Tool 5.2

Taking local action for climate-resilience

CLARITY Competence Area:

Taking collective action for climate resilience, ecosystem regeneration, and societal transformation

GreenComp Competence Area:

Acting for sustainability

Why use this tool?

This tool introduces activities that can help actively build the climate resilience of the local community and local ecosystems now and in the long run. They contribute to re-building a community of support, and to restoring the health of local ecosystems. Besides, this tool fosters agency by increasing the learner's confidence that they themselves can make a difference. They also build collaborative competences that are critical to pursue collective action in any field.

Activity 5.2.1

Explore and support ecosystems

Overview

This activity contributes to getting to know a specific ecosystem in the local area, and supports the taking of collective action to support/nurture that ecosystem. Knowing the local ecosystem is foundational to understanding the local impacts of climate change, and to imagining various solutions to address them.

Curriculum linkage

Natural Science, Mathematics and Cross-Curricular & Global Competencies

Competences built

Regenerative thinking, collaboration, care, societal agency, innovation and courage.

Prep Work

Some supportive efforts may require prep work (see below).

Steps in the activity

1. Explore
2. Support
3. Evaluate

BASIC INFO

Age range:

6+

Duration:

3 h-3 days

Group size:

Flexible. Classroom or school-wide participation

Level of difficulty:

Advanced

Materials/space required:

Microscope, binoculars, apps/books to identify species

Location:

Local ecosystem

Engagement of external stakeholders:

A local ecosystem expert could be useful

Step 1: Explore

1. **Choose a local ecosystem/ nature area** you want to explore and support. You could start by asking if there is a natural area that the learners spend time in or care about. In the countryside you may choose a field, a forest, a lake, or a beach. In a more urban environment, you could select a garden, a park, a roadside, or a riverbank. Ask the learners to research the chosen ecosystem on their own or in groups to prepare for the visit.
2. **Visit your selected ecosystem/nature area** and explore what is there. Ask the learners to document the life they find there, focusing on plants, fungi or animals, depending on the ecosystem.
    a. Let's say your ecosystem is the lawn surrounding the school. Then you could look for plants and animals, but you might not find many, so you could go deeper, dig in the soil and look for worms or other insects. If you have a microscope, you could take a soil sample and see if you find any small organisms in the soil.
    b. If your ecosystem is a (semi)natural flower field, on the other hand, there would probably be lots of species to document. Different groups of learners could register flowers, bees and bumblebees, birds, butterflies, and trees/bushes. Photograph the species you find. The learners can use an app to find the name of the different species, or check in books when they return to school.

Step 2: Support

1. Start with a **movement game** where you mimic each other and reflect on how mimicking nature can be a way of supporting ecosystems.
    a. The learners work in pairs.
    b. One moves slowly and the other mimics the movements. The objective of this game is to experience the joy of doing something together, and the challenge is to move in such a synchronized way that someone watching could not identify the one moving from the one mimicking.
2. Ask the question “How can we find solutions by mimicking nature?”
3. **Brainstorm** what you can do to support your chosen ecosystem. Ask the learner additional questions such as:
    a. Did you see any problems during your visit? (pollution or trash, for example)

   b. Has any of the learners visited this ecosystem before, and if so, could they see any changes over time?
   c. Are there any plans to develop this ecosystem in unsustainable ways?
   d. During the exploration, were there species that you expected to find but actually did *not* see? This might be a sign that this species is struggling.
4. **Discuss and decide collectively** the kind of support you can offer the ecosystem, if it needs any. The type of support that an ecosystem could benefit from will depend on the local situation. Hence learners need to get to know the ecosystem before taking action - or *not* taking action. Sometimes leaving nature alone is the best thing we can do to support it.
5. Explore suggestions below for supportive measures for a land-based and a water-based ecosystem.
6. For a land-based ecosystem, such as a lawn, possible actions are:
   a. **Do nothing:** Let the lawn grow by *not* cutting the gras. If there are any flowers in the lawn, this non-action allows them to bloom and feed the pollinators.
   b. **Rewild:** Collect or buy local flower seeds and spread them on the lawn to boost the diversity of flowers in the ecosystem.
   c. **Mimic a healthy ecosystem:** If you are in a dry area, where the lawn requires artificial watering, replacing the lawn with local drought resistant grasses might be the best way to support the ecosystem.
7. For a lake or river, possible actions include:
   a. **Take political action:** If the lake/river is polluted, identifying the source and speaking up about the problem could make a difference.
   b. **Rewild:** If any local species have disappeared from the lake/river, addressing the reason for this, and then reintroducing the species could be beneficial, but the act of reintroducing a species could need approval from local authorities.
   c. **Mimic a healthy ecosystem:** If the lake/river is prone to erosion, planting native trees on its banks could be helpful.

