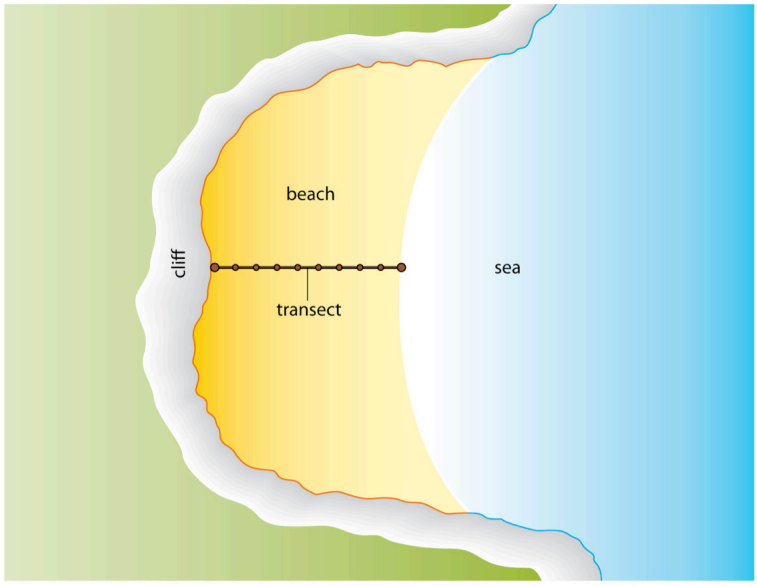
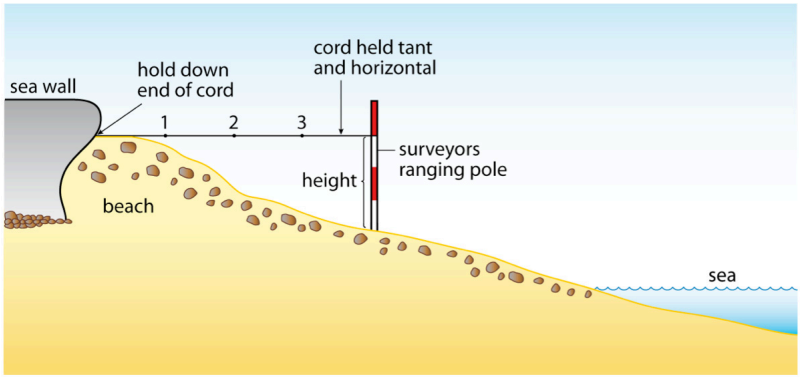
Beach measurements

The form of a beach can be actually measured in the field or how it could be measured can be studied in the classroom, i.e. virtual fieldwork. Which approach is taken may depend upon ease of access to a beach coastline. A starting point, whichever approach is adopted, is the decision as to what is going to be measured e.g. the length, height and slope of the beach, the size, shape and distribution of the particles making up the beach. Measurement of the former should be standard with the latter a useful and related aspect of the beach. All the above features of a beach are best measured along a transect line or preferably, a number of transect lines starting at the sea and finishing at the back of the beach (see Source 1).



Source 1 *A beach transect line*

These transect lines need careful selection so that they are representative of the whole beach. To show the length, height and slope of a beach, a beach profile needs to be constructed along each transect line. This is usually done by splitting each transect line into sections at a regular interval, say 1 metre on a short beach or 4 metres on a long beach. For each of these sections, use a length of cord, ranging poles, ruler and clinometer to measure the change in height and slope (see Source 2). If particle analysis is also being done this should be done, perhaps at the beginning and the end of each of these sections of the beach. Particle sampling will be necessary to find typical sizes and shapes; using a ruler to measure the long-axis of a sample of three particles before averaging is a common way of proceeding. Work in small groups and record measurements in a prepared table. Back in the classroom, recordings can be used to graph the length and shape of the beach. Particle measurements can be added to the profile. This should now provide scope for analysis e.g. how the size of beach particles varies with distance from the sea, and whether it is related to beach height and slope.



Source 2 *Measuring beach height and slope*

Measurements from which a beach can be mapped can be taken using a precision GPS (Global Positioning System). A base station on the beach linked to a number of satellites will calculate both the location and surrounding features of a GPS rover pole, which can be carried around the beach. The data collected can be inputted to GIS (Geographical Information System) software, which can store and plot the data.

Conflicts between development and conservation

Again, an issue with this piece of fieldwork may be access to a coastal location, especially a section of coastline managed because of development (e.g. tourist) pressure. Car parks, caravan sites, crowded beaches, and clash of opinion between different groups of people over its use are needed. National Park coastlines where the authority supervises the coastline to balance the demands on it are ideal sites. However, many coastlines are fully managed due to the conflict between coastal activities. The fieldwork focus needs to be on the design of a questionnaire to elicit opinions, attitudes and the planning of its use. The stages that might need to be gone through in this design and planning are: how many questions are you to write e.g. five? Short, focused questionnaires based on clear aims are more successful (e.g. the impact and effectiveness of specific coastal protection measures). Draft sharp, unambiguous questions which are easy to answer and the answer easily recordable e.g.

Should we save unspoiled places? Yes / No / Don't know

Do tourist numbers spoil the environment? Yes / No / Don't know

Opinions and attitudes can be explored by either asking which of a range of possible opinions most closely matches their own e.g.

The coastal footpath's impact on the environment is – negative / positive / neutral

or making a definitive statement and seeing how far people agree or disagree with it e.g.

The caravan park spoils the scenery.
Strongly agree / Agree / Don't know / Disagree / Strongly disagree

Industry and wildlife preservation are in conflict.
Strongly agree / Agree / Don't know / Disagree / Strongly disagree

Preserving and enhancing the coastline's natural beauty is difficult.
Strongly agree / Agree / Don