

Understanding Climate Change

- What the Evidence Says

Learning and Teaching Package 5

Unit 1: Information and Disinformation

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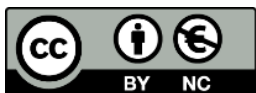
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Overview

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 1 deals with teaching learners how to evaluate the credibility of sources and understand the nature of climate information and disinformation. It introduces sources to use to develop skills to identify disinformation and respond critically. The unit also explores tools and sources to engage with accurate, science-based climate information. Through this unit, hands-on activities and learning opportunities are emphasised.

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 1 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 emphasises how having a better understanding of correct information provided via scientific sources and trusted media can help engage and challenge mis/disinformation. The pedagogical approach is focused on active and participatory learning.

The value of understanding information and dis/misinformation

Reliable information is essential for young people to address climate change and sustainability. It fosters awareness, inspires action, and supports informed decision-making. It also enables us to advocate for solutions and adopt sustainable practices. Accurate information builds critical thinking, promotes trust in science, and empowers long-term efforts to tackle environmental challenges. In contrast, incorrect/flawed information poses significant dangers. It creates confusion, undermines trust in science, and leads to poor decisions. Mis- / disinformation also spreads cynicism, diverts attention from urgent issues, and amplifies polarization. The news-reliance of many young people on social media opens up challenges in relation to political agendas and pseudo-experts who exploit these issues, making it crucial to combat false narratives. To counter misinformation, young people need better media literacy, fact-checking skills, and access to trustworthy information sources. By encouraging young people to counter misinformation by emphasising accurate information flows through social media, peer education, and advocacy, we can encourage the fight against fake news and help promote a more sustainable future for themselves and the planet.

Piloting of the materials within TAP-TS

Materials piloted in draft form with UCD Professional Masters of Education programme, UCD Dublin, IRELAND, participants in spring 2023 and autumn 2024 and subsequently verified for value at the TAP-TS Autumn School, Pirna, GERMANY, 27-28 Sept 2024.



UNIT Overview

Main Topic	Target Group	Duration	Knowledge Area/ Subjects in School	Activities	Possible assessment
Unit 1: Information and Disinformation	Secondary school teachers and student teachers via activities for secondary level students	80 Minutes	Information and disinformation and Climate Change	Start Up <u>Activity 1</u> Information types and uses. Development <u>Activity 2</u> Exploring the nature of disinformation Consolidation <u>Activity 3</u> Identifying climate Disinformation Follow-Up <u>Activity 4</u> Learner reflection & action on disinformation. Reflection <u>Activity 5</u> Teacher Reflection.	Self- reflection and targeted assignment.
Intended Learning Outcomes	Having worked through the activities and materials, students will be able to: ✓ differentiate between information, misinformation and disinformation; ✓ better evaluate the credibility of online sources; ✓ exercise skill in identifying disinformation and responding critically; ✓ name tools and sources that engage with accurate, science-based climate information.				
Prior Competencies	<ul style="list-style-type: none">Digitally literate to a level that allows to engage meaningfully with the materials provided in this unit.No basic content competencies needed; basic level of understanding embedded in UnitAbility to collaborate and be cooperated to support group activities and have autonomy to participate.				
Required material	<ul style="list-style-type: none">Access to internetPaper and writing materialsResources as referenced				
Cooperation/ Networking	Exploring and connecting to accurate and science-based sources of information on climate change and just transition.				
Practical Notes for Teachers	Make copies of the supporting Resources available for both group activities and individual future reference. Check availability of online sites /sources ahead of class activities.				
Addressing GreenComp	Embodying sustainability values				
	x	1.1 Valuing sustainability	To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values.		
	x	1.2 Supporting fairness	To support equity and justice for current and future generations and learn from previous generations for sustainability.		
		1.3 Promoting nature	To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems.		
	Embracing complexity in sustainability				
	x	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.		
	x	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.		
	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.			



Envisioning sustainable futures		
X	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
X	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.
X	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.
Acting for sustainability		
X	4.1 Political agency	To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability.
X	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

Opening conversation and short activity on information type(s) & use

**Estimated
Duration**

Activity 1: Information type & uses

GreenComp Reference:

2.2 Critical thinking
3.2 Adaptability
4.2 Collaborative action

Preparation for Activities: Present the idea that not all information is the same; it has different forms and uses.

A Note for the Teacher:

This activity introduced the idea of information types / uses; e.g. news items, editorial or opinion pieces, advertisements, and entertainment pieces.

Description:



1. Ask, “What is the difference between an opinion and a fact?”



2. Give pupils time to respond – tease out the point that *not all information is the same equally valuable*.



3. Distribute the worksheet on *Information Types* (R1). Allow time to work through it and for the learners to share their opinions with a partner/ partners.



