

### Tsunamis activity 5: **Tsunami damages**

**Description:** Students assess the possible damages that might occur if a tsunami struck a Canadian coastal community of their choice. Activity requires research, map making, and critical evaluation and is followed by a classroom discussion. This activity will take more time than the other activities.

**Materials:** student access to computers for on-line research  
student worksheet (1. Tsunami damage)

#### **Teacher instructions and notes:**

1. Students, individually or in pairs, should pick a town or city on the coast of Canada. (Avoid large cities, as they will be more difficult.)
2. Students will use the internet (i.e. Google Map, Google Earth, municipal websites), or regional atlases, to research their chosen communities. Have them identify the residential areas, business areas, industrial areas, parks and wilderness areas, agricultural area, major roads, bridges, wharfs, airport, railway, as well as learning about the types of buildings, schools, hospitals, police and fire stations, landmarks, etc.
3. Students will draw a map of their chosen community, labelling features that they have researched.
4. Students will draw a second map of their chosen community, showing where damages would occur if a tsunami hit the town or city. First the students must decide how far and how high the run-up might be, and justify their choice.
5. Students answer the discussion questions on the handout sheet.
6. Teacher leads a classroom discussion on their results.

#### **Note:**

- Answers will vary depending on the chosen community. Answers to questions 7b, c, and d will depend on their answer to question 7a. As such, wave height should be reasonable and based on an historical event. Run-up should be controlled by local topography – is it a low lying area or is high ground nearby?
- Personal preparation: knowledge, a planned evacuation route, quick movement to high ground, and an emergency kit
- Future protection: an emergency evacuation plan, early warning systems, a tsunami practice, location of key facilities (schools, hospital, police, etc.) on high ground.

## Tsunami damage

1. Choose a town or city that is located on the west or east coast of Canada.
2. Using the internet, research your chosen community. Identify the residential areas, business areas, industrial areas, parks and wilderness areas, agricultural area, major roads, bridges, wharfs, airport, railway, schools, hospitals, police and fire stations, landmarks, etc. (You can use the maps and satellite images on Google Map, or the program Google Earth that can be freely downloaded from the Google site. You may find good maps and information on municipal websites.)
3. Find out what types of buildings, parks, schools, landmarks, bridges, roads, wildlife, forests, and anything else are in the town or city.
4. Draw a map of your community, making sure to draw in all of the features that you found in your research.
5. If a tsunami struck, how high do you think the waves would be, and how far inland would the wave run up in your community? (**Hints:** Use data from a historical tsunami in your region. **Consider whether your town is relatively flat or does it have a lot of high, safe areas.**)
6. Draw a second map showing where damages would occur if a tsunami hit your community.
7. Answer the following questions.
  - a) How high do you think the waves would be, and how far inland would the wave run up onto the shore?
  - b) Do you think a tsunami would affect the entire community?
  - c) Looking at your drawing, what do you think the tsunami would do to the community?
  - d) Describe the types of things that would be damaged in the community and how they would be damaged.
  - e) What do you think would happen to the people living in the community? Would they be able to go back to their homes after the tsunami? Why or why not?
  - f) How do you think the people of the community could have prepared for the tsunami?
  - g) What do you think could be done to protect the community from future tsunamis?