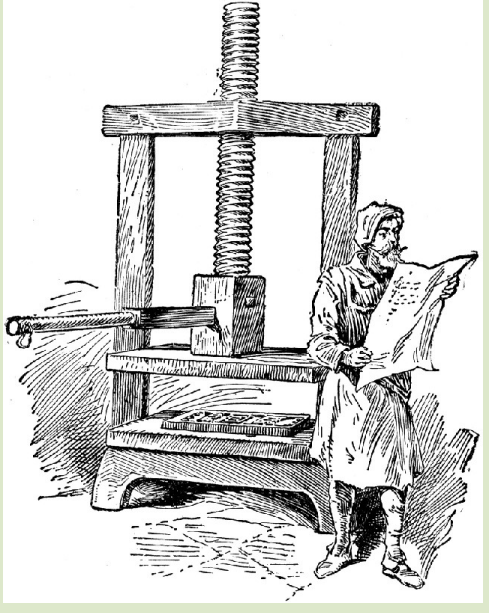
From distance to interrelations

Do not machines create humans as much as humans create machines?



From distance to interrelations

Do not machines create humans as much as humans create machines?

Carefully study the following documents – a visual element, primary quotations, and an analysis by an expert – so you may account for the extent to which trains had a dramatic impact on humans, altering their lives, their social structures, their consciousness, their thinking processes.

You will have to sum up your ideas and explain your findings to the rest of the class.
You may work in groups to organize your synthesis.
Work through the documents in the particular order you are given them, as they are becoming more and more explicit. Analyse each of them chronologically and only then move on to the next to see how right you were.

Do not machines create humans as much as humans create machines?

First subject: Trains

Carefully study the following documents – a visual element, primary quotations, and an analysis by an expert – so you may account for the extent to which trains had a dramatic impact on humans, altering their lives, their social structures, their consciousness, their thinking processes.

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Document A: William Turner, *Rain, Steam and Speed* (The Great Western Railway), 1844

Notes and analysis:

Do not machines create humans as much as humans create machines?

Second subject: Print

Carefully study the following documents – a visual element, a primary quotation, and an analysis by an expert – so you may account for the extent to which print had a dramatic impact on humans, altering their lives, their social structures, their consciousness, their thinking processes.

You will have to sum up your ideas and explain your findings to the rest of the class.
You may work in groups to organize your synthesis.
Work through the documents in the particular order you are given them, as they are becoming more and more explicit. Analyse each of them chronologically and only then move on to the next to see how right you were.

Document A: Cover for Marshall McLuhan's *The Gutenberg Galaxy*, 1962

Notes and analysis:

From distance to interrelations

Document A: William Turner, *Rain, Steam and Speed* (The Great Western Railway), 1844

Notes and analysis:

Document B: Quotations

« […] [A]s we emerged in a few moments from a dark tunnel, whirling out of the town, big drops of rain came slanting in upon us. […] The road ran through a deep cutting, with only occasionally such depressions of its green-sodded bank, that we could, through the dusty glass, get glimpses of the country. In successive gleams: A market garden, with rows of early cabbages, and lettuce, and peas; Over a hedge, a nice new stone villa, with the gardener shoving up the sashes of the conservatory, and the maids tearing clothes from the drying-lines; A bridge, with children shouting and waving hats; A field of wheat, in drills as precisely straight, and in earth as clean and finely-tilled, as if it were a garden-plant ; A bit of broad pasture, with colts and cows turning tail to the squall; long hills in the back, with some trees and a steeple rising beyond them; Another few minutes of green bank; A jerk - a stop.»

Frederick Law Olmsted, *Walks and Talks of an American Farmer in England*, 1852

« No one would travel in that manner who could help it […]. The railroad is in all its relations a matter of earnest business, to be got through as soon as possible. It transmutes a man from a traveller into a living parcel. For the time he has parted with the nobler characteristics of his humanity for the sake of a planetary power of locomotion. Do not ask him to admire anything. »