4. Gather their perspectives through a short classroom discussion.

10 min



Development

Spotting and responding to disinformation

**Estimated
Duration**


Activity 2: Exploring the nature of disinformation



GreenComp References:


2.3 Problem Framing
3.1 Futures literacy
4.1 Political agency

A Note for the Teacher: This is a video-led activity that involves exploring the nature of ‘disinformation’ in general and the characteristics of disinformation campaigns. It forms the basis for the activity on active and informed response that follows.

Description

 Use the first 8 slides from the EU Learning Corner resource *How to spot and fight disinformation* to introduce the topic of disinformation for this activity. It can be found [here](#). (Or in the Resources Folder for this Unit.)

 Set the general exercise as (1) working from 3 short videos to better understand what disinformation is and (2) how to spot it. Distribute the activity worksheet ( R2 *Identifying and responding to disinformation*)

 Play the three videos either one by one or allow groups of learners to work on one of the three – perhaps watching twice if this is possible in the learning setting. The learners then discuss the points made in the videos and complete the worksheet – individually or in groups.

How Disinformation Works 1 – *Playing on Emotions*.

<https://youtu.be/8r3FcsH0o2w?si=JARdJ8deD0V7VhUI>

How Disinformation Works 2 – *Sowing Division*.



<https://youtu.be/JeVTU8JDVWY?si=xN9Mo8HW9xeV2s65>

How Disinformation Works 3 – *Flooding the information space*.

<https://youtu.be/Gde6E9GtjCQ?si=h77xulK778XBdzvZ>

40 min



	<p> Following a general class discussion on the videos, go through the questions on the worksheet carefully, involving the learners in this activity.</p> <p> Set a group / pair activity based on the new understandings they have just developed. Ask the learners to consider how well or otherwise the ideas match their experiences.</p>	
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Consolidation

Reflecting on and acting on Climate disinformation

Estimated
Duration

Activity 3: Identifying Climate disinformation

GreenComp Reference:

- 1.1 Valuing sustainability
- 2.3 Problem Framing
- 3.1 Futures literacy
- 4.1 Political agency

Preparation for Activities: you will need Worksheet Resource 2.

A Note for the Teacher:

If the technology is available, conclude this exploratory activity by asking the learners to identify and classify one or two examples of misinformation practices in relation to climate crisis, sustainability, and /or climate crisis response.

Description:



Ask them to focus in particular on identifying some of the following typical disinformation tactics and bringing this back to the class at a future date:

False attribution: Authentic images, videos or quotes are taken from other events

Fabricated content: Content that is fabricated, sometimes combined with real content

Imposter sources: For instance, websites, blogs, or social media accounts that pose as a well-known brand or person, or as a (school) friend

False connection: The content does not match the headline/captions

False context: The information conveyed is basically accurate but in an inaccurate context

Doctored content: Content, such as statistics, graphs, photos, and video have been modified or doctored. This includes cheap fakes and deepfakes

Weaponised misinformation: Exaggerated, blown out of proportion facts

Conclusions based on rumours: Hard conclusions based on Information presented as 'rumours'.

40 min



Introduce the learners to the concept of Fact Checking and alert them to the IFCN network and its European presence at <https://efcsn.com/> and the EU guidance on *three-steps* good practice for learners.

[NB: All of the above is included in R2, the main Worksheet.]



Follow-Up

Reflecting and Acting on what we have learned about disinformation

Climate

Activity 4: Learner reflection & action on disinformation

GreenComp Engaged:

2.1 Systems thinking
2.2 Critical Thinking
2.3 Problem framing
4.3 Individual Initiative

A Note for the Teacher: These follow-out suggestions offer the learner the opportunity to use the knowledge & understanding of disinformation they have gained from the Unit.

EITHER



How Good are you at Being Bad?!? Try this game in which you play the role of someone spreading misinformation online. It gives you a chance to be all of the worst sort of person you can; but please remember it's a game. Think about how the bot reacts to your prompts and why it does what it does.

You will find the game here: <https://www.getbadnews.com/en/play>

OR



Select one of the following topics and investigate online what the term means when we talk about disinformation and climate disinformation in particular:

- Cherry picking data.
- False experts.
- Conspiracy theories.
- Emotional manipulation.

30 mins



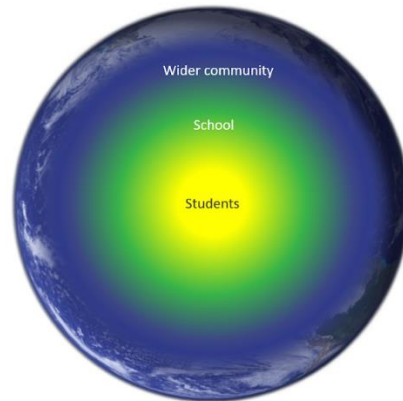
Activity 5. Teacher Reflection.

