



Learning and Teaching Package 5 **Unit 3: The Dangers of Disinformation**

NIALL BRADY, UCD **RACHEL FARRELL, UCD CONOR GALVIN, UCD**

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Overview

The LTP introduces the topic of climate disinformation and brings an understanding of the "Media Landscape" in which Disinformation can emerge. It brings into discussion the roles of the media, and which activities of the media make traditional/social media more susceptible to mis-/disinformation. It also presents a range of material and associated pedagogies that explore secondary teaching and learning related to climate and climate information.

Unit 3 looks at the dangers of disinformation. It deals with identifying the detrimental effects that misinformation can have on a society. This unit offers content that helps teachers present the knowledge that students require to identify the dangers of disinformation. Through this unit activities and learning opportunities are offered to aid educators in teaching this area.

Pedagogical Approach

This Learning and Teaching package encourages teachers to explore areas of social media and news resources that young individuals have access to. Unit 3 allows for educators and students to engage with active learning pedagogy and support knowledge-based understanding of climate information and how it can be misrepresented. The main pedagogical approaches include reflection, collaboration and technology assisted problem solving. This unit attempts to enable students to have a better understanding of the information that is provided via scientific sources and media. The pedagogical approach is focused on active learning for not just educators but also for the secondary school students that will be utilizing these activities.

The need for an understanding of the dangers of disinformation

The need for knowledge on dangers of disinformation within an educational context helps students to identify that disinformation can distort students understanding of climate science which leads to misconceptions about the causes and impacts of climate change. Exposure to false information can force opinions and create a mistrust in scientific institutions and experts. By having an impact on public opinion there will consequently be opinions that differ on policy decisions. If students grow with skewed perception of what climate change is, further knowledge growth may follow these routes. Teachers play a vital role in combating disinformation. By providing accurate information and promoting an educational environment where scientific inquiry and scepticism are encouraged. Due to the high social media influence on young people, it is essential to educate students on how to navigate these platforms critically. This unit embodies that.

Piloting of the materials within TAP-TS

Materials piloted in early draft with UCD Professional Maters of Education programme participants and the verified at the TAP-TS Autumn School, Pirna, 27-28 Sept 2024.





UNIT Overview

Main Topic	Target Group	Duration	Knowledge Area/ Subjects in School	Activities	Possible assessment
Unit 3: The Dangers of Disinformation	Secondary school teachers and student teachers via activities for secondary level students	130 – 150 Minutes	Climate Change	Start Up Activity 1 What is the difference between Weather and Climate? Development Activity 2 Possible effects of climate change Consolidation Activity 3 Spread of Disinformation Follow-Up Activity 4 Learner reflection & carbon usage. Reflection Activity 5 Teacher Reflection.	Self- reflection questions, Cloze tests & Assessment Quiz.
Intended Learning Outcomes Prior Competencies	Having worked throug ✓ Differentiate betwee ✓ Explain why climate ✓ Describe how climate ✓ Describe a range of o who live there e.g. Vale • Digitally literate to a in this unit	h the activities an en weather and cli change is happeni e change is affect climate change eve entia Spain 2024. level that allows t	id materials, studer mate. ing. ing our world. ents across Europe a to engage meaningf	and their effects on ully with the materi	the people als provided
	 No basic content con Ability to collaborate participate. 	and be cooperate	d, basic level of und ed to support group	activities and have	autonomy to
Required materials	 Laptop and access to 	internet • Paper a	and writing materia	s	
Cooperation/ Networking	Exploring and connecti related to climate disas	ng to victims of clinters and sustaina	imate disaster and oblicity education.	community organiza	itions
Practical Notes for Teachers	Grouping participants of Materials can vary dep The materials on Carbo Sustainability Unit 3.	differently may ca ending on whethe on Footprint can b	use activities to bec er the activities are o se further explored	ome longer or shor online or in person. in LTP 2 Digitality a	ind
Addressing	Embodying sustainabil	ity values			
GreenComp	X 1.1 Valuing T sustainability e	o reflect on personal values; is valuating how they align with	dentify and explain how values va sustainability values.	ry among people and over time,	while critically
	X fairness S	o support equity and justice four stainability.	or current and future generations	and learn from previous generat	ions for
	x 1.3 Promoting nature	o acknowledge that humans a self in order to restore and re	re part of nature; and to respect generate healthy and resilient eco	the needs and rights of other spe osystems.	cies and of nature
	Embracing complexity	in sustainability			



