

MILES



MILES STUDENT TOOLBOX

English

Table of Contents

INTRODUCTION	3
Conceptual Framework	3
The O–P–I–R Framework	4
The Cognitive Apprenticeship Model	5
Alignment with EU Key Competences for Lifelong Learning	6
Interdisciplinary Adaptability	7
Overview of the toolbox	8
TEACHING TOOLS FOR HUMANITIES AND SOCIAL SCIENCES	9
I. Introduction to media and information literacy concepts	9
Tool 1: Same News, Different Stories: Understanding Disinformation (Italy)	9
Tool 2: How Media Hacks Our Minds: Media Literacy and Disinformation Mechanisms (Greece)	11
Tool 3: Media Democracy 2.0 – Political communication in digital media (Austria)	18
Tool 4: Mapping My Digital Footprint – Understanding My Online Influence (Germany)	22
Tool 5: Truth, Error, or Manipulation? (Portugal)	25
Tool 6: Pros and Cons of the Use of Artificial Intelligence (Portugal)	27
Tool 7: Many texts, many styles (Italy)	29
Tool 8: Misinformation Channel - Distortion & Source Credibility (Cyprus)	32
Tool 9: Community Initiatives for Media Literacy (Greece)	35
Social media and algorithms	40
Tool 10: Discovering the Filter Bubble – How Algorithms Shape What We See (Germany)	40
Tool 11: The Social Media Filter Bubble – Understanding Algorithms and Echo Chambers (Poland)	44
Tool 12: Clickbait Decoder – How Emotions Manipulate Online Content (Germany)	48
Tool 13: Algorithms and Influence (Greece)	51
Propaganda and manipulation	57
Tool 14: Introduction to Propaganda (Belgium)	57
Tool 15: Recognizing Propaganda (Belgium)	59
Tool 16: Spot the Manipulation - Analysing Propaganda in Media Texts (Poland)	62
Tool 17: When Media Contradicts Democracy (Italy)	65
Bias and logical errors	67
Tool 18: From School Notice to Viral Post: Framing, Bias & Rumours (Cyprus)	67
Tool 19: From News to the Stage (Italy)	72
Tool 20: Democracy in the Age of Artificial Intelligence (Portugal)	74

Fact-checking and debunking	77
Tool 21: Spotting fake news - 10 reflection questions (Belgium).....	77
Tool 22: Algorithms and fake news (Belgium).....	80
Tool 23: Rumour to "News" - Evidence, Verification & Responsible Sharing (Cyprus)	82
Tool 24: Real or Misleading? (Cyprus).....	86
Tool 25: Understanding fake news (Austria)	93
Tool 26: Fact & Fake – Digital News I (Austria)	95
Tool 27: Fact & Fake – Digital News II (Austria)	97
Tool 28: Think Before You Believe (Greece).....	100
Tool 29: Pre-Bunking in Action – Designing an Awareness Campaign (Germany).....	107
TEACHING TOOLS FOR MATHEMATICS, NATURAL AND APPLIED SCIENCES	110
Bias and logical errors	110
Tool 30: Filtering information in the community/ Verifiable or interpretable? Navigating technical information with discernment (Romania)	110
Tool 31: Medicines, drugs, and perfumes - Fallacies (Romania).....	113
Fact-checking and debunking	115
Tool 32: Types of statistical data, data interpretation (Romania)	115
Tool 33: Data or Deception? – Analysing Misleading Statistics and Graphs (Poland)	118
Tool 34: Pseudoscientific misinformation (Romania)	121
Tool 35: Science Fact-Checking Lab – Verifying Viral Scientific Claims (Poland).....	126
Index	128

INTRODUCTION

The present toolbox aims to provide a broad variety of carefully selected media and information literacy (MIL) resources – innovative teaching and learning materials and activity descriptions – in order to equip educators with the tools to improve students’ critical thinking especially in online environments.

The toolbox contains learning materials – worksheets, assessments – as well as full lesson plans for teaching different disciplines in secondary education, in order to exemplify amply how to hone MIL-related competencies while also building subject-matter specific competencies. These resources have been tested and found to work well in real classrooms in diverse curricular contexts in the partners’ countries, as well as in non-formal education settings. The fact that they have been tested should vouch for their transferability into new settings or at least for their potential to inspire MIL learning in and outside of school curricula.

The toolbox is intended for the use of educators, including teacher educators, teaching various school disciplines, or facilitating youth learning in diverse school-based or out-of-school contexts. The learning materials could also be used directly by students, individually or in learner communities, although – given the social nature of MIL learning – they would prove more effective if encountered in an educator-facilitated context.

The MILES project aims to **empower teachers** to develop, test, and assess innovative approaches to MIL in order to **improve students’ ability to approach the online environment critically and safely**, and – overall – to **promote innovative approaches** and **evidence-based MIL policy** in education. As part of WP 3, the present toolbox is the output of teachers’ collective work in hands-on workshops, where they co-designed the teaching and learning materials, which they then tested in their classrooms to facilitate students’ development of MIL competencies. The teachers’ and the project team’s learning from these experiences, along with the outputs of these and subsequent actions – such as the student-led workshops for intergenerational learning – are then to be transferred into MIL policy in education.

Conceptual Framework

- Relevance of critical thinking in education

In contemporary education, we aim to develop students’ critical thinking to enable them to navigate the increasingly complex, information-rich, and rapidly changing world. Learners must be able to question assumptions, interpret diverse sources, evaluate evidence, and make reasoned decisions. These capacities are essential beyond academic success: they are the cornerstone of responsible participation in digital environments, of meaningful engagement with social, cultural, and economic challenges, and of active citizenship. When one has the capacity to think critically, one becomes more autonomous and better prepared to face new situations with confidence.

In education, critical thinking supports deeper understanding across subjects. It allows students to interpret texts, identify perspectives and biases, and analyse arguments. In science, it fosters inquiry, hypothesis testing, and evidence-based reasoning. In social studies, it helps learners examine multiple viewpoints and understand complexity. Rather than accepting information at face value, students learn to interrogate how knowledge is constructed and why different interpretations may exist. This shift from passive reception to active inquiry strengthens intellectual curiosity and resilience.

- Pedagogical principles and learning theories used

Developing critical thinking requires a carefully crafted instructional design which connects the curriculum to real-world issues. Teachers can promote these skills by creating learning environments

that consistently invite and value questioning, dialogue, and problem solving. Strategies such as modelling thought processes, using open-ended questions, encouraging evidence-based reasoning, and facilitating structured debates help learners make their thinking visible and refine it through feedback. Collaborative activities—group investigations, peer review, project-based learning etc.—allow students to compare ideas, negotiate meaning, and apply reasoning in authentic contexts. Reflection is also essential: through self-assessment and metacognitive prompts, learners evaluate the quality of their reasoning and consider how to improve it.

Social constructivism provides a powerful foundation for developing critical thinking because it views learning as a fundamentally social, dialogic, and meaning-making process. From this perspective, knowledge is not “transmitted” from teacher to student; rather, it is co-constructed through interaction, negotiation, and reflection. Critical thinking thrives in precisely these kinds of environments—spaces where learners are encouraged to question, interpret, debate, and consider multiple viewpoints. Social constructivism nurtures critical thinking in education through its following defining features:

- a. It relies on *dialogue to promote deeper reasoning*. Critical thinking develops when learners articulate ideas, challenge assumptions, and respond to alternative interpretations. Social constructivist classrooms foster dialogue—peer discussions, collaborative inquiry, and teacher-guided conversations—where students externalize their reasoning and refine their ideas through feedback.
- b. It creates space for *multiple perspectives*. When learners encounter diverse viewpoints, they must compare, synthesize, and evaluate information. Social constructivism emphasizes exposure to varied perspectives, which helps students understand complexity, avoid simplistic judgments, and appreciate that problems often have more than one valid solution.
- c. It *actively engages learners in meaning-making processes*. Critical thinking is not passive; it involves constructing interpretations, generating explanations, and evaluating evidence. Social constructivist approaches position learners as active participants who build knowledge through inquiry, problem-solving, and collaborative exploration.
- d. It requires *teacher scaffolding to nurture higher-order thinking*. Through guided questioning, modelling, or structured tasks, teachers provide the cognitive support necessary for students to reach more advanced levels of reasoning. This aligns closely with practices that develop critical thinking, such as modelling thought processes or guiding learners through complex texts and problems.

In practical terms, social constructivist pedagogy supports critical thinking through:

- *collaborative learning*: group problem-solving, peer teaching, dialogue-based activities;
- *inquiry-based tasks*: investigations, research questions, real-world problems that require analysis;
- *teacher facilitation*: modelling reasoning (see *Cognitive apprenticeship* below), using probing questions, encouraging justification of claims;
- *reflective practice*: metacognitive prompts, self-assessment, and comparison of ideas across groups.

The O–P–I–R Framework

To translate social constructivism into practice, we apply the **O–P–I–R** (Orientate – Prepare – Implement – Reflect) model across both the co-creation workshops and the lessons and learning activities co-created by the participating teachers. The O–P–I–R framework provides a clear and purposeful sequence that moves learners through orientation or anticipation of learning, preparation for the active exploration, implementation of the learning activities that facilitate interaction with the

new ideas and concepts, and reflective assessment. Each stage supports meaningful learning and aligns naturally with key constructivist principles.

Phase	Description	Examples / Focus Areas
Orientate / Anticipate	Introduce the learning objective(s) and context. Clarify expectations and activate prior knowledge.	Definition, framing questions, diagnostic prompts
Prepare	Plan and gather resources. Identify key concepts, explore relevance, and anticipate challenges.	Keywords, importance, conceptual mapping, real-world connections
Implement	Engage in the learning task through active participation and collaboration.	Text analysis, group work, inquiry tasks, problem-solving
Reflect	Evaluate outcomes and processes. Foster metacognition and self-assessment.	Exit tickets, guided discussion, reflective journals, rubric-based self-evaluation

The O-P-I-R framework

By consistently applying this cycle, learners engage not only with content, but also with their own thinking. The predictable rhythm helps them internalize effective learning strategies they can transfer to other contexts.

The Cognitive Apprenticeship Model

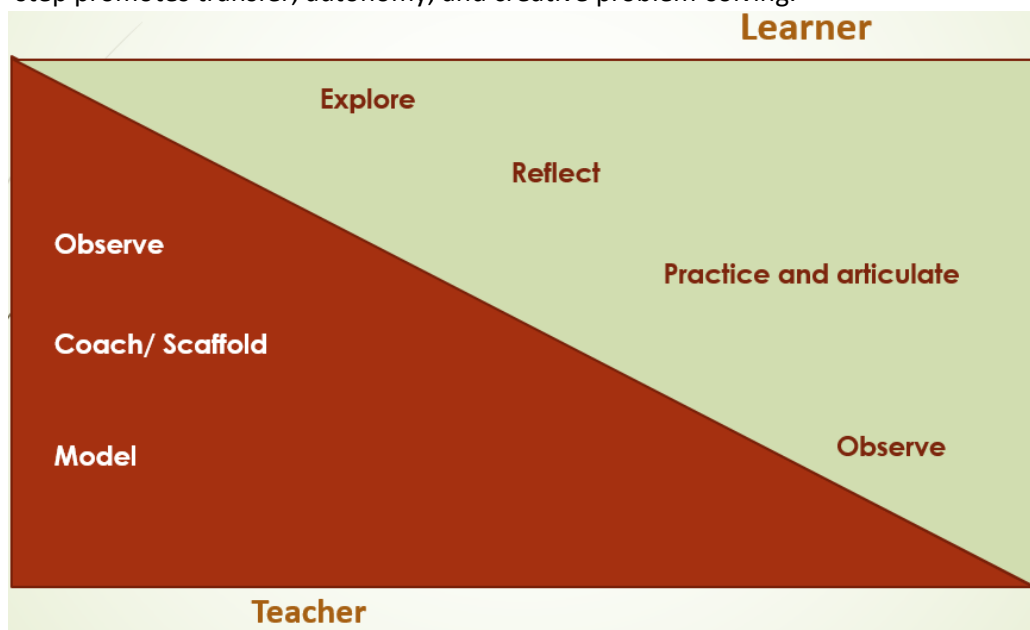
We recommend that teachers embrace the **cognitive apprenticeship model** in the facilitation of learning because it is particularly effective in supporting the development of complex literacy, reasoning, and media analysis skills. This instructional model builds on the tradition of apprenticeships in skilled trades, adapting them to cognitive tasks. Instead of watching someone build a table, learners “watch” an expert or teacher think: how they interpret information, question assumptions, analyse a text, or evaluate a media message.

Cognitive apprenticeship makes *expert thinking visible*. Many of the skills needed for critical reading, writing, or media literacy are tacit: learners rarely see how experts arrive at interpretations, decide what to prioritize, or evaluate the credibility of a source. By externalizing these processes, teachers help learners internalize strategies they can later apply independently.

Core Elements of the Cognitive Apprenticeship Model

- **Modelling** – The expert/teacher demonstrates the task while verbalizing their thinking (“thinking aloud”). This reveals invisible cognitive moves such as inference-making, evaluating evidence, or identifying bias.
- **Coaching** – As learners begin to practice the task, the teacher provides feedback, cues, and prompts. Coaching helps learners calibrate their strategies and build confidence.
- **Scaffolding** – Support is intentionally structured and gradually reduced. Early stages may include templates, guiding questions, or worked examples; these supports fade as learners gain mastery.
- **Articulation** – Learners explain their reasoning, discuss choices, and justify interpretations. Articulation externalizes thought processes and strengthens metacognition.
- **Reflection** – Learners compare their performance to that of an expert or peers. Through reflection, they identify strengths, gaps, and alternative approaches.

- *Exploration* – Learners apply what they have learned in new or more complex contexts. This step promotes transfer, autonomy, and creative problem-solving.



Balance of teacher-learner actions in cognitive apprenticeship: teacher's decreasing amount of actions and responsibility in parallel with learner's increasing amount of actions and responsibility (along the vertical axis)

Cognitive apprenticeship is especially powerful in *media and information literacy*, where students benefit from seeing teachers model how to critically evaluate sources, detect biases, interpret multimodal messages, or verify the credibility of online content. It also aligns seamlessly with the social-constructivist learning architecture and the O–P–I–R framework: learners observe, practice, reflect, and extend their skills in a structured yet flexible progression.

Alignment with EU Key Competences for Lifelong Learning

Media and information literacy (MIL) is inherently cross-cutting, and, as such, it naturally maps to all EU key competences for lifelong learning (Council Recommendation of 22 May 2018 on key competences for lifelong learning). In addition, MIL, as well as the key competences, are underpinned by critical thinking as a core skill. The items in the present toolbox, which aims to provide examples of learning activities to develop students' MIL and critical thinking, can be mapped to the key competences for lifelong learning as follows:

1. *Literacy competence*. There is a direct overlap between MIL and literacy because both entail working with text: interpreting texts, understanding sources, constructing messages, evaluating arguments, distinguishing fact from opinion etc.
2. *Multilingual competence*. MIL entails accessing and assessing content in multiple languages and applying a cross-cultural interpretation of sources, as well as comparing claims across languages and recognizing translation or context biases.
3. *Mathematical competence and competence in science, technology, engineering*. Data and information literacy – an important part of MIL – are closely related to making sense of visualizations, spotting misuse of statistics in media, interpreting evidence, understanding uncertainty and causality.

4. *Digital competence*. There is a core overlap between MIL and this key competence in that both entail using digital tools for finding and producing media, understanding privacy and security issues, evaluating digital sources, understanding algorithms, and platform-driven biases.
5. *Personal, social and learning to learn competence*. Both MIL and this key competence entail self-regulated information seeking as well as reflective media production and consumption habits. In addition, metacognition is key to both in terms of supporting the questioning of one's assumptions, biases and evidence-use.
6. *Citizenship competence*. Both MIL and this key competence entail informed participation, detecting misinformation, protecting democratic discourse, judging civic claims, as well as weighing evidence for public decisions.
7. *Entrepreneurship competence*. Both MIL and this key competence entail judging contexts and opportunities for turning ideas into action, weighing risks and benefits of messages, an awareness of ethical principles (e.g. ethical reasoning about audience impact), a sense of initiative and agency, reputation management.
8. *Cultural awareness and expression competence*. Both MIL and this key competence entail reading media forms as cultural products, creating context-sensitive content, interpreting symbolism, intent, and bias in cultural materials.

For example, learning outcomes such as the three examples listed below (and the many more to be found in the learning activities in the toolbox) target MIL as well as key competences at the same time:

Example 1. *By the end of a unit on online news, learners will be able to identify the source and purpose of an online article, check three independent corroborating sources, and explain why a cited study does or does not support the article's claim.* This outcome maps on both MIL and literacy, (potentially also multilingual), digital and citizenship competences.

Example 2. *By the end of a data or infographics module, learners will be able to interpret key statistics in a chart, spot misleading graphic representation elements, and redraw a corrected version with justified choices.* This outcome maps on both MIL and mathematical and science, technology, engineering competences.

Example 3. *By the end of a media production project, learners will have planned and produced a short podcast, explicitly documenting their research sources, ethical considerations, and intended audience.* This outcome maps on both MIL and entrepreneurship, digital and cultural awareness and expression competences.

Interdisciplinary Adaptability

MIL is an *adaptable, interdisciplinary competence* that maintains a stable core of *critical practices* while aligning with the norms of different disciplines. Its strength lies not in uniform application, but in its capacity to support transfer, deepen disciplinary learning, and enable learners to navigate diverse information environments critically and responsibly. In line with the 2018 European Key Competences for Lifelong Learning, MIL functions as a transversal competence that supports learning across domains by strengthening learners' ability to:

- access, evaluate, and use information critically;
- understand how media messages are constructed and for what purposes;
- create and communicate content ethically and effectively;
- participate responsibly in civic, cultural, and digital environments.

Embedding MIL across subjects ensures that critical engagement with information and media occurs in *authentic contexts*, as is every *real-life issue*, rather than in abstract or decontextualized strictly subject-specific lessons. Notwithstanding, at curriculum level, MIL can – and should be – embedded by

aligning subject-specific learning objectives with MIL-related practices, rather than adding new content, because MIL – especially with a focus on developing critical thinking in education systems – primarily reframes *how* content is approached and assessed rather than *what* the specific content should be.

Overview of the toolbox

This publication includes a collection of 35 teaching tools—practical classroom activities—that illustrate how the development of media and information literacy and critical thinking skills in adolescents can be supported in various learning environments.

To support easy navigation, firstly, the teaching tools have been grouped according to whether they are more suitable for one of the two broad categories of school subjects:

- humanities and social sciences
- mathematics, natural and applied sciences

The next criterion for grouping the tools is the major MIL theme they address, with the groups defined as follows:

- introduction to media and information literacy concepts
- social media and algorithms
- propaganda and manipulation
- bias and logical errors
- fact-checking and debunking

However, it must be pointed out that, as most teaching tools address more than one MIL theme, eventually, the grouping is not perfect, which is why we included an Index at the end of the volume.

The teaching tools follow a common structure:

- brief description of the teaching tool;
- target age group;
- discipline(s);
- goals and learning objectives
- teaching materials
- duration
- step-by-step instructions following the OPIR framework
- annexes containing worksheets and links to additional teaching resources (e.g., presentations)
- important notes, including teachers' and students' reflections following implementation

The lessons or learning activities described can be used independently, but they can also be combined into thematic sequences and adapted across subjects and age groups. Readers are encouraged to adapt the activities to their specific classroom contexts, taking into account their national curriculum, students' age and prior knowledge, and the time available for implementation.

TEACHING TOOLS FOR HUMANITIES AND SOCIAL SCIENCES

I. Introduction to media and information literacy concepts

Tool 1: Same News, Different Stories: Understanding Disinformation (Italy)

This lesson introduces students to disinformation and media bias by comparing how the same news event is reported by different sources. Using a flipped classroom approach, students first analyse articles independently, then collaborate in class to debate source credibility and rewrite the news in a balanced, evidence-based way.

Students' age: 14-17 years

Discipline(s): literature, civic education

Goal(s):

- To develop students' critical thinking and media literacy skills
- To help students identify disinformation, bias, and framing in news media
- To encourage responsible consumption and production of information

Specific learning objective(s):

By the end of the lesson, students will be able to:

- Compare different news articles reporting on the same event
- Identify indicators of bias, misinformation, or disinformation
- Evaluate the credibility of news sources
- Engage in a structured debate using evidence from texts
- Rewrite a news article in a neutral, fact-based manner

Teaching materials:

- A set of articles (according to the number of students and group of students) reporting the same news
- PPT: Same News, Different Stories

Duration:

At home: 30-45 min

In class: 120 min (2 classes of 60 min each)

Step-by-step instructions

I. Orientation (at home – flipped, self-paced) – 30-45 min

Students watch a short presentation on disinformation and media bias, reliability of the sources, and read several articles reporting the same news event (handout by the teacher).

II. Preparation (in class) - 15 min

In small groups, students compare their ideas on the news and discuss which sources appear more credible and why.

III. Implementation – 45 min

After the discussion, groups collaboratively rewrite the news story, aiming for accuracy, balance, and neutral language. Teachers will explain the components of an article (headline, introduction, core, closure) and will help the various groups re-write the news. If there is time, students can present their version of the news and debate on them, on the accuracy and on the credibility.

IV. Reflection – 60 min

Individually, students reflect on how different reporting styles shaped their understanding of the event and identify strategies they can use in the future to recognize disinformation. This can be an assignment or debated in class in a next lesson.

V. Annexes

Annex 1 - PPT Same News, Different Stories

<https://docs.google.com/presentation/d/1nzD1Y9snzRwwwPsD5LCm1PESMXWzJ8K2/edit?slide=id.p1#slide=id.p1>

Annex 2 – Examples of articles

The teacher should choose 3-4 news article on the same news. For examples, the articles below are the same story reported by several Italian newspapers and websites about the so-called “Family in the Woods,” a family who lived in a forest with three children who were not enrolled in school. The authorities later separated the children from their parents, sparking outrage in Italy for different moral reasons. The news story can be framed in this way: an event that reflects the polarization of society and can be interpreted from multiple perspectives.

Links to articles:

https://roma.corriere.it/notizie/cronaca/26_marzo_09/famiglia-bosco-tribunale-motivazioni-decisione-97cdac9a-9cb9-4e06-9a90-944dfe45axlk.shtml

https://www.ansa.it/sito/notizie/cronaca/2026/03/10/famiglia-del-bosco-rafforzata-la-vigilanza-alla-presidente-del-tribunale-dei_909807f8-a2b4-4d69-af54-56e9a98dbbef.html

<https://www.virgilio.it/notizie/famiglia-nel-bosco-il-padre-nathan-media-dopo-l-allontanamento-di-catherine-dai-bambini-basta-proteste-1741136>

<https://www.rainews.it/articoli/2026/03/famiglia-nel-bosco-rafforzata-la-vigilanza-alla-presidente-del-tribunale-dei-minori-be11f82f-3a8c-48b9-9b07-e28654760b7c.html>

VI. Important notes

This lesson works best with a non-polarizing news topic so students focus on analysis rather than opinions. Clear guidance on the difference between bias and disinformation is essential. Ensuring students complete the flipped activity beforehand greatly improves the quality of in-class discussion and rewriting.

Tool 2: How Media Hacks Our Minds: Media Literacy and Disinformation Mechanisms (Greece)

This lesson introduces students aged 14–16 to the landscape of disinformation, media manipulation, and the psychological mechanisms that make people vulnerable to fake news. Through video-based discussions, collaborative analysis, and self-assessment quizzes, students develop critical media literacy skills and build cognitive resilience against manipulation online.

Students' age: 14-16 years

Disciplines: Informatics, Media Literacy

Goals:

- Develop students' awareness of disinformation and the mechanisms by which it spreads.
- Help students understand how social media platforms operate and psychologically exploit users.
- Strengthen cognitive abilities through the analysis of cognitive biases and logical fallacies.

Specific learning objectives:

- Define and distinguish between misinformation, disinformation, and malinformation.
- Explain how social media platforms exploit psychological mechanisms to influence users.
- Recognise the role of echo chambers, filter bubbles, and algorithms in amplifying fake news.
- Identify cognitive biases and explain how they make people susceptible to manipulation.
- Identify logical fallacies and understand how they underpin propaganda and populist discourse.

Teaching materials:

Annex 1 – Worksheet 1;

Annex 2 – Quiz 1;

Annex 3 – Worksheet 2;

Annex 4 – Quiz 2;

Annex 5 – Quiz 3;

Online self-observation tool: <https://implicit.harvard.edu/implicit/youth.html>

PPT with video links embedded: How Media Hacks our Minds

https://docs.google.com/presentation/d/1QedCV9Dfo8cU0fmNjwD9TXkzye_onU7G/edit?slide=id.p1#slide=id.p1

Duration: 210 min

Step-by-step instructions

I. Orientation – 10 min

Show [PPT Slide 1 – 2] to introduce students to today's topic and learning objectives. Lead an open discussion with the whole class.

Show [PPT Slide 3-4 – Positive Impact of Social Media] and ask: "Can you think of a time when social media helped spread an important message?"

Then show [PPT Slide 5-6 – Why Media Literacy?] and ask: "Have you ever come across something online that turned out to be false? How did you find out?"

The aim is to evoke students' prior knowledge and to frame the lesson: the same platforms that can empower us can also manipulate us. The teacher notes key words on the board (fake news, algorithm, manipulation, bias).

II. Preparation – 30 min

Show [PPT Slide 7 – Theoretical Background] and [PPT Slide 8 – Information Disorder / Infodemic]. Briefly explain the three types of information disorder:

- Misinformation – false content shared without intent to harm.
- Disinformation – false content shared deliberately to cause harm.
- Malinformation – genuine content used to harm a person or group.

Pose a framing question: "59% of Europeans use social media – does this make us more informed, or more vulnerable?" Take 2–3 quick verbal responses.

Show [PPT Slide 9 – Information Disorder / Infodemic] and discuss the challenges that the spread of fake news poses.

III. Implementation

III.1 Implementation 1 – 60 min

Students turn over Worksheet 1 (Annex 1). Work through the two activities:

Motivation & Discussion

Show [PPT Slide 10 – Fake News] and play the video. After the video, open class discussion: What surprised you? Have you seen this type of content before?

Students fill in the first question on Worksheet 1 to comment individually, in writing, on the finding about 59% of Europeans and social media exposure.

How does disinformation spread?

Show [PPT Slide 11 – How does misinformation spread?] and introduce the concepts of Algorithms, Filter Bubbles, Echo Chambers and Rabbit Holes.

Students work through Quiz 1 (Annex 2) individually and at their own pace (this is a self-assessment tool, not a graded test). The quiz covers core concepts from the PPT and video. Alternatively, use a platform such as [Kahoot](#) to make this activity more interactive.

Go through the answers to Quiz 1 orally as a class. Address any confusion by referencing back to the PPT slides.

After completing the quiz, invite students to try the [Harvard Youth Implicit Association Test](#) as a self-observation activity [PPT Slide 12 – Implicit Bias]. The page will guide students through two implicit association tests. Students answer the second question on Worksheet 1.

III.2 Implementation 2 – 100 min

Distribute Worksheet 2 (Annex 3) to all students.