John Ruskin, *The Seven Lamps of Architecture*, 1849

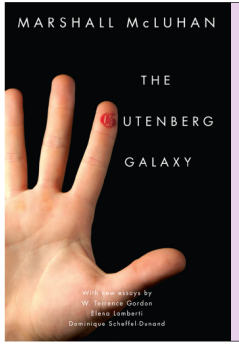
Document C: Analysis by an expert

When railways were introduced in England, they not only changed the face of the country, but also the ways it was perceived. A great number of contemporaries disliked the new perception of the landscapes offered by the experience of railway journeys, which seemed indeed to shatter the principles of this vision as they were established by picturesque and romantic theories and practices. Railways were thus blamed for offering fragmented, monotonous, whirling landscapes, and for creating a gap between the observer and the object of its admiration. Hence the criticism made by the fiercest opponents of railway travel, who denounced its destruction of a real knowledge of the country by its inhabitants, thus damaging a particular definition of English national identity.

Charles-François Mathis, Abstract of « Chemins de fer et vision des paysages anglais », 2005

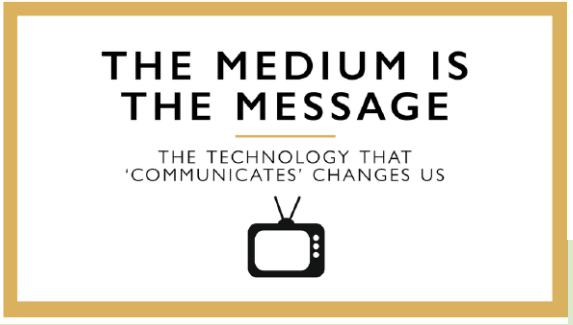
From distance to interrelations

Document A: Cover for Marshall McLuhan's *The Gutenberg Galaxy*, 1962



Notes and analysis:

Document B: Quotation by Marshall McLuhan



Document C: "'The Gutenberg Galaxy': How McLuhan Opened a New Path in the Digital Age to the Socratic Ideal of the Examined Life," article by Federico Ponzoni

Our lives are more and more determined by technologies, in particular by technologies that allow us to communicate with one another more cheaply, more rapidly, and across greater distances. In such circumstances posing the question about how to live in a technological world is unavoidable. If we are interested in finding an answer to the question posed above, Marshall McLuhan's *The Gutenberg Galaxy* is a book that has still much to say to us. So what does this book have to say fifty years after its publication to a global society that has undergone such radical changes? […]

The Gutenberg Galaxy is a book about the effects of the introduction of a movable type press on practically any- and everything conceivable, from politics to economy, from science to art, from society as a whole to the individual's perception of time and space. McLuhan's book is based on a core argument: the human being's five senses are organized as a whole into a *sensorium*. The internal organization of the *sensorium* functions according to laws that prioritize one sense or group of senses over the others. […] All this means that if you communicate only orally (i.e., if you live in a culture that has not discovered writing), your *sensorium* will be organized by laws that give priority to hearing and touch over that of sight. […] In other words, the communication technology a given culture uses determines how individuals belonging to that culture perceive the world. The way in which the individual perceives the world in turn determines the whole cultural landscape in which the individual lives in terms of values, social organization, beliefs, practices, etc. […]

What the Canadian thinker tries to accomplish is, in fact, to give an account of how Gutenberg's invention has molded Western culture in any and every aspect. […] McLuhan is not the only one suggesting that technology tends to shape decisively both culture and society. Harold Innis in his *Empire and Communication* suggests that it is impossible to think of a human society organized as an empire without a communication technology that allows messages to be interchanged across long distances. Walter Ong in his *Orality and Literacy* describes the psychology of the oral man. He also depicts how the psychological structure of the oral man changes when writing is introduced.

[…] [A]ccording to McLuhan we have to reject something very deeply rooted in our comprehension of communication: the possibility of separating form and content. According to McLuhan, the "medium is the message." One possible way of understanding McLuhan's line—which I find the most convincing—is the following: a given communication technology, a medium in McLuhan's terminology, has effects on society as a whole. These effects are produced almost entirely by the introduction of a new communication technology, regardless of what is actually communicated through it. For instance, books change our way of perceiving space not because something is written in them such that we have to perceive space in a new way, but because reading in a sequential line changes the way we use our eyes. This change brings with itself a new understanding of space itself. From the point of view of the change brought by reading books in the understanding of space, *what* is written in a book, its content, is altogether indifferent. What matters is the fact that books are read. […]

[C]ommunication technology cannot be used innocently. The more we use technology, the more we are somehow also used by it. As an example, we can think of how our smartphones have extended our work time. We bought a smartphone as a useful tool that should make our life easier (with a smartphone and Google Maps you won't get lost anymore), but we may find ourselves answering emails from our boss at odd hours (which leads to a reduction of the quality of time we spend with our families).