Reflection on teacher practice

This is an activity aimed at helping reflection (individually and/or with colleagues) on how the previous activities contribute to developing sustainability competences and acting in a more sustainable way.



Please reflect on two or three of the following dimensions at three levels of engagement (students - teacher; school; and wider community and beyond):



Dimension 1. Learning objectives:



In what ways do the preceding activities contribute to the global educational goals for your students? You might consider in particular LTP methods, materials, tools and activities you are considering implemented/transferred into your regular teaching activity.



Within the school or learning context, how have the activities of this unit helped the learners in terms of embodying sustainability values, acting for a sustainable future and/or envisioning a more sustainable future?



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?



Dimension 2. Integration with different subjects:



In what ways have the disinformation activities completed above 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?



Have the teaching preparation and activation for the unit contributed to collaboration with others at school or institutional level to approach a sustainability issue from different perspectives, knowledge areas and contexts?

Do the materials and approach you have implemented offer potential for use in other subjects? If so, in what ways?



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 Unit's activities contribute to maximising students' participation and learning? What additional actions might you take to ensure learning for all?



How have the activities engaged with 'unexpected' perspectives to consider sustainability challenges and opportunities?



How do the activities help reflect on, identify, envision or even shape the trajectory towards a collective preferred future that includes various perspectives, cultures, traditions, and are grounded in values for sustainability?



Dimension 4. Environmental / Sustainability awareness:



To what extent do the Unit's activities promote awareness and responsibility among your students?



Did the implemented materials, methods / tools increase the opportunity to promote students' environmental awareness?



Have the activities encouraged the learners to be aware of their individual and collective impact on nature, and provided opportunities to restore it at school level?



How have the activities contributed to grasp connections and interactions between natural events and human actions?



Dimension 5. Digital resources and equipment:



Do the current resources and equipment available in your institution adequately support the activities you have selected and implemented from the LTP materials, or are there enhancements needed?



How did you try to enable students to use resources for learning at school in a sustainable way?



Did the activities encourage students to assess and question their needs to carefully manage resources in the pursuit of longer-term goals and common interests? How did the activities help them to think critically about information sources and communication channels on sustainability to assess the quality of the information they provide?



Dimension 6. Community involvement:



To what extent can you involve the local community or connect with community issues related to the sustainability theme approached?



Have the selected and implemented LTP methods, tools and materials encouraged you to initiate cooperation with external partners (associations, companies, NGOs, etc.) to enrich learning experiences? If so, in which areas are you aiming for cooperation?



To what extent do the activities engage in democratic decision making and civic activities for sustainable development?



How does your teacher practice encourage students' intentions and willingness to give back to the community and nature?



Dimension 7. Assessment and feedback:



Have you considered appropriate assessment methods while integrating the LTP materials, methods, or tools into your activities? If so, in which way/how?



To what extent did your teaching practice around this Unit encourage learners 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



- Worksheets



- Editable Worksheets; task to make notes



- 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



- A Discussion



- A task for an inquiry or search



- 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. Information type & uses

-  **Worksheet: R1 – Information Types**

Development

Activity 2. Exploring the nature of disinformation

-  **EU Learning Corner resource *How to spot and fight disinformation*;**
https://learning-corner.learning.europa.eu/document/download/5e966429-105d-42e8-a19c-78fec552b1b6_en?file=Toolkit%20for%20teachers%20on%20disinformation%20slides.pdf
-  **European Parliament Videos on How Disinformation Works 1 to 3 –**
https://www.youtube.com/playlist?list=PLHQxK2YVsFVtIgDH2_lIiyTMfPyZ3Q03N
-  **Worksheet: R2 – Identifying and responding to disinformation**


Consolidation

Activity 3. Identifying Disinformation / Climate Disinformation

-  **EFCSN Fact Checking website:**
<https://efcsn.com/>
-  **EU Guidance on Climate Disinformation:**
https://climate.ec.europa.eu/eu-action/climate-disinformation_en

Follow-up

Activity 4: Learner reflection & action on disinformation

-  **BadNews – an interesting and instructional game on spreading misinformation online:**
<https://www.getbadnews.com/en/play>



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 Steps / stages in the TAP-TS LTPs Design Journey

1: Clarify the Goal	<p>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:</p> <ul style="list-style-type: none"> 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	<p>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</p> <p>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</p>
3: Networking & Bundle Expertise	<p>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.</p>
4: Working through the design process	<p>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.</p>
5: ASSESSMENT DESIGN And REFLECTION	<p>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.</p>
6: PUBLISH TO TAP-TS PLATFORM	<p>Can you and where can you publish your materials under a Creative Commons license as free as possible. Because that is sustainable!</p>