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	х	2.1 Systems thinking	To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems.
	х	2.2 Critical thinking	To assess information and arguments*, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions.
	х	2.3 Problem framing	To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems.
	Env	visioning sustainab	le futures
	х	3.1 Futures literacy	To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future
		3.2 Adaptability	To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk.
	х	3.3 Exploratory thinking	To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods.
	Act	ting for sustainabil	ity
		4.1 Political agency	To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability.
	х	4.2 Collective action	To act for change in collaboration with others.
	x	4.3 Individual initiative	To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet.





	UNIT DESCRIPTION	
Start-Up		
Think Pair Share, what i	s the difference between Weather and Climate?	Estimated Duration
Activity 1. Definitions Think Pair Share What is the difference between Weather and Climate? GreenComp Reference: 4.2 Collaborative action 3.2 Adaptability 1.3 Promoting Nature 2.2 Critical thinking	Preparation for Activities: Working in pairs using the title "What is the difference between Weather and Climate?" Pupils can use their copies, blank piece of paper or mini whiteboards. A Note for the Teacher: Allow students to think critically, fully expressing themselves with questions. Allow for time to process questions to get the most from the activity. Description: Students should be put into pairs. Ask pupils, "What is the difference between Weather and Climate?" for them to work in their pairs. Give pupils 3 minutes to think to themselves. Allow 3 minutes for pupils to share their opinions to their partner. Students will share their perspectives on the topic in a classroom discussion.	20 min





Development		
Possible Effects of Clima	te Change	Estimated Duration
Activity 2. Possible effects of Climate Change This is a video-based activity that invites to	A Note for the Teacher: Activities based on using video & brain dump exercises. Brain dump exercise consists of blank page in landscape orientation to be used like a mind map with the word "Climate Change" in the centre and four arrows - Causes, Evidence, Impacts, Solutions. Description	30 min
explore and reflect what actions could be taken at different levels.	Play the video demonstrating the difference between climate & weather. Students will watch the video twice before discussing the video among the classroom comparing to their previous activity. Climate Kids NASA <u>https://climatekids.nasa.gov/weather-climate/</u>	
GreenComp Engaged: 1.1 Valuing sustainability 3.1 Futures literacy 2.3 Problem Framing	Following class discussion on the video, work through the fact sheet slowly, questioning students as they research the fact sheet available <u>https://climatekids.nasa.gov/climate-change-meaning/</u> Brain Dump exercise to the question - What do you know about climate change?	
4.1 Political agency	 Pupils will create their own brain dumps using the titles below. Encouraging answers & opinions from all. Examples of possible answers; Causes- Greenhouse gases, deforestation, fossil fuels. Evidence- Rising temperatures, melting glaciers, extreme weather events. Impact- Sea level rise, wildlife extinction, food insecurity. Solutions- Renewable energy, conservation, sustainable practices. 	





Consolidation		
The activity invites to re	eflect on Why is Climate Change Happening	Estimated Duration
Activity 3. Spread of	A Note for a Teacher:	40 min
Disinformation Students will become familiar with similar	Students will complete an Anticipation guide along with a video activity & Think Pair Share Activity on Carbon.	
patterns of disinformation.	Description:	
GreenComp Engaged: 4.2 Collective action 1.2 Supporting fairness 2.3 Problem Framing 3.1 Exploratory thinking	 Complete the Anticipation Guide, requiring students to read each statement and decide if they think the answer is true or false. Watch the video attached https://www.youtube.com/watch?v=wzPUm-Ytpz4 Go back to your previous answers on the Anticipation Guide and check to see if your thoughts have changed, discuss throughout the class! Think, Pair, Share Activity Mind map, Students should be put into pairs. Ask pupils, "What is carbon and why is it important? let them to work in their pairs. The title should be in the centre of a blank sheet of paper. Pupils allowed 3 minutes to think to themselves. One option could be to ask play calming music over the time allocated. Each student should write as much as they can on the left-hand side of the page on the topic. When the music stops, we move onto the share task. 	