January 29, 2016
https://humanumreview.com/articles/the-gutenberg-galaxy-how-mcluhan-opened-a-new-path-in-the-digital-age-to-the-socratic-ideal-of-the-examined-life

From distance to interrelations

Impact of Trains on Human Structures :	
A Painting : Blurry **B First quotation :** Unnamed towns and landmarks Attribution of potentially negative elements to the landscape, reminiscent of human pain (pathetic fallacy): "a deep cutting" "depressions" "rain" "sodded" Only "glimpses" and "gleams" of the country (disconnected syntax) **Second quotation:** Man transformed into "a living parcel" No admiration possible any more **C Analysis:** Changed the face of the country Changed the way the country was perceived (no longer romantic, picturesque landscape) Fragmentation, monotony, gap between the observer and the country	**Changes (in the perception of) Space** Scarred Nature because of Mechanization and Urbanization Loss of a particular English national identity Destruction of the knowledge of the country Fragmentation of social units and sense of disconnection from one's country (unity replaced with individualism) Loss of aesthetic abilities Dehumanization, objectification, reification (capitalism) **Changes (in the perception of) Time**

Go further: https://www.bbc.co.uk/programmes/m0008r5s "Railways were the symbol of change and progress. They changed not only travel but time itself, which could no longer be defined by the natural world and county habits but now had to be standardized everywhere to conform to the train timetables."

From distance to interrelations

Impact of Print on Human Structures:
A Cover: "G" for "Gutenberg" as a human fingerprint > print now defines who humans are (dramatic change in their bodies) The letter being on the finger, printed words symbolically replace touch > sight became more important than touch > the human body and senses are reorganized **B Quotation:** The Medium is the Message > the way information is communicated affects and changes you more than the message which is communicated Ex. The perception of Space changed because of the way we use our eyes in a sequential line (potentially inducing changes in the perception of chronology and causality as well), not because of what is written **C Analysis:** Changes (in the perception of) Space and Time The movable type press impacted politics, economy, science, art and society as a whole The *sensorium* (organization of the five senses according to those you prioritize) changed Ex. an oral culture prioritizes hearing and touch, whereas a print culture prioritizes sight (which entails loss of some abilities as well) The way humans physically perceive the world changed, and that had an impact on every aspect of culture

From distance to interrelations

Do not machines create humans as much as humans create machines?

Document C: "'The Gutenberg Galaxy': How McLuhan Opened a New Path in the Digital Age to the Socratic Ideal of the Examined Life," article by Federico Ponzoni

Our lives are more and more determined by technologies, in particular by technologies that allow us to communicate with one another more cheaply, more rapidly, and across greater distances.

From distance to interrelations

Which kinds of structures are highlighted in the text? .....
What do you remember about them and their exceptions? Fill in the grid, drawing inspiration from the quotation above when necessary.

……..…..……	……..…. adjective + -	……..…. adjective + -	Exceptions :
……..…..……	……..…. adjective + -	……..…. adjective + -	
	=		