Step 2: Evaluate

1. Make sure your supportive (non)actions are actually beneficial to the ecosystem. Before you take action, make a plan for how to evaluate how your effort impacts the ecosystem. This can involve preparing **a research**

design to help learners track any changes in the ecosystem. Suggestions for research designs include:

a. Before and after studies of the same ecosystem.
b. Comparing the ecosystem you are supporting to a similar ecosystem that was left on its own.
c. Implementing your supportive effort on parts of the ecosystem, and comparing the different parts.

2. **Make sure you collect data** on diversity (how many different species can you find) and/or abundance (how large are the populations of different species), for example by counting species/individuals or making recordings of bird sounds.
3. Strive to v**isualize and compare** collected data using graphs and creative expressions.

When your (non)actions are successful, think of ways to scale up your efforts. For example, if the lawn outside the school transforms from a monoculture to a diverse and abundant flower field, invite parents to observe the result, present your research, and encourage them to replicate the approach.

Dos and don'ts

Do:

Do not harm nature. You need to get to know the ecosystem well before you can offer any support. If you are unsure that your planned action will be beneficial to the ecosystem, confirm with a local ecosystem expert before you start.

Adaptations:

- Use visual support if needed. Include photo cards or printed visual field guides for learners who struggle with reading or abstract concepts.
- Offer seated or shorter-distance alternatives. Choose a location based on your specific group of learners. Allow some learners to explore just a small patch of the area or to observe collected samples indoors if mobility or fatigue is a barrier.
- We invite you to adapt this activity to the specific needs of your learners, including by taking into account their neurodiversity. When adapting tools and activities for neurodivergent learners, please note it is not about treating others how you want to be treated, but how they want to be treated. Ask, listen, and stay open to different ways of learning and engaging.

References

This activity was designed by Climate Creativity.

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Activity 5.2.2

Local cartographies

Overview

Cartographies can help understand and visualize the climate risks inherent to a specific ecosystem and community, as well as the resources (e.g. local knowledge and expertise, as well as possible volunteers, sources of money or material) that can be mobilized locally to address those risks now and in the future, including by fostering regeneration. Those activities can tie into geography lessons, and each map can be made in creative manners, including with 3D elements or elements from nature to represent the surrounding ecosystems. Such maps can help move from understanding to action.

Curriculum linkage

Geography

Competences built

Societal agency, collaboration and systems thinking.

Prep Work

- Read the teachers' guide section on climate resilience and vulnerability
- Familiarize yourself with the local impacts and future risks associated with climate change in your local ecosystem.
- Explore the different levels of climate vulnerability of different communities and population groups, in relation to their exposure, sensitivity and capacity to cope.
- Research the presence of local expertise and/or local organizations that could help with building resilience and fostering regeneration.

BASIC INFO

Age range:

7+

Duration:

2-3 sessions of 45-60 minutes or a longer-term project

Group size:

Flexible

Level of difficulty:

Advanced

Materials/space required:

Local maps with a big scale, drawing material, and other materials that can be used to do 3D maps and represent the local ecosystem

Location:

Indoors and outdoors

Engagement of external stakeholders:

Not necessarily

Competences/activities to practice first by the teacher:

- Tool 4.4 “Designing for climate resilience and regeneration” includes activities that help understand climate vulnerability and approaches to building climate resilience locally.