Follow-Up		
Reflecting on what we h	nave learned about Climate Change	Climate
Activity 4. Learner reflection & carbon usage. Assessing students' knowledge & understanding of Climate Change. Highlighting their own carbon use through the carbon footprint calculator	A Note for the Teacher: Reflecting on the previous activities' students will now challenge themselves. Using various forms of assessment, cloze tests (Worksheet Anticipation Guide) as well as online quizzes. Pupils will then investigate their own carbon footprint. Description Complete the Cloze Test - Understanding Climate Change filling in the sentences with key words pupils have learned through the previous activities worked through the activities.	40 mins
<i>GreenComp</i> Engaged: 1.3 Promoting Nature 4.3 Individual Initiative 2.1 Systems thinking	 Students will complete online quizzes one being NASA's Global Warming quiz <u>https://climate.nasa.gov/climate_resources/16/quiz-global-warming/</u> The second being the United Nations Developed, Free Rice Game on Climate Action <u>https://play.freerice.com/categories/climate-action</u> Highlighting Carbon Usage for students - Group Activity Following from the carbon activity, students will now take part in identifying their own carbon footprint 	

















How have the activities added to the knowledge and understanding of the learners in terms of working with others in the broader community to create inclusive visions for a more sustainable future?

 \mathcal{O} Dimension 2. Integration with different subjects:

In what ways have the activities engage your students across different knowledge areas and subjects of the curriculum? In what ways have this Unit's activities connected with different subjects of the curriculum?

How have the activities contributed to collaboration with others at school or institutional level to approach a sustainability issue from different perspectives, knowledge areas and contexts? Do the LTP materials, tools and methods you have implemented offer potential for use in other subjects? If so, in which subjects?

Have the activities encouraged students to draw on different perspectives, and subject knowledge to identify interconnections, and reflect on their own environmental, cultural and economic impact?

Dimension 3. Inclusion:

Do the LTP activities contribute to maximising students' participation and learning? What actions can you take to ensure the learning of all students?

How have the activities contributed to engage with different perspectives to consider sustainability challenges and opportunities?

















To what extent does your teaching practice encourage students to use evidence, combine knowledge and resources to analyse and evaluate futures and their opportunities, limitations and risks, and contribute to decision-making at school level.
To what extent does your teaching practice encourage students to use evidence, combine knowledge and resources to analyse and evaluate futures and their opportunities, limitations and risks, and contribute to decision-making, and become agents of change.





Glossary of Icons

- 🕑 Video
- 🤶 Quiz
- I Worksheets
- Editable Worksheets; task to make notes
- P Various Media, e.g. Learning Apps
- Text to Read, or present and actively listen to others
- A question to Respond or a Question for Reflection
- E A Discussion
- A task for an inquiry or search
- I Focusing Activity
- 🖄 A Reflection Activity
- 🌼 An Activity for Action
- Suggested answers
- - a short note for a teacher
- a group exchange





Worksheets and Links

Start-Up

Activity 1. Think Pair Share, what is the difference between Weather and Climate?

• Worksheet [Think, Pair, Share, Poster – <u>ThinkPairShare.pdf</u>]

Development

Activity 2. Possible Effects of Climate Change

- Logitation Climate Kids https://climatekids.nasa.gov/weather-climate/
- Fact Sheet <u>https://climatekids.nasa.gov/climate-change-meaning/</u>

Consolidation

Activity 3. The Spread of Disinformation:

- **Worksheet Anticipation Guide.pdf**
- Video- How Do We Know Earth Is Changing <u>https://www.youtube.com/watch?v=wzPUm-Ytpz4</u>
- Worksheet <u>https://climatekids.nasa.gov/carbon/</u>
- Worksheet Extra Resource- <u>https://climatekids.nasa.gov/why-earth/</u>