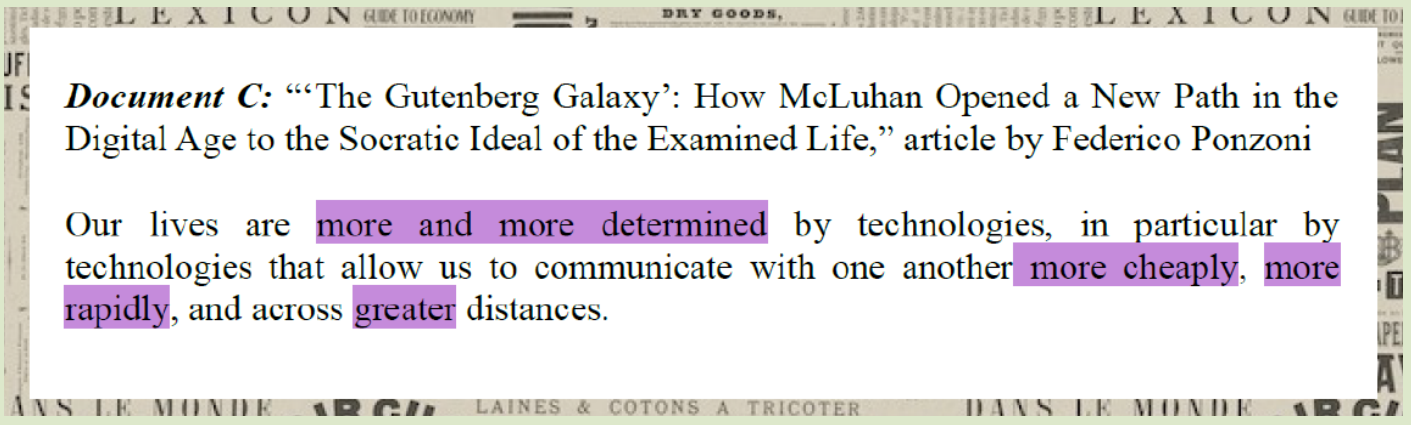
From distance to interrelations

Which kinds of structures are highlighted in the text? *Comparative structures*.
What do you remember about them and their exceptions? Fill in the grid, drawing inspiration from the quotation above when necessary.

Superlative structure	**Short adjective** + the + adjective + -est - the least + adjective	**Long adjective** + the most + adjective - the least + adjective	**Some exceptions :** good > the best bad > the worst far > the farthest the furthest
Comparative structure	**Short adjective** + adjective + -er + than - less + adjective + than	**Long adjective** + more + adj + than - less + adj + than	good > better bad > worse far > farther further big > bigger heavy > heavier
	= as + adjective + as		

Long adjective: two and more syllables

From distance to interrelations



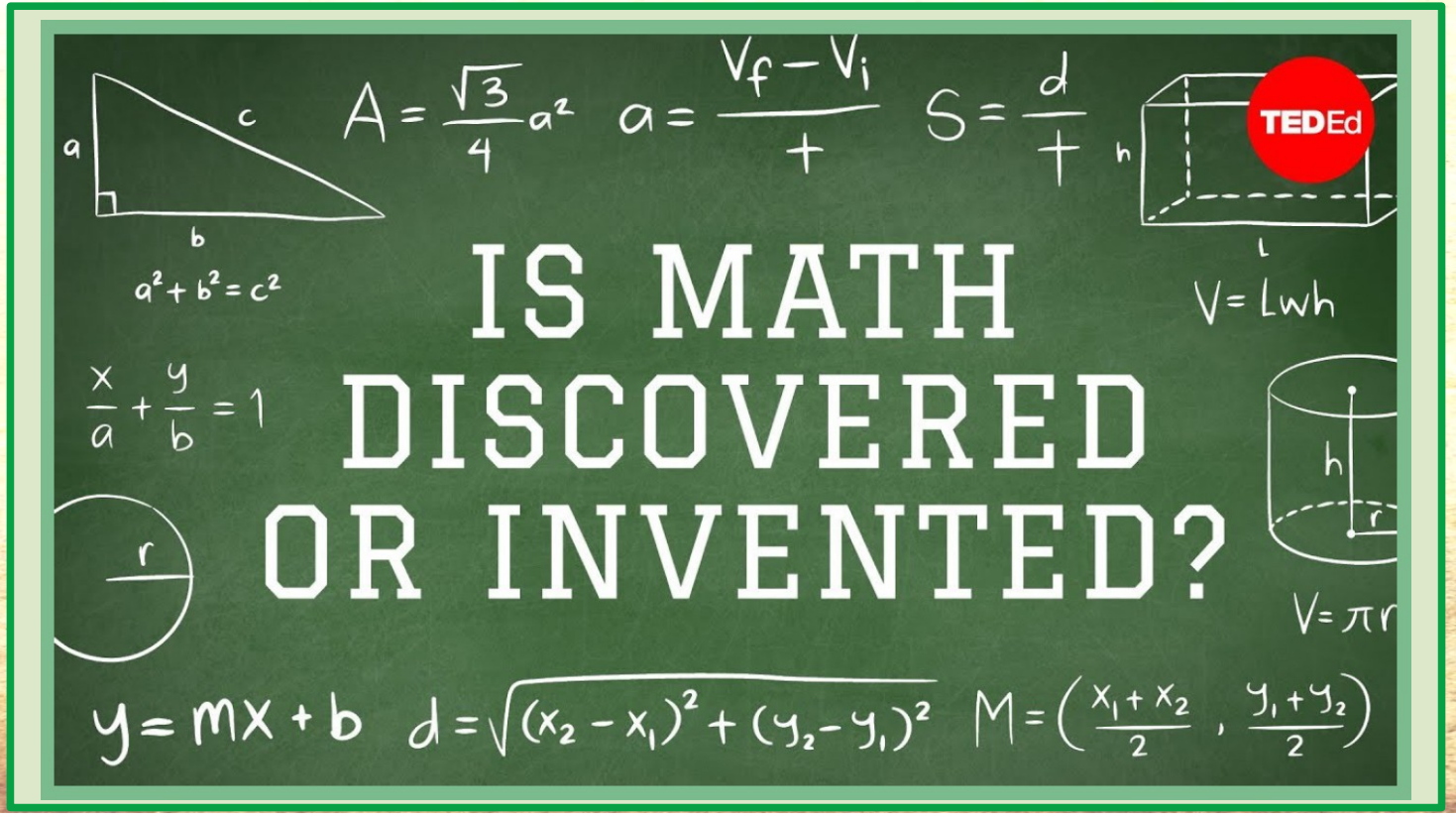
Document C: "'The Gutenberg Galaxy': How McLuhan Opened a New Path in the Digital Age to the Socratic Ideal of the Examined Life," article by Federico Ponzoni