Discussion of Disinformation Mechanisms

Show [PPT Slide 13 – Mechanisms of Disinformation] and [PPT Slide 14 – Propaganda & Populist Discourse]. Play the video.

Facilitate open class discussion using the following questions: How do we know if news is reliable? Why do people share fake news? How do platforms hack our attention?

Students write their answers to the question “In your own words, explain how fake news spreads and why people fall for it” in the worksheet and complete the self-assessment Quiz 2 (Annex 4). Go through the answers orally as a class. Alternatively, use a platform such as [Kahoot](#) to make this activity more interactive.

Consequences of disinformation

Show [PPT Slide 15 – Consequences of Disinformation] and [PPT Slide 16 – Reflection] and ask students to reflect individually using Worksheet 2: Why might it be difficult to recognise disinformation, even for educated young people? What would it take to reduce this percentage?

Students complete the reflection question on Worksheet 2 and Quiz 3 (Annex 5) as a self-assessment.

Go through the answers to Quiz 2 and Quiz 3 orally. Project PPT Slide 17 (Key Concepts Summary) during the answer review.

IV. Reflection – 10 min

Show [PPT Slide 18 – Closing Reflection Questions].

Ask students to respond (verbally or in a brief written note):

- What is one thing you will do differently online after this lesson?
- What is one thing that surprised you about how social media works?
- Can you think of an example from your own experience of a cognitive bias influencing your beliefs?

The teacher collects written reflections if produced, or notes key themes from verbal responses for use in the next session.

V. Annexes

Annex 1: Worksheet 1 – Introduction to Disinformation and Media Literacy

First name: Last name:

Grade: Class: Date:

Motivation & Discussion

Comment on the following finding in the space below:

"59% of Europeans use social media, resulting in exposure to threats, risks, and disinformation."

Your response:

.....

.....

.....

Explore the following self-observation tool at: <https://implicit.harvard.edu/implicit/youth.html> and follow the instructions on the webpage. What did you find out about implicit associations? Were you surprised by the result? How might this kind of hidden bias affect the type of news or information you tend to believe or share online?

Your response:

.....

.....

.....

Annex 2: Quiz 1

Choose the best answer for each question.

1. Disinformation is:
 - a) information overload
 - b) outdated information
 - c) the deliberate spread of false news
 - d) disputed information
2. Media literacy skills include:
 - a) spending many hours on social media
 - b) critical thinking
 - c) Cretan thinking
 - d) data analysis
3. Through which mechanisms does disinformation spread?
 - a) logical fallacies

- b) Facebook
 - c) Instagram
 - d) YouTube
4. What reinforces the adoption of fake news?
- a) echo chambers
 - b) playing video games
 - c) adolescence
 - d) different opinions
5. Data analytics skills relate to:
- a) graphs
 - b) statistics
 - c) text articles
 - d) all of the above
6. To whom is the phrase "privacy is over" attributed?
- a) Aristotle
 - b) Zuckerberg
 - c) Einstein
 - d) Chomsky
7. A tool for checking false news is a(n):
- a) fact-checker
 - b) antivirus
 - c) deepfake
 - d) word processor
8. Fake news spreads faster than facts.
- a) True
 - b) False
9. Social media algorithms are neutral.
- a) True
 - b) False
10. The terms misinformation and disinformation are identical.
- a) True
 - b) False
11. Chatbots are:
- a) natural persons
 - b) programmed algorithms
 - c) images
 - d) sounds
12. Which of the following is a form of disinformation?
- a) humorous videos
 - b) TikTok
 - c) accounts impersonating official authorities
 - d) fact-checking
13. An impact of disinformation is:
- a) dialogue
 - b) entertainment
 - c) loss of trust
 - d) strengthening of cooperation

Answer Key: 1c; 2b; 3a; 4a; 5d; 6b; 7a; 8a; 9b; 10b; 11b; 12c; 13c;

Annex 3: Worksheet 2 – Disinformation Mechanisms: Cognitive Biases, Logical Fallacies, Propaganda & Populist Discourse

First name: Last name:

Grade: Class: Date:

Mechanisms of Disinformation

In your own words, explain how fake news spreads and why people fall for it:

Your response:
.....
.....
.....

Reflection

Reflect on the statement below. Write your response in the space provided.

"70% of European students report encountering disinformation online on a daily basis, while many cannot distinguish fact from falsehood."

Your response:
.....
.....
.....

ANNEX 4: Quiz 2

Choose the best answer. Circle your choice.

1. Clickbait is:
 - a) critical reading of articles
 - b) misleading, attention-grabbing content designed to encourage clicks
 - c) right-clicking
 - d) targeted clicks
2. Deepfake refers to:
 - a) video/audio/images created via AI that manipulate reality
 - b) the deep lie
 - c) deep learning
 - d) machine learning
3. Fact-checking is:
 - a) checking your password
 - b) checking for viruses
 - c) the accountability of social media platforms
 - d) the verification of information to ensure it is reliable
4. What percentage of internet users use social media?
 - a) ~90%
 - b) ~50%
 - c) ~70%
 - d) ~30%
5. Social media platforms use techniques to 'hack' our brains.
 - a) True

- b) False
6. Social media makes us antisocial.
- a) True
b) False
7. AI algorithms can influence perceptions and biases.
- a) True
b) False
8. Filter bubbles show users content that matches their interests.
- a) True
b) False
9. Online echo chambers reduce engagement with new ideas.
- a) True
b) False
10. AI algorithms recommend the content we see on YouTube, TikTok, and Facebook.
- a) True
b) False
11. Confirmation bias enhances scepticism and critical thinking.
- a) True
b) False
12. How does YouTube or TikTok seem to know what you like?
- a) through hidden cameras
b) by asking the neighbours
c) by using artificial intelligence algorithms
d) through special subcutaneous devices (chips)
13. Echo chambers prevent the spread of conspiracy theories.
- a) True
b) False
14. The promotion of conspiracy theories on social media reinforces:
- a) the radicalisation of young people
b) democracy
c) youth participation in public affairs
d) social cohesion
15. Confirmation bias is a cognitive error where we select information that confirms what we already believe.
- a) True
b) False
16. The worst form of digital propaganda on social media is:
- a) black
b) white
c) grey
d) pink

Answer Key: 1b; 2a; 3d; 4a; 5a; 6b; 7a; 8a; 9a; 10a; 11b; 12c; 13b; 14a; 15a; 16a

Annex 5: Quiz 3

Answer True (T) or False (F), or choose the best answer.

1. Confirmation bias is a cognitive error where we select information that confirms what we already believe. T/F
2. A bias can contribute to a logical fallacy, but not all fallacies are caused by bias. T/F
3. A logical fallacy is an incorrect argument that leads to an unfounded conclusion. T/F
4. When did the study of logical fallacies begin? a) In 2025 b) Millennia ago c) In the Middle Ages d) In the 3rd century BC
5. The claim that one event was caused by another simply because it happened later is a post hoc logical fallacy. T/F
6. On social media, algorithms create echo chambers that display content: a) from all points of view b) aligned with the user's pre-existing beliefs c) opposite to the user's profile d) randomly distributed
7. Fake news articles do not use more emotional language than real news. T/F
8. The worst form of digital propaganda on social media is: a) black b) white c) grey d) pink
9. Emotional manipulation on social media uses: a) rationalism b) cross-referenced information c) constructive dialogue d) fear, anger, or hope
10. Confirmation bias seeks information that: a) aligns with existing beliefs b) is innovative c) is random d) is never sought
11. Confirmation bias is identical to a logical fallacy. T/F
12. Analysis of information to resist emotional manipulation on social media is: a) critical thinking b) fear c) spontaneity d) ignorance
13. Critical thinking is a cross-curricular skill that should be taught in schools. T/F
14. Conversational AI (e.g. chatbots, ChatGPT) is stochastic parroting. T/F
15. The use of social media can lead individuals to confuse what they know with what the media 'knows'. T/F

Answer Key: 1T; 2T; 3T; 4d; 5T; 6b; 7F; 8a; 9d; 10a; 11F; 12a; 13T; 14T; 15T

VI. Important note

To create a more engaging and participatory environment, teachers are advised to make use of online platforms such as Kahoot to deliver the quizzes.

Tool 3. Media Democracy 2.0 – Political communication in digital media (Austria)

Students analyse advantages and disadvantages of new media in relation to political communication. Building on this, they formulate a reasoned judgement about which side outweighs the other for them personally.

Students' age: 13-16 years

Disciplines: Political education, Language class

Goal(s):

- Analyse the public sphere as a central location for political communication, discuss the advantages and disadvantages of media democracy, analyse the media implementation of political ideas and information.
- Explain and evaluate the significance of digital media in political communication

Specific learning objective(s):

At the end of the lesson, students will be able to answer:

- What are the positive and negative effects of new media on political communication?
- How is content conveyed differently in digital media?
- How can digital media be dealt with (effectively)?

Teaching materials:

- Reading (Annex 1)
- Cards with pros and cons

Duration: 50 min

Step-by-step instructions

I. Orientation – 5 min

Share and explain the learning objectives with the students.

II. Preparation – 10 min

Students read a short introduction (Reading 1 in Annex) and discuss the three topics with a classmate.

III. Implementation – 20 min

Hand out Annex 2 (cards).

Task description for students:

On the 10 cards, you will find situations that are more or less part of everyday life. Read them carefully and then sort them into advantages and disadvantages of new media in relation to political communication.

You will notice that each advantage and disadvantage refers to a particular aspect of new media.

Now arrange the cards so that each advantage is placed opposite the corresponding disadvantage.

Students work in pairs or small groups on the cards. They read them carefully and then sort them into advantages and disadvantages of new media in relation to political communication. There is always an advantage and a disadvantage relating to a certain aspect of new media. The students are asked to arrange the cards so that the advantage is opposite the corresponding disadvantage.

Students then formulate a short general statement about the respective advantage or disadvantage. (What is the main disadvantage or advantage of each situation?) They then rate the advantages and disadvantages and rank them from 1 (very important) to 5 (not important at all).

Students discuss and justify their decision in pairs or small groups and then assess whether, for them personally, the advantages or disadvantages outweigh the other.

Students write down possible solutions for 2-3 main disadvantages (situations) they have discussed.

Solution, pairs of cards:

- Speed – Time Pressure
- Up to date – Short lifespan
- Information density – Information overload
- Possibility to react – Anonymity
- Democratisation of media – Quality=Quantity?

IV. Reflection – 15 min

Students may compare results with others and discuss the similarities and differences.

- What were their general statements about the situations? Are there differences in how others described and understood disadvantages and advantages?
- How did they rate the disadvantages and advantages? Are there major differences in ratings?
- What were the results of the group discussions? What did they discuss?

V. Annexes

Annex 1 - Reading

Political communication means all kinds of communication that involve politics. This includes communication by political actors (such as politicians or parties), communication directed at political actors, and communication about politics and political actors.

Traditional media include newspapers and magazines, radio, and television.

New or digital media include media such as e-mail newsletters, blogs, DVDs, or CD-ROMs that are mainly digital and often accessed through the internet. Sometimes people use the term “internet” as if it means the same as “new media”, but the internet is actually just one form of new media.

Social media (for example Facebook, Instagram, or Snapchat) are digital media that allow users to connect with each other online. People can communicate, share ideas, and create or share media content, either with individual people, within a group, or publicly with a wider audience.

Annex 2 - Cards

Possibility to Respond An advantage of new media is the possibility for the public to respond. News, reports, and comments can themselves be evaluated and commented on. This allows readers to express their opinions much more directly than in the past, when they had to write letters to the editor. At the same time, journalists receive direct feedback. Direct interaction between	Speed Information can be transmitted almost at the same time it happens. This means that people receiving the information can follow events almost directly, even if they are not physically present. <i>Example:</i> Max is interested in political developments in Iran and follows a demonstration in Tehran via a livestream on Facebook. In addition, he can
--	--

news producers and news consumers becomes much easier. <i>Example:</i> Ala has just read a newspaper article online and wants to respond because she thinks the author forgot or mixed up some important points. She uses the comment function and posts her opinion directly under the article. She has heard that many journalists respond to comments on their articles and sometimes reply.	follow all related posts on Twitter by searching for a specific hashtag.
Democratisation of Media A positive aspect is the increasing democratisation of media—more and more people have access to information. <i>Example:</i> Sarah thinks it is good that the internet allows more people to access many different kinds of information. She believes this is an important basis for being able to participate in political life.	Up-to-date (Timeliness) Live broadcasts (on TV or radio) can not only be complemented but also replaced. This immediacy is strengthened by online editions. <i>Example:</i> Sandra does not buy printed newspapers. Instead, she reads the online edition of her favorite newspaper and is always up to date. She can also follow livestreams or live tickers in addition to reading articles.
Anonymity / Online Hate A disadvantage of this possibility is that, in the seemingly anonymous environment of the internet, almost any kind of comment can be posted—even if it is meaningless, far from reality, or not based on facts. Increasingly, this possibility is used for online hate (hostile agitation), prejudice, defamation (spreading false accusations), or discrimination. New media make it relatively easy to express aggression, and there is often little control or correction. <i>Example:</i> Michael complains that people often share false information online, spread lies about others, or simply release their aggression—often anonymously. In his opinion, many social networks do not sufficiently monitor what is posted.	Information Density New media create a level of information availability that did not exist before. Documents can be accessed anytime and anywhere. <i>Example:</i> Djordje does most of his research on the internet. He is enthusiastic because you can find almost anything there and access it anytime and anywhere. He can find legal texts, court decisions, and medieval documents online just as easily as party programs or political information.
Quantity = Quality? Another negative aspect is that although the amount of information and media increases, their quality does not necessarily improve.	Time Pressure A disadvantage of this speed is the time pressure it creates, which makes careful research more difficult. This affects not only

<i>Example:</i> Maria notices that the internet provides more information and media than ever before. However, she believes that this does not mean all information and media are reliable or trustworthy, as shown by the problem of “fake news.”	complex topics but also relatively simple reports. <i>Example:</i> Rayan works as a journalist and is responsible for quick updates for the online edition of his newspaper. Because readers want to see the latest news as quickly as possible, he sometimes makes mistakes. He often does not have enough time for detailed reports or in-depth research.
Information Overload A disadvantage of this development is the huge amount of information available. It becomes harder to filter out what is really important. There is also a risk that people rely on information that appears first in search engines rather than the most trustworthy sources. The large amount of information also makes it more difficult to judge what is truly relevant. <i>Example:</i> Kim is researching for a presentation on “National Socialism.” The search engine shows her so many results that she does not know where to start. She is also unsure which websites are trustworthy. When in doubt, she often tends to simply use the first results from the Google search.	Short Lifespan of Information Another disadvantage of this speed is that information quickly becomes outdated. News is produced and shared for the moment, and the time before it is replaced by new information becomes shorter and shorter. <i>Example:</i> Alex likes to read important news online. However, it is often difficult to keep track of everything because yesterday’s headlines are quickly replaced by new ones. Some news items are hard to find again after a short time.

VI. Learning from the implementation of the lesson

Teacher’s reflections after the lesson:

"Beforehand, I briefly asked: ‘Who has already seen something on Instagram or TikTok today that had to do with politics?’ That immediately woke up the class."

"The map work then went very well, but 50 minutes was tight. We postponed the suggested solutions for disadvantages to the next lesson. Clear recommendation: Better to split it over two sessions."

Tool 4: Mapping My Digital Footprint – Understanding My Online Influence (Germany)

This lesson helps students become aware of their own digital footprint and the types of content they consume online. Through structured self-mapping and guided reflection, students analyse how their online behaviour may influence their perspectives, attitudes, and exposure to information.

Students' age: 12–18 years

Disciplines: ICT / Social Studies / Civic Education / Media Education

Goals:

- Increase awareness of personal digital behaviour
- Develop critical thinking about media consumption
- Understand how online habits influence exposure to information
- Reflect on algorithmic personalisation and filter bubbles

Specific learning objectives:

At the end of the lesson, students will be able to:

- describe what a digital footprint is (active and passive),
- identify patterns in their own online behaviour,
- analyse how their media consumption may shape their opinions,
- propose strategies for more conscious and balanced media use.

Teaching materials:

- Digital Footprint Mapping Worksheet (see Annex)
- Pens / markers
- Whiteboard or flipchart
- Optional: example anonymised digital profile

Duration: 60 min

Step-by-step instructions

I. Orientation – 10 min

Start with the question: “If someone looked only at your online activity, what would they think about you?” Students discuss briefly in pairs. Next, the teacher introduces the concept of:

- Digital footprint (active vs passive)
- Data tracking
- Algorithmic personalisation

Short explanation: Every click, like, search, and watch contributes to a data profile.

II. Preparation – 10 min

Students receive the Digital Footprint Mapping Worksheet. They individually reflect on:

- Which platforms they use
- How often
- What topics they engage with
- What they like/share/comment on
- What types of news or information appear in their feed

Teacher clarifies: This is not about judging behaviour — it is about understanding patterns.

III. Implementation – 30 min

Step 1 – Personal Mapping. Students complete their personal map, including:

- A weekly timeline of online activity

- A categorisation of content types (news, entertainment, influencers, political content, ads, etc.)
- Emotional reactions (e.g. angry, inspired, bored, entertained)

Step 2 – Small Group Analysis. Students work in groups of 3–4 and discuss:

- What similarities do you notice?
- Do you encounter different viewpoints?
- What topics dominate your feed?
- What might an algorithm “learn” about you?

Each group identifies:

- 2 possible positive effects
- 2 possible risks of their digital footprint

IV. Reflection – 10 min

Students individually write:

- One thing I was surprised about
- One risk I had not considered before
- One strategy I could apply to improve my media diversity

Class discussion: “Can we fully control our digital footprint?”

V. ANNEX. Digital Footprint Mapping Worksheet

Part 1: My Platforms

List your top 3 platforms.

How many hours per day (approx.)?

Part 2: My Content

Main topics in your feed:

Types of accounts you follow:

How often do you see opposing views?

Part 3: Influence Reflection

What would an algorithm assume about me?

What opinions might be reinforced?

Do I actively diversify my sources?

Part 4: Action Plan

One change I will try this week:

One new type of source I will follow:

VI. Learning from the implementation of the lesson

Some students may underestimate how much data is collected. Teachers should emphasise privacy and avoid asking for sensitive personal information, encourage honesty, but allow students to keep parts private.

This lesson works well as a precursor to lessons on filter bubble or misinformation.

Some specific recommendations are, for ages 12–14, to focus more on awareness and privacy; use simplified categories (e.g., “fun”, “news”, “ads”), and avoid political polarisation discussions.

For ages 15–18, it is advisable to introduce concepts of data profiling, commercial interests, link to filter bubbles and misinformation, and add discussion on targeted advertising and political microtargeting.

Teacher’s reflections after the lesson:

“Students described the activity as *eye-opening*, and appreciated the personal and reflective approach. The exercise helped them understand how online habits may reinforce existing perspectives.”

Student's reflections after the lesson:

"I never really thought about how much social media already knows about me. I was surprised to see how many patterns there are in what I watch and like."

Tool 5: Truth, Error, or Manipulation? (Portugal)

In this lesson, the students will learn the distinction between disinformation, misinformation, and malinformation.

Students' age: 11-15 years

Subject: citizenship education

Goal(s): To support the development of the following specific skills:

- Identify and distinguish the concepts of disinformation, misinformation, and malinformation.
- Encourage self-questioning about the truthfulness and intention of information.
- Recognise that information can be false, misleading, or used intentionally to harm.

Specific objectives:

By the end of the activity, students should be able to:

- Correctly define disinformation, misinformation, and malinformation.
- Differentiate the three concepts through examples.
- Identify the intention associated with different types of information (error, deception, or harm).
- Classify everyday situations according to the three types of information.
- Reflect before sharing information.

Teaching materials:

- Board
- Post-it notes
- Writing materials

Duration: 60 min

Step-by-step instructions

I. Orientation – 10 min

The teacher starts a “telephone game,” whispering the following sentence to a student: “Manuel from 6th grade swore he saw an alien stealing History tests from the teacher’s classroom and making paper airplanes.” The message is passed from student to student until the last one. The final student says the sentence out loud and compares it to the original.

Pedagogical note: highlight how information changes as it is transmitted, even without the intent to deceive.

II. Preparation – 10 min

The teacher introduces the three concepts to the class:

Misinformation – false information shared without intent to deceive

Disinformation – false information created or shared with the intent to deceive

Malinformation – true information used to cause harm

Students are invited to distinguish the concepts, using examples provided by the teacher, e.g.

Misinformation - Example: Sharing a social media post that says “Drinking lots of orange juice cures colds” because you believe it is true, but it isn’t.

Key point: The person didn’t mean to lie; they were mistaken.

Disinformation - Example: A fake news article claiming “A celebrity said vaccines are dangerous” that was made to trick people into being afraid of vaccines.

Key point: The person or source intentionally wants to mislead.

Malinformation - Example: Posting someone’s private messages online to embarrass them or ruin their reputation.

Key point: The information is true, but the purpose is to hurt someone.

III. Implementation – 30 min

Students work in small groups (3–4 students). Each group writes examples, or situations on post-its corresponding to each concept. On the board, three columns are displayed:

- Misinformation
- Disinformation
- Malinformation

Groups place their post-its in the appropriate column. In a whole-class discussion, the teacher guides analysis of the students' examples. The teacher clarifies and justifies the classification:

- Innocent information (error)
- Misleading information
- Harmful information

IV. Reflection - 10 min

Key conclusions:

- Not all false information is intended to deceive.
- Intent is essential to distinguish between types of information.
- It is important to verify and reflect before sharing content.

Tool 6: Pros and Cons of the Use of Artificial Intelligence (Portugal)

In this lesson, students will critically analyse the advantages and disadvantages of using Artificial Intelligence.

Students' age: 11-15

Subject: citizenship

Goal(s): to support/develop the following specific skills:

- Understand the concept of Artificial Intelligence
- Identify the pros and cons of its use
- Recognise appropriate ways to use Artificial Intelligence

Specific learning objectives:

By the end of the activity, students should be able to:

- Correctly define the concept of Artificial Intelligence.
- Present their position orally in a clear and organized manner.
- Demonstrate respect for opposing opinions.
- Distinguish between opinion and fact in texts and debates about AI.
- Critically evaluate the pros and cons of using Artificial Intelligence.

Teaching materials:

- Annex 1: Icebreaker activity "Would you rather"
- Annex 2: Informative text about Artificial Intelligence and framing questions list
- Annex 3: Debate rules
- Annex 4: Mentimeter questions
- Timer
- Whiteboard
- Mobile phones
- Projector

Duration: 60 min

Step-by-step instructions

I. Orientation – 10 min

Icebreaker activity: "Would you rather...?" (Annex 1), where students divide according to their choices. The questions are designed only to activate interest and interaction among students.

II. Preparation – 10 min

Hand out Annex 2 and have the students read it individually. Use the framing questions to clarify doubts or stimulate reflection.

III. Implementation – 30 min

Divide the class into 3 groups:

- Group Pro
- Group Con
- Jury Group

Present the rules (Annex 3) and conduct the debate.

IV. Reflection – 10 min

Each student responds to self-assessment questions using the online tool Mentimeter (Annex 4).

V. Annexes

Annex 1 – Icebreaker: “Would You Rather?”

Instructions: Students choose between two options and explain their choice. Example questions:

1. Would you rather have an AI assistant for homework or for household tasks?
2. Would you rather trust news written by humans or AI?
3. Would you rather AI recommend your next movie or your next book?
4. Would you rather AI make decisions in hospitals or in schools?
5. Would you rather live in a world where AI predicts your choices or one where it cannot?

Note: The purpose is to activate prior knowledge and promote interaction. Students physically move to one side of the room depending on their choice

Annex 2 – Informative Text & Framing Questions

Informative Text (example):

Artificial Intelligence (AI) refers to computer systems capable of performing tasks that normally require human intelligence, such as understanding language, recognizing images, making decisions, or solving problems. AI is increasingly used in daily life, from recommendation systems on social media to self-driving cars. While AI can improve efficiency and support decision-making, it can also raise ethical concerns and risks of misuse.

Framing Questions:

1. What is Artificial Intelligence, in your own words?
2. Can you give examples of AI you use in everyday life?
3. What are the potential benefits of using AI?
4. What are some risks or negative consequences of AI?
5. How should we use AI responsibly?
6. How can we distinguish between opinions and facts when discussing AI?

Annex 3 – Debate Rules

Objective: Conduct a structured debate on the pros and cons of AI.

Rules:

1. Each group (Pro, Con, Jury) must follow their assigned roles.
2. Groups present arguments clearly and respectfully.
3. Only one student speaks at a time.
4. Arguments must be supported by evidence from the text or research.
5. The Jury group evaluates the clarity, relevance, and use of evidence.
6. Disagreements should be addressed respectfully; no personal attacks.
7. Time limits: 5 minutes per group for initial arguments, 2 minutes for rebuttals.

Annex 4 – Mentimeter Questions

1. Do you think AI is more beneficial or harmful to society?
2. Which AI application do you think has the most positive impact?
3. Can AI influence your opinions online without you realizing it?
4. What strategies can you use to verify information about AI?
5. How confident are you in distinguishing fact from opinion when reading about AI?

Tool 7: Many texts, many styles (Italy)

This lesson guides students in exploring different text types and narrative forms, ranging from comics and advertisements to news articles and logical texts. Through group analysis and discussion, students learn to identify key features, communicative purposes, and styles, while reflecting on how texts support interpretation, socialization, and confrontation of ideas.

Students' age: 14-17 years

Disciplines: humanities, literature, media studies, communication

Goal(s):

To help students recognize how different text typologies communicate meaning and influence interpretation, interaction, and critical discussion

Specific learning objective(s):

By the end of the lesson, students will be able to:

- identify different text typologies and analyse their main features and communicative focus
- interpret meaning based on form and style
- collaborate with peers to compare and discuss texts with different purposes.

Teaching materials:

- Introductory PPT – Many texts, many styles
<https://docs.google.com/presentation/d/1P8NLKPNhDtZJ2abAo8IZppe9BiiBz2XD/edit?slide=id.p1#slide=id.p1>
- Annex 1: Text analysis worksheet
- A selection of texts of different types; see below examples of sources for texts in English:
 - Comics: Peanuts comics - <https://www.gocomics.com/peanuts>
 - Mafalda: <https://www.newyorker.com/magazine/2025/07/07/the-argentinean-comic-strip-that-galvanized-a-generation>
 - Ads: <https://www.canva.com/learn/clever-advertising/>
 - Short stories: <https://www.libraryofshortstories.com/>

Duration: 120 min

Step-by-step instructions

I. Orientation – 20 min

The teacher introduces the concept of text typologies through a short presentation (see PPT). Students are briefly exposed to examples and asked to consider how form, language, and structure shape meaning and communication.

II. Preparation – 5 min

Students receive a selection of different text types and are explained how to use the text analysis worksheets (see Annex)

III. Implementation – 75 min

Students work in small groups. Using the analysis worksheet, they identify the typology, main topic, communicative purpose, and stylistic features of each text.

Groups then compare findings, discussing how each text encourages interpretation, socialization, or confrontation of ideas, and how meaning changes across formats.