Follow-Up

Activity 4. Learner reflection & assessment

- Quiz Link- NASA's Global Warming quiz
 <u>https://climate.nasa.gov/climate_resources/16/quiz-global-warming/</u>
- Quiz Link United Nations Developed, Free Rice Game on Climate Action <u>https://play.freerice.com/categories/climate-action</u>
- **Uvrksheet Cloze Test** <u>Clozetest.pdf</u>]
- Worksheet Carbon Footprint carbonfootprint.pdf
- E Carbon Footprint Resource <u>WWF Footprint Calculator</u>





TAP-TS Roadmap

TAP-TS Roadmap has three main goals: (1) for the TAP-TS partners as a roadmap to design LTPs; (2) for teachers and student teachers to design materials for teaching sustainability; (3) evaluation of LTPs. Explore the visualisation on the next page.

TAP-TS Roadmap: the Ste	ps / stages in the TAP-TS LTPs Design Journey
1: Clarify the Goal	Our overarching goal is to enable learners and teachers to think and act sustainably. To actively participate in the discourse on sustainability, the topics must also be addressed - sustainably - in schools and universities. The goal of TAP-TS is to create learning and teaching packages for this purpose in the following areas: 2.1 A Sustainable Europe. 2.2 Sustainability and Digitality. 2.3. Sustainability and Environmental Education. 2.4 Climate Crisis Resilience. 2.5 Dealing with Climate Disinformation. 2.6 Green Citizenship in/for Europe. 2.7 Sustainable Entrepreneurship Education.
2: Competency Areas	The LTPS should be aligned with the interconnected four competences defined in the Green Comp Framework: • Embodying sustainability values • Embracing complexity in sustainability • Envisioning sustainable futures • Acting for sustainability Each activity should be aimed to target a number of competences presented in the Framework, and connect to a set of learning outcomes for each LTP unit
3: Networking & Bundle Expertise	There are many exciting topics. 1. Find a focus: what driving question is at the centre of your LTP. 2. See what resources are available (competencies, teaching-learning materials, etc.). 3. Network with colleagues and partner institutions regionally and nationally.
4: Working through the design process	Teaching Sustainability should be: action-oriented learning; hands-on; focussing on real life challenges; stimulate creative collaboration between teachers and learners; visions-oriented; participatory and action oriented. Approaches to teaching sustainability may be inquiry- based learning; explorative learning; networked learning; participation learning aimed at problem framing. Teaching Sustainability may incorporate the following activities: collaborative projects, future framing workshops, research and analysis, discussion.
5: ASSESSMENT DESIGN And REFLECTION	In Education for Sustainability assessment can be multifaceted and primarily encourage reflection and be evidence based. There is not always ONE right answer. The goal should be to RAISE QUESTIONS. TS is not about teaching the "right" behaviour, but about practising a critical perspective. Give TS an important place in curricula and implement credits, badges, or awards for it.
6: PUBLISH TO TAP-TS PLATFORM	Can you and where can you publish your materials under a Creative Commons license as free as possible. Because that is sustainable!



Teacher Academy Project TEACHING SUSTAINABILITY

CLARIFY THE GOAL

A goal of TAP-TS is to create learning and teaching packages that would enable teachers and learners think and act sustainably. Find a focus based on SDGs, GreenComp Framework or a sustainability problem; and define learning objectives within the seven TAP-TS themes. 1. A Sustainable Europe. 2. Sustainability and Digitality. 3. Sustainability and Environmental Education 4. Climate Crisis Resilience. 5. Dealing with Climate Disinformation. 6. Green Citizenship in/for Europe. 7. Sustainable Entrepreneurship

PLAN

Teacher Academy Project

TEACHING SUSTAINABILITY

Consult the TAP-TS LTPs Architecture. The LTPs Units should address the interconnected competences as defined e.g. in the Green Comp Framework:

1. Embodying sustainability values
 1.1 Valuing sustainability | 1.2 Supporting fairness
 | 1.3 Promoting nature

2. Embracing complexity in sustainability 2.1 Systems thinking | 2.2 Critical thinking | 2.3 Problem framing

3. Envisioning sustainable futures 3.1 Futures literacy | 3.2 Adaptability | 3.3 Exploratory thinking

> 4. Acting for sustainability 4.1 Political agency | 4.2 Collective action | 4.3 Individual initiative See GreenComp for details

