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LEARNING BOX OF UNPLUGGED ACTIVITIES

Natural Disasters: Response to Wildfires, Earthquakes, Floods, etc.

This unplugged activity helps learners understand how to respond effectively to natural disasters such as wildfires, earthquakes, and floods. Participants work with written disaster scenario descriptions and an evacuation layout description — all provided at the end of this document. They identify risks, analyze warning signs, and design clear response plans including evacuation routes and safety actions. The activity promotes preparedness, critical thinking, and structured decision-making using computational thinking principles.

Target Group

- ☑ Low-skilled adults with low digital competences
- ☐ Low-skilled adults with limited formal education or qualifications
- ☐ Low-skilled adults with low participation in lifelong learning / training opportunities

Learning Objectives

- Understand the basic types of natural disasters and associated risks
- Identify key elements of emergency preparedness (alerts, evacuation, safe zones)
- Recognize warning signs and risk factors
- Develop clear and structured emergency response plans
- Apply computational thinking to organize actions in critical situations

Competence Areas

a) Innovation Competences

- ☑ Creativity
- ☑ Critical thinking

Theme

Emergency preparedness and disaster resilience

Duration

90 minutes

Level

Intermediate

Computational Thinking Steps Used

- ☑ Decomposition
- ☑ Pattern recognition
- ☑ Abstraction
- ☑ Algorithmic thinking

Methodological Approach

☑ Gamification
☑ Challenge-Based Learning
☑ Collaborative learning
☑ Experiential learning

☑ Problem solving
☑ Communication
☑ Collaboration

b) Information Literacy Competences

☐ Ability to access, understand, and critically analyse information
☐ Interpretation of digital and visual content
☐ Awareness of media influence and biases

c) Life and Career Competences

☐ Flexibility and adaptability
☐ Initiative and autonomy
☐ Sociability and intercultural competence
☐ Productivity
☐ Leadership and responsibility

Learning Outcomes

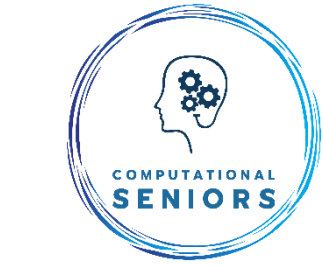
By the end of the activity, participants will be able to:

- Break down emergency situations into key components (alerts, actions, safe areas)
- Identify warning signs and patterns associated with different disasters
- Focus on essential actions during emergencies
- Create step-by-step response procedures for different scenarios
- Improve readiness and confidence in handling real-life emergencies

Notes

- Disaster Scenario Descriptions (see end of document): Three detailed written scenarios are provided — a wildfire, an earthquake, and a flood. Participants read these directly; no printed cards are needed.
- Evacuation Layout Description (see end of document): A text description of the fictional town of Aliveri, with named areas, evacuation routes, and assembly points, replaces printed maps.
- Encourage role-playing (e.g., family member, community leader)

- Facilitators can introduce unexpected changes (e.g., blocked road, power outage)
- Emphasize safety and practical relevance to local contexts



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Step 1: Decomposition of Emergency Situations

Participants refer to the Disaster Scenario Descriptions and Evacuation Layout Description provided at the end of this document, which cover three emergency types (wildfire, earthquake, flood) with context, warning signs, and relevant conditions for the town of Aliveri.

They are asked to:

- Identify and break down the key components of an emergency situation, such as:
  - Warning/alert systems
  - Immediate actions
  - Evacuation routes
  - Safe zones
  - Communication methods
- Separate actions into phases: before, during, and after the disaster
- Discuss what resources or information are needed at each stage (e.g., emergency kit, contact numbers)

Facilitator support:

- Ask guiding questions like: “What happens first?”, “What do people need to stay safe?”
- Encourage participants to think in small, manageable parts

This step helps participants understand complex emergency situations by breaking them into clear components.