Levels in the activity

1. Exploration
2. Project

Level 1: Exploration

1. Give learners maps of the village and its surroundings, of the city, or of the watershed their locality is part of. Working at the watershed level is more coherent from a scientific climate-resilience-building perspective. However, it could make the space quite large for younger learners. For them, it may be easier to start with the locality or even the district if the city is particularly large.
2. Use the maps to explain **exposure, sensitivity and capacity to cope** as they determine climate vulnerability. Exposure to certain climate change impacts is dependent on the topography. Climate change impacts include flooding in case of coastal areas or presence of a river, heat island effect in dense urban areas with limited tree cover, and forest fires in case of forested areas around the local settlement. To explain climate sensitivity, you can explain that certain groups of people are more likely to suffer from the effects of climate change: those groups include infants and the elderly, in case of heat waves or flooding for instance. Regarding capacity to cope, one can give the example of what it would cost to repair a house that has been damaged by a flood and of the mean revenues of different population groups. Who would be able to afford repair? Who would get support from family and or friends while the repair takes place?
3. Invite learners to map the areas that are exposed to various impacts of climate change (see resources for a list of impacts of climate change, and related loss), as well as highlight the locations of population groups that may be the most at risk, if doable.

4. Invite learners to highlight the areas that constitute resources or assets in building climate resilience, including natural areas with green cover that can cool down the city/district/ village, and/or parks, and certain rivers/lakes/ canals/wetlands in and around the city, where people can swim for instance if there is a heatwave, or that can help limit flooding by acting as sponges. Among resources, learners are also invited to indicate local projects contributing to climate resilience building or ecosystem restoration, including places where they can learn and get involved. Learners can look for:
   a. municipal climate adaptation plans, if any
   b. Initiatives or projects that contribute to greening, rewilding, permaculture or urban agriculture
   c. Initiatives or projects that support vulnerable populations (e.g. elderly people, homeless people) in case of heatwaves
   d. University projects that contribute to analysing local climate data or climate action
   e. Initiatives or projects working at the intersection of mental health and climate change (e.g. Running climate circles or climate cafés).
5. The maps can be done with color coding, with multimedia tools, or as 3D sculptural maps, including elements of the ecosystem (e.g. moss, twigs) outside to represent the ecosystem on the map. The will offer a first picture of both climate change-related risks and climate resilience responses at the scale of the city, district or locality.

Level 2: Project

1. Turning this activity into a project implies that learners will have more time to collect some information that is not readily available in existing maps or online. This can contribute to collecting information and creating new knowledge, including in relation to non-economic loss and damage already experienced locally (see resources below for a graphic representation of both climate impacts and loss and damage).
2. Additional information that learner may want to collect can include places where climate change impacts have been felt already (e.g. forest fires or bugs infestation destroying forests, low water levels in rivers or in aquifers), specific species of animals, plants or fungi that have been affected, any damaged tangible or intangible cultural heritage, as well as ecosystems or locations that are still recovering from those impacts.

3. Learners could map out information about climate anxiety or climate grief locally, particularly when an extreme event associated with climate change already took place. They could map out inhabitants' engagement in addressing climate change and building climate resilience, as well as the types of actions they are implementing. They could indicate spaces where collective organizing to address climate change and its impacts is taking place. Any other information that learners find would be helpful to know more about climate impacts and take collective action for climate resilience could be indicated on the map.
4. The map could become a very helpful, possibly interactive tool for the community to learn more about itself and take action. It would also make non-economic loss and damage concrete, which can offer a sense of relief to inhabitants as well as provide very helpful information for those organizing for such losses and damages to be better addressed at policy levels.
5. Besides, the numerous interviews learners will run to develop the map can play a significant role in laying the foundation for future collaborations in the locality.

Dos and don'ts

Do:

- Encourage learners to look across multiple databases and maps already available to them online and locally
- Connect with the local authority to have access to some maps and offer them to share the maps that learners will develop in collaboration with the local authority