Our lives are more and more determined by technologies, in particular by technologies that allow us to communicate with one another more cheaply, more rapidly, and across greater distances.

Double comparative

The more you use a medium, the more it changes you.

Inventions and Innovations

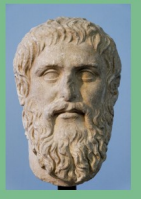
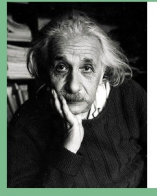


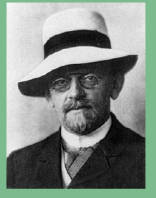
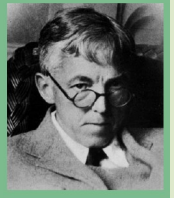
Inventions and Innovations

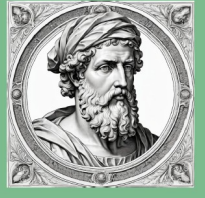
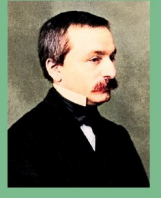
2. Pay attention to the following figures.

a. Match the name and the picture.

Albert Einstein - Henri Poincaré - Eugene Wigner - Euclid - Plato - David Hilbert - Gottfried Hardy - Leopold Kronecker - Fibonacci - Bernhard Riemann - Pythagoras

b. Put them in the right chronological order.

c. Discuss with your partner: which side do you think their maths would be on? Why? Which argument could be used? Do you think about other points to make?

3. Check whether you were right by watching the video available on Célène.

Inventions and Innovations

2. Pay attention to the following figures.

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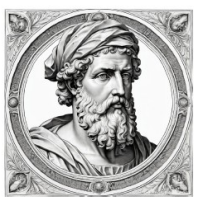
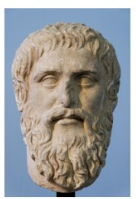
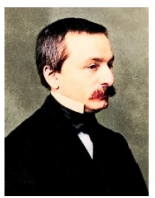
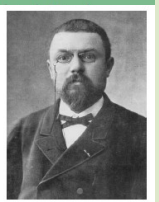
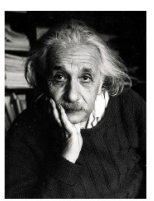







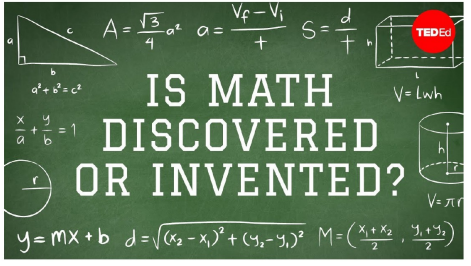


Pythagoras, Plato, Euclid, Leopold Kronecker, David Hilbert, Henri Poincaré, Eugene Wigner, Gottfried Hardy, Fibonacci, Bernhard Riemann, Albert Einstein

c. Discuss with your partner: which side do you think their maths would be on? Why? Which argument could be used? Do you think about other points to make?