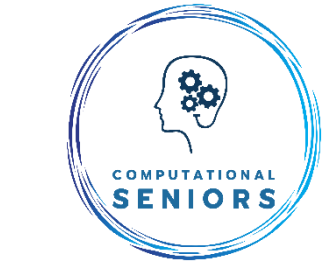
Step 2: Pattern Recognition

Participants analyze multiple disaster scenarios and compare them.

They are asked to:

- Identify warning signs and risk factors, such as:
  - Extreme heat and dry conditions (wildfires)
  - Heavy rainfall and rising water levels (floods)
  - Ground shaking or unusual animal behavior (earthquakes)

response procedures.





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- Recognize common patterns across disasters, such as:
  - Need for quick response
  - Importance of communication
  - Movement to safe locations
- Discuss similarities and differences between scenarios

Facilitator support:

- Prompt reflection: “What signs appear before each disaster?”, “What actions are similar?”
- Highlight recurring behaviors that improve safety

This step helps participants identify patterns and anticipate risks in different emergency situations.

Step 3: Abstraction – Focusing on Essential Actions

Participants simplify complex emergency situations by focusing only on the most critical actions.

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They are asked to:

- Identify key actions that ensure safety, such as evacuating, seeking shelter, or contacting emergency services
- Distinguish between essential and non-essential actions during a crisis
- Ignore less relevant details (e.g., personal belongings that are not necessary)
- Focus on what must be done quickly and effectively

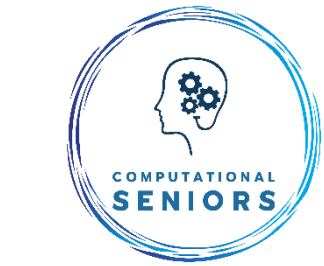
Facilitator support:

- Ask questions like: “What is the most important thing to do first?”, “What can be ignored in an emergency?”
- Emphasize prioritization under pressure

This step helps participants reduce complexity and concentrate on life-saving decisions.

Step 4: Emergency Planning (Algorithmic Thinking)

Participants create clear, step-by-step emergency



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response procedures.

They should:

- Develop simple rules such as:
  - "If you receive an alert, prepare immediately"
  - "Follow the safest evacuation route"
  - "Go to the nearest safe zone"
- Organize actions into a logical sequence, for example:
  1. Receive alert or recognize warning signs
  2. Gather essential items (emergency kit)
  3. Inform family members or group
  4. Follow evacuation route or safety instructions
  5. Reach safe location and wait for updates

Finally, participants:

- Present their response plans to the group
- Explain how their plan ensures safety and efficiency
- Compare different approaches and discuss improvements

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Facilitator support:

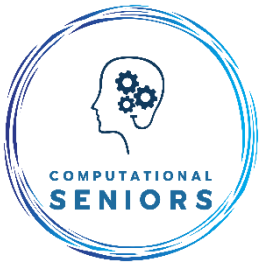
- Encourage realism: "Would this plan work in a real emergency?"
- Introduce challenges (e.g., blocked roads, no phone signal) and ask how plans adapt

This step helps participants develop structured, repeatable procedures for responding effectively to emergencies.

Facilitator Guidance

Before the activity

Introduce the activity by discussing natural disasters that participants may have experienced or heard about in their local community. Encourage them to reflect on what actions people took before, during, and after these events. Emphasize that the purpose of the activity is not to create fear but to develop preparedness and confidence through planning and teamwork. Remind participants that personal safety should always be the highest priority.



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During the activity

Encourage participants to justify the decisions they make while developing their emergency plans. Ask guiding questions such as: "What should happen first?", "How would people receive emergency information?", or "What would you do if your planned evacuation route was blocked?" If appropriate, introduce unexpected events such as power outages, damaged roads, or communication failures, and encourage participants to adapt their response plans accordingly. Promote discussion within each group so that all participants contribute ideas.