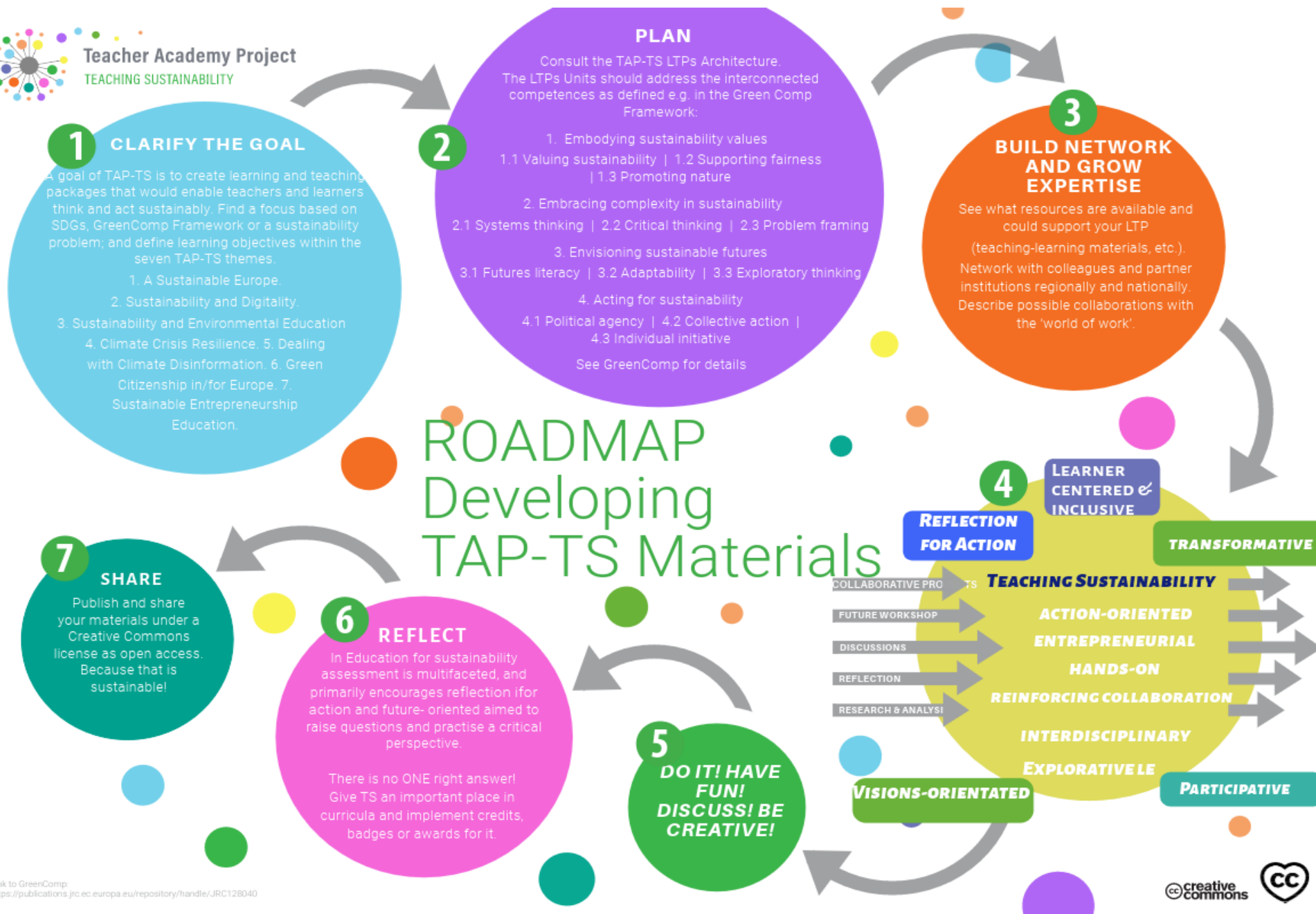
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GreenComp Framework: the European Sustainability Competence Framework

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:

<p>- Embodying sustainability values, including the competences</p> <ul style="list-style-type: none"> • valuing sustainability • supporting fairness • promoting nature 	<p>- Envisioning sustainable futures, including the competences</p> <ul style="list-style-type: none"> • futures literacy • adaptability • exploratory thinking
<p>- Embracing complexity in sustainability, including the competences</p> <ul style="list-style-type: none"> • systems thinking • critical thinking • problem framing 	<p>- Acting for sustainability, including the competences</p> <ul style="list-style-type: none"> • political agency • collective action • individual initiative

Reference: Bianchi, G., Pisiotis, U., Cabrera Giraldez, M. *GreenComp – The European sustainability competence framework*. 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.

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