IV. Reflection - 20 min

As a class or individually in writing, students reflect on which text types were easiest or hardest to analyse and why. They discuss how understanding text typologies can improve comprehension, communication, and critical thinking in everyday life.

V. Annex

Text Analysis Worksheet

Part 1 – Basic identification

Question

Your Answer

Title or short description of the text

Type of text (comic, advertisement, news article, narrative, etc.)

Who created it? (author, company, journalist...)

Where could you find this text? (newspaper, social media, magazine, book...)

Part 2 – Understanding the message

Question

Your Answer

What is the **main topic** of the text?

What is the **main message or idea**?

Who is the **intended audience**?

What is the **purpose**? (inform, entertain, persuade, sell something, express an opinion...)

Part 3 – Style and communication techniques

Students identify **how the message is communicated**.

Feature

Observations

Language style (formal, informal, humorous, emotional...)

Use of images or visual elements

Tone (serious, ironic, dramatic, playful...)

Structure (dialogue, narrative, headline + article, slogan...)

Techniques used (humour, exaggeration, emotional appeal, facts, storytelling...)

Part 4 – Interpretation and discussion

Question

Your Answer

How does the **form of the text influence its meaning**?

Could different people interpret this text differently?

Why?

Does this text encourage **discussion or disagreement**?

How?

Is the message clear or ambiguous?

VI. Important notes

A wide variety of short and accessible texts works better than long excerpts. Visual texts, such as comics and advertisements, help engage students who struggle with traditional reading. Emphasizing that there are multiple valid interpretations encourages richer discussion and reduces anxiety about “right” answers.

Tool 8: Misinformation Channel - Distortion & Source Credibility (Cyprus)

This lesson helps students understand how information can change and become distorted as it spreads through social media or word of mouth. Students develop critical thinking skills by analysing how messages are altered, evaluating the reliability of sources, and reflecting on responsible online sharing.

Students' age: 15–17 years

Disciplines: Language, Civic Education, Media

Goal(s):

- Show how messages can be altered intentionally or unintentionally as they spread online or by word of mouth.
- Develop critical thinking about social media posts and news texts.
- Build students' skills for evaluating sources for reliability, accuracy, and objectivity.

Specific learning objective(s):

At the end of the lesson, students will be able to:

- explain how and why information changes during sharing (loss of context, simplification, emotion, exaggeration);
- identify differences between an original and a repeated message (added details, removed details, stronger wording);
- apply a trustworthiness checklist (author, evidence, transparency, tone, corroboration) to rank sources;
- justify their ranking using at least two specific criteria and examples from the texts;
- state one rule they will use before sharing information online.

Teaching materials:

- Annex 1 - Broken telephone instruction card and recording sheet
- Annex 2 - Theme sets (articles/posts to rank)
- Annex 3 - Trustworthiness criteria sheet (quick checklist)
- Annex 4 – Group ranking grid
- Projector / board
- Timer
- Optional: phones or laptops for quick checks

Duration: 40 min

Step-by-step instructions

I. Orientation – 5 min

Starting prompt: "Have you ever shared something that later turned out to be different from what you first heard?"

Teacher introduces the key idea: information can change quickly through small wording changes.

II. Preparation – 5 min

Teacher explains the rules of the broken telephone game and gives each student a recording sheet (Annex 1). Teacher reminds students that the activity is about messages, not people, and ask them to be respectful.

III. Implementation – 25 min

Broken telephone (15 min):

Teacher whispers the starting message to Student 1. Students pass it on in a chain. Before students whisper the message on, they change or add exactly one word to make it more attractive. Each student writes exactly what they heard in the recording box (no corrections). Teacher compares the final message with the original on the board and asks: What changed? What stayed? Why?

Source credibility ranking (10 min):

Groups of 3-4 receive one theme set (Annex 2) with 3 short texts. They rank the 3 sources from most to least trustworthy using the criteria sheet (Annex 3) and record their answers in the ranking grid (Annex 4). They must give at least 2 evidence-based reasons for each ranking choice.

Quick share-out: each group states their theme, which source they ranked highest, and their top 2 reasons.

IV. Reflection – 5 min

Students write exit ticket:

One rule I will use before sharing online is: _____

V. Annexes

Annex 1 - Broken telephone instruction card and recording sheet

Students stand or sit in a line / circle.

Teacher whispers the original message to Student 1.

Each student whispers it to the next student.

Rule: Before you whisper the message on, change or add exactly one word to make it more attractive.

Everyone writes what they heard on their Recording sheet.

At the end, compare the original and the final versions and discuss what changed and why.

Recording sheet

Write what you heard (exact words): _____

One word you changed or added: _____

Annex 2 - Theme sets (articles/posts to rank)

Teacher note: Print short excerpts from each source (3 per theme). See the links below for reference.

Theme Set 1: Kapodistrias film debate (culture / film criticism)

1. Source 1 (opinion/analysis): Kathimerini – Kapodistrias film commentary (Jan 2026)
<https://www.ekathimerini.com/opinion/1291073/kapodistrias-as-a-hypsipolis-of-hellenism-in-the-new-film-by-yannis-smaragdis/>

2. Source 2 (news/pop culture): GreekReporter – critics vs public reaction (Dec 2025)
<https://greekreporter.com/2025/12/30/kapodistrias-film-critics-hated-greek-public-embraced/>

3. Source 3 (publisher analysis): Ekdoseis Kerkyra – row over a film and identity framing (Jan 2026)
<https://www.ekdoseiskerkyra.gr/en/kapodistrias-the-row-over-a-film-and-aspects-of-greek-identity/>

Theme Set 2: Trans athletes in women's sports (policy and evidence; handle respectfully)

1. Source 1 (policy/advocacy brief): UCLA Williams Institute – impact of sports participation bans (Feb 2025)
<https://williamsinstitute.law.ucla.edu/publications/impact-trans-sports-ban-eo/>

2. Source 2 (sport sector analysis): Women in Sport – Trans inclusion & women’s sport
<https://womeninsport.org/transgender-inclusion-womens-sport/>

3. Source 3 (overview/reference): EBSCO Research Starter – Transgender athletes overview
<https://www.ebsco.com/research-starters/sports-and-leisure/transgender-athletes-overview>

Theme Set 3: Eurovision debate on Israel’s participation (media + institutional decisions)

1. Source 1 (news): AP – Eurovision to decide on Israel participation in 2026 (Nov 2025)
<https://apnews.com/article/82c4673ccfa53f2cbae8f2e025844492>

2. Source 2 (news): Reuters – organiser calls off November vote (Oct 2025)
<https://www.reuters.com/business/media-telecom/eurovision-song-contest-organizer-calls-off-november-vote-israel-participation-2025-10-13/>

3. Source 3 (analysis): Europeum – blog explainer on Eurovision politics / neutrality (Dec 2025)
<https://www.europeum.org/en/articles-and-publications/blog-israel-on-center-stage-eurovision-politics-and-the-fight-for-neutrality/>

Annex 3 – Trustworthiness criteria

- 1) Author & accountability: Is there a named author / organisation and contact or about page?
- 2) Evidence: Does it cite documents, data, direct quotes, or primary sources?
- 3) Transparency: Date, location, corrections policy, and clear separation of news vs opinion.
- 4) Tone: Neutral vs emotional / clickbait; avoids exaggeration and insults.
- 5) Corroboration: Can key facts be confirmed in at least one other reliable source?
- 6) Purpose / bias: Is it trying to inform, persuade, sell, or provoke? What might be missing?

Annex 4 – Group ranking grid (optional)

Source	Rank (1 = highest)	2 evidence-based reasons	Warning signs (if any)
Source 1			
Source 2			
Source 3			

VI. Learning from the implementation of the lesson

Because this is a 40-minute lesson, it is recommendable to use short excerpts (about 120–200 words each) rather than full articles. If themes are sensitive, keep the discussion focused on source quality, framing, and evidence, not on attacking groups or individuals. If devices are limited, run the source-ranking task with printed excerpts only.

Teacher’s reflection after the lesson:

“Students understood that misinformation does not always appear suddenly, it can also develop gradually through small changes in wording, emotional language, missing context, or exaggeration. Through the broken telephone exercise and source-ranking task, they became more aware of how easily messages can be distorted and why checking the author, evidence, tone, transparency, and corroboration is essential before trusting or sharing information online.”

Student’s reflection after the lesson:

“At first, I thought the message would stay almost the same, but by the end it sounded very different. It made me realise how easy it is for information to change when people repeat it.”

Tool 9: Community Initiatives for Media Literacy (Greece)

This lesson invites students to move from understanding disinformation to taking action against it. Through watching and discussing an educational video, collaboratively creating a short presentation or podcast, and reflecting on their own capacity to make change, students build confidence as active digital citizens who can influence their school and wider community.

Students' age: 14–16 years

Discipline: ICT, Social studies, Political education

Goal(s):

- Help students gain confidence in actively taking community initiatives in response to disinformation.
- Foster the transition from passive media consumption to active, responsible digital citizenship.
- Encourage collaborative creation as a vehicle for community engagement and social change.

Specific learning objective(s):

By the end of the lesson, students will be able to:

- Analyse their personal experiences with disinformation and assess its impact on their school and social environment.
- Connect media literacy skills to concrete community action.
- Collaboratively produce a short presentation, podcast tutorial, or video communicating their findings on misinformation and active digital citizenship to an audience.
- Understand the 5-axis framework to community resilience

Teaching materials:

- PPT (Slides 1–13) – Community initiatives for media literacy
<https://docs.google.com/presentation/d/14br0Rct242UIYxyoARXdHmhSRxGG03o8/edit?slide=id.p1#slide=id.p1> with video link embedded
- Annex 1 – Worksheet: Community initiatives
- Annex 2 – Quiz

Duration: 110 min

Step-by-step instructions

I. Orientation – 10 min

Show [PPT Slide 1 – Title] and [PPT Slide 2 – Lesson Overview].

Distribute [Annex 1 – Worksheet, and Annex 2 – Quiz] to all students.

Show [PPT Slide 3 – Community Resilience] and ask: "We have talked about how disinformation spreads and how to think critically. But what can we actually do about it — as individuals, as students, as a community?"

Open the class discussion.

Optional: note on the board the points from the discussion under the columns: Individual, Student and Community initiatives.

II. Preparation – 30 min

Show [PPT Slide 4 – How does disinformation spread?] and walk through the dynamics through which disinformation spreads. Describe the network formed by social media and information sharing, and explain how disinformation can spread faster within communities.

Show [PPT Slide 5 – How can we prevent misinformation as individuals?] and describe the four strategies for responding to disinformation online.

Discuss the benefits and limitations of responding to disinformation as an individual vs collectively.

Show [PPT Slide 6 & 7 – Community initiatives] and run through the four terms

Video & Dialogue

Show [PPT Slide 8 – Active Citizenship] and play the embedded video. The video illustrates how community initiatives can counter the effects of misinformation.

After the video, students complete Activity 1 on the Worksheet: students analyse their personal experiences with misinformation and assess its impact on their school. An open discussion follows and the teacher records key themes on the board as students share.

III. Implementation – 60 min

Show [PPT Slide 9&10 – The 5-Axis Framework for Community Resilience] and explain the framework.

Collaborative Creation

Show [PPT Slide 11 – Create Your Own]. Divide the class into groups of 3–4. Each group chooses one of the following formats:

- A short presentation (e.g. 3–5 slides) summarising their findings on misinformation and active digital citizenship.
- A podcast tutorial (3–5 min recorded audio) explaining a key concept or sharing their community's experience with misinformation.
- A short video (3–5 min) covering the main points of their perspective on disinformation and what their community can do about it.

The teacher circulates among groups, offering guidance.

Each group briefly presents their creation to the class.

IV. Reflection – 10 min

Debate & Self-Assessment Quiz

Show [PPT Slide 12 – Debate Question] and pose the following to the class:

"Do you think students can influence their school or social environment? How?"

Students contribute their arguments. Encourage concrete examples: a school campaign, a social media post, a presentation to parents, a petition.

Students then complete the Quiz (Annex 2) individually and at their own pace. Show [PPT Slide 13 – Key Concepts Summary] as a reference while they work. Go through answers orally. Alternatively, teachers may use online platforms such as Kahoot to make this more interactive.

V. Annexes

Annex 1: Worksheet – Community Initiatives

First name: Last name:

Grade: Class: Date:

Activity 1. Analyse your personal experiences with disinformation and assess its impact on your school environment. Write your reflections below.

1. Describe a time when you or someone you know encountered misinformation online. What happened?

.....

.....

.....

2. How do you think misinformation affects your school community? Give at least one specific example.

.....

.....

.....

Activity 2

Our group chose: ☐ Presentation ☐ Podcast ☐ Video

Group members:

Our main message / what we want our audience to know:

.....

.....

Three key points we will include:

1.

.....

2.

.....

3.

.....

Activity 3. Consider the following statement and note your arguments below: "Do you think students can influence their school or social environment? How?"

My argument / position:

.....

.....

Annex 2 – Quiz

Choose the best answer for each question. Circle your choice.

1. Active digital citizenship means:

- a) participating responsibly in online and community spaces to create positive change
- b) spending more time online
- c) avoiding social media entirely
- d) posting as much content as possible

2. A 'bottom-up' approach to community resilience means:

- a) top government officials setting the agenda
- b) international organisations leading the effort
- c) citizens and community members driving change from within their communities
- d) social media platforms regulating themselves

3. Which of the following best describes 'ethics-by-design' in relation to social media?

- a) designing platforms to maximise profit
- b) adding ethical guidelines after the platform is launched
- c) allowing users to self-regulate without platform rules

- d) building ethical values such as fairness, transparency and safety into the design of technology from the outset
4. UNESCO's Media and Information Literacy Curriculum aims to:
- a) give citizens the skills to access, evaluate, use and create media content responsibly
 - b) promote advertising on social media
 - c) replace traditional school subjects with digital skills
 - d) restrict access to online platforms
5. 'Infodemic' refers to:
- a) an epidemic spread through social media networks
 - b) a new type of computer virus
 - c) the overwhelming volume of information, including false and misleading content, that makes it hard to identify reliable sources
 - d) a campaign to reduce internet use
6. Which Sustainable Development Goal (SDG) relates most directly to quality education and media literacy?
- a) SDG 1 – No Poverty
 - b) SDG 4 – Quality Education
 - c) SDG 13 – Climate Action
 - d) SDG 17 – Partnerships for the Goals
7. Social media platforms promised free expression, but in reality:
- a) all viewpoints are given equal visibility
 - b) users have full control over what they see
 - c) platforms show content based entirely on chronological order
 - d) algorithms filter content and create echo chambers that reinforce existing biases
8. Which of the following is an example of a community initiative against misinformation?
- a) organising a school fact-checking club
 - b) sharing unverified news stories quickly
 - c) blocking all news sources
 - d) only reading content from one trusted source
9. The 'cognitive' axis of the 5-axis framework refers to:
- a) the social networks users belong to
 - b) the legal obligations of social media companies
 - c) the skills and knowledge needed to access, analyse and evaluate information
 - d) the ability to feel empathy online
10. The 'transformative' axis of the 5-axis framework refers to:
- a) changing one's profile picture
 - b) the capacity to drive personal, social or organisational change through informed action
 - c) transforming text into audio content
 - d) switching between different social media platforms
11. Greenwashing on social media refers to:
- a) using green colour schemes in advertising
 - b) promoting genuine environmental campaigns
 - c) hacking environmental organisations
 - d) deliberately misleading the public about the environmental impact of a product or action
12. A podcast tutorial created by students can be an effective community initiative because:
- a) it allows students to share knowledge and perspectives with their peers and community in an accessible format
 - b) it requires expensive equipment

- c) it is only useful for entertainment
 - d) podcasts are only suitable for adult audiences
13. Which of the following is NOT part of the 5-axis socio-technical framework?
- a) cognitive
 - b) metacognitive
 - c) financial
 - d) transformative
14. Community resilience against misinformation is best built through:
- a) banning all social media in schools
 - b) relying solely on government regulation
 - c) ignoring misinformation and hoping it disappears
 - d) education, critical thinking, and collaborative initiatives at the community level
15. The digital footprint created by social media use:
- a) has no environmental impact
 - b) contributes to energy consumption through servers, cloud storage, and streaming
 - c) only affects the user's device
 - d) is automatically deleted after 24 hours

Answer Key: 1a; 2c; 3d; 4a; 5c; 6b; 7d; 8a; 9c; 10b; 11d; 12a; 13c; 14d; 15b

VI. Important note

Students are expected to have foundational knowledge of disinformation and critical thinking before this session.

Social media and algorithms

Tool 10: Discovering the Filter Bubble – How Algorithms Shape What We See (Germany)

This lesson introduces students to the concept of the “filter bubble” and how algorithms personalise the information they see online. Students reflect on their own media consumption habits, analyse the consequences of algorithmic curation, and develop strategies to engage critically and consciously with digital content.

Students’ age: 14–18 years

Discipline: Civic Education / Media Education / Social Studies / ICT

Goals:

- Developing critical thinking and media literacy skills
- Raising awareness of algorithmic curation and personalised information environments
- Encouraging responsible and reflective digital behaviour

Specific learning objective(s):

At the end of the lesson, students will be able to:

- explain the concept of a “filter bubble” in their own words,
- describe how algorithms personalise content on social media platforms,
- identify potential risks of filter bubbles (e.g., polarisation, misinformation, reduced exposure to diverse opinions),
- reflect on their own media consumption habits and propose strategies to avoid being trapped in a filter bubble.

Teaching materials:

- PPT Filter_Bubble_How Algorithms Shape What We See Online:
<https://docs.google.com/presentation/d/1o1FyL3sF1vfN25iEM4W2IOGkd3Rbjbq/edit?slide=id.p1#slide=id.p1>
- Annex – Worksheet: “My Personal Feed”
- Sample screenshots of personalised feeds (fictional or anonymised)
- Whiteboard / flipchart
- Post-it notes

Duration: 60 min

Step-by-step instructions

I. Orientation – 10 min

The teacher begins by asking: “Do you think everyone sees the same content when they search for something online?” Students briefly discuss in pairs. The teacher then shows two simulated screenshots of different social media feeds or search results for the same topic (e.g., climate change, healthy diets, gaming trends).

Guiding questions:

- What differences do you notice?
- Why might these differences occur?

The teacher introduces the concept of the *filter bubble* and briefly explains how algorithms personalise content based on previous behaviour (likes, clicks, shares, watch time) (see presentation).

II. Preparation – 10 min

Students complete a short individual reflection worksheet: “My Personal Feed” (see Annex)

- Which platforms do I use most?
- What type of content do I usually see?
- How often do I encounter opinions different from mine?
- Have I ever changed my mind because of something I saw online?

Students then share selected reflections in small groups (3–4 students). The teacher collects keywords on the board:

- personalisation
- recommendations
- algorithms
- echo chambers
- trending

III. Implementation – 30 min

Group Analysis. Students work in groups of 3–4. Each group receives a short scenario, for example (you find more details for each of the three scenarios in the annex)

- A student who only follows fitness influencers
- A student who watches political commentary videos
- A student who searches mainly for conspiracy-related content

Task:

- Predict what kind of content this person will see after two weeks.
- Identify possible consequences (positive and negative).
- Discuss how this might influence opinions or behaviour.

Groups present their results briefly.

Strategy Development.

Each group answers:

- What can we do to avoid being trapped in a filter bubble?
- How can we diversify our information sources?

Students create 3–5 practical strategies, such as:

- Follow people with different perspectives
- Actively search for alternative sources
- Use fact-checking tools
- Turn off personalised ads where possible

Groups present their strategies.

IV. Reflection – 10 min

Students individually write on a post-it note:

- One thing I learned today
- One action I will try to apply in my digital life

The teacher collects the notes and summarises key insights.

Optional closing question: “Is it possible to completely escape a filter bubble? Why or why not?”

V. Annex – Worksheet: “My Personal Feed”

1. List the three platforms you use most.
2. What topics appear most frequently in your feed?

3. Do you actively search for alternative perspectives?
4. Do you think your feed represents “the real world”? Why or why not?
5. Name one strategy you can apply to widen your perspective online.

Expanded exemplary scenarios

Scenario 1 – The Fitness Feed

Lena (15) follows mainly fitness influencers on Instagram and TikTok. She often watches videos about:

- calorie tracking
- “what I eat in a day”
- body transformations
- detox products

She likes posts about dieting and workout routines and rarely engages with other types of content.

Discussion prompts:

- What kind of content will the algorithm show her more of?
- What opinions might become reinforced?
- What risks could arise?
- Could there also be positive effects?

Scenario 2 – The Political Commentary Viewer

Jonas (16) regularly watches political commentary videos on YouTube.

He subscribes to one particular political channel and watches videos that criticise certain government decisions.

He rarely checks other news sources.

Discussion prompts:

- What kind of recommended videos will he start seeing?
- How might his perspective change over time?
- What could be the impact on his discussions with others?
- How could he broaden his perspective?

Scenario 3 – The Conspiracy Explorer

Ali (17) recently became curious about alternative explanations for global events.

He searches for videos questioning:

- climate change
- vaccines
- international organisations

He clicks on sensational thumbnails and spends a long time watching those videos.

Discussion prompts:

- How might the platform react to this behaviour?
- What kind of rabbit hole could he enter?
- Why are such contents especially algorithm-friendly?
- What strategies could help him avoid extreme information bubbles?

VI. Learning from the implementation of the lesson

Students often understand personalisation but are unaware of its long-term effects. The topic can lead to discussions about political polarisation, so ensure respectful debate. It is recommendable to use neutral examples to avoid triggering ideological conflicts.

Teacher's reflection after the lesson:

"The lesson works best if examples are age-relevant (e.g., gaming, fashion, influencers). Short sentences are fine as prompts, but if you want deeper discussion, critical thinking, and meaningful board game/tool integration later, they should be slightly richer and more realistic."

Student's reflection after the lesson:

"I always thought everyone sees basically the same internet. I didn't realise how personalised everything actually is."

Tool 11: The Social Media Filter Bubble – Understanding Algorithms and Echo Chambers (Poland)

This lesson helps students understand how social media algorithms personalise content and create so-called “filter bubbles”. Through a simulation activity, students experience how different users receive different information based on their preferences and online behaviour. The lesson strengthens critical thinking, digital awareness, and understanding of how information environments shape opinions.

Students’ age: 13–15 years

Disciplines: ICT / Civics

Goals: develop students’ critical thinking, digital literacy, awareness of algorithmic influence, and encourage reflection on information consumption habits

Specific learning objectives

By the end of the lesson, students will be able to:

- Explain what an algorithm does in social media platforms.
- Define the concepts of filter bubble and echo chamber.
- Analyse how personalised content can influence opinions and beliefs.
- Reflect on strategies to diversify information sources.

Teaching materials

- Profile cards (different fictional users)
- Content cards (news posts, videos, opinions)
- Algorithm rule sheet
- Worksheet (analysis + reflection)
- Board / flipchart

Duration: 45 min

Step-by-step instructions

I. Orientation – 5 min

Teacher asks:

- Do all people see the same posts on social media?
- Why might two people get completely different news about the same topic?

Brief explanation: Social media platforms use algorithms to decide what content users see.

II. Preparation – 10 min

Teacher explains:

- Algorithm – a set of rules that decides what content appears in your feed.
- Filter bubble – a personalised information space created by algorithms.
- Echo chamber – when people mostly see opinions similar to their own.

Students briefly discuss:

- What types of content do you usually see?
- What do you “like” or click on most often?

III. Implementation – 20 min

Simulation Activity – “Build Your Feed”

Students work in small groups.

Each group receives the following:

1. Profile Cards (Example)

- Profile A: Likes sports and gaming, rarely reads news
- Profile B: Interested in environmental activism
- Profile C: Interested in celebrity gossip
- Profile D: Interested in political debates

2. Content Cards (Mixed Topics) (see Annex 1)

3. Algorithm Rules (given to groups)

- Show more content similar to what the user liked before.
- Show emotionally engaging content first.
- Prioritise content with many shares.
- Reduce content the user ignored.

The groups' task is to simulate how the feed would look after several "clicks."

They answer:

- What kind of content dominates the feed?
- Is the feed balanced?
- What content disappears?

They complete the worksheet (Annex 2).

Some examples students may discover include: follow diverse sources, fact-check, avoid only clicking similar content, use multiple platforms.

Teacher asks guiding questions:

- Who decides what appears in the feed?
- Is the algorithm neutral?
- What happens if someone only clicks on extreme content?

Gradually reduce support to allow independent reflection.

IV. Reflection – 10 min

Whole-class discussion:

- Is personalisation always negative?
- What are the advantages of algorithms?
- When does personalisation become manipulation?

V. Annexes

Annex 1 – Content Cards (Mixed Topics)

Neutral / Informational

Card 1

"New study shows average teen screen time increased by 30 minutes over two years."

👍 1.2k likes | 🔄 320 shares | 👁 8k views

Card 2

"City council discusses extending library hours."

👍 430 likes | 🔄 75 shares | 👁 2k views

Card 3

"Local football team wins regional tournament."

👍 2.1k likes | 🔄 210 shares | 👁 15k views

Emotional / Clickbait

Card 4

“SHOCKING: Experts warn schools are DESTROYING student creativity!”

👍 12k likes | 🔁 8.4k shares | 👁 95k views 🔥 Trending

Card 5

“You won’t believe what politicians are hiding from you!”

👍 18k likes | 🔁 15k shares | 👁 210k views 🔥 Viral

Card 6

“This simple trick will change your life FOREVER!”

👍 9.7k likes | 🔁 6k shares | 👁 120k views

Polarising / Opinion-Based**Card 7**

“Climate activists are saving the planet.”

👍 6.5k likes | 🔁 2.8k shares | 👁 60k views

Card 8

“Climate policies are destroying our economy.”

👍 7.2k likes | 🔁 3.9k shares | 👁 75k views 🔥 Heated comments

Card 9

“Social media should be banned for teenagers.”

👍 5.1k likes | 🔁 2.2k shares | 👁 48k views

Card 10

“Social media helps teens stay connected and supported.”

👍 4.8k likes | 🔁 1.6k shares | 👁 42k views

Conspiracy / Misinformation Style**Card 11**

“Secret documents prove schools track students’ behaviour.”

👍 14k likes | 🔁 11k shares | 👁 180k views 🔥 Viral

Card 12

“Doctors don’t want you to know this natural cure!”

👍 22k likes | 🔁 17k shares | 👁 250k views 🔥 Trending

Annex 2 – Worksheet – AnalysisPart A – Observing the Bubble

1. What type of content became dominant in your feed?
2. Did you see opposing viewpoints?
3. Could this influence your opinion over time?

Part B – Critical Reflection

1. How can filter bubbles affect democracy or public debate?
2. Why do algorithms prioritise emotional content?
3. What risks arise from echo chambers?

Part C – Breaking the Bubble

Write 3 strategies to reduce filter bubble effects:

1. _____
2. _____
3. _____

VI. Important note

In an optional possible extension, students may be asked to write down:

- One thing I learned about algorithms is:
- One action I can take to avoid filter bubbles:
- Why diverse information sources are important:

Tool 12: Clickbait Decoder – How Emotions Manipulate Online Content (Germany)

This lesson helps students recognise how emotional language and visual triggers are used in clickbait headlines and thumbnails to attract attention and increase sharing. Students analyse examples, identify emotional manipulation strategies, and rewrite clickbait into neutral and factual versions.