3. Check whether you were right by watching the video available on Célène.

Inventions and Innovations



1. What would you say – is mathematics discovered or invented?

2. Pay attention to the following figures.

a. Match the name and the picture.

Pythagoras, Plato, Euclid, Leopold Kronecker, David Hilbert, Henri Poincaré, Eugene Wigner, Gottfried Hardy, Fibonacci, Bernhard Riemann, Albert Einstein

b. Put them in the right chronological order.

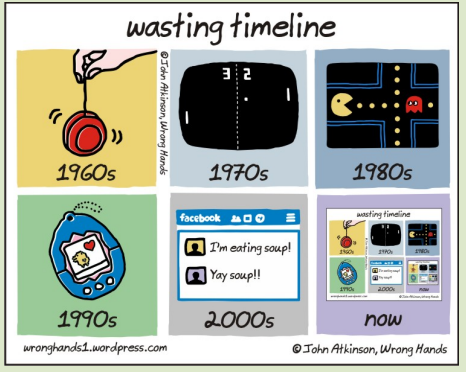
Pythagoras (5th c BCE), Plato (4th c BCE), Euclid (3rd c BCE), Fibonacci (1170-1250), Leopold Kronecker (1823-1891), Bernhard Riemann (1826-1866), Henri Poincaré (1854-1912), David Hilbert (1862-1943), Gottfried Hardy (1877-1947), Albert Einstein (1879-1955), Eugene Wigner (1902-1995)

c. Discuss with your partner: which side do you think their maths would be on? Why? Which argument would they use? Do you think about other points to make?

Maths discovered	Maths invented
The Pythagoreans of 5th century Greece believed numbers were both living entities and universal principles. They called the number 1 "the monad," the generator of all other numbers and source of all creation. Numbers were active agents in nature. **Plato** (4th century BCE) argued mathematical concepts were concrete and as real as the universe itself, regardless of our knowledge of them. **Euclid** (3rd century BC), the father of geometry, believed nature itself was the physical manifestation of mathematical laws. In 1960, Nobel Physics laureate **Eugene Wigner** coined the phrase, "the unreasonable effectiveness of mathematics," pushing strongly for the idea that mathematics is real and discovered by people. Wigner pointed out that many purely mathematical theories developed in a vacuum, often with no view towards describing any physical phenomena, have proven decades or even centuries later, to be the framework necessary to explain how the universe has been working all along. For instance, the number theory of British mathematician Gottfried Hardy, who had boasted that none of his work would ever be found useful in describing any phenomena in the real world, helped establish **cryptography**. Another piece of his purely theoretical work became known as the Hardy-Weinberg **law in genetics**, and won a Nobel prize. **Fibonacci** (1248) stumbled upon his famous sequence while looking at the growth of an idealized rabbit population. Mankind later found the sequence everywhere in nature, from sunflower seeds and flower petal arrangements, to the structure of a pineapple, even the branching of bronchi in the lungs. The non-Euclidean work of Bernhard Riemann in the 1850s was used by **Einstein** in the model for general relativity a century later. Mathematical **knot theory**, first developed around 1771 to describe the geometry of position, was used in the late 20th century to explain how DNA unravels itself during the replication process. It may even provide key explanations for string theory.	**Leopold Kronecker** 1855 a professor of mathematics in 19th c Germany: "God created the natural numbers, all else is the work of man." During mathematician **David Hilbert**'s lifetime, there was a push to establish mathematics as a logical construct. Hilbert attempted to axiomatize all of mathematics, as Euclid had done with geometry. He and others who attempted this saw mathematics as a deeply philosophical game but a game nonetheless. **Henri Poincaré**, one of the fathers of non-Euclidean geometry, believed that the existence of non-Euclidean geometry, dealing with the non-flat surfaces of hyperbolic and elliptical curvatures, proved that Euclidean geometry, the long standing geometry of flat surfaces, was not a universal truth, but rather one outcome of using one particular set of game rules. **Gottfried Hardy** had boasted that none of his work would ever be found useful in describing any phenomena in the real world.