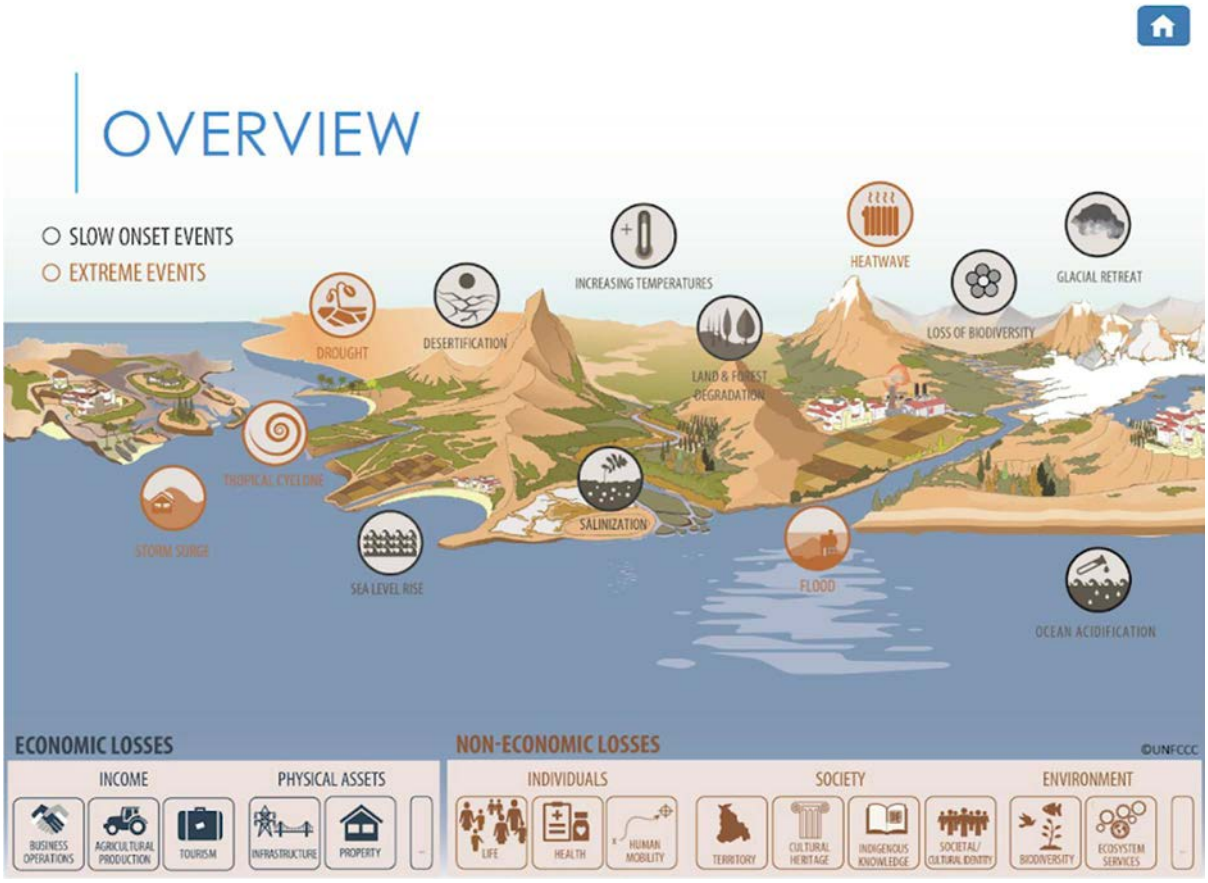
Don't

Don't gather personal information about inhabitants without making sure it is anonymized and inhabitants are aware of the use of their data.

Adaptations:

- Feel free to research and use some online tools to create 3D mapping if those are available to the school or university.
- We invite you to adapt this activity to the specific needs of your learners, including by taking into account their neurodiversity. When adapting tools and activities for neurodivergent learners, please note it is not about treating others how you want to be treated, but how they want to be treated. Ask, listen, and stay open to different ways of learning and engaging.

Resources



Source: UNFCCC.

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This activity was designed by One Resilient Earth.

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Activity 5.2.3

Supporting local climate resilience actions

Overview

This activity can be taken up by young adults on campuses or in private/public areas with proper authorizations. They enable learners to put into practice what they have learnt about various solutions, including nature-based solutions, to shield vulnerable population groups from the effects of heatwaves in a city, or in particular districts of the city where there is little vegetal cover. Actions can include creating spaces to share information about emotional wellbeing and support each other when climate anxiety arises. Actions can also contribute to the implementation of the local/municipal climate adaptation plan, through nature-based solutions for instance.

Curriculum linkage

Sustainability studies (e.g. urban planning, architecture...), Geography and Natural Science

Competences built

Courage, innovation, societal agency, collaboration, accountability and humility.

Prep Work

- Acquire an in-depth knowledge of the local climate adaptation plan and of stakeholders
- Technical knowledge about climate adaptation and resilience is essential

BASIC INFO

Age range:

12+ for the group initiative and 18+ for the municipal project

Duration:

Several weeks to months

Group size:

Small (3-6)

Level of difficulty:

Advanced - the educator will need to have an in-depth knowledge of the local climate adaptation plan and of stakeholders

Materials/space required:

Depends on the project

Location:

Outdoors

Engagement of external stakeholders:

Yes - collaboration with local stakeholders is essential.