Students' age: 12–18 years

Disciplines: Language / Ethics / Media Education / Civic Education

Goals:

- Develop awareness of emotional manipulation in online media
- Strengthen critical reading and interpretation skills
- Understand how emotions influence sharing behaviour
- Encourage responsible digital engagement

Specific learning objectives:

At the end of the lesson, students will be able to:

- identify emotional triggers in headlines and thumbnails,
- distinguish between neutral and manipulative wording,
- explain why clickbait is effective,
- rewrite emotionally manipulative headlines into balanced alternatives,
- reflect on how emotions influence their own online behaviour.

Teaching materials:

- PPT Clickbait Decoder https://docs.google.com/presentation/d/1w0iDjqLsapo2ugUPUzPA9l-9TWx7Y_wh/edit?slide=id.p9#slide=id.p9
- Annex 1 - Worksheet: Clickbait Analysis Table
- Annex 2 – Clickbait Example Sets
- Whiteboard / projector
- Markers or digital editing tool

Duration: 60 min

Step-by-step instructions

I. Orientation – 10 min

Display two headlines:

- “You Won’t Believe What Happened Next!!!”
- “Local Council Approves New Transport Policy”

Ask students:

- Which one makes you more curious?
- Which one feels more trustworthy?
- Why?

Introduce the term: **clickbait** is content designed to attract attention and encourage clicks by using sensational, exaggerated, or emotional language.

II. Preparation – 10 min

Present common emotional triggers used in clickbait:

- Fear (“This could happen to YOU!”)
- Shock (“Unbelievable!”)
- Anger (“They don’t want you to know!”)

- Curiosity gap (“What happened next will surprise you!”)
- Urgency (“Act now before it’s too late!”)

Discuss: Why are emotions powerful motivators?

III. Implementation – 30 min

Students work in pairs or small groups. Each group receives 4–6 example headlines or thumbnails.

They complete the worksheet:

Headline	Emotion used	Manipulation strategy	Why effective?
----------	--------------	-----------------------	----------------

Students identify:

- Emotional language
- Exaggeration
- Missing context
- Visual exaggeration (arrows, circles, dramatic images)

Rewrite the clickbait. Students choose two examples and rewrite them into:

- Neutral, factual headlines
- Clear and informative versions

Example:

Clickbait: “Doctors Hate This One Simple Trick!”

Neutral version: “A Study Examines the Effectiveness of a New Dietary Method.”

Groups present one example and then discuss: Does the neutral version feel less exciting? Why?

IV. Reflection – 10 min

Students respond individually:

- Have you ever clicked something because of emotional wording?
- Does emotional content make you more likely to share?
- How can we pause before reacting emotionally?

Class discussion: Is clickbait always harmful, or just persuasive marketing?

V. Annexes

Annex 1 – Clickbait Analysis Worksheet

Part 1 – Identify the Emotion

1. Highlight emotional words.
2. Identify which emotion is triggered.
3. What is missing from the headline?

Part 2 – Rewrite Exercise

Original headline:

Neutral version:

Part 3 – Reflection

Why might the clickbait version spread faster?

Annex 2 – Clickbait Example Sets

Set A – Age 12–14 (Lower Secondary)

Focus: curiosity, exaggeration, emotional reaction

Example#	Original title	Neutral version
1	"You Won't Believe What This Teacher Did in Class Today!"	"A Teacher Introduced an Unusual Classroom Activity"
2	"This Game Is RUINING Your Brain!"	"A Study Examines Possible Effects of Video Gaming on Attention"
3	"Only 1% of Students Can Solve This – Are You Smart Enough?"	"A Challenging Logic Puzzle for Students"
4	"Parents Are FURIOUS About This School Rule!"	"New School Policy Causes Debate Among Parents"
5	"This ONE Trick Will Make You Popular Overnight!"	"Tips for Improving Social Confidence"

Set B – Age 15–18 (Upper Secondary)

Focus: misinformation, politics, fear, authority

Example#	Original title	Neutral version
1	"Scientists Don't Want You to Know This About Climate Change!"	"Debate Continues on Climate Policy and Scientific Findings"
2	"This New Law Will Destroy Small Businesses!"	"Experts Discuss Possible Economic Effects of the New Law"
3	"Doctors HATE This Cheap Alternative!"	"Some Patients Explore Alternative Treatment Options"
4	"Government Hiding the Truth About Energy Crisis?"	"Government Responds to Questions About Energy Policy"
5	"This Shocking Video PROVES Everything!"	"Video Raises Questions About Recent Events"

VI. Learning from the implementation of the lesson

Students quickly recognise exaggerated language but underestimate its influence.

Use age-relevant examples (gaming, influencers, trends). Avoid highly political content for younger groups. This can provide a strong link to misinformation and pre-bunking lessons.

For ages 12–14, focus on simple emotional triggers (shock, fear, curiosity), use fun/pop culture examples, and keep rewriting task short and guided.

For ages 15–18, include political headlines, discuss ethical implications, and make the connection to algorithmic amplification and monetisation.

Teacher's reflection after the lesson:

"The rewrite exercise was particularly effective in helping students distinguish between emotional and factual language."

Student's reflection after the lesson:

"I liked analysing real examples because they felt very close to what we actually see online every day."

Tool 13: Algorithms and Influence (Greece)

This lesson introduces students to Artificial Intelligence, exploring how AI algorithms operate behind social media, search engines, and everyday technologies. Through hands-on experimentation with AI tools, collaborative discussion, and ethical scenario analysis, students build multimodal data literacy skills and develop the critical awareness needed to navigate a world shaped by AI — including its role in spreading and countering fake news.

Students' age: 14–16 years

Disciplines: ICT / Social & Civic Education

Goal(s):

- Develop students' understanding of how AI algorithms function.
- Build critical awareness of how AI can both amplify and help counter misinformation and fake news.
- Encourage reflection on the ethical and societal implications of AI for equity, fairness, and the future of work.

Specific learning objective(s):

By the end of the lesson, students will be able to:

- Define Artificial Intelligence in their own words by researching and discussing its role in everyday technologies such as social media, search engines, and smartphones.
- Distinguish between AI and non-AI technologies by identifying AI-powered tools in their immediate environment.
- Explore how AI image generation works by experimenting with Craiyon, Quick Draw, and AutoDraw, and reflecting on the differences between how humans and machines process and interpret visual information.
- Reflect on the ethical and societal impact of AI by discussing real-world scenarios involving deepfakes and job automation, and considering how AI can both support and undermine fairness and equality.

Teaching materials:

- Annex 1 – Worksheet 1
- Annex 2 – Worksheet 2
- Online tools: Scratch flowchart, Craiyon, Quick Draw, AutoDraw
- Internet-connected devices for the online tool activities

Duration: 180 min

Step-by-step instructions

I. Orientation – 10 min

Ask students: "When you think of Artificial Intelligence, what comes to mind? Where do you think AI is present in your daily life?" Take 3–4 responses and note key words on the board.

Ask: "How confident do you feel in telling the difference between AI-generated content and real content online?" This surfaces prior knowledge and frames the lesson's core challenge.

Introduce the lesson: during this lesson, students will investigate what AI is, experiment with real AI tools, and critically examine how AI shapes — and is shaped by — the information environment.

II. Preparation – 45 min

Activity 1 – What is AI? Research & Discussion

Students work individually on Activity 1 on Worksheet 1 (Annex 1): they spend 15 minutes researching a definition of Artificial Intelligence (using their devices or provided reading material) and write their own definition in their own words.

Students also note down any questions they have for the in-person discussion. The teacher collects 2–3 student definitions and discusses: What do they have in common? What is missing? What makes AI hard to define?

Note: this activity can be partially completed as pre-class homework (30 minutes) if the school's timetable allows — students arrive having already researched a definition, and 15 minutes of class time is used for sharing and discussion.

Activity 2 – AI Quiz

Students complete the quiz in Worksheet 1 individually as a self-assessment tool.

Go through the answers orally as a class. Address any questions students noted down.

III. Implementation – 115 min

Distribute Worksheet 2 (Annex 2) to all students.

Activity 3 – What is AI? Brainstorming & Hands-on Exploration

Artificial Intelligence (AI) is already present in our daily lives. It is included in social media, in our mobile phones (e.g., in the camera or voice commands), and on the websites we visit (e.g., search engines and online shopping rely on AI algorithms). Not only the younger generation but also adults participate in using these tools. After all, Artificial Intelligence is an interdisciplinary field related not only to technical but also to humanitarian issues such as ethics and philosophy.

Students freely express their perceptions and thoughts on AI and social media using Worksheet 2. An open discussion follows, and the teacher creates a mind-map with the outcomes of the discussion.

The teacher then introduces and discusses the UNICEF (2021) definition of AI.

Students identify smart objects at home or in the classroom, then use the Scratch-based flowchart (<https://scratch.mit.edu/projects/371119352>) and the Quiz to investigate what counts as AI — no programming skills required.

As a group, students discuss which tasks a machine performs better than a human and vice versa, then collaboratively write their own definition of AI.

Activity 4 – How Does AI Work? Experimenting with AI Image Generators

Students familiarise themselves with Craiyon (<https://www.craiyon.com>) and create images using various prompts listed in Activity 2 in Worksheet 2 (e.g. sand sculpture, human faces, a Picasso-style classroom, a map of Europe, gendered clothing prompts). They discuss: How does Craiyon work? How do the results vary with different prompts?

Students experiment with Quick Draw (<https://quickdraw.withgoogle.com>) and AutoDraw (<https://www.autodraw.com>). They then write the steps (algorithm) they use to recognise an image, and discuss whether the computer follows the same process — does a machine 'see' the way a human does?

Activity 5 – AI for a Sustainable Future: Scenario Analysis

The teacher presents the two real-world examples from Worksheet 2 (job automation and ChatGPT's relationship with the SDGs). Students discuss: What are the positive and negative implications of AI in each case?

Using the two scenarios in the table (deepfakes and AI chatbot diagnosis), students discuss the ethical implications and reflect individually in writing at the bottom of Worksheet 2.

IV. Reflection – 10 min

Whole-class closing discussion:

- What surprised you most about how AI works?
- After this lesson, will you look at AI-generated content differently? Why?
- If you could design an AI tool to help your community, what would it do?

Students share their personal reflections from the end of Activity 5.

V. Annexes

Annex 1: Worksheet 1 – What is Artificial Intelligence?

First name: Last name:

Grade: Class: Date:

Activity 1 What is Artificial Intelligence?

Defining Artificial Intelligence (AI) is not an easy task. In fact, the concept of AI is like a moving target — it changes over time, reflecting the development of AI and the emergence of different social contexts.

Spend 15 minutes researching the definition of AI. At the end, write your own definition below.

Finally, record any questions you have for your teacher.

My definition of Artificial Intelligence:

.....

My questions for the lesson:

.....

Activity 2 Quiz Exercise

Complete the quiz below at your own pace. This is a self-assessment tool — there are no grades.

Note any doubts or questions to be answered in class.

Quiz

Choose the best answer for each question. Circle your choice.

1. In your opinion, how does Artificial Intelligence work?
 - a) it thinks exactly like humans
 - b) it uses mathematical operations
 - c) it uses logic, such as YES or NO
 - d) it is always controlled by a person
2. Can we teach computers how to be intelligent?
 - a) yes, always
 - b) yes, but it depends on the task
 - c) no
 - d) yes, on even-numbered days
3. Which task can Artificial Intelligence perform very easily?
 - a) walking and running
 - b) understanding the human voice
 - c) playing chess
 - d) being creative
4. Do you believe Artificial Intelligence is used in face filters on apps like Instagram, TikTok, etc.?
 - a) True

b) False

5. Do you believe Artificial Intelligence is used in voice-based home appliances (Alexa, Google Home)?

a) True

b) False

Answer Key: 1b; 2b; 3c; 4a; 5a

Notes / questions:

.....
.....
.....

Annex 2: Worksheet 2 – AI and Social Media in Our Lives

First name: Last name:

Grade: Class: Date:

Activity 3. What is AI?

Artificial Intelligence (AI) is already present in our daily lives. It is included in social media, in our mobile phones (e.g. in the camera or voice commands), and on the websites we visit (e.g. search engines and online shopping rely on AI algorithms). Not only the younger generation but also adults use these tools. After all, Artificial Intelligence is an interdisciplinary field related not only to technical but also to humanistic issues such as ethics and philosophy.

Phase A – Brainstorming

Freely express your perceptions and thoughts regarding AI and Social Media. Write your ideas below.

.....
.....
.....

Now read and discuss the following definition of AI by UNICEF (2021):

"Artificial intelligence refers to machine-based systems that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments. AI systems interact with us and influence our environment either directly or indirectly. Often, they appear to operate autonomously and can adapt their behaviour by learning from the relevant context."

How does this definition compare to your own? What does it include or leave out?

.....
.....
.....

Phase B – Is it AI, or not?

Identify smart objects you have at home or see in the classroom. Use the Scratch-based flowchart to investigate what counts as AI:

<https://scratch.mit.edu/projects/371119352>

List 3 objects you investigated and what you found:

- | | | | |
|------------------|---------------------------------------|-----------------------------|-----------------------------------|
| 1. Object: | Uses AI: ☐ Yes | ☐ No | ☐ Not sure |
| 2. Object: | Uses AI: ☐ Yes | ☐ No | ☐ Not sure |
| 3. Object: | Uses AI: ☐ Yes | ☐ No | ☐ Not sure |

Quiz – Is it AI, or not?

Answer True (T) if you think the machine uses AI, and False (F) if it does not. Circle your answer.

1. Smart / self-driving cars T / F
2. Social Media (TikTok, Instagram) T / F
3. Smart robot vacuum cleaner T / F
4. Refrigerator (traditional) T / F
5. Search engine T / F
6. Microphone T / F
7. Online translator T / F
8. Chatbot T / F
9. Iris scan T / F
10. Word processor (e.g. Writer, Word) T / F
11. Spam filter T / F

Answer Key: 1T; 2T; 3T; 4F; 5T; 6F; 7T; 8T; 9T; 10F; 11T

Phase C – Reflection

Write your group's own definition of AI below.

.....

.....

.....

Activity 4. How Does AI Work? Trying an AI Image Generator

This activity aims to enhance your understanding of the capabilities and limitations of a generative AI model, using an online educational tool called Craiyon.

Phase A – Craiyon Image Generator

Go to <https://www.craiyon.com> and experiment with creating images using the following prompts. Record your observations.

1. "sand sculpture" — My observations:
2. "human faces" — My observations:
3. "a painting of a class of students in Picasso style" — My observations:
.....
4. "a detailed map of Europe" — My observations:
5. "a woman wearing a coat" — My observations:
6. "a man wearing a coat" — My observations:

How does Craiyon work? How are the results affected by the commands we give?

.....

.....

.....

Phase B – Quick Draw & AutoDraw

Experiment with Quick Draw (<https://quickdraw.withgoogle.com>) and AutoDraw (<https://www.autodraw.com>). What conclusions can you draw about how machines interpret images?

.....

.....

.....

List the steps (algorithm) you take to recognise an image:

.....

.....

.....
Do you think the computer follows the same steps — does it 'see' a photo the way a human does?
.....
.....
.....

Activity 5. The World of AI for a Sustainable Future

This activity focuses on human-AI interactions and their impact on Social Media. The discussion centres on the fact that AI can affect society both positively (fair and inclusive AI) and negatively.

Phase A – Real-World Examples

Examine the following examples and discuss them with your class:

- According to a study by the European Parliament, about 14% of jobs in OECD countries face a very high probability of automation (humans being replaced by machines).
- ChatGPT can support Quality Education (SDG 4) by providing immediate information. On the other hand, it may display biases in its answers, which could inadvertently reinforce stereotypes or lead to unequal representation. This goes against SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities).

Discussion notes:

.....
.....
.....

Phase B – Fiction Design: Ethical Analysis

Read the two scenarios below and discuss the ethical implications. What are your reactions and feelings? Who is responsible?

Example	Scenario – What if...
Use of applications that create fictional images and videos (deepfake). This content shows a person participating in an activity that never actually happened.	Imagine seeing a video of you walking in a city abroad that you have never visited. What would be your reaction and feelings? You realise the video is fake (deepfake) and was created by an AI system using a video you posted online.
Imagine a chatbot that can diagnose a health problem based on information provided by the patient.	What if the AI system made a mistake and provided an incorrect diagnosis? What if the patient had not reported all the information regarding their health status?

My personal reflection:

Freely express your personal thoughts regarding the content of the lesson and what you learned from the activities.

.....
.....
.....

VI. Important note

To create a more engaging and participatory environment, teachers are advised to make use of online platforms such as Kahoot to deliver the quizzes.

Propaganda and manipulation

Tool 14: Introduction to Propaganda (Belgium)

Students learn what propaganda is, what it looks like, what it is used for and what the effects of propaganda are. They learn critical thinking techniques to recognize propaganda in different contexts.

Students' age: 15-18 years

Disciplines: History, Citizenship, Dutch

Goal: The students learn about propaganda.

Specific learning objective(s):

By the end of the lesson, the students will be able to

- recognise propaganda;
- analyse examples of propaganda.

Teaching materials:

- PPT Presentation – Propaganda (to be adapted using local examples)
https://docs.google.com/presentation/d/1cpRrBI6PBymejODyPQkRR5Hlz7OFB_E/edit?slide=id.p1#slide=id.p1

Duration: 60-90 min

Step-by-step instructions

I. Orientation – 20 min

Use slides 1-10. Students are confronted with statements such as 'Propaganda is always bad' and 'Propaganda is always easily recognizable' to introduce them to the topic and challenge them. Following each statement, examples are shown to explain or counter the statement. Examples are current and recognizable to students, e.g. examples from the Covid pandemic and the killing of Charlie Kirk.

II. Preparation – 5 min

Use slide 11. Students are introduced to the 10 propaganda techniques. Alternatively, the 10 techniques can be 'discovered' together with the students and summarized at the end.

III. Implementation – 40-60 min

Use slides 12-37. Students are shown a variety of propaganda examples, from different contexts. Together, we look for how the 10 techniques work in real life examples. By analysing these examples, students further learn:

- how propaganda has been used historically;
- what the possible effects of propaganda are.

Case study analysis: using a case study of one political party (from the past or current) the techniques are analysed. This can work as a conclusion exercise or the introduction to a group assignment (see tool *Recognizing propaganda*).

For the first exercise, per poster, it is discussed what the intention of the poster is, what hidden messages there are, which colours or symbols are visible and which emotions are evoked. (See slide 30).

These answers can then be summarized per time period/ poster group. (See example slide 35).

Alternatively, this exercise can already be done in different groups.

IV. Reflection – 10-20 min

Use slides 37-38.

Conclusion: Repetition of summary of 10 techniques and quote to encourage further critical thinking.

Class discussion:

- What have you learned today?
- What other examples of propaganda have you seen on social media/ elsewhere?
- What are your expectations for the future?
- Any more questions?

V. Annex:

Presentation - Propaganda

Important notes

While the general outline of the presentation and the techniques can be used by teachers everywhere, it is important that (some of) the examples are changed to local examples, especially those that are discussed in exercises. The Dutch examples in the presentations are there as illustrations. Other international examples (e.g. internationally known politicians) can be retained as long as you believe students have enough background understanding.

Duration will depend on how much extra information the students require to understand the examples.

Slides 39-52 show more local and international examples of propaganda that can be used in exercises or as inspiration.

Teachers' reflection after the lesson

"Very effective lesson, but not just any teacher can teach it. Requires someone with a background in history, understanding of present day politics, and understanding of what students will relate to.

Also requires a group of students with some background knowledge and enough focus. Shouldn't be taught to just any class."

Tool 15: Recognizing Propaganda (Belgium)

The students apply the framework for recognizing propaganda to examples the teacher assigns or they find themselves.

Students' age: 15-18 years

Disciplines: History, Citizenship, Dutch

Goal: Students learn to recognize propaganda techniques.

Specific learning objective(s):

By the end of the lesson, the students will be able to

- apply their acquired knowledge about propaganda to given examples;
- recognize the 10 techniques of propaganda;
- find examples of propaganda themselves.

Teaching materials:

Annex - Worksheet (to be adapted using local examples)

Duration: 50 min

Step-by-step instructions

I. Orientation – 5 min

Quick summary of what propaganda is, how the techniques can be recognized.

II. Preparation – 5 min

Explanation of the exercise: students use the 10 techniques to analyze a given example of propaganda.

III. Implementation – 20 min

Students do the assignment. They check each technique that is present and elaborate on what they see.

IV. Reflection – 20 min

To summarize, the findings of the students are discussed and compared. Room to ask questions.

Annex - Propaganda analysis

Task	
Subject:	
Teacher:	
First name and surname:	
Date:	
Class:	

Look at the images below (PVDA campaign) and follow the diagram on the next page.

Check whether this technique is present + briefly write down what you mean, which emotion? Which enemy, etc.



✓	Technique + explanation
	Keep it simple! (understandable language, core idea, yes/no story)
	Repeat, repeat, repeat! (stereotypical phrases, images, or symbols)
	Be consistent! (recognition, repetition)
	Evoke emotions! (feelings and frustrations, emotional arguments)
	Strengthen the group feeling (like-minded people, sharing feelings in a group)
	Create an enemy (your own truth is always right, censor, conceal, deny, distort)
	Create your own truth (common enemy as a binding agent)
	Be authoritarian (authoritarianism is strong, doubt is weak, command-request)
	Transcend the here and now (reinforce authority, cross boundaries, link with celebrities)
	Address the masses (wide reach, mass media, budget, merchandising)

VI. Important notes

Some alternative approaches to the activity:

- The activity can be done individually or in groups. When done in groups, each group should receive a different case to analyse. When done as an individual exercise, it can be given as homework or a test.
- Students can be asked to make a presentation explaining their findings. In this case, more time should be assigned.
- Instead of giving students a case to analyse, you can also ask them to find examples themselves that they then have to analyse.

Tool 16: Spot the Manipulation - Analysing Propaganda in Media Texts (Poland)

This lesson aims to develop students' ability to critically analyse media content by recognising propaganda and manipulative techniques. Through the analysis of a short social media-style post, students learn to distinguish between facts and opinions, identify emotionally loaded language, and detect exaggeration and biased framing. By anticipating common manipulation strategies and reflecting on their impact, students strengthen their resilience to disinformation and become more responsible media consumers.

Students' Age: 13-14 years

Disciplines: English Language / Civics

Specific Objectives

By the end of the lesson, students will be able to:

- Recognise mechanisms of propaganda and manipulative discourse
- Identify emotionally loaded language and biased framing
- Distinguish between fact-based statements and opinions
- Apply a simple pre-bunking strategy to anticipate manipulation techniques
- Reflect on how disinformation influences public perception and democratic dialogue

Teaching materials

- Projector / board
- Annex 1 – Propaganda Techniques Reference Sheet
- Annex 2 - Case Study Text
- Annex 3 – Worksheet: Analysis Tasks
- Highlighters

Duration: 45 min

Step-by-step instructions

I. Orientation – 5 min

Emotional Headline Reaction

Teacher displays: "NEW SCHOOL RULES THREATEN STUDENT FREEDOM – ACT NOW!"

Students respond:

- What emotion does this headline create?
- Do we know any actual facts yet?
- Why might someone write it this way?

Teacher briefly explains that messages designed to strongly influence opinions often use persuasive techniques that appeal to emotions rather than balanced evidence.

II. Preparation – 10 min

Introducing Common Propaganda Mechanisms

Students receive a short reference sheet (Annex 1). Teacher explains the terms.

Pre-bunking Activity

Before reading the case study (Annex 2), students predict:

- Which of these techniques might appear?
- Why are these techniques effective?

Students write 1–2 predictions. This prepares them to actively look for manipulation rather than react emotionally.

III. Implementation – 20 min

Students work in groups of 3–4. Meanwhile, the teacher circulates and asks guiding questions:

- Where is the evidence?
- Are sources named clearly?
- What emotion is being triggered?
- Is there exaggeration?
- Could this idea be expressed neutrally?

The teacher gradually reduces support to promote independent analysis.

Group Sharing

When the worksheet has been resolved, each group presents:

- One manipulation technique found
- Their neutral rewritten sentence

IV. Reflection – 10 min

Students complete the statements below:

- One technique I will now recognise online is:
- Before sharing a post, I should ask:

V. Annexes

Annex 1 - Propaganda Techniques Reference Sheet

- Emotional Appeal – uses fear, anger, pride instead of evidence
- Exaggeration – makes a situation seem extreme or catastrophic
- Bandwagon – suggests “everyone believes this”
- False Dilemma – presents only two extreme options
- Loaded Language – uses dramatic or biased vocabulary

Annex 2 – Case study

Social Media Post

“Parents are FURIOUS after school authorities secretly introduced a new rule forcing students to stay until 5 PM.

This outrageous decision proves they DO NOT CARE about students’ mental health.

Experts warn that extended school hours DESTROY creativity and cause extreme stress.

Everyone knows this program is just another way to control young people.

If we remain silent, soon students will lose ALL their freedom.

SHARE before it’s too late!”

Annex 3 – Worksheet – analysis task

Part A – Identifying Manipulation

Highlight emotionally loaded words or phrases. Identify at least 4 propaganda techniques.

Technique	Evidence from the text	Why is it manipulative?

Part B – Fact or Opinion?

Mark each statement as Fact (F) or Opinion (O):

Students must stay at school until 5 PM. ____

The decision is outrageous. ____
Experts warn it destroys creativity. ____
Everyone knows it is about control. ____
Students will lose all freedom. ____

Part C – Missing Information

What information is missing from this post?

Is another perspective presented?

What questions should a critical reader ask?

Part D – Neutral Rewriting

Rewrite this sentence in neutral, fact-based language:

“This outrageous decision DESTROYS creativity.”

VI. Learning from the implementation of the lesson

The teacher may choose to assign homework such as this:

Find a real online headline and:

- *Identify at least two persuasive techniques*
- *Rewrite it in neutral language*
- *Explain how the message could influence readers*

Teacher’s reflection after the lesson:

“Through group discussions and analysis tasks, they [students] practised distinguishing facts from opinions and reflecting on how disinformation can influence public opinion and online behaviour.”

Student’s reflection after the lesson:

“Analysing examples helped me notice manipulation techniques more easily.”

Tool 17: When Media Contradicts Democracy (Italy)

After discussing democratic principles inspired by the Constitution, students analyze real media examples to identify messages that contradict or undermine those principles. The activity helps students recognize how news or media content can misrepresent democratic values through framing, exclusion, or manipulation.

Students' age: 14-17 years

Discipline: Civic education

Goals:

To help students connect constitutional principles of democracy with real-world media analysis and recognize content that conflicts with or distorts democratic values.

Specific learning objectives:

By the end of the lesson, students will be able to:

- apply democratic principles as an evaluation tool
- identify media content that contradicts those principles
- explain their reasoning through discussion rather than written production.