BUILD NETWORK AND GROW EXPERTISE

See what resources are available and could support your LTP (teaching-learning materials, etc.). Network with colleagues and partner institutions regionally and nationally. Describe possible collaborations with the 'world of work'

LEARNER

CENTERED ජ INCLUSIVE

TEACHING SUSTAINABILITY

ACTION-ORIENTED

ENTREPRENEURIAL

HANDS-ON

SHARE

Publish and share your materials under a Creative Commons license as open access. Because that is sustainable!





In Education for sustainability assessment is multifaceted, and primarily encourages reflection ifor action and future- oriented aimed to raise questions and practise a critical perspective.

There is no ONE right answer! Give TS an important place in surricula and implement credits, badges or awards for it. 5 DO IT! HAVE FUN! DISCUSS! BE

CREATIVE!



REFLECTION

FOR ACTION

FUTURE WORKSHOP

EXPLORATIVELE

VISIONS-ORIENTATED



PARTICIPATIVE

TRANSFORMATIVE

Link to GreenComp: https://publications.jrc.ec.europa.eu/repository/handle/JRC128040





Teaching Sustainability: Learning activity Template

1. Introduce yourself!

My name:		
My country:		
My role:		
My school:		
My class:		

2. OVERVIEW

Provide a brief description of the learning activity, including information about the targeted age group and duration. Clearly state the motivation behind your learning activity and explain which elements of the curriculum your learning activity is related to.

Age Group:

Duration:

Related Themes of Sustainability:

Description:

3. LEARNING OUTCOMES

What are the learning outcomes of this learning activity, and which key GreenComp competences does it promote?

4. LEARNING APPROACH

Having in mind the learning outcomes, what active learning approaches will be applied?

Specify the engagement strategies and sequence of learning tasks that students will develop in the context of the activity. Explain how GreenComp competences will be promoted.

What will be the role of the teacher, and what will be the students' role? How will the students work—individually or in groups?

5. DIGITAL RESOURCES

Which digital technologies, including tools, services, and resources, will be utilized in the activity? Additionally, how will these digital technologies be effectively integrated to enhance lesson outcomes and student understanding?

6. ASSESSMENT

What assessment strategies and instruments will be employed to evaluate student learning?





GreenComp Framework: the European Sustainability Competence Framework

Within the TAP-TS Project, *GreenComp (Bianchi et al., 2022)* serves the following purposes: design of learning and teaching packages; development of TAP-TS professional development activities, (self)-reflection, and evaluation. The aim of GreenComp is to foster a sustainability mindset by helping teachers and students develop the knowledge, skills and attitudes to think, plan and act with empathy, responsibility, and care for our planet.

Visual representation of GreenComp:



GreenComp consists of 12 competences (in bold) organised into the four areas (in italics) below:

- Embodying sustainability values, including the	- Envisioning sustainable futures, including the
competences	competences
 valuing sustainability 	 futures literacy
 supporting fairness 	 adaptability
 promoting nature 	 exploratory thinking
- Embracing complexity in sustainability,	- Acting for sustainability, including the
 Embracing complexity in sustainability, including the competences 	 Acting for sustainability, including the competences
 Embracing complexity in sustainability, including the competences systems thinking 	 Acting for sustainability, including the competences political agency
 Embracing complexity in sustainability, including the competences systems thinking critical thinking 	 Acting for sustainability, including the competences political agency collective action
 Embracing complexity in sustainability, including the competences systems thinking critical thinking problem framing 	 Acting for sustainability, including the competences political agency collective action individual initiative

Reference: Bianchi, G., Pisiotis, U., Cabrera Giraldez, M. GreenComp <u>– The European sustainability</u> <u>competence framework</u>. Bacigalupo, M., Punie, Y. (editors), EUR 30955 EN, Publications Office of the European Union, Luxembourg, 2022; ISBN 978-92-76-46485-3, doi:10.2760/13286, JRC128040.

Project partners















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