Inventions and Innovations

Timeline of Inventions and Innovations



In groups from two to four players, you will have to collaborate to try and place all the forty cards in the right chronological order.

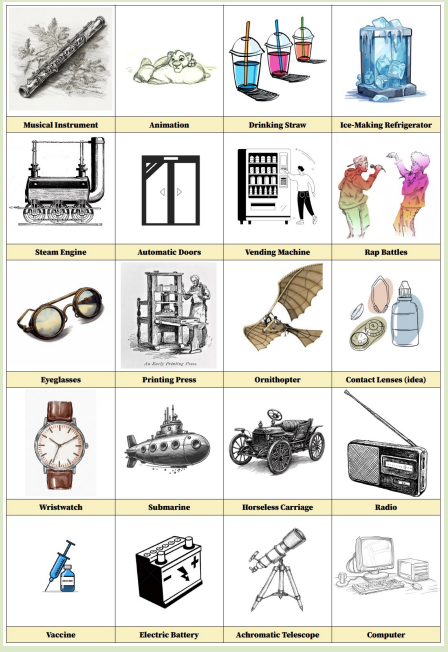
Each player, in their turn, is going to draw a card from the pack and choose where to place it. They will have to state their argument, resorting to modals as well as comparative and superlative structures, better to convince the other members of the team.

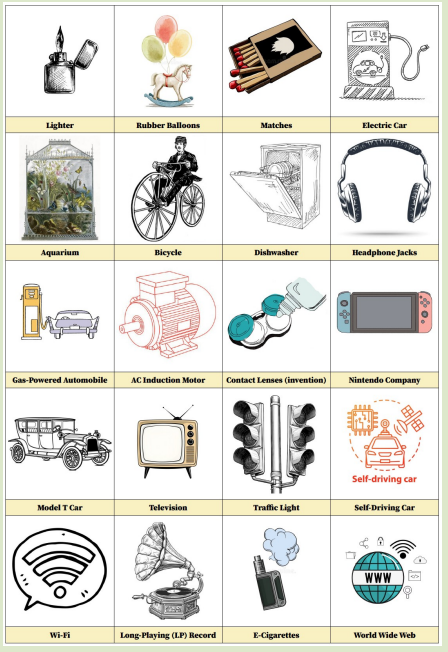
When all the cards are in the timeline, you will have one final discussion to try and persuade the other members to move some of them, if need be.

Morgane AUGRIS

Inventions and Innovations

Timeline of Inventions and Innovations





Timeline of inventions

BCE = Before common era

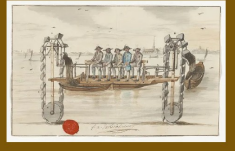
Musical Instrument (43,000 years BCE) Neanderthal Flute carved from a bear femur
Animation (21,000 BCE) (Cave paintings made so that a flickering oil light would create the illusion of motion)
Drinking Straws 3,850 BCE (Middle East)
Ice-Making Refrigerator 4th century BCE (Yakhchals in the Persian desert)
Steam Engine 1st century AD (Heron of Alexandria's aeolipile; 1765 James Watt)
Automatic Doors 1st century AD (Heron of Alexandria; fire altar and hydraulic system that used pulleys and levers)
Vending Machine 1st century AD (water dispenser with a coin; Heron of Alexandria)
Rap Battles 900 AD (Vikings)
Eyeglasses 1290
Printing Press 1455 (Johannes Gutenberg)
Ornithopter 1489 (Leonardo Da Vinci)
Contact Lenses (idea) 1508 Leonardo Da Vinci
Wristwatches 1571 (Queen Elizabeth I got one in 1571)
Submarine 1620
Horseless Carriage 1769 (Fardier à Vapeur)
Radio 1795 (Alexander Popov)
Vaccines 1797 (smallpox vaccine)
Electric Battery 1800 (Alessandro Volta)
Achromatic Telescope 1814 (Joseph Von Fraunhofer)
Computer 1820s (English Mathematician Charles Babbage, mechanical, The Babbage Difference Engine)
Lighter 1823
Rubber Balloons 1824 (Michael Faraday)
Matches 1826
Electric Car 1832
Aquarium 1832 (Jeanne Villepreux-Power)
Bicycle 1840 (Kirkpatrick Macmillan)
Dishwasher 1850 (Joel Houghton)
Headphone Jacks 1878 (phone connector)
Gas-Powered Automobile 1885 (Carl Benz)
AC Induction Motor 1887 (Nikola Tesla)
Contact Lenses (invention) 1888
Nintendo Company 1889 (playing cards)
Model T car by Henry Ford 1908
Television 1923 (John Logie Baird)
Traffic Light 1923 (Garrett Morgan)
Self-driving Car 1939
Wi-Fi 1941 (Hedy Lamarr)
Long-Playing (LP) Record 1948 (Peter Goldmark)
E-Cigarettes 1967
World Wide Web 1993 (Tim Berners-Lee)

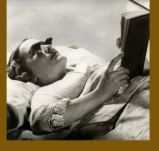
To count your points, remove all the cards that do not fit the general timeline, or that are placed neither before nor after the right card – how many are left?

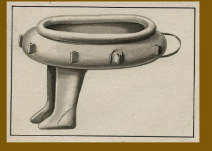
Inventions and Innovations

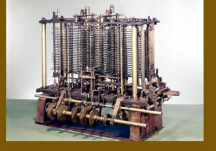
Weird Inventions

Can you guess what those inventions were made for?
Which problem were they supposed to solve?
Use the passive structure for your hypotheses.





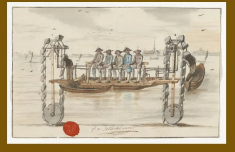




Inventions and Innovations

Weird Inventions

Can you guess what those inventions were made for?
Which problem were they supposed to solve?
Use the passive structure for your hypotheses.

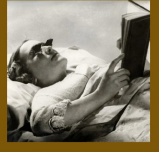


Manual dredger: *Workers operated the so-called bucket dredger with their arms and legs using stepper boards.*

Amphibious bicycle: *This land-and-water bike can carry a load of 120 pounds; Paris, 1932*

All-terrain car: *This all-terrain car can descend slopes up to 65 degrees; England, 1926.*

Ice sailboat: *In the 17th century, it was so cold that meteorologists spoke of a Little Ice Age. The ice sailboat addressed the challenge of transporting goods over frozen lakes and rivers. Designed by A. Terrier, January 17, 1660*

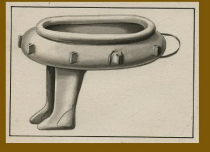


Hamblin glasses for reading in bed: *A pair of spectacles especially designed for reading in bed. England, 1926*

Electrically heated jacket: *Electrically heated vest, developed for the traffic police in the United States, 1932. The power is supplied by electric contacts in the street*

Car with shovel for pedestrians: *Invented for the purpose of 'reducing the number of casualties among pedestrians', Paris, 1924*

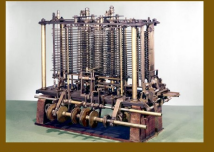
Folding bridge for emergencies: *The emergency bridge can easily be transported on a handcart; invented by L. Deth. The Netherlands, 1926*



Boated rubber boat: *Drawing of a 'pneumatic, sports- fish and hunt boat,' an inflatable boat for one person with boots attached: The Netherlands, 1915*

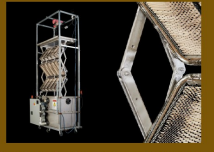
Faxed newspaper: *In 1938, the world's first wireless newspaper was sent from WOR radio station in New York City. In this photo, children are reading the children's page of a Missouri paper.*

Snowstorm mask: *Plastic face protection from snowstorms. Canada, Montreal, 1939*



This ***analytical engine,*** *the first fully-automatic calculating machine, was constructed by British computing pioneer Charles Babbage (1791-1871), who first conceived the idea of an advanced calculating machine to calculate and print mathematical tables in 1812.*

An early chainsaw, *known as Ostentone, from 1780. The chainsaw as we know it appears to have begun life as a medical instrument – one used to assist in childbirth.*



Mechanical tree, *by Klaus Lackner, Professor in the School of Sustainable Engineering at Arizona State University. It shows that machines can be built to directly capture Carbon from the atmosphere.*