Teaching materials:

- Text or summary of key democratic principles (Article 1 of the constitution or equivalent)

Duration: 120 min

Step-by-step instructions

I. Orientation – 15 min

The teacher leads a short discussion on democracy, recalling key principles from the Constitution (e.g. popular sovereignty, equality, participation, respect for rights). Students are encouraged to think of these principles as a “lens” for reading media.

II. Preparation – 15 min

Individually or in small groups, students identify a news item; they will propose a source themselves where to look for inspiration: headline, social media post, or an advertisement that they believe does *not* represent or respect one of the discussed democratic principles. Students briefly present the example orally, explaining which principle is contradicted and how (e.g. exclusion, stereotyping, misinformation, silencing of voices).

III. Implementation – 45 min

The class discusses which democratic principles appeared to be challenged or misrepresented in the examples collected by students. The teacher can first map the examples on the board (e.g. equality, participation, freedom of expression, respect for rights) to visualize patterns emerging from the activity.

To support the discussion, the teacher briefly introduces findings from media literacy and journalism studies showing common ways democratic values can be distorted in media environments. For example, research on misinformation and media bias often highlights recurring issues such as:

- Stereotyping or exclusion of certain groups, which can undermine the democratic principle of equality.
- Misinformation or manipulation of facts, which affects citizens' ability to make informed decisions.
- Limited representation of diverse voices, which can weaken democratic participation and pluralism.

- Emotionally framed or sensationalized content, which may influence public perception rather than encourage critical understanding.

IV. Reflection – 15 min

Students reflect on two questions:

- Which democratic principles were most frequently challenged in the examples we analyzed today?
- Why do you think these principles are particularly vulnerable to distortion in media communication?

The teacher concludes by emphasizing that democratic principles can serve as a practical tool for critically evaluating information and media content.

V. Annex

A relevant excerpt from the Constitution or equivalent

Bias and logical errors

Tool 18: From School Notice to Viral Post: Framing, Bias & Rumours (Cyprus)

This lesson helps students understand how framing, bias, and stakeholder perspectives influence the way information is presented and interpreted in public communication and social media. Through analysing and revising messages, students learn to distinguish facts from opinions, recognise rumour signals and cognitive biases, and communicate in a more accurate, balanced, and responsible way.

Students' age: 15–17 years

Disciplines: Language & Communication / Citizenship

Goals:

- Develop media literacy by recognising how framing and stakeholder interests shape public messages.
- Build students' ability to identify missing context, bias, and rumour signals in school-related communication and social media posts.
- Strengthen responsible civic communication through accuracy, clarity, empathy, and constructive problem-solving.

Specific learning objective(s):

At the end of the lesson, students will be able to:

- explain what framing is and identify framing choices such as headline, tone, selected facts, and emotional language;
- distinguish facts from opinions and assumptions in stakeholder messages;
- identify cognitive bias in messages, such as negativity bias, confirmation bias, and blaming/attribution bias;
- detect rumour signals such as vague sources, exaggeration, urgency to share, and missing evidence;
- revise a message so it becomes more accurate, balanced, and responsible for public sharing.

Teaching materials:

- Annex 1 – Teacher mini-input framing examples
- Annex 2 – Scenario card
- Annex 3 – Role cards
- Annex 4 – Writing templates
- Annex 5 – Read across analysis worksheet
- Projector / interactive board
- A4 paper or laptops/tablets for drafting
- Markers / post-its for gallery walk

Duration: 90 min

Step-by-step instructions

I. Orientation – 15 min

Warm-up prompt:

- Teacher asks: "Can the same event be true but still sound completely different depending on who tells it?"
- Teacher writes key words on the board: framing, perspective, audience, tone, missing context.

Mini-input (Annex 1): framing, bias and rumour signals:

- Teacher explains simply: framing = what you highlight, how you describe it, and what you leave out.
- Teacher shows two sample headlines (neutral vs emotional) and asks students how the wording changes perception.
- Teacher introduces rumour warning signs: no source, exaggeration, urgent sharing, vague 'they', emotional language, missing evidence.

II. Preparation – 15 min

Scenario briefing

- Teacher gives the scenario card (Annex 2).
- As a class, students identify what is confirmed and what is still unknown.

Assign roles:

- Students form 4-5 groups and receive a role card (Annex 3) and the matching writing template (Annex 4).
- Each group identifies: (a) their audience, (b) their communication goal, (c) 3 facts they must include, (d) one opinion they may express clearly as opinion, and (e) what they might omit and why.

III. Implementation – 45 min

Draft role messages:

- Groups draft their message using the template for their role.
- Rule: include at least 3 verifiable facts from the scenario; keep opinions clearly separate from facts; do not name individuals.

Gallery walk:

- Groups display their messages on the wall or on a classroom board.
- Students rotate and read all messages.
- Each student marks: one framing choice, one missing piece of context, and one possible rumour trigger.

Read Across analysis:

- Using the Read Across worksheet (Annex 5), groups compare 2-3 messages from different roles.
- They answer: What facts are common? What changes in tone/blame/solutions? Which message has the highest rumour risk? Which message is most responsible?

IV. Reflection – 15 min

Class debrief:

- Teacher leads discussion: How did framing change the way the issue felt? Which messages created misunderstanding or unfair blame?
- Students identify bias patterns they noticed, such as blaming, assuming intention, or focusing only on negative consequences.
- As a class, students agree on principles for responsible public communication: accuracy, context, empathy, and clear action steps.

Rewrite challenge:

- Each group revises one sentence from its own message to make it more balanced, evidence-based, and suitable for public sharing.
- Groups read out the original and improved version.

V. Annexes

Annex 1 – Teacher mini-input material: framing examples

Use these examples during the starter mini-input:

Headline A (neutral): “School introduces temporary toilet-access rule during lesson time.”

Headline B (emotional): “Students punished as school locks toilets all day.”

Prompt questions:

- Which words are factual and which are emotional?
- What important context is missing from Headline B?
- Which headline is more likely to spread quickly online, and why?

Annex 2 – Scenario card (teacher reads/displays)

Scenario: Toilets locked except during breaks

In a secondary school, toilets are now locked during lesson time and open during breaks and lunchtime only. The school says this temporary measure is linked to repeated vandalism, hygiene problems, and students leaving lessons frequently. Some students are upset and say the rule is unfair and unhealthy. Support staff say they are overwhelmed by damage and cleaning workload.

Confirmed facts for this activity:

- Toilets are open during breaks and lunchtime.
- During lessons, students must ask permission and use a designated toilet key (or wait until break).
- The school says the measure is temporary and will be reviewed.
- The school wants to reduce vandalism and improve hygiene.

Unknown / not confirmed:

- How long the measure will last.
- Whether there will be additional facilities or changes (e.g. supervised access, extra cleaning, repairs).

Annex 3 – Role cards (assign one role per group)

1. Principal / Head teacher: write a formal announcement to students and parents (clear rule, reason, review point).
2. Students (affected group): write a student statement explaining concerns and requests.
3. Journalists: write a short news report (headline, lead, two quotes from different sides).
4. Student Council – Social Media Team: create 1-2 social media posts (caption and hashtags) and one short comment reply.
5. Parents’ Association: write a parent communication (email or Facebook post) focusing on safety, dignity, and solutions.
6. Teachers: write a staff viewpoint focusing on learning time, wellbeing, discipline, and classroom impact.
7. Cleaners / Support Staff: write a practical viewpoint focusing on hygiene, vandalism, workload, and safety.

Annex 4 – Writing templates (use the one that matches your role)

1. Principal / Head teacher – announcement template

Subject: _____

Dear students and parents,

What is changing (rule): _____

Why (facts, not blame): _____

What students should do if they need the toilet during lessons: _____
When / how the measure will be reviewed: _____
How we will address the underlying issue (repairs/supervision/education): _____
Thank you, _____ (Principal)

2. Students – statement template

Our position (1 sentence): _____
3 concerns (health / dignity / learning):

- _____
- _____
- _____

2 requests / solutions we propose:

- _____
- _____

One sentence that is respectful and evidence-based: _____

3. Journalists – mini news report template

Headline (neutral): _____

Lead (who / what / where / when): _____

Key facts (3 bullets):

- _____
- _____
- _____

Quote 1 (student / parent): “ _____ ”

Quote 2 (school / staff): “ _____ ”

What is still unknown / under review: _____

4. Student Council – social media template

Post 1 caption (max 280 characters): _____

Hashtags: # _____ # _____ # _____

Post 2 (optional): _____

Comment reply (calm + factual): _____

5. Parents’ Association – email / Facebook post template

Opening (concern): _____

What we understand as facts: _____

Our concerns: _____

Suggested solutions (2): _____

Call to action (responsible): _____

6. Teachers – staff viewpoint template

Main concern (learning / wellbeing / discipline): _____

Facts we see in class (2-3):

- _____
- _____
- _____

What support we need (1-2): _____

A balanced closing sentence: _____

7. Cleaners / Support Staff – practical viewpoint template

What problems we deal with (facts): _____

Impact on hygiene / safety / workload: _____

What would help (solutions): _____

A respectful message to students: _____

Annex 5 – Read Across analysis worksheet

Choose 3-4 messages from different roles and complete:

1) Common facts across messages (list 3):

- _____
- _____
- _____

2) Differences in framing (tone / headline / blame / solutions) (list 3):

- _____
- _____
- _____

3) Missing context: What information is needed for a fair understanding? (list 3)

- _____
- _____
- _____

4) Rumour risk: Which message could trigger misinformation or overreaction? Why?

5) Most responsible message: Which one and why? Use 2 examples.

6) Rewrite: Improve one sentence to make it accurate + balanced:

Original: _____

Improved: _____

VI. Learning from the implementation of the lesson

If students write extreme or accusatory posts, use this as a teachable moment: ask what evidence supports the wording and what harm it could cause.

The lesson works best if the final product is not 'who is right' but 'which message is most responsible and why'.

Teacher's reflection after the lesson:

"Students were able to see that the same school issue can sound very different depending on who is speaking. During the role-writing and gallery walk, they noticed how quickly a message can become unfair, emotional, or misleading when it focuses only on one side. The rewrite challenge was especially useful because students practised keeping their concerns while making the message more accurate."

Students' reflections after the lesson:

"At first, our group wrote the message from only one side. But when we read the other groups' texts, I saw that students, teachers, cleaners and parents all noticed different things."

"I learned that before I post or share something, I should ask do I know this as a fact or am I just assuming it?"

Tool 19: From News to the Stage (Italy)

*This lesson invites students to transform a news story into a short **theatrical performance**. By staging the event and impersonating the different agents involved, students explore how perspectives, roles, and narrative choices shape the way news is constructed and understood.*

Students' age: 14-17 years

Disciplines: Humanities: Language Arts, Drama, Media Studies

Goal:

To deepen students' understanding of news narratives by engaging them in creative reinterpretation, perspective-taking, and collaborative performance

Specific learning objectives:

By the end of the lesson, students will be able to:

- identify key actors and viewpoints in a news story
- adapt factual content into a dramatic script
- interpret events through role-play
- reflect on how narration and performance influence meaning.

Teaching materials:

- One or more selected news articles, according to the number of students (see examples in Annex)

Duration: 3 hours and 30 min in class (can be split into several separate lessons if costumes are to be prepared)

Step-by-step instructions

I. Orientation – 30 min

The teacher introduces the activity by discussing how news stories already contain characters, conflicts, and perspectives. A short example is shown or discussed to illustrate how the same event can be narrated differently depending on the point of view.

e.g. <https://www.bbc.com/news/newsbeat-64305656> - about racism in the rental market

II. Preparation – 30 min

Prior to the lesson, the teacher prepares a selection of news items with events that include many actors and different possible points of views, possibly on topics that are related to the students' reality and context. It is important to consider news that is simple and with agents from daily contexts (news from the surroundings or from the national contexts) avoiding the political ones or the ones that are too abstract.

News should have the following characteristics:

- **Multiple identifiable actors:** the story should involve different people (e.g., citizens, authorities, witnesses, organizations) so that students can easily assign roles and perspectives.
- **Clear sequence of events:** the news should present a recognizable beginning, development, and outcome that can be translated into a short dramatic structure.
- **Accessible language and length:** the article should be understandable for the students age and not too long, allowing them to quickly grasp the key facts and context.
- **Connection to everyday life:** topics related to community life, education, environment, housing, local initiatives, or youth experiences tend to be easier for students to interpret and perform.

- **Presence of different viewpoints:** the article should include or suggest contrasting perspectives (e.g., residents vs. institutions, witnesses vs. authorities), which encourages discussion about bias and narrative framing.
- **Fact-based content:** the news should be grounded in verifiable facts so that students learn to remain faithful to the information while creatively adapting it for the stage.
- **Potential for dialogue:** the article should contain quotes, statements, or implied conversations that students can transform into dialogue for the performance.

These criteria help ensure that the selected news stories are suitable for dramatic adaptation while supporting the lesson's objective of critically understanding how news narratives are constructed and interpreted.

In small groups, students choose a news article and identify all the agents involved (e.g. witnesses, institutions, journalists, affected individuals).

III. Implementation – 90 min

They adapt the news into a short script, deciding how each role will speak and interact while remaining faithful to the facts. Groups then rehearse and take turns staging their performance in class, impersonating the different agents.

IV. Reflection – 60 min

After each performance, students and teacher discuss how the staging affected understanding of the news. Students reflect on which perspectives were highlighted, which were less visible, and how performance can influence interpretation and empathy.

The teacher can guide the reflection using the following leading questions:

- How did you feel impersonating your character?
- Do you think that your perspective shifted while impersonating them?
- Do you now think the story was well written?
- What would you narrate differently?

V. Annex

Examples of appropriate articles:

<https://www.thescottishsun.co.uk/news/15244250/migrant-hotel-ruining-village-protests>

<https://www.theguardian.com/uk-news/2025/nov/30/how-liverpool-housing-dream-turned-into-a-nightmare-eldonian-village>

VI. Important notes

Clear guidance is needed to keep performances respectful and fact-based. Time limits help maintain focus and prevent over-dramatization. Even shy students tend to participate when roles are distributed flexibly (e.g. narrator, director, observer)

Tool 20: Democracy in the Age of Artificial Intelligence (Portugal)

In this lesson, students will critically analyse information and examine the influence of Artificial Intelligence on opinion formation.

Students' age: 11-15 years

Discipline: citizenship education

Goals: to develop the following specific skills:

- Question information and opinions
- Identify facts, interpretations, and value judgments
- Formulate a well-founded and coherent personal opinion
- Recognise the influence of Artificial Intelligence and algorithms on opinion formation

Specific objectives:

By the end of the activity, students should be able to:

- Understand the meaning of democratic citizenship
- Recognise the importance of participation and listening in a democratic context
- Distinguish personal (subjective) opinion from facts
- Identify the influence of Artificial Intelligence on the information they receive
- Argue clearly, logically, and respectfully

Teaching materials:

Annex 1 – Guiding questions to the Problem Scenario

Annex 2 – Assessment tool: observation grid for clear and objective argumentation

Internet and computers

Duration: 60 min

Step-by-step instructions

I. Orientation – 10 min

Teacher presents the “problem scenario” (Annex 1). Students signal individually whether they agree or disagree holding up “Agree/Disagree” cards. When a question is asked, students hold up their card to indicate their position.

II. Preparation – 15 min

The teacher divides the class into small groups of 3–4 students. Within each group, students share the answers they previously gave to the questions in the problem scenario. Groups identify similarities and differences in their initial responses.

Group task organisation:

Half of the groups are assigned Task A, and the other half Task B.

Task A – Evidence-based groups

For each question in the problem scenario, students identify the majority answer within their group (e.g., if 3 out of 4 students answered “Yes”). Students then search online for reliable information to find facts and evidence that support or challenge this majority position. The aim is to build arguments grounded in verified information and credible sources.

Task B – Opinion-based groups

For each question in the problem scenario, students also identify the majority answer within their group. Based on this majority position, students develop arguments grounded in personal opinions, interpretations, and perspectives, without conducting online research. Students prepare to justify their viewpoints using reasoning, examples, and personal reflections.

The teacher ensures a balanced number of groups assigned to each task to promote an equitable and productive discussion in the following phase.

III. Implementation – 30 min

Each group presents their arguments to the whole class.

Task A (Evidence-based groups): Present arguments supported by facts and credible sources that justify the answer within the group.

Task B (Opinion-based groups): Present arguments based on personal opinions and reasoning that justify the answer within the group.

During the presentations, students are encouraged to demonstrate:

- Critical thinking
- Clear distinction between facts and opinions
- Arguments both for and against the majority position

Final sharing with the whole class between teacher and students. The teacher moderates the discussion by:

- Encouraging active listening and respectful dialogue
- Prompting students to compare evidence-based and opinion-based arguments
- Highlighting how Artificial Intelligence and algorithms can influence the information they receive, linking the discussion to the broader theme of the activity.

IV. Reflection – 5 min

Key conclusions:

- Artificial Intelligence can influence our opinions.
- Not everything we see online is neutral or true.
- It is necessary to question sources, reflect before sharing, and understand that technology is not neutral.

Teacher guides reflection based on the key idea that democracy depends on:

- Reliable information
- Critical thinking
- Reflection on the impact of Artificial Intelligence on the information we receive (e.g., algorithms and social media)

V. Annexes

Annex 1 – Guiding Questions to the Problem Scenario

1. Is everything you see on the Internet true?
2. If the majority agree with something, does that make it correct?
3. How do algorithms and social media influence the information we see?
4. Can Artificial Intelligence change the way people form opinions?
5. Can we distinguish between fact-based information and opinion-based information?
6. Is it important to listen to others' perspectives in a democratic discussion?

Annex 2 – Observation Grid for Argumentation Skills

Student Name	Clarity of Argument	Evidence-Based Reasoning	Distinction Between Fact and Opinion	Respect for Others' Opinions	Comments

- **Excellent (E):** Very clear, well-structured argument with strong evidence; distinguishes facts and opinions correctly; respectful.
- **Good (G):** Clear argument, some evidence; mostly distinguishes facts and opinions; respectful.
- **Needs Improvement (N):** Argument unclear, weak evidence; struggles to distinguish facts/opinions; occasional disrespect.

Fact-checking and debunking

Tool 21. Spotting fake news - 10 reflection questions (Belgium)

Using 10 reflection questions, students learn how they can figure out whether an item of news article is fake or real.

Students' age: 13-18 years

Discipline: Citizenship education

Goal: Students practice spotting fake news using the 10 questions.

Specific learning objectives:

- Students apply their knowledge about fake news;
- Students practice critical thinking skills;
- Students use 10 reflection questions to decide whether examples are fake news or real news.

Teaching materials:

- PPT – Spotting fake news https://docs.google.com/presentation/d/1xhsSRkGyXzQIb1uz6bJX-eQPZY_Lxq4-/edit?slide=id.p71#slide=id.p71
- Annex 1 - Worksheet

Duration: 50 min

Step-by-step instructions

I. Orientation – 10 min

Students are (re)introduced to the 10 questions they can ask to spot fake news;

- Is the title neutral?
- Who is the author?
- What is the date?
- Who published the news?
- What are the sources?
- Are the links working?
- What reason does the author have to share this article?
- What biases are present?
- How is the information presented? (language)
- Is there any visual material?

If students have any initial questions about this method, now is the time to discuss them.

II. Preparation – 5 min

The exercise is explained: students use the reflection questions to analyse a (fake) news example (Annex 1). Students use argumentation techniques to explain their findings.

III. Implementation – 25 min

Students analyse the example and report on their findings via the worksheet.

IV. Reflection – 10 min

Class reflection on and correction of the exercise.

V. Annex

Annex 1 – Worksheet – Fake news

Task: Fake News	
Subject:	
Teacher:	
First and last name:	
Date:	
Class:	

During a test, you should always pay attention to your language use. Therefore, do the following:

- I follow the instructions closely;
- I formulate my answers to open questions in clear and correct sentences;
- I spell technical terms correctly;
- I take care with my handwriting.

Fake News?

Look at the attached source and analyse it according to the rules of thumb/ reflection questions.

- Check whether this rule of thumb is noticeable or not.
- Each rule of thumb has a space for you to explain why you ticked or unticked it.
- At the bottom, indicate whether you think this is real or fake news!

Rule of thumb	✓	Why yes? Why not?
1. Is the title neutral?		
2. Who is the author?		
3. What is the date?		
4. Who published it?		
5. What are the sources?		
6. Are the links correct?		
7. What was the author's reason/motive for creating this?		
8. What are the biases?		
9. Is the information presented neutrally?		
10. Is there any visual material?		
FAKE NEWS/ REAL NEWS?		
Argumentation scheme:		
Answer	Yes or no + why I think so.	

Explanation	• Argument 1 • Argument 2
Decision	Conclusion: repeat your yes or no and try to summarize your arguments in order to form the final conviction.

VENETIË



Dolfijnen gespot in Venetië tijdens lockdown

Het is bijzonder rustig in het anders met duizenden toeristen overspoelde Venetië. Door het coronavirus en de ingevoerde maatregelen van de Italiaanse overheid, is het doodstil in de straten en op het water in de stad.

Een leuk gevolg is dat de natuur ten volle profiteert van deze rust. Nu er geen gondels meer varen in de doorgaans drukke kanalen, is het water ineens glashelder en kan je de bodems van de waterwegen zien. Het krioelt er van de vissen en ook zwanen en aalscholvers duiken weer op in Venetië. Meer nog: voor het eerst sinds lang is er een bende vrolijke dolfijnen gezien langs de kades, zo blijkt uit filmpjes op Twitter.

Op het platform wordt enthousiast gereageerd. "Venetië heeft in lange tijd geen helder water meer gezien. Ook dolfijnen duiken nu weer op. De natuur heeft op de resetknop gedrukt!", zegt de Italiaan Gianluca De Santis op Twitter.

twitter.com/BANGWOOL_PD/status/1240234071701229568



VI. Learning from the implementation of the lesson

The example used in the lesson described above should be changed to a local one.

This activity can be done individually or in groups. If done in groups, you can give students multiple examples to analyse. If done individually, this can also be a homework assignment or test.

Reflections after the lesson

Students and teachers found this a very useful and relevant activity. Students sometimes tend to overestimate their abilities. Students tend to focus on the questions that they already deem to be important or easy to check.

Tool 22: Algorithms and fake news (Belgium)

In this lesson, students are introduced to how algorithms impact fake news, including the concepts of filter bubbles and echo chambers. They are also introduced to ways of spotting fake news.

Students' age: 13-18 years

Disciplines: Citizenship, English, Dutch, French

Goals: Students learn about fake news, algorithms and media literacy, as well as strengthen their critical thinking skills.

Specific learning objective(s):

By the end of the lesson, the students will be able to

- explain how algorithms work;
- explain how algorithms impact social media usage (filter bubbles, echo chambers);
- list general and specific tips to spot fake news;

Teaching materials:

- Annex 1 – PPT What's new
- Annex 2 – PPT Fake news

Duration: 50 min

Step-by-step instructions

I. Orientation – 5 min

Students are asked what social media platforms they use and whether they are aware of the prevalence and dangers of fake news by responding to statements:

- Fake news is a problem
- Fake news can damage your health
- Fake news can encourage hate
- Fake news can damage democracy

II. Preparation – 10 min

- Students are introduced to relevant terms and definitions: algorithms, filter bubbles and echo chambers.
- Students learn how fake news relates to other forms of disinformation.

III. Implementation – 25 min

By use of examples, students learn:

- how to spot fake news;
- why fake news is shared;
- what the dangers of fake news are.

Via a quiz, students are tested to see whether they understand which type of disinformation they see.

Looking at different cases, students discuss how they can spot fake news and what motivations might exist for this type of fake news to be shared.

Students learn practical tips to spot fake news:

- What fact-checkers are;
- A framework for checking (fake) news.

IV. Reflection – 10 min

Students are asked to reflect once more on the questions from the start of the class:

- Fake news is a problem
- Fake news can damage your health
- Fake news can encourage hate
- Fake news can damage democracy

V. Annexes

Annex 1 – PPT: What’s new <https://docs.google.com/presentation/d/1v1QBg635Rj1PpUY-Oqrjex1GYNUNEzla/edit?slide=id.p1#slide=id.p1>

Annex 2 – PPT: Fake news

<https://docs.google.com/presentation/d/1K1bcLkRUkOBf9UzaOp8rnyx5RRluKlaq/edit?slide=id.p1#slide=id.p1>

VI. Learning from the implementation of the lesson

Some examples need to be changed to local examples.

Create a Kahoot to test how well the students can spot fake news. It can be used in the beginning of the lesson or at the end.

Teacher’s reflections after the lesson

“The tool is rather adaptable. The general theory can easily be taken out by the teacher to use in a different PPT/ different exercise. Room for personal interpretation.

The reflection questions are great as an introduction to the topic. Depending on the group of students, reactions and enthusiasm will vary, so the way you present the questions could still be adapted. (e.g. Kahoot or word cloud instead of just asking).”

Tool 23: Rumour to "News" - Evidence, Verification & Responsible Sharing (Cyprus)

This lesson helps students develop critical thinking and digital literacy skills by learning how to recognise rumours, misleading headlines, and unreliable online content. Through analysing claims, comparing sources, and applying fact-checking strategies, students learn to verify information responsibly before sharing or reacting to it online.

Students' age: 14-16 years

Disciplines: Language / Civic Education, ICT (Language & Communication / Digital Literacy)

Goals:

- Develop critical thinking and media/digital literacy when students encounter rumours and misleading headlines online.
- Build students' ability to verify information using evidence from reliable and official sources.
- Strengthen responsible digital citizenship before students forward, repost, or comment on a claim.

Specific learning objectives:

At the end of the lesson, students will be able to:

- define misinformation, disinformation, and malinformation.
- identify the core claim in a rumour or headline and separate it into facts, opinions, and assumptions;
- apply simple fact-checking strategies such as lateral reading, cross-checking, and tracing claims to official sources;
- recognise warning signs of unreliable content, such as missing author/date, exaggeration, emotional language, and lack of evidence;

Teaching materials:

- projector / interactive board, computers or tablets with internet access,
- post-its, markers,
- one short video clip on misinformation, official and news links, and two teacher-provided non-reliable comparison texts.
- Annex 1 - Scenario card (recent and searchable online)
- Video for the starter activity:

<https://www.youtube.com/watch?v=HD5MmuLDeFE>

Official / reliable sources for verification:

- Ministry of Education announcement (12/01/2026): <https://enimerosi.moec.gov.cy/ypp19605>
- Ministry project page / annexes (12/12/2025): <https://enimerosi.moec.gov.cy/ypp19495>
- OEB call for host institutions (14/01/2026): <https://www.oeb.org.cy/en/call-for-interest-to-host-institutions-employers-for-hosting-b-lyceum-students-in-the-context-of-the-restoration-of-the-institution-of-work-week/>
- Cyprus Mail (02/01/2026): <https://cyprus-mail.com/2026/01/02/cyprus-brings-back-work-week-for-secondary-school-students/>
- KNEWS / Kathimerini Cyprus (15/01/2026): <https://knews.kathimerini.com.cy/en/news/high-school-work-week-returns-students-get-hands-on-experience>

Teacher-provided non-reliable materials for comparison:

- Annex 2.1: viral student social-media post (simulated, intentionally misleading)
- Annex 2.2: clickbait blog/news-style text (simulated, intentionally misleading)
- Annex 3 – Fact / Opinion / Assumption mini-sheet
- Annex 4 - Evidence log sheet (group)

Duration: 80 min

Step-by-step instructions

I. Orientation – 15 min

Watch a short video showing what is misinformation, disinformation and malinformation with examples.

Questions regarding the video:

- What is the difference between misinformation and disinformation?
- Give one example of misinformation (shared by mistake) and explain why it fits.
- Give one example of disinformation (shared on purpose) and explain why it fits.

What is malinformation (true information used to harm)? Can you think of one example?

On a post-it: "What do people usually do first when they see a shocking school-related post online?"

Teacher clusters answers (share/forward, screenshot, comment, ask, ignore).

II. Preparation – 15 min

What is the claim?

Teacher introduces the scenario (below) and reminds students, we evaluate claims, not people.

Students write the rumour in ONE sentence and underline the checkable part (core claim).

Students split the rumour into facts, opinions, and assumptions (Annex 3).

Plan verification

Students write 2-3 checkable questions (e.g., 'Is the programme real? Who participates? How many days? Until what time? Are there fines or grade penalties?').

The teacher introduces lateral reading: open new tabs, begin with official sources, and then compare them with news and other texts.

III. Implementation – 35 min

Search, compare and check:

In the computer lab, groups (3-4), students check each part of the rumour using the source pack.

They must use: (a) one official source, (b) one reliable news source, and (c) one non-reliable / misleading text from Annex 2.1 or 2.2.

For each sub-claim, they label the information as confirmed / contradicted / unclear. They identify red flags in the non-reliable material: no author, no date, emotional language, absolute statements, pressure to share immediately.

Suggested search phrases (students may use):

- Cyprus work week job shadowing B Lyceum 2026 dates
- Job shadowing Cyprus schools February 18 2026 April 3 2026
- Is work week compulsory B Lyceum Cyprus
- Does job shadowing affect grades Cyprus lyceum

Write evidence

Each group completes the Evidence Log: source, what it says, reliability indicators, confirmed / contradicted / unclear. At the end, each group writes a short responsible correction or reply to the viral post (2-3 sentences) using at least one reliable source.

IV. Reflection – 15 min

Class discussion and sharing rules

- Groups present which parts of the rumour were true, exaggerated, false, or still unclear.
- As a class, students create 4-6 rules for responsible sharing, for example: Stop - Check - Think - Share / Don't.

V. Annexes

Annex 1 - Scenario card (recent and searchable online)

Morning (08:10) - A post appears in a student group chat:

"URGENT: Starting 18 February, ALL Year 11 students must work in a company for a whole week. It's UNPAID and your final grade will drop if you don't go. Also, companies can keep you until 18:00 and parents will be fined if you skip. I heard it passed officially. Share so everyone knows!"

By lunchtime the message spreads with added opinions:

"They're turning school into free labour. The Ministry doesn't care. Share before they hide it."

Task: Verify each part of the post using reliable sources and decide whether it is news, misinformation, or exaggeration.

Annex 2.1 - Simulated non-reliable source, viral social post

BREAKING!!!

From next week ALL Year 11 students will be forced into unpaid work for FIVE FULL DAYS.

If they refuse, they will LOSE marks and parents will PAY fines.

Companies can keep students until evening because the Ministry wants free labour.

Nobody is talking about this. SHARE NOW before they delete it!

Teacher note: This text is intentionally misleading and should be analysed for red flags.

Annex 2.2 - Simulated non-reliable source, clickbait article

Title: "Secret school labour plan shocks Cyprus families"

Text: Parents are furious after a hidden Ministry decision allegedly forced teenagers into unpaid company work. According to people who know what is happening, students will be punished if they do not participate, while businesses will benefit from free labour. Many say this is proof that schools no longer care about children. Experts warn that this may only be the beginning.

Missing elements for students to spot: no named author, no date, vague sources ("people", "many", "experts"), emotional language, no link to an official document, and no specific evidence.

Annex 3 – Fact / Opinion / Assumption mini-sheet

- Rumour (one sentence): _____
- Facts (verifiable): _____
- Opinions (judgements): _____
- Assumptions (guesses): _____
- Core claim (checkable): _____

Annex 4 - Evidence log sheet (group)

Sub-claim	Source	What it says	Reliability indicators / red flags	Confirmed / Contradicted / Unclear	Notes

Group responsible response (2-3 sentences):

Sharing rule we recommend: _____

VI. Important notes

The lesson works better if the non-reliable material is provided by the teacher instead of asking students to search for misleading content by themselves. This keeps the comparison safe, controlled, and focused on clear examples of unreliable communication.

The final task is not a debate, but an evidence-based correction, because this matches the lesson aims more directly.

Tool 24: Real or Misleading? (Cyprus)

This lesson helps students understand how misinformation spreads through images, screenshots, and social media posts, including manipulated or misleading visual content. Through discussion, group analysis, and simple verification techniques, students learn to critically evaluate online visuals, check sources and context, and make responsible decisions before believing or sharing content online.

Students' age: 15–17 years

Disciplines: Language / Civic Education / Digital Literacy

Goals

- Help students recognise how misinformation spreads through images and posts online.
- Develop students' ability to question and verify visual content before believing or sharing it.
- Strengthen responsible online behaviour and self-protection habits.

Specific learning objectives

At the end of the lesson, students will be able to:

- identify warning signs in online images and posts;
- explain why an image can be real but still misleading if the context is false or missing;
- check basic reliability indicators such as source, date, caption, and evidence;
- describe simple steps for verifying images before sharing;
- suggest a safe and responsible action when they are unsure whether an image is trustworthy.

Teaching materials:

- [How to spot deepfakes and AI-generated images - YouTube](#)
- PPT – Overview of the information chaos, social media, and challenges
<https://docs.google.com/presentation/d/1mlr-DIQTwkAAf-1eaHmlboi9MHlVPtCb/edit?slide=id.p1#slide=id.p1>
- [It's Getting Harder to Spot a Deep Fake Video - YouTube](#)
- Google reverse image search / "About this image"
- 4 teacher-selected images/screenshots for class discussion
- worksheet / note sheet
- projector / interactive board
- internet access
- optional student devices

Duration: 40 min

Step-by-step instructions

I. Orientation – 8 min

Show the starter video: *How to spot deepfakes and AI-generated images*.

Then ask:

- What was the main message of the video?
- Why do people believe misleading visual content online?
- Why are images often more convincing than text?

The teacher briefly explains that misinformation does not spread only through words. It also spreads through photos, screenshots, captions, and missing context. UNICEF recommends checking facts, sources, and context before trusting or sharing online content.

II. Preparation - 11 min

The teacher presents the PPT *Overview of the information chaos, social media, and challenges*, and concludes with the statements that an image can be:

- real and accurate
- fake / manipulated
- real but used in the wrong context
- unclear / unverifiable

The teacher writes a short red-flag list on the board:

- emotional wording
- urgent call to share
- missing source
- no date
- weak or missing evidence
- screenshot without original link
- visual inconsistencies

III. Implementation – 18 min

Put students in small groups and give each group 4 prepared examples.

For each one, the students answer:

- What is the claim?
- Which category does this image belong to?
- What makes it trustworthy or suspicious?
- What should we check next?
- Would you share it? Why or why not?

Students should check:

- Who posted it? Is the source clear and trustworthy?
- When was it posted? Is old content being reused?
- Where is it from? Is the location real and relevant?
- What does the caption claim? Does the image actually prove that?
- Can the image be found elsewhere online?
- Has a fact-checker already checked it?

The teacher briefly models that reverse image search can help show where else an image appears online and may reveal when or where it was first used.

Google's reverse image search guidance explains that reverse image search can help reveal where else a photo appears online and give clues about when and where it was first used. Google also highlights tools like **About this image** and fact-check tools to help users get more context for suspicious visuals.

IV. Reflection - 3 min

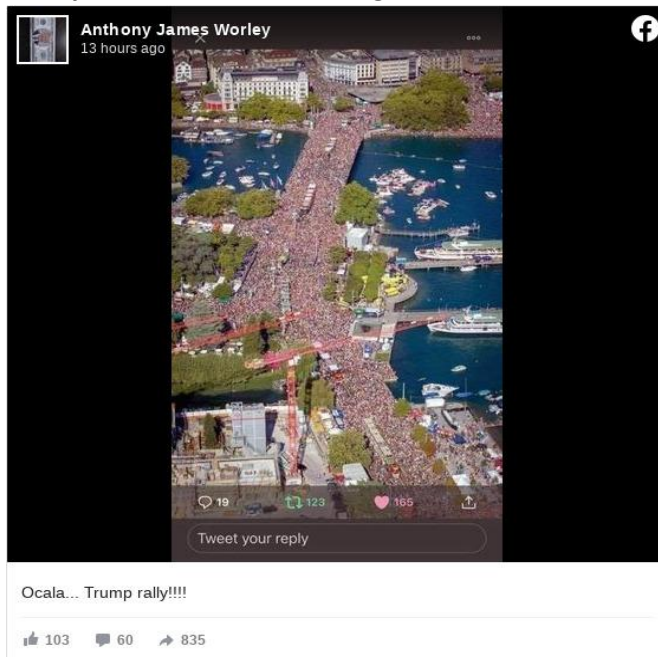
Each group creates a final checklist such as:

- STOP
- CHECK THE SOURCE
- CHECK THE DATE
- CHECK THE CONTEXT
- VERIFY THE IMAGE
- SHARE / DON'T SHARE

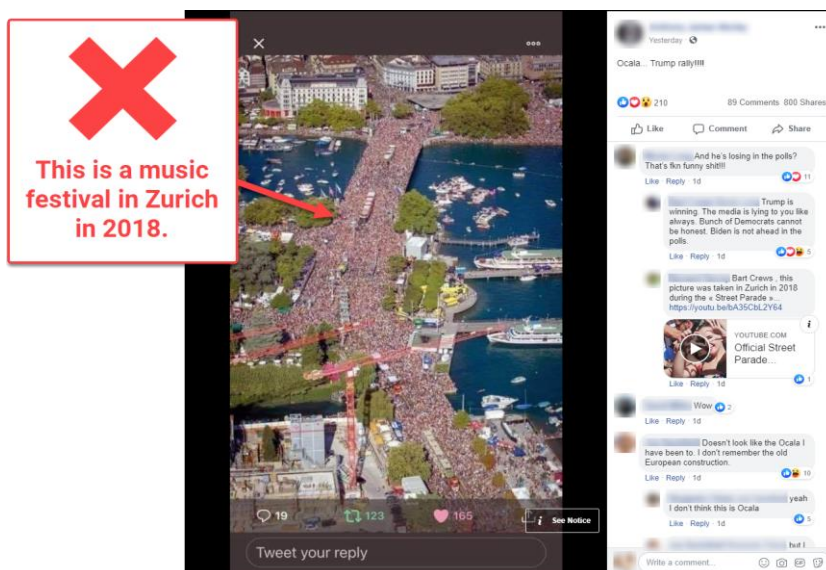
V. Annexes

Annex 1

Example 1 – False context image



(Source: Facebook screenshot taken on Sat Oct 17 13:32:15 2020 UTC)



“False rally photo walkthrough”. It is specifically designed as a classroom fact-checking challenge and shows how an image of a crowd can be used in a false context to exaggerate support for a claim.

Why use it in class:

Students can see that the image may be real, but the caption/context is misleading. That helps them understand an important idea: misinformation is not always a fake image, sometimes it is a real image used dishonestly.

Teacher questions:

- Is the image itself fake, or is the context the problem?
- What claim is the post trying to make?

- What should we check before believing it?
- How could reverse image search help here?

Example 2 – Fake / manipulated

An AI-generated image as an example of misinformation clues.



During riots in France, a picture went viral of Emmanuel Macron sitting in a street with rubbish burning behind him. Full Fact said the image was widely shared, with one post amassing over 55,000 views and attracting comments suggesting the media was ignoring the story.

Fake AI images keep going viral - here are eight that have caught people out | Science, Climate & Tech News | Sky News

Teacher questions:

- What details make this image suspicious?
- Does it look realistic at first glance?
- What clues show it may be AI-generated?
Would reverse image search help? Why?

Example 3 - Real and accurate



Image misinformation lesson example

12430032 - US Vice President Harris and new running mate Governor Tim Walz Campaign in Detroit, MichiganSearch | EPA

The photographer who took the picture, European Pressphoto Agency's Dieu-Nalio Chery, also said, "I have never altered or manipulated any images throughout my 20 years of experience as a photographer." Chery's image, opens new tab from the Aug. 7 rally at Detroit Metropolitan Wayne County Airport was shared in social media posts pointing to a reflection on the plane's engine, opens new tab, where a light-colored area of tarmac is visible, along with a dark strip and building shapes.



One Facebook post, opens new tab said, "It's photoshopped to make it look like she got a huge crowd. They keep lying to you!!"

However, the photo was taken with a telephoto lens from inside the hangar where Chery was positioned. In the foreground of the image, the crowd faces away from the camera and appears blurry while the image's focus is on agents at the bottom of the aircraft stairs and Democratic presidential nominee Kamala Harris and Minnesota Governor Tim Walz are seen descending the stairs of the blue-and-silver plane.

This is a real image from a Michigan rally. Some people falsely claimed it was manipulated because of the reflection visible on the plane engine, but Reuters confirmed the image was authentic and explained that the appearance was caused by camera optics and perspective.

Fact Check: Plane reflection not proof of image manipulation at Michigan Harris rally | Reuters

Teacher questions:

- Why did some people think it was fake?
- What evidence helped show it was real?
- Can a true image still be doubted online?

Example 4 - Real but used in the wrong context

How to verify the image



For the actual checking step, use Google's training: "**Reverse Image Search: Verifying photos.**" It explains that reverse image search can reveal:

- where the photo appears elsewhere online, and
- clues about where and when it was taken.



A screenshot of a tweet taken on March 10, 2022

Ukraine's army is not using cats to spot Russian snipers | Fact Check

This turns the lesson from “spotting” into actual verification practice.

Teacher questions:

- Where else does this image appear online?
- Is it older than the post claims?
- Is the original context different?

Tool 25: Understanding fake news (Austria)

The lesson works with the digital browser game "Fake it and make it", which allows students to run their own fake news website and generate advertising revenue. Through playing the game and reflecting on it, students gain insights in the mechanism of clickbait monetisation.

Students' age: 12-18 years

Disciplines: English, Sociology, Politics, Economy

Goals:

- Developing critical thinking and media literacy skills in combination with economic and sociological aspects of digital media
- Developing skill to assess advertising and non-labeled information on social media through a critical content approach.

Specific learning objectives:

At the end of the lesson, students will be able to:

- understand fake news from an economic/sociological perspective: Why do false reports generate clicks and money?
- explain how fake news generates reach and advertising revenue online

Teaching materials:

- computers or tablets for each student or in pairs

Duration: 90 min

Step-by-step instructions

I. Orientation – 10 min

Short introduction to the topic of fake news. For example by naming an incident that has been recently covered in the news or telling students about one of these articles. The idea is to give the students a short synopsis to a real life event involving fake news – not having them read the article or learn about it. One can also ask students about their experience.

Examples

- [How Teens In The Balkans Are Duping Trump Supporters With Fake News](#)
- [We Tracked Down A Fake-News Creator In The Suburbs. Here's What We Learned : All Tech Considered : NPR](#)
- [The very real consequences of fake news stories and why your brain can't ignore them | PBS News](#)

II. Preparation – 10 min

Open the game: www.fakeittomakeitgame.com

Introduce students to the goal of the game (they want to earn money through fake news). Show students how they can choose an avatar and that they need to set a goal (how much money they want to earn). Read the introductory text together. Explain the following:

- there is a timer running on the top, counting the days, next to it how much money they have earned and next to that how much their goal is;
- they will start by creating a website by choosing a name, logo, domain, theme, and then how they want to earn money;
- on the right side they find the *Goals* which need to be achieved to be successful.

Here is a list of some words that might need explaining:

- *clickbait*
- *ad / advertising*

- *revenue*
- *share*

- *outrage*
- *target*

III. Implementation – 30-40 min

Let students play the game for about 30 minutes and help out when needed. Students either pay attention to or write down short notes on these questions:

- What gets you more clicks?
- Which headlines work particularly well?
- What emotions are used (e.g. fear, anger, surprise)?
- How do you earn advertising revenue in the game?

IV. Reflection – 30 min

Students share their observations with the group and discuss the questions in class.

V. Learning from the implementation of the lesson

Teacher's reflection

"It was surprising that students were shocked about 'earning more money when they wrote lies'. That exact topic carried the discussion at the end."

"'Who actually earns the money in real life — and who pays the price?' That made the point much sharper."

Tool 26: Fact & Fake – Digital News I (Austria)

In this activity, students learn to consciously encounter fake news and to recognise it as such.

Students' age: 12-18 years

Disciplines: Sociology, Politics, Civics, Ethics

Goals:

- Understanding the public sphere as a central location for political communication.
- Explaining and evaluating the digital media in information communication

Specific learning objectives:

By the end of the lesson, the students will be able to answer the following questions correctly.

- What is fake news and what political and economic interests are associated with it?
- How does fake news change our perception of the world?
- How is fake news related to other socio-political and technological developments and our media consumption/behaviour (clickbaiting, Google, echo chambers, the New Right)?

Teaching materials:

- Computers / Tablets / similar devices

Duration: 90 min

Step-by-step instructions

I. Orientation – 5 min

Mahashta Murasi – A Man Who Lived to 179 Years

When the teacher first introduces the topic, it should be realistic, surprising, and provocative.

Mahashta Murasi was supposedly born in 1835 and was said to still be alive in 2014. The teacher can open one of the corresponding websites – often even including a photo – as proof.

In reality, however, this story is a well-documented hoax. The teacher should first present some of the articles and try to convince students that this media-reported fact is true. The teacher then reveals that the story is false and has the students verify it themselves through research.

II. Preparation – 5 min

Students search the internet for other examples of false claims, such as chemtrails, syringes in public places, Facebook terms and conditions hoaxes, or child kidnappings involving delivery vans.

III. Implementation – 65 min

Students are put in the role of investigators themselves. They are asked to read the article and find clues/other sources (they think) might prove or disprove the story. They need to keep a log of what they find and what they decide to do with the information

Task 1

- Mahashta Murasi is the oldest man in the world, as stated in the following article (see Annex for links). Read the article carefully.
- Now look at the website and check the imprint/legal notice. What do you notice about the visual design of the site and the content/presentation of the article? Keep track of what you find and what you think about it.
- Do some further research on Mahashta Murasi. Is this really a report that is true? Write down your findings.

Teacher leads a short discussion of the results.

Task 2

Students do their own research about young people's use of digital media:

On the website of [Eurostat](https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=685131&utm_source=chatgpt.com#Youth_online:_a_way_of_life), students can find studies and comments about how young people use the internet in their national language. Students should choose **one graph** and examine it in detail.

[https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=685131&utm_source=chatgpt.com#Youth online: a way of life](https://ec.europa.eu/eurostat/statistics-explained/index.php?oldid=685131&utm_source=chatgpt.com#Youth_online:_a_way_of_life)

Task 3

The results are presented on a poster or in a very short PowerPoint presentation. Each group has one slide and about three to five minutes to present.

IV. Reflection – 15 min

After the presentation the class discusses how each student decided whether the Mahashata Murasi story was real or not. The students also discuss if they can see any similarities in their own media use/behaviour and the presentations.

If there is time left the teacher may lead a discussion on: *What (political and economic) interests may be connected to such fake news?*

V. Annex

Mahashta Murasi is a well-documented hoax available in many languages. However, other more nationally relevant hoaxes can be used instead.

- English: <https://www.linkedin.com/pulse/man-says-i-born-6-jan-1835-now-am-179-years-old-bashir-abbasi/>
- German <http://www.heftig.de/murasi/>
- Greeek: <https://www.newsitamea.gr/einai-179-etonpistopoiitiko-gennisis-to-1835-echoun-pethanei-akomi-kai-ta-engonia-tou/>
- Portugese: <https://www.portaldolitoralpb.com.br/indiano-garante-ter-179-anos-de-idade-e-diz-a-morte-esqueceu-de-mim/>
- Polish: <https://podroze.onet.pl/ciekawe/smierc-o-mnie-zapomniala-w-indiach-odnaleziono-179-letniego-mezczyzne/3ckxd5y>
- Romanian: <https://spynews.ro/actualitate/moartea-ma-uitat-no-sa-mai-vina-dupa-mine-marturisirile-cutremuratoare-ale-unui-barbat-de-179-de-ani-cum-arata-omul-care-a-socat-o-lume-intreaga-97446.html>
- Italian: <https://livesicilia.it/ho-179-anni-e-la-morte-si-e-dimenticata-di-me/>

VI. Learning from the implementation of the lesson

Student's reflections

"Students who consider themselves especially media-savvy were the first to fall for Murasi — because they judge quickly without looking closely."

Tool 27: Fact & Fake – Digital News II (Austria)

In this activity, the focus is on recognising the difference between high-quality news and sensational articles designed mainly to generate clicks. Using the CRAAP quality criteria, fake-news websites are identified and classified.

Students' age: 12-18 years

Disciplines: Sociology, Politics, Civics, Ethics

Goals:

- Analysing the public sphere as a central location for political communication
- Discuss the advantages and disadvantages of media democracy, analyse the media implementation of political ideas and information, and the staging of politics
- Explaining and evaluating the significance of digital media in political communication

Specific learning objectives

By the end of the lesson, students will be able to answer the questions below correctly:

- What is fake news and how can we detect it?
- How does fake news disguise itself and how can it be unmasked?

Teaching materials:

- Students' own phones (ideally), but also any tablet, computer
- Annex 1: CRAAP test

Duration: 50-60 min

Step-by-step instructions

I. Orientation – 5 min

The teacher opens with a quick show-of-hands question: *"Has anyone ever shared something online that turned out to be false — or almost did?"*

After a brief moment of reactions, the teacher follows up: *"How did you find out it wasn't true?"*

Students take 60 seconds to think of one piece of content they've seen recently, a post, a video, a headline, that made them pause or wonder whether it was reliable. They don't need to share it; just have it in mind. The teacher then asks two or three students to describe what made them uncertain about that content.

II. Preparation – 15 min

Students and the teacher look at the checklist (see Annex) and discuss to understand how it works.

The teacher explains that students add points and then in the end look at the sum total and thus can use the checklist to see if information is reliable or not.

Then each part of the checklist is briefly walked through (each letter of the CRAAP test). Each terminology and concept is quickly unpacked:

- **Currency** — *"Is this new or old? A health tip from 2005 might be outdated. When was it posted or last updated?"*
- **Relevance** — *"Does this actually answer your question, or did you just end up here by accident? Is it written for someone your age, or for experts?"*
- **Authority** — *"Who made this? Are they someone we should trust on this topic? A random account with no name is very different from a doctor or a news organisation."*
- **Accuracy** — *"Can you find the same information somewhere else? Are there sources linked? Does it feel like facts, or just opinions and guesses?"*

- **Purpose** — *"Why does this exist? Is it trying to inform you, sell you something, make you angry, or push a particular opinion?"*

The teacher emphasises that students don't need to memorise the categories — the checklist is there to guide them. It's important to note that this is to understand the process of evaluating/analysing information and not a tool to actually use all the time.

III. Implementation – 30 min

Students use their phones either alone or in pairs to look at their social media feed or websites they have recently visited or were somehow directed there. They can also go on Youtube and look for news or newslake channels.

They then choose one post/video that is news or newslake, and start analysing the content according to the CRAAP test (see Annex). Once they have filled out the test, each pair or student shortly presents their findings.

IV. Reflection – 10 min

The class discusses the benefits of such tests, and talk about whether it helped them understand how to check information on the internet.

V. Annex

Annex 1: The CRAAP Test

Use the following list to help you evaluate sources. Answer the questions as appropriate and rank each of the five CRAAP criteria from 0-3. Add up the scores to give you an idea of whether or not you should use the resource.

Website Name: _____

URL: _____

Currency: the timeliness of the information.....0.....1.....2.....3

- When was the information published or posted? Has it been updated?
- Is the information current or out of date for your topic?
- Are the links functional?

Relevance: the importance of the information for your needs.....0.....1.....2.....3

- Does the information relate to your topic?
- Who is the intended audience?
- Is it at a just right level?

Authority: the source of the information.....0.....1.....2.....3

- Who is the author/publisher/source/sponsor?
- What are the author's or organization's credentials?
- Is there contact information? What type of URL is it?

Accuracy: the reliability, truthfulness, and correctness of the content.....0.....1.....2.....3

- Is the information supported by evidence? Is it verifiable?

- Is it free from bias and emotion?
- Are there spelling or grammar errors?

Purpose: the reason the information exists.....0.....1.....2.....3

- What is the purpose of the information? Are the intentions clear?
- Is the information fact? opinion? propaganda?
- Is the point of view impartial? Are there biases?

Total: _____

(15 is an excellent resource, 10 is still acceptable, below 5 is unacceptable)

VI. Learning from the implementation of the lesson

Teacher's reflection

“Students are quite willing to apply the CRAAP test to external sources — but when it comes to their own social media feed, things are harder. We addressed this in the next lesson and made a discussion about whether it is easier to judge alien content than one’s own feed.”

Tool 28: Think Before You Believe (Greece)

This lesson invites students to develop their critical thinking and data literacy skills by learning to evaluate sources, distinguish facts from opinions, and recognise the techniques used in misinformation. Through brainstorming, analysis of a news article, and pair-based discussion, students practice the analytical habits needed to question what they see online.

Students' age: 16 and over

Disciplines: Cross-curricular

Goals:

- Develop students' ability to evaluate the credibility of information sources and distinguish between facts and opinions.
- Help students understand how misinformation spreads through emotions, social media algorithms, and visual/coded content such as memes and AI-generated images.

Specific learning objectives:

By the end of the lesson, students will be able to:

- Evaluate information sources by identifying markers of unreliability, distinguishing fact from opinion.
- Explain how misinformation spreads by recognising how emotions, algorithms, and visual content (memes, AI-generated images) bypass critical thinking.
- Apply critical analysis techniques — including identifying vague sources, unsupported statistics, emotional language, and logical fallacies — to assess the credibility of online content.

Teaching Materials:

- PPT Think before you believe - <https://docs.google.com/presentation/d/1LqRYSUmQ7a1fkTJqwdouMKZcqciwc-gN/edit?slide=id.p1#slide=id.p1>
- Annex 1 – Worksheet;
- Annex 2 – Self-Assessment Quiz

Duration: 130 min

Step-by-step instructions

I. Orientation – 10 min

Show [PPT Slide 1 – Title] and [PPT Slide 2 – Lesson Overview] to introduce students to today's subject.

Open discussion – whole class:

Show [PPT Slide 3 – Why Critical Thinking?] Ask students to explain the statement “Don’t let an algorithm decide what news you see”.

Show [PPT Slide 4 – Why Critical Thinking?] Ask: "Do you think you can always tell the difference between a fact and an opinion? Can you give an example?"

Then show [PPT Slide 5 – Why Critical Thinking?] and ask: "Have you ever changed your mind about something because of something you saw online? What made you change it?"

The aim is to activate prior knowledge and establish the lesson's core question: How do we decide what to believe, and what tools can help us think more clearly? The teacher notes key words on the board.

II. Preparation – 10 min

Show [PPT Slide 6 – Fact, Opinion & Truth] and explain the key distinctions:

- A fact is objective and verifiable, independent of personal beliefs or feelings.
- An opinion is subjective, influenced by individual experiences, feelings, and perspectives.
- Truth is more complex — facts can be true, but truth also requires context, completeness, and honesty.

Show [PPT Slide 7 – What is PRE-BUNKING?] and briefly introduce the concept: pre-bunking means building resistance to misinformation before people encounter it, rather than trying to correct it after the fact. Point students to the tools they will explore as homework: getbadnews.com, gapminder.org.

Show [PPT Slide 8 – Data Analysis] and ask students to respond to each of the three problems in turn. Link these results to the spread of malinformation online.

III. Implementation – 100 min

Distribute [Annex 1 – Worksheet] to all students.

Concept Map & Discussion

Show [PPT Slide 9 – Concept Map]. Students look at the concept map (on the board, and also on their worksheets) and spend 3–4 minutes brainstorming individually: What do they already know about each node? What connections can they add?

Show [PPT Slide 10 – Discussion Questions]. Students spend 15 minutes filling in their answers on the worksheet, then lead an open class discussion. Students respond verbally; the teacher builds on answers to expand the concept map on the board.

Critical Article Analysis

Show [PPT Slide 11 – Critical Analysis] and direct students to Activity 3.2 on the Worksheet. Explain that this is a fabricated article created for educational purposes — it deliberately contains common misinformation techniques.

Individual Reading: Students read the article and complete the worksheet, identifying and annotating: Source – Statistics – Emotional language – Logical fallacies – Facts vs. Opinions. Show [PPT Slide 12 – What to look for] as a reference guide.

Show [PPT Slide 13 – Article Reflection] and ask the three reflection questions. Students discuss briefly in pairs and note down their answers in their worksheets before sharing with the class.

Collaboration & Emotional vs. Logical Appeals

Show [PPT Slide 14 – Secret Language: Memes, AI Images & Coded Content]. Introduce how memes, AI-generated images, and emoticons can carry hidden messages and bypass critical thinking.

In pairs, students complete the activity *Collaboration* on the Worksheet: they discuss a specific example (a meme or political slogan of their choice) and analyse how it appeals to emotions rather than logic. Each pair briefly presents their findings to the class.

Students do the mini-quiz (5 questions) at the end of Annex 1, which can be done orally as a class. Go through the answers orally.

Next, students do the *Self-Assessment Quiz* (Annex 2) individually at their own pace. This can be done using online platforms such as [Kahoot](https://kahoot.it) for a more interactive approach.

Go through the answers to both quizzes orally. Show [PPT Slide 15 – Key Concepts Summary] during the answer review as a reference.

IV. Reflection – 10 min

Show [PPT Slide 16 – Closing Reflection].

Ask students to respond (verbally or in a brief written note):

- What is one specific thing you will check before sharing a news item or post in future?
- If you had to explain 'pre-bunking' to a friend who had never heard of it, what would you say?

The teacher collects written reflections if produced, or notes key themes from verbal responses.

At home, students try out two educational platforms: getbadnews.com and gapminder.org (see [PPT Slide 17]).

V. Annexes

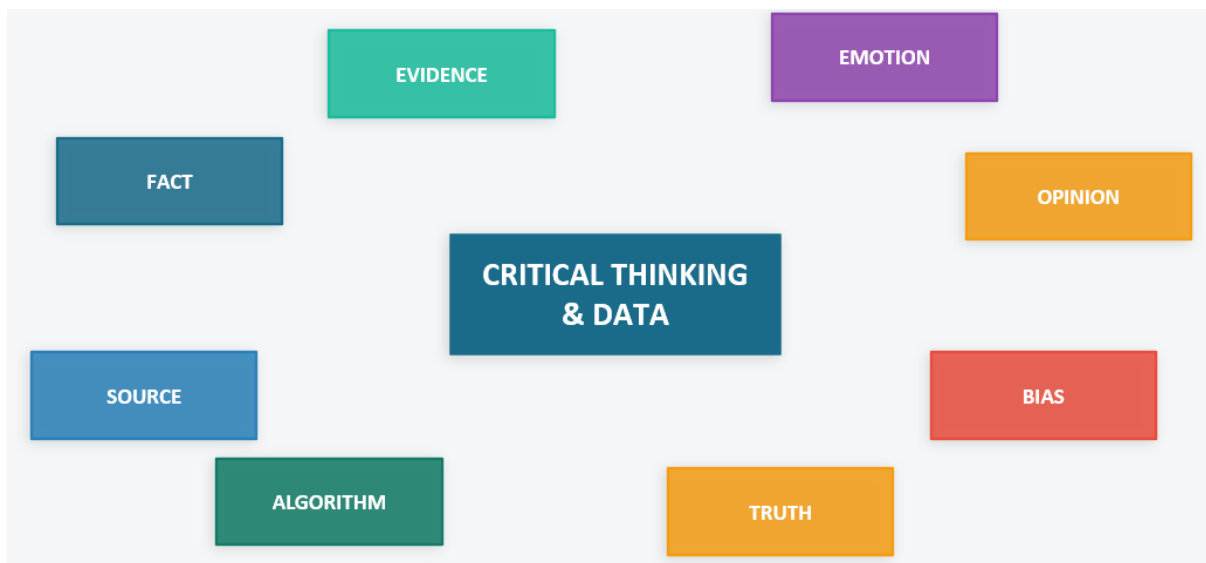
Annex 1: Worksheet – Critical Thinking & Data Analysis

First name: Last name:

Grade: Class: Date:

Brainstorming

Expand the concept map below by adding what you already know.



Next, jot down your thoughts in response to the questions below and then discuss them with your class.

Discussion Questions:

1. What are the key points we should check before sharing a news story?

Your response:

.....

2. Why does fake news spread faster than the truth?

Your response:

.....

3. How do emotions (fear, anger, excitement) affect our judgment?

Your response:

.....

4. Do you believe social media platforms have a responsibility to prevent the spread of fake news? Justify your answer.

Your response:

.....

.....

Critical Article Analysis

The article below is structured, realistic, but entirely fabricated for educational purposes. It deliberately contains common misinformation techniques. Your task is to identify them.

Artificial Intelligence will replace 80% of teachers by 2030

According to a recent study by a "European technology organisation," artificial intelligence is expected to replace up to 80% of teachers within the next five years. The rapid development of tools such as chatbots and digital learning platforms shows that the human element in education will soon be considered redundant.

Already in several countries, schools are using systems that automatically correct assignments, evaluate performance, and adapt content to students' needs. Experts argue that "machines are more objective and efficient than humans."

Technology supporters emphasise that students prefer digital tools, as they provide instant answers and personalised learning. Conversely, traditional methods are considered outdated and slow.

On the other hand, some educators express fears that full automation will lead to alienation and loss of social skills. However, history shows that every technological advancement replaces older professions — and education is no exception. Analysts estimate that schools that do not adapt immediately risk being left behind in a rapidly changing world.

Individual Reading

As you read, fill in the table below:

SOURCE	<i>Who wrote this? Is the source named and verifiable?</i> Your notes:
STATISTICS	<i>What data is given? Is it documented? Where does the 80% figure come from?</i> Your notes:
EMOTIONAL LANGUAGE	<i>Which words or phrases are designed to make you feel something?</i> Your notes:
LOGICAL FALLACIES	<i>Can you spot a false dilemma, overgeneralisation, or oversimplified causality?</i> Your notes:
FACTS vs. OPINIONS	<i>Which statements can be verified? Which are the author's views?</i> Your notes:

Answer the following questions:

1. Would you share this article? Why or why not?

.....
.....
.....

2. What do you think the author's intention was in writing it?

.....
.....
.....

3. How would you write a more balanced headline for this article?

.....
.....
.....

Collaboration

In pairs, choose a social media meme or political slogan you have seen recently or search for one on the internet. Discuss whether it appeals more to emotion than to logic. Note your example and your analysis below.

Our example (meme / slogan):

.....
.....

Does it appeal to emotion rather than logic? How?

.....
.....
.....

Mini-Quiz

Circle the correct answer.

1. Disinformation is:

- a) a mistake due to negligence
- b) intentional spread of false information
- c) personal opinion
- d) advertising

2. Which element does NOT help in checking reliability?

- a) the date
- b) the source
- c) the number of likes
- d) evidence

3. Memes can contain:

- a) only humour
- b) hidden messages and symbolism
- c) only images
- d) no information

4. Social media algorithms display content based on:

- a) randomness
- b) what keeps us on the platform longer
- c) only valid news
- d) school textbooks

5. "Information chaos" means:
- a) many and conflicting pieces of information
 - b) poor internet connection
 - c) only fake news
 - d) advertisements

Mini-Quiz Answer Key: 1b; 2c; 3b; 4b; 5a

Annex 2: Self-Assessment Quiz

Complete the quiz below at your own pace. This is a self-assessment — there are no grades.

1. The phenomenon of 'AI-giarism' frequently occurs on social media.
 - a) True
 - b) False
2. Which social media platform is considered more reliable?
 - a) ResearchGate
 - b) X (Twitter)
 - c) Facebook
 - d) Telegram
3. To whom is the following quote attributed: "Prejudice is what fools use for reason"?
 - a) Socrates
 - b) Kazantzakis
 - c) Elon Musk
 - d) Voltaire
4. Social media literacy is a form of critical thinking that encourages users to question posts.
 - a) True
 - b) False
5. The critical thinking of an active citizen includes:
 - a) confirmation bias
 - b) logical and linguistic fallacies
 - c) analytical thinking, rationalism, reflection
 - d) conspiracy theories
6. The technique 'cherry-picking' data:
 - a) collects cherries
 - b) corrects / cleans the data
 - c) assigns pseudo-random values to data
 - d) manipulates / guides the data
7. The serious game getbadnews.com has the educational objective of:
 - a) collecting likes
 - b) critical thinking
 - c) learning bad news
 - d) flipped classroom
8. What disinformation tactics does the serious game GetBadNews address?
 - a) fear
 - b) polarisation
 - c) trolling

- d) all of the above
9. A FACT is objective, independent of personal beliefs or feelings — it stands on its own.
- a) True
 - b) False
10. An OPINION is subjective, influenced by individual experiences, feelings, and perspectives.
- a) True
 - b) False
11. Pre-bunking is the preventive approach to false information before it spreads or before individuals are exposed to it.
- a) True
 - b) False
12. Critical thinking is a cognitive skill that enables the objective and rational analysis of information.
- a) True
 - b) False
13. The evaluation of messages circulating on social media should detect:
- a) message source
 - b) biases
 - c) hidden agenda
 - d) all of the above
14. The concepts of fact and truth are identical.
- a) True
 - b) False
15. The skill of data literacy concerns:
- a) understanding data
 - b) understanding data visualisation
 - c) understanding data collection methods
 - d) all of the above
16. Which factors prevent social media from promoting objective and unbiased information?
- a) the owner's perspective
 - b) audience targeting
 - c) commercial interests
 - d) all of the above
17. Which of the following is an example of qualitative data?
- a) the number of citizens at an event
 - b) the average annual temperature in a country
 - c) the perceptions of social media users
 - d) all of the above
18. A bar chart where the Y-axis starts from a non-zero value overemphasises the magnitude of a change in data.
- a) True
 - b) False
19. Cognitive resilience helps young people to critically evaluate information and avoid misinformation.
- a) True
 - b) False

Answer Key: 1a; 2a; 3d; 4a; 5c; 6d; 7b; 8d; 9a; 10a; 11a; 12a; 13d; 14b; 15d; 16d; 17c; 18a; 19a

Tool 29: Pre-Bunking in Action – Designing an Awareness Campaign (Germany)

This lesson introduces students to the concept of pre-bunking — preventing misinformation by explaining manipulation techniques before exposure. Students work collaboratively to design a short awareness campaign (poster, infographic, or short video) that helps others recognise common disinformation strategies.

Students' age: 14–18 years

Disciplines: Art / Language / Ethics / Civic Education / Media Education

Goals:

- Develop understanding of pre-bunking as a preventive strategy
- Strengthen critical thinking and media literacy
- Foster creativity and responsible digital citizenship
- Encourage peer-to-peer learning

Specific learning objectives:

At the end of the lesson, students will be able to:

- explain what pre-bunking means,
- identify common manipulation techniques (e.g., emotional language, false authority, cherry-picking, fake urgency),
- design a clear and accessible awareness message,
- communicate complex ideas in simple and engaging formats.

Teaching materials:

- Short [introduction slides on pre-bunking](https://docs.google.com/presentation/d/18PiXzxKedDiMz0OWY9hzxJr_QVp8OcKc/edit?slide=id.p7#slide=id.p7)
https://docs.google.com/presentation/d/18PiXzxKedDiMz0OWY9hzxJr_QVp8OcKc/edit?slide=id.p7#slide=id.p7
- Examples of misinformation techniques
- Campaign design worksheet
- Poster paper / markers or digital tools (Canva, PowerPoint, etc.)

Duration: 100 min

Step-by-step instructions

I. Orientation – 15 min

The teacher presents two short misleading examples (e.g., clickbait headline, manipulated image) and asks: “How could we warn people about this type of manipulation before they believe it?”

Next, the teacher introduces the concept: pre-bunking means explaining manipulation techniques in advance so people are more resistant when they encounter them later. A short explanation follows: research shows that exposing people to weakened examples of misinformation can “vaccinate” them against stronger versions.

II. Preparation – 15 min

Students are divided into groups of 3–4. Each group chooses or is assigned one manipulation technique, for example:

- Emotional manipulation (fear, anger)
- False experts / fake authority
- Cherry-picking data
- Fake urgency (“Share before it’s deleted!”)
- Deepfakes / AI-generated content

- Conspiracy framing

Each group answers:

- How does this technique work?
- Why is it effective?
- What are warning signs?
- How can people protect themselves?

III. Implementation – 55 min

Campaign Design Phase

Groups design a simple pre-bunking campaign in one of the following formats:

- Poster
- Infographic
- 60-second awareness video (script + storyboard)
- Social media slide series
- Meme with explanation

The campaign must include:

- Clear explanation of the manipulation technique
- Concrete example
- Warning signs
- At least two protective strategies

Teacher circulates and supports clarity and accuracy.

Each group presents their campaign (3–4 minutes per group). Peers provide structured feedback:

- Is the message clear?
- Is the technique explained well?
- Would this help someone avoid being misled?

IV. Reflection – 15 min

Students individually respond:

- What manipulation technique surprised you most?
- Do you think pre-bunking works? Why or why not?
- How could this campaign be used in real life?

Optional discussion: “Is it better to debunk misinformation after it spreads, or prevent it before?”

V. Annex

Campaign Design Worksheet Structure

1. Manipulation Technique:
2. How it works:
3. Example:
4. Warning signs:
5. Protection strategies:
6. Campaign format:
Poster / Infographic / Video / Other

VI. Learning from the implementation of the lesson

Students enjoy the creative aspect and often connect it to real examples from their own feeds. Encourage neutral and factual tone, and avoid moralising.

For ages 14–15, focus on simple techniques (emotional language, clickbait), provide template structure for campaigns, and keep video format optional.

For ages 16–18, include more complex techniques (deepfakes, data manipulation), encourage referencing research, and integrate ethical dimension (freedom of speech vs regulation).

Teacher's reflection after the lesson:

“Teachers should emphasise that pre-bunking is not about telling students what to think, but about helping them recognise manipulation techniques independently.”

TEACHING TOOLS FOR MATHEMATICS, NATURAL AND APPLIED SCIENCES

Bias and logical errors

Tool 30: Filtering information in the community/ Verifiable or interpretable? Navigating technical information with discernment (Romania)

The lesson helps students become critical and responsible consumers of information, able to distinguish between intentions and ask for evidence before making decisions.

Students' age: 16-17 years

Discipline: Electrical measurements

Goals: Students develop the ability to filter information, understand the intention behind the message, and request evidence for statements that influence their decisions in the community.

Specific learning objectives:

By the end of the lesson, students will be able to:

- define what "fact" and "opinion" mean, using their own words,
- identify the elements that represent facts and those that represent opinions in a text or message,
- justify why a statement is a fact or an opinion.
- give their own examples of facts and opinions from their personal experience or from the online environment,
- make a personal commitment related to information consumption.

Teaching materials:

- interactive whiteboard
- PPT presentation – Filtering information in the community
https://docs.google.com/presentation/d/1DCSqCJ1Jxi_AcJnE2ptwIZpwrnUIEeLE/edit?slide=id.p1#slide=id.p1
- Annex

Step-by-step instructions

I. Orientation – 5 min

Students are asked to share a controversial statement they have recently heard in their community, on social media, or from their family (e.g., *"All the young people in the neighbourhood of (choose a neighbourhood based on where the school is located) are punks."* or *"The food at the school cafeteria is disgusting."*).

A quick vote is taken on whether the statements appear to be a fact or an opinion.

II. Preparation – 10 min

Using a PPT presentation, the teacher explains the concepts: fact vs. opinion.

- Fact: Something that can be proven, measured, verified.
- Opinion: A belief, judgment, or interpretation that is not necessarily supported by evidence and varies from person to person. Key words: *"I think," "in my opinion," "is the best/worst," "it seems to me."*

The teacher creates a graphic organizer on the board that includes types of physical and online communities where various opinions and facts are conveyed.

III. Implementation – 20 min

In the classroom, two distinct grouping areas corresponding to the two central concepts: FACT and OPINION, will be established and visually marked. A set of sentences (Annex) written on individual cards is prepared, each card containing either a verifiable fact or a subjective opinion.

Each student will draw a card from the prepared set. Depending on how they classify the sentence they have drawn (as FACT or OPINION), the student will move to the corresponding area.

Once in their chosen areas, all students in each group (FACT/OPINION) will discuss with their classmates. The goal is to ensure that all group members agree on the classification as such of each statement in their group. Students who are undecided or who are convinced by their colleagues' arguments have the opportunity to change their position and move to the other area.

After the time set for group discussions (10 minutes), each student takes turns presenting their sentence (fact or opinion) and briefly explains why they chose that classification.

Controversial cases or those in which students have changed their position are discussed in plenary to reinforce the differentiation criteria.

Finally, the groups will provide new and relevant examples, anchoring the concepts in real life:

- Students in the FACTS group will give some new examples of facts (which can be verified) recently observed in their online or physical communities.
- Students in the OPINIONS group will give new examples of opinions (which are difficult or impossible to verify) heard or read in their communities.

IV. Reflection – 5 min

Students fill in a personal commitment related to information consumption on the reflection card:

"From now on, before sharing news about my community..."

V. Annex – Fact or opinion?

The biggest challenge in modern electrical engineering is the integration of intermittent renewable sources into the smart grid.
Ohm's law states that the intensity of electric current through a circuit is directly proportional to the applied voltage and inversely proportional to the resistance of the circuit.
In an alternating current (AC) circuit, the standard frequency in Europe is 50 Hz.
Grounding (earthing) is an essential protective measure that reduces the risk of electric shock.
Using the KNX standard is the best approach for the complete automation of residential electrical installations.
Simulating electrical circuits is much more valuable for students than performing basic physical experiments.
Cybersecurity is now as important as overcurrent protection in industrial electrical installations.
Having neatly arranged and properly labelled cables in the electrical panel is the best indicator of a professional electrician.
Electrical installations made with metal pipes are far more durable than those made with PVC piping.
Fuses are protective devices that interrupt the electrical circuit when the current exceeds a predetermined value.

The RLC series circuit reaches resonance when the inductive reactance is equal to the capacitive reactance.
Three-phase circuit systems use three voltages that are 120 degrees out of phase with each other.
Sensor-based predictive maintenance is far superior to periodic preventive maintenance in power plants.
Semiconductor materials (such as silicon) form the basis of modern electronic components such as diodes and transistors.
Students should study more about energy efficiency and less about old analogue circuits.
The initial cost of high-quality equipment for installations is always justified by its longevity and safety.
Active power in an AC circuit is measured in watts.
The power factor indicates how efficiently electrical energy is converted into active power.
Arduino or Raspberry Pi-based projects are essential for keeping electrical engineering students motivated.
The colour code for electrical conductors in single-phase installations in Romania is: Brown/Black/Grey for phase (L), Blue for neutral (N), and Yellow-Green for grounding (PE).
The line voltage in a Star (Y) connection is root three times phase voltage.
Without a deep understanding of wave physics, it is impossible to be a truly good electrical engineer.
Switching to LED bulbs is the fastest and most effective method a household can use to reduce energy consumption.
Inductive reactance is an apparent resistance that only occurs in alternating current.

VI. Learning from the implementation of the lesson

What made this Electrical Measurements lesson particularly engaging was the integration of media literacy within the framework of technical studies. To ensure all students practiced critical thinking, I divided the class into two groups: 'The Fact Group' and 'The Opinion Group.' Each team had to present two statements from their own areas of interest.

This activity made it much easier for them to distinguish between facts and opinions. Once this foundation was laid, I was able to bridge these concepts to the technical knowledge required for electrical measurements. By the end of the session, the students were genuinely enthusiastic; they felt empowered because they had learned how to ask themselves the right questions to separate facts from opinions. It was rewarding to see them apply this analytical mindset to both their personal interests and their technical studies.

Teacher's reflection after the lesson:

"By the end of the lesson, the students managed to turn their challenges into engines of progress. It was really rewarding to hear a student say, 'Wait, this isn't a fact, it's just something I heard.' They didn't just learn about electrical units; they learned how to think about their thinking."

Student's reflection after electrical measurements lesson:

"From now on, before sharing any information about my class, I will think twice and ask myself at least one question to make sure whether it is true or false."

Tool 31: Medicines, drugs, and perfumes - Fallacies (Romania)

The lesson helps students move from being passive consumers of information to active and critical evaluators, empowering them to make informed decisions based on logic rather than emotion or mistakes made by others.

Students' age: 16-17 years

Discipline: Chemistry

Goal:

To develop the ability to critically evaluate information so that students can identify, analyse, and reject fallacies that underlie poor decisions related to health, consumption, and lifestyle.

Specific learning objectives:

By the end of the lesson, students will be able to:

- define fallacy and explain why reasoning may appear correct but lack foundation
- recognize and name at least three types of fallacies
- distinguish between valid and invalid arguments in the context of the consumption of medicines, drugs, and perfumes,
- apply their knowledge to correct false statements on the worksheet, using logical and evidence-based arguments.

Teaching materials:

- PPT – What is fallacy? https://docs.google.com/presentation/d/1CM4Umd9V-oi8kd8KiNITpBGLbVXIikSp/edit?usp=drive_web&ouid=101790067754884233602&rtpof=true
- Annex – Worksheet
- interactive whiteboard

Duration: 50 min

Step-by-step instructions

I. Orientation – 10 min

In the beginning, brainstorming is used to identify the students' initial ideas about medicines, drugs, and perfumes and to establish a link with the topic of errors in reasoning.

On the board, the teacher writes down the three terms: "Medicines – Drugs – Perfumes."

Students suggest words/expressions associated with each term; these are organized in clusters.

Together with the students, briefly discuss the sources of these ideas (advertisements, the internet, family, friends etc.).

Conclusion: some of these ideas may stem from flawed reasoning, which will be the topic of the lesson: fallacies.

II. Preparation – 10 min

The teacher concisely defines fallacy (apparently correct reasoning, but without evidence), gives 1–2 very simple examples (not necessarily from chemistry) to support understanding, and briefly classifies fallacies according to the criteria of the intention with which they are produced and the form in which they appear.

Students are asked to give a few examples of statements they have heard about medicines, drugs, or perfumes (a word or a short sentence).

Discuss 2–3 of them, pointing out that they may be based on fallacies.

III. Implementation – 25 min

Presentation of types of fallacies

Use the PPT presentation to briefly show some types of fallacies (e.g., faulty generalization, straw man, false dilemma, etc.).

Worksheet: Students receive a worksheet (Annex) containing statements related to medicines, drugs, and perfumes. The task is to identify fallacies and correct the statements by formulating logical arguments. Students complete the worksheet in groups of 3-4 students.

IV. Reflection – 5 min

Each group will share one of the five fallacies from the worksheet with the class.

V. Annex - Worksheet

1. It cannot be harmful to use drugs. There are so many people who really enjoy them.
2. The way a person uses substances says a lot about their character.
3. Doctor: Take two pills and call me tomorrow morning.
Patient: Why?
Doctor: Because I think it will do you good.
4. Everyone buys these perfumes. They must be very good.
5. If I were you, I wouldn't waste my time reading the patient information leaflet. They all say the same general things.

VI. Learning from the implementation of the lesson

The students encountered significant difficulties in correctly categorizing these statements into specific types of fallacies. To use this confusion as a learning opportunity, the teacher introduced a set of 'filter questions' instead of simply providing the correct answers.

For instance, regarding the first statement: 'It can't be harmful to use drugs; there are so many people who like them...', and the fourth: 'Everyone buys these perfumes; they are probably very good', the teacher guided students to recognize that, in both cases, popularity was being mistaken for quality or safety. Students came to understand that a drug remains neurotoxic regardless of how many people consume it, and a perfume can still be an irritant even if it is a 'best-seller.' Regarding the final statement—'In your place, I wouldn't waste my time reading the leaflet. They all write general things'—the teacher had the students compare two different medical leaflets. By observing the differences in contraindications and chemical composition, students realized that the statement was a logical error: a hasty generalization that ignores vital details essential for patient safety.

Teacher's reflection after the lesson:

"The workshops demonstrated that students engage more effectively when chemistry concepts are linked to real-world situations and critical information analysis. Integrating scientific concepts with cognitive biases and logical fallacies helped students understand how information can be interpreted or distorted. This interdisciplinary approach fostered critical thinking, teamwork, and the students' ability to analyse and argue using information from diverse sources."

Students' reflections after the lesson:

"We became aware that careful attention to detail is essential to prevent falling into the trap of hasty generalizations."

"Unfortunately, we often use logical fallacies. From now on, I want to look for arguments in such a way that I can recognize these fallacies."

Fact-checking and debunking

Tool 32: Types of statistical data, data interpretation (Romania)

The lesson helps students transition from passive consumers of graphs to active analysers and responsible creators of visual representations.

Students' age: 16-17 years

Subject: Mathematics, Learning unit: Introductory elements of statistics

Goals:

- Developing critical thinking and visual and media literacy skills
- Developing the ability to evaluate the accuracy and relevance of graphical representations used in the media, advertising, or presentations.

Specific learning objectives:

Students will be able to:

- identify confusing elements in a graph (e.g., truncated axes, distorted proportions, suggestive colours, lack of source)
- explain with examples how these elements can influence the public's perception of the data,
- compare two graphs that present the same information but in different ways, and argue which one is confusing and why,
- propose an improved version of a confusing graph, respecting the principles of accurate data representation.

Teaching materials:

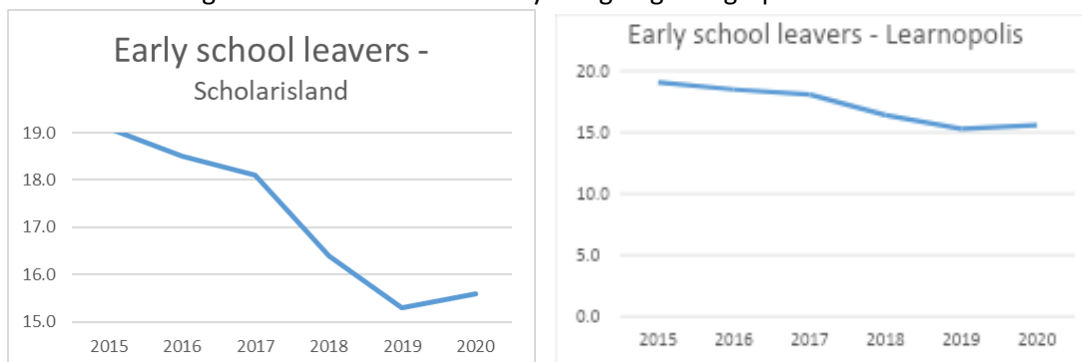
- PPT – Data literacy
<https://docs.google.com/presentation/d/19EFEOjsqTFMCbQrZDrHYf6SHseQFTtSL/edit?slide=id.p28#slide=id.p28>
- worksheet
- interactive whiteboard
- graphs
- post-it notes

Duration: 60 min

Step-by-step instructions

I. Orientation – 10 min

Intuitive knowledge about data is activated by designing two graphs:



Starting question: "Which graph seems more dramatic to you and why? What influences your perception?" (show slide 3 in PPT)

Students respond orally, and the teacher notes down keywords (broken axis—i.e., an axis that does not start at 0, scale, visualization, proportions).

The teacher introduces the idea that the way data is presented influences its interpretation.

II. Preparation – 10 min

The teacher asks the question: "Statistics never lie. Yes or no?" (show slide 4) Students divide into two groups: "YES" and "NO," depending on their opinion. Each group formulates 2–3 arguments to support their choice; then representatives of the groups take turns presenting the arguments.

III. Implementation – 35 min

Students work in teams of 3–4, each with a sheet of questions (Annex):

The teams discuss and justify their answers.

Students write down their reasoning, not just the results.

The teacher circulates among the teams and offers support.

Each team briefly presents the solutions they have found.

IV. Reflection – 5 min

Students individually write an exit card on a post-it note:

- what they learned from this lesson
- a rule one must follow to verify the accuracy of statistical information in the media

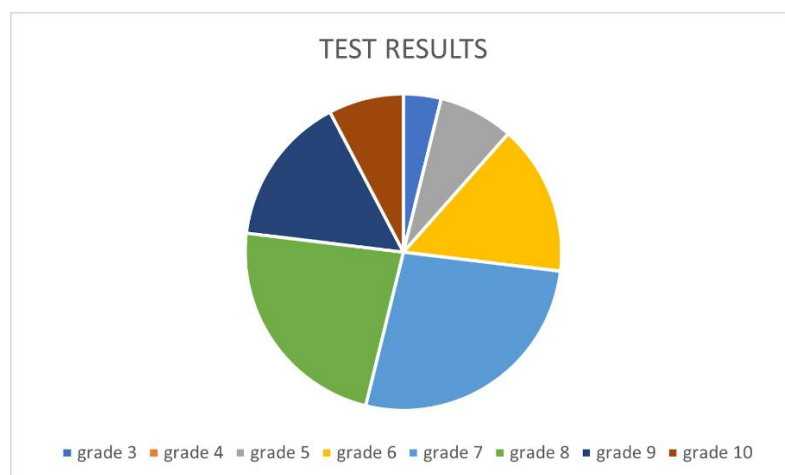
At the beginning of the next class, the teacher briefly discusses the students' exit cards.

V. Annex – Worksheet

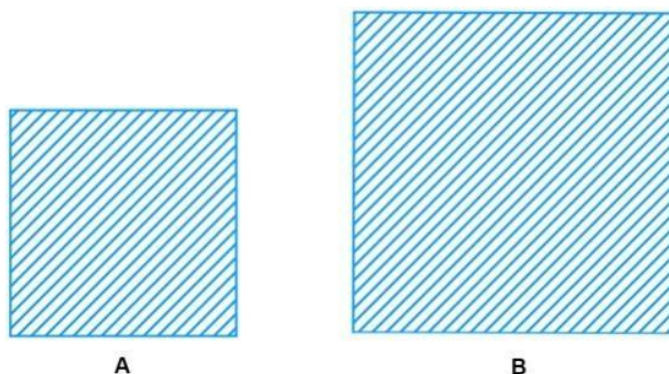
1. A company pays a total of €1,800,000 per year to its 90 employees. What are the annual earnings of an employee? Please justify your answer.

2. In an article published by *the New York Times* about construction union workers, it was reported that their wages were cut back 20% in one year. The following year, *the Times* reported that workers in that union had received a 5% wage increase. It is claimed that this increase restored one-quarter of the previous wage reduction. Is this claim correct? Why or why not?

3. Compare the yellow sector with the dark blue sector. Which one is larger? Explain how you arrived at this conclusion.



4. In the diagram below, consider the quantities represented by the two squares. How many times greater is the quantity represented by square B than the quantity represented by square A? Please explain your reasoning.



5. In 2020, a political advertisement in the US claimed that 99% of coronavirus cases are mild or asymptomatic. Was this statistic correct? Why or why not?

VI. Learning from the implementation of the lesson

While the primary objective of the lesson was the accurate interpretation of statistical data, the discussions naturally evolved toward a critical realization: statistics are not always neutral. Students began to observe how data can be strategically framed or manipulated to influence public opinion, particularly within the realms of mass media and advertising.

This led to an unplanned but highly impactful debate. Instead of strictly following the technical curriculum, the class delved into the ethics of data representation. This spontaneous exchange had a significantly positive impact on the students' learning journey, as it bridged the gap between mathematical literacy and real-world critical thinking. By the end of the session, students not only understood *how* to read graphs, but also *why* it is crucial to question the intent behind the data presented to them.

Teacher's reflection after the lesson

"Beyond data interpretation, students discovered that statistics aren't always neutral—they are often used in media and advertising to influence public opinion."

Students' reflections after the lesson:

"I saw how data can be represented in a way that manipulates our reactions."

"I learned that I must check everything from multiple sources and not let myself be influenced by images until I verify them or pay very close attention."

Tool 33: Data or Deception? – Analysing Misleading Statistics and Graphs (Poland)

This lesson develops students' ability to critically analyse statistical data and graphical representations presented in media. Students learn how charts and numbers can be manipulated through scale distortion, selective data presentation, and misleading framing. By examining and correcting problematic graphs, students strengthen both their mathematical reasoning and media literacy skills.

Students' age: 14–15 years

Discipline: Mathematics

Goals: development of critical thinking, data interpretation, mathematical reasoning, media and information literacy and argumentation based on evidence

Specific learning objectives

By the end of the lesson, students will be able to:

- Identify misleading elements in statistical graphs.
- Explain how scale, axis manipulation, and selective data influence perception.
- Distinguish between accurate data presentation and deceptive framing.
- Redesign a misleading graph to present information more transparently.
- Reflect on how numerical data can shape public opinion.

Teaching materials

- Projector
- Printed Worksheet 1 (Misleading Graph Example)
- Printed Worksheet 2 (Analysis Tasks)
- Graph paper (optional)
- Calculator (optional)
- Ruler

Duration: 45 min

Step-by-step instructions

I. Orientation – 5 min

Teacher displays a dramatic headline with a graph: *“SCREEN TIME DOUBLES – TEENS IN DANGER!”*

Students answer:

- What does this graph suggest at first glance?
- Does it look alarming? Why?
- Can graphs influence emotions?

Brief discussion: Numbers and graphs seem objective, but the way they are presented can strongly influence interpretation.

II. Preparation – 10 min

Mini Input: Common Data Manipulation Techniques

Teacher introduces 4 common misleading strategies:

1. Truncated axis (y-axis does not start at zero).
2. Distorted scale intervals.
3. Selective data range (choosing specific years only).
4. Visual exaggeration (3D bars, oversized icons).

Teacher models one short example: “If the axis starts at 50 instead of 0, small changes look dramatic.” Students note key warning signs in notebooks.

III. Implementation – 20 min

Students work in pairs or small groups. They look at the graph.

Note that the provided graph (Annex 1) shows:

- Y-axis starting at 6 instead of 0
- Bars visually exaggerated
- Dramatic colour (red)
- Headline suggesting “dangerous growth”

While the students are working on Worksheet 2 (Annex 2), the teacher circulates and asks:

- What does the scale hide or exaggerate?
- Would the graph look different if the axis started at 0?
- How could this influence public debate?

IV. Reflection – 10 min

Group Discussion

- Why do misleading graphs spread easily?
- Are numbers always neutral?
- How can mathematical skills protect us from deception?

Individual Reflection

Students complete the sentences:

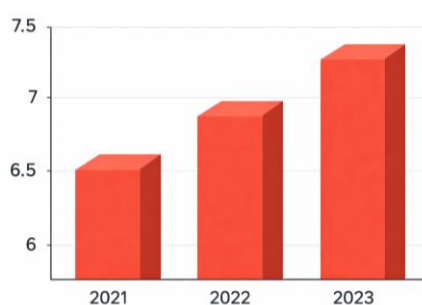
1. One way graphs can mislead is:
2. One question I should ask when I see statistics online:
3. Why is mathematical literacy important for media literacy?

V. Annexes

Annex 1 – Worksheet – CASE STUDY GRAPH

“SCREEN TIME DOUBLES – TEENS IN DANGER!”

Graph Title: Average Daily Screen Time (Hours)



Annex 2 - Worksheet 2 – Analysis task

Part A – Spot the Problem

1. Does the graph start at zero? Why does this matter?
2. Is the increase dramatic or relatively small?

3. What impression does the visual design create?
4. Is important context missing?

Part B – Mathematical Analysis

1. Calculate the real percentage increase from 2021 to 2023.
2. Is the headline justified by the data? Explain.

Part C – Redesign the Graph

Students:

- Redraw the graph with correct scale starting at 0.
- Write a neutral headline for the data.

VI. Learning from the implementation of the lesson

An optional extension to the lesson could be the following assignment:

Find a real online graph and:

- Analyse scale and context
- Identify potential manipulation
- Suggest improvements

Teacher's reflection after the lesson:

“Working in pairs or small groups, they calculated real percentage changes, assessed how design choices affect perception, and redesigned graphs with neutral, accurate presentations.”

Student's reflection after the lesson:

“Working with examples helped me notice how information can be presented in different ways.”

Tool 34: Pseudoscientific misinformation (Romania)

In this biology lesson, pupils will learn how pseudoscientific misinformation manifests itself by analysing the content and context of a message circulated through the media during the COVID-19 pandemic.

Students' age: 16 years

Disciplines: Biology

Goal: to support the development of the following specific competences:

- Correct use of biology-specific terminology in various communication situations
- Presenting information using various communication methods

Specific learning objectives:

By the end of the lesson, the students will be able to

- Explain the operating principle of certain types of anti-Covid RNA vaccines based on scientific information presented by the teacher
- Identify elements of pseudoscience in a message circulating across various networks (media contexts) based on the analysis of a text suggestive of scientific mimicry in the explanations provided
- Identify the causes behind the motivation for such a manipulative approach, based on discussions about the medical and social context of the time (the Covid-19 pandemic) in which the analysed message appeared and circulated
- Critically analyse, by comparison, two situations in which texts with scientific content and a text (message) with pseudo-scientific content are presented, both referring to the same idea: vaccination with an mRNA vaccine

Teaching materials:

- interactive whiteboard
- PPT Digital technologies and disinformation:
<https://docs.google.com/presentation/d/1ttRAw32Wt8TIWI4fwXMbIWX6nYyovSFs/edit?slide=id.p1#slide=id.p1>
- Annex 1 – Reading – Case study
- Annex 2 – List of questions

Duration: 100 min

Step-by-step instructions

I. Orientation – 5 min

The teacher informs the class that they will carry out an analysis/mini case study together to observe how disinformation using pseudoscientific content and messages actually works. They will therefore analyse in detail a message circulated via messaging apps (WhatsApp) during the COVID-19 pandemic regarding the COVID vaccine. Before carrying out the text analysis, they all need to refresh their knowledge of scientifically accurate information about immunity, the virus, vaccines, RNA, etc. Based on this updated information, the pupils, guided by the teacher, will critically and scientifically analyse the content of the message

II. Preparation – 45 min

Refresher on scientific concepts

By looking at images and watching videos, the teacher reviews and explains the basic scientific concepts needed to understand the manipulation in the message that will be analysed in the second part of the lesson. The teacher emphasises the concepts present in the pseudoscientific message to be analysed, to help students understand how they are used in contexts that alter their meaning.

- a) What are the components of a virus? (genetic material – DNA or RNA; the viral envelope – the role of proteins; the concept of an antigen) – observations based on images depicting the structure of a virus. Image used is available here:
<https://www.sciencelearn.org.nz/images/187-virus>
- b) How does one of the body's main defence mechanisms work? (the role of lymphocytes – antibody production, the antigen–antibody relationship) – explanations based on images depicting the antigen–antibody relationship – Image used, 'Humoral immunity', is available here: <https://ro.dreamstime.com/royalty-free-stock-photography-immunity-humoral%C4%83-anticorp-limfocitar-%C8%99i-antigen-diagram%C4%83-vectorial%C4%83-image38703007>
- c) How does a vaccine work? (similar to the body's natural defence mechanisms) – explanations based on watching a video; the link to the video used is available here – <https://scoone.com/watch/watch-world-immunization-week-a-ted-ed-video-how-do-vaccines-work-32/>
- d) Are there different types of vaccines? Which ones? (live-attenuated, antigen-based, viral genetic material/RNA-based, which cause the body to produce antigens) – explanations based on watching the same video/film from point c).
- e) Is messenger RNA a molecule involved in processes specific to our cells? (Yes. mRNA copies genetic information from the DNA in the nucleus and transports it as a 'message' to the site where proteins are produced (the ribosomes). These are daily processes that underpin the way our cells decode genes, resulting in our characteristics) – explanations based on watching a video/film available here: <https://www.youtube.com/watch?v=gG7uCskUOrA> or illustration *The DNA-mRNA-Protein relationship* available here: <https://www.cancer.gov/news-events/cancer-currents-blog/2020/tumor-rna-cancer-precision-medicine>
- f) What is the mechanism of action of mRNA vaccines? (the introduction of a fragment of viral genetic material, which causes the host cell to produce viral antigens, which in turn causes the host organism to produce antibodies) – explanations based on watching a video available here <https://www.youtube.com/watch?v=3CiewFponuQ>

Further questions:

- How new is the mRNA technique?
- What does the mRNA vaccine production technique involve? How does it differ from other techniques?
- How would you justify the statement: "The mRNA technique is based on natural processes that take place in our cells."

Theoretical concepts in media education: algorithms, filter bubbles, echo chambers, disinformation, pseudoscience (PPT presentation)

- Threats/risks of the algorithms used by modern communication technologies
- misinformation/manipulation that a message with pseudo-scientific content can cause (containing (pseudo)-scientific concepts, but used in inappropriate ways and contexts);
- the dissemination of such messages in online spaces such as filter bubbles and echo chambers

III. Implementation – 50 min

Case study: analysis of a pseudoscientific message based on the list of questions from worksheet (Annex 2).

Students work in 5–6 teams to analyse the supporting text and answer the set of questions. The text to be analysed was circulated as a message on WhatsApp during the Covid-19 pandemic regarding Covid-19 vaccination (December 2020/January 2021), and was also promoted on Facebook.

Teams presents their answers.

Class discussion, teacher feedback on the teams' work, comments, conclusions.

Further exploration: Within the same teams, students look for another example of manipulation based on pseudoscientific explanations of certain phenomena. They identify the elements that appear scientific and explain why they classify them as pseudoscience. A relevant example of a message found by the students, which fits the pattern analysed (scientifically accurate elements used in contexts that alter their meaning and accompanied by emotional messages designed to cause panic) <https://republica.ro/gravitatie-pamant-dispare-12-august-nasa-teorie>)

IV. Reflection – 5 min

Questions for students

- How does knowing about manipulation techniques based on pseudoscience help me?
- What have I learnt from this activity?

Exit tickets/individual feedback displayed at the front of the class as feedback

- One idea I liked is
- A question still on my mind is
- A comment on the lesson is

V. Annexes

Annex 1: Reading – Case study

This text circulated on various WhatsApp groups during the pandemic. The text was subsequently identified as a comment associated with an article in the online edition of the publication *Curierul Național*: <https://curierulnational.ro/coronavirus-aviz-stiintific-pentru-vaccinul-pfizer-biontech-donad-trump-face-prima-comanda/>

December 2020.

The person who sent this to me works at Fundeni

The 'vaccine' is coming, what a relief, isn't it?

But does anyone understand...

WHAT IS ACTUALLY GOING TO BE INJECTED INTO US?

If you read the 'huge' news story below, which has appeared across the media (the servile and well-paid sort), you might understand more than the authors intended.

You will understand, as Rafila says, that these are new, advanced "vaccines", which have never been used before!? That the entire population must be vaccinated very quickly, as soon as the shipment arrives!? That it is highly temperature-sensitive and can only be transported at minus 70–80 degrees Celsius!? That a second dose must be administered after 30 or 60 days!?

But MOST IMPORTANTLY, it says that these vaccines are based on messenger RNA, which is an RNA (ribonucleic acid) molecule that copies the genetic information of a DNA strand, a process called transcription. So remember the term: 'RNA transcriptase'.

✓ **BUT NOW COMES THE SHOCK:**

- it is absolutely incredible what lies behind the "vaccine"!

Let's start with how this virus works. To put it simply, this virus does not have its own RNA polymerase. So, once it enters the body, it must use the host's RNA polymerase – that of our own body.

And so, from "no-self" (without a self), it becomes "self" (self-sufficient), beginning to disguise itself, or rather to camouflage itself. At this point, the antibodies can no longer see it, but they can smell it, they can sense it, and the inflammatory reaction continues, raising the body temperature. Thus, hyperthermia takes on the role of preventing both viral replication and protein coagulation. In effect, it cooks it, bakes it. It is enough to disorient it so that the macrophages that appear can spot it and devour it.

If the virus puts up a fight, then interleukins—our security system—will come into play and hunt it down in the body.

CONCLUSION !

All the academic jargon about the 'vaccine' in the article does nothing but hide the reality. A reality that is disastrous: under the pretext of vaccination, they are actually injecting you with RNA transcriptase – as the article states very clearly – and thus the virus becomes AUTONOMOUS. As I said above, the virus does NOT have RNA transcriptase. Now, with the help of the "vaccine", it will have it!!!

As the virus becomes autonomous, we immediately become not just a reservoir of infection but also carriers to other potential 'clients' – family, colleagues, friends, practically anyone we come into contact with who has not yet been colonised by this virus.

That doesn't really sound like a vaccine, does it?

IT IS IN FACT A POTENTIAL SOURCE OF INFECTION AND SPREAD OF THE VIRUS.

How is it possible to create and distribute such a monstrosity? It is a criminal act. Why? Because it is only AFTER this 'VACCINATION' that we can speak of a PANDEMIC. A pandemic that is 100% real this time!

P.S. The world must know the truth. Those who understand will act correctly as a result of realising the danger. SHARE if you feel the same.

Annex 2: Questions

Answer the following questions, based on the text analysed and the information about the role of mRNA in cells and how RNA vaccines work.

- 1) Underline/identify the scientific concepts identified in the text
- 2) Give an example of at least one concept or process used correctly or in the correct context. What role do such correctly used elements play?
- 3) Identify concepts or processes that become incorrect due to the context in which they are used.
- 4) Explain why we consider the concepts or processes identified in the previous point to be elements of pseudoscience?
- 5) Identify in this text other mechanisms of manipulation besides the pseudoscientific ones.
- 6) What might be the purpose of these manipulative intentions conveyed through such messages? Give 2–3 examples of motivations for why individuals or groups send such messages. What benefits do the senders of such messages seek?
- 7) What individual and social consequences might arise from the spread of and credence given to such messages?

VI. Learning from the implementation of the lesson

It was difficult to structure the scientific elements regarding the biological structures and processes necessary for the correct analysis of the pseudoscientific message. The concepts were numerous, some of them requiring a long time and explanations to be understood. If the students had not been taught these concepts in previous years, the activity in the first lesson would have required more time.

Teacher's reflection after the lesson

"The activity in the second lesson was very interesting for the students as it included a concrete example of a message analysed using scientific, emotional and text structure related criteria. The students' great interest was proven by the fact that they started looking for other examples of similar pseudoscientific messages and found some relevant examples."

Students' reflections after the lesson

"It helps me to be aware of what I read, to better analyse the information I receive and not to be misinformed."

"How to avoid misinformation attempts more easily because scientific terms used incorrectly are harder to detect."

"Not to fall prey to misinformation, discerning between pompous words and the truth."

Tool 35: Science Fact-Checking Lab – Verifying Viral Scientific Claims (Poland)

In this lesson, students act as scientific fact-checkers analysing viral health and science claims. Working in small “research teams”, they evaluate evidence, verify sources, and distinguish between scientific reasoning and misleading arguments. The lesson strengthens critical thinking, evidence-based reasoning, and responsible information sharing.

Students’ age: 13–15 years

Disciplines: Biology / Chemistry

Goals: students practice the following skills: scientific reason, critical evaluation of sources, analytical reading, argumentation based on evidence, responsible digital citizenship

Specific learning objectives

By the end of the lesson, students will be able to:

- Distinguish between scientific claims and evidence-based conclusions.
- Identify unreliable or vague sources.
- Evaluate credibility using structured verification criteria.
- Formulate a short evidence-based verdict.
- Reflect on why scientific misinformation spreads easily.

Teaching materials

- Annex 1 – Claim Cards
- Annex 2 – Fact-Checking Worksheet
- Access to textbooks or trusted websites (or reliable printed sources)
- Highlighters

Duration: 45 min

Step-by-step instructions

I. Orientation – 5 min

Quick Vote

Teacher presents a viral-style claim: “Drinking lemon water every morning detoxifies your body.”

Students vote quickly: True/ False/ Not sure

Teacher asks:

- What makes it believable?
- What kind of evidence would we need?

Teacher introduces topic: *Today you are going to be Science Fact-Checking Teams.*

II. Preparation – 10 min

What Makes Scientific Information Reliable? Teacher briefly explains 5 verification criteria:

- Is the source clearly named?
- Is there scientific evidence (studies, data)?
- Is the language emotional or neutral?
- Are experts cited specifically?
- Is the claim testable and measurable?

Students receive a Fact-Checking Worksheet.

III. Implementation – 20 min

Students work in small teams. Each team receives 2–3 Claim Cards. When they have completed the analysis, each group presents:

- One claim
- Their verdict
- Key evidence used

IV. Reflection – 10 min

Whole-Class Discussion

- Why do health myths spread quickly?
- Why do people trust “natural” claims?
- How can we verify scientific information online?

Exit Reflection

Students complete the statements:

- One warning sign of unreliable science information:
- One strategy I will use before sharing health advice:
- Why evidence matters in science:

V. Annexes

Annex 1 – Claim cards

Card 1 “Drinking lemon water every morning detoxifies your body.”

Card 2 “Vaccines weaken the immune system.”

Card 3 “Energy drinks permanently damage teenage brains.”

Card 4 “Chocolate improves memory.”

Card 5 “Wi-Fi radiation causes headaches and long-term illness.”

Card 6 “Organic food is always healthier than non-organic food.”

Students must investigate using textbooks or other reliable sources.

Annex 2 – Fact-checking worksheet

Part A – Source Check

- Is a specific scientific study mentioned?
- Is the source identifiable and credible?
- Is the language emotional or neutral?

Part B – Evidence Evaluation

- What evidence supports the claim?
- Is the evidence strong, weak, or missing?
- Are there alternative explanations?

Part C – Scientific Verdict

Write one of the following:

- Supported by scientific evidence
- Partially supported / exaggerated
- Not supported by reliable evidence

Justify your answer in 3–4 sentences.

VI. Important note

As an optional extension, the students may create their own “fake but realistic” scientific claim, and have another group fact-check it.

Index

algorithms, 8, 11, 14, 16, 17, 38, 40, 41, 44, 45, 46, 47, 51, 52, 54, 74, 75, 80, 100, 104, 122
bias, 9, 10, 11, 13, 16, 17, 34, 65, 67, 68, 73, 99, 105
chatbots, 14
clickbait, 34, 48, 49, 82, 84, 93, 107, 109
Conspiracy, 42, 46, 108
conspiracy theories, 16, 105
credibility, 9, 10, 33, 100, 126
critical thinking, 8, 9, 13, 16, 17, 22, 30, 32, 39, 40, 43, 44, 57, 58, 77, 80, 82, 93, 100, 101, 105, 107, 112, 114, 115, 117, 118, 126
data analysis, 13
data literacy, 51, 100, 106
debunking, 8, 77, 115
deepfakes, 51, 52, 86, 109
disinformation, 9, 10, 11, 12, 13, 14, 15, 25, 26, 35, 36, 39, 62, 80, 82, 83, 104, 105, 107, 121, 122
echo chambers, 11, 14, 16, 17, 38, 41, 46, 80, 95, 122
fact-checking, 14, 38, 41, 82, 89, 126
fake news, 11, 12, 14, 15, 20, 25, 51, 77, 78, 80, 81, 93, 95, 96, 97, 102, 105
fallacies, 11, 13, 17, 100, 101, 105, 113, 114
filter bubble, 11, 16, 22, 23, 40, 41, 44, 46, 47, 80, 122
logical errors, 8, 67, 110
logical fallacy, 17
malinformation, 11, 25, 82, 83, 101
manipulation, 8, 11, 17, 45, 48, 57, 62, 63, 65, 91, 107, 108, 109, 118, 120, 122, 123, 124
media (and information) literacy, 8, 9, 11, 35, 38, 40, 65, 67, 80, 93, 105, 107, 112, 115, 118, 119
misinformation, 9, 11, 12, 14, 23, 25, 35, 36, 37, 38, 39, 40, 50, 51, 65, 71, 82, 83, 84, 86, 89, 90, 100, 101, 103, 106, 107, 108, 121, 122, 125, 126
populist discourse, 12, 15
pre-bunking, 50, 62, 101, 107, 108
propaganda, 8, 12, 15, 57, 58, 59, 62, 63
responsible sharing, 82
social media, 8, 14, 15, 16, 19, 38, 40, 44, 46, 104, 105, 108

MILES - MIL and PRE-BUNKING approaches for Critical thinking in the education sector



[ERASMUS-EDU-2023-PI-FORWARD]
[ERASMUS-EDU-2023-PI-FORWARD-LOT1]

Project n° 101132716



Co-funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.



CARDET



CENTRO SVILUPPO
CREATIVO
DANILO DOLCI



DANMAR
COMPUTERS

IT mal



die Berater®
bridges to europe



aproximar
COOPERATIVA DE SOLIDARIEDADE SOCIAL, CRL



LECTURA ȘI
SCRIEREA PENTRU
DEZVOLTAREA
GÂNDIRII CRITICE



onderwijs
van de Vlaamse
Gemeenschap



olae