After the activity

Ask each group to present its emergency response plan and explain why particular actions were prioritized. Compare the different approaches and discuss how emergency procedures can be adapted to different disasters or local conditions. Reinforce that well-structured plans are easier to remember and implement during stressful situations. Conclude by highlighting the importance of preparation, cooperation, and computational thinking in building community resilience.

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Evacuation Layout Description

The activity takes place in the fictional small town of Aliveri. Use this layout in all steps to identify evacuation routes, risks, and safe zones.

- Town Centre: Main square with town hall, pharmacy, and fire station. Assembly Point Alpha. Accessible from all directions.
- Residential Area (North): Dense housing. Evacuation Route 1 runs south along the main road to the Town Centre. Flood-prone — avoid during heavy rainfall.
- Forest Edge (East): Woodland adjacent to homes. High wildfire risk in dry conditions. Evacuation Route 2 runs west away from the forest to Assembly Point Alpha.

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- River and Low-Lying Area (South): The river forms the southern border. Bridges may be impassable during floods. Evacuation Route 3 heads north on the hillside road to higher ground (Assembly Point Beta — the school on the hill).
- School on the Hill (Northwest): Assembly Point Beta. Elevated, structurally reinforced, away from flood zones and forest. Primary shelter for earthquake and flood events.
- Key infrastructure: hospital in the Town Centre (capacity: 50 casualties); one fire station; mobile signal everywhere except the river valley; emergency radio on FM 101.5.

Disaster Scenario Descriptions

Each group can work on one scenario or compare all three. Use the Evacuation Layout above to plan routes and assembly points.

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Scenario 1 — Wildfire
It is August. Temperatures in Aliveri have reached 38°C for four consecutive days with no rainfall. Winds blow from the east at 40 km/h. At 3:00 pm a fire breaks out in the Forest Edge (East) and spreads rapidly westward. The fire station has dispatched two trucks but cannot contain the fire quickly. Local radio (FM 101.5) issues an evacuation alert for eastern residential streets. Roads to the east are cut off by smoke. Evacuation Route 2 (west toward Town Centre) is open.
Warning signs: extreme heat, dry conditions, strong easterly wind, visible smoke from the east. Key actions: evacuate immediately via Route 2; do not return for belongings; go to Assembly Point Alpha; call 112.
Discussion prompt: "What should you grab before leaving? What if an elderly neighbour cannot walk quickly?"

Scenario 2 — Earthquake
It is 6:15 am on a Tuesday in March. A magnitude 5.8 earthquake strikes Aliveri without warning. Shaking lasts 22 seconds. Several buildings in the Residential Area (North) suffer structural damage. No fires, but gas leaks

are reported in two streets. Power is cut to the whole town. The main road through the centre is cracked but passable on foot. The school (Assembly Point Beta) is undamaged and has emergency supplies. Mobile signal is intermittent.
Warning signs: no advance warning (earthquakes give none), but minor tremors and unusual animal behaviour the previous day. Key actions: drop, cover, hold during shaking; evacuate via Route 1 to Assembly Point Beta after shaking stops; avoid gas-affected streets; check on neighbours. Discussion prompt: "What do you do in the first 60 seconds? What if you are indoors vs. outside?"

Scenario 3 — Flood
It is November. Heavy rainfall has fallen for 36 hours. The river in the south of Aliveri has risen to dangerous levels. At 8:00 pm the Civil Protection Authority issues a red flood alert. By 9:00 pm the southern bridge is submerged and the Low-Lying Area (South) is flooded to 40 cm depth. Ten households in the southern Residential Area are at immediate risk. Evacuation Route 3 (north, uphill to the school) is open and passable. The Town Centre remains dry.

Warning signs: 36 hours of heavy rain, rising river level, official red alert. Key actions: evacuate south-area residents immediately via Route 3 to Assembly Point Beta; do not attempt to cross flooded roads; call 112; secure pets and essential documents. Discussion prompt: "What if Route 3 also becomes flooded? What resources would you need overnight at the shelter?"