Competences/activities to practice first by the teacher:

- Activities under 3.4. could help prepare both the educator and learners for this activity.

Levels in the activity

1. Group initiative
2. Municipal project

Level 1: Group initiative

1. Introduce the exercise by highlighting that the group initiative shall materialize in the design of a project to be implemented locally to the benefit of the school/university, community and/or ecosystem. The project should aim at building resilience to the impacts of climate change. It could focus on anticipating, limiting and/or recovering from the impacts of climate change. It can focus on building the resilience of individuals, communities or ecosystems, or a combination of those. It can concentrate on awareness-raising, nature-based solutions, arts and storytelling, ... and/or community action. It should be implementable within the timeline defined for the whole group.
2. Announce that learners will have one week to reflect individually on the type of project they would be most interested in and define what they would be interested to contribute. More defined project ideas are welcome as well.
3. After one week, invite learners to share what they are interested in through short texts, drawings, and discussions, as a basis to form groups of 3-6 learners who will be working together. No group shall be smaller than 3 learners.
4. Provide learners with a couple of weeks to clarify their ideas, including with a more detailed plan, including context, the challenge they would like to address, their approach, the activities they would like to implement, timeframe, expected concrete results and expected impacts locally. The activities should be doable without financial support, and could include the participation of community members.
5. Encourage learners to find some practitioners and other experts in the community who could provide them with some feedback on their initiative.

Invite learners to have a few exchanges either virtually or in person as a group, provided that the latter is allowed by parents for learners below 18.

6. Invite each group of learners to test their idea through a first small scale prototype so as to gather more information about the possible limitations of their current approach. This can help learners improve the design of their initiative before implementing it on a larger scale.
7. Provide opportunities for learners to work together on their initiatives, report progress and/or ask questions to you or to the group.
8. Keep track of the timeline for the initiative to be delivered and celebrate the success of the initiatives by having a final celebration with possible presentations that would be open to other learners in the school/university, and to the parents, when possible.

Level 2: Municipal project

1. Invite learners to study the municipal adaptation plan (if any) or to contact their local government to learn more about the type of plan, programme, project they have in place to adapt to the impacts of climate change and/or build resilience locally. In case there is no action in place towards climate adaptation and/or resilience, it is possible for the learners to enquire about the plan, programme or projects that are in place to protect the environment, expand green cover, and/or restore local ecosystems. This could be a starting point to reflect upon possibilities to foster nature-based solutions for adaptation.
2. Encourage learners to check the openness of the local government to having learners support them in implementing their local climate adaptation plan, and/or in proposing new actions to build climate resilience locally. If there is interest, it is important to clearly define expectations both on the side of the government and of the different groups of learners, as well as communication modalities, deliverables and a timeline for collaboration.
3. Recommend to each group of learners to spend some time learning directly from the local governments about the actions that have been implemented already, the possible challenges that have been met, and the longer term vision that the municipality has in relation to climate change adaptation. Visiting sites where projects have been implemented is critical. Talking with beneficiaries from past or ongoing projects would also be valuable.

4. Encourage learners to schedule regular meetings with their counterparts at the municipality to check that their support has the intended impact, or that the new initiative they are working on meets the needs of the municipality.
5. Invite learners to document their exchanges, their actions as well as the difficulties they may be meeting while working on the project. Invite each group of learners to write a short synthesis report at the end of their actual project, or of their project design.
6. Organize a presentation and celebration in school/university at the end of the project, so that the different groups of learners can present their project or project design, as well as the lessons learned. Invite the municipality representatives and other community members, if possible.

Dos and don'ts

Do:
Encourage learners to spend time on the ground and with different community members to better understand the context in which they will be developing their project or initiative.

Don't
Don't prepare the learners' work too much by researching and contacting all relevant stakeholders in advance. It has to be their project, and its value is not so much in the quality of the results as in the ability of the group to take initiatives together.

Adaptations:
We invite you to adapt this activity to the specific needs of your learners, including by taking into account their neurodiversity. When adapting tools and activities for neurodivergent learners, please note it is not about treating others how you want to be treated, but how they want to be treated. Ask, listen, and stay open to different ways of learning and engaging.

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This activity was designed by One Resilient Earth, and is inspired by the EPIC-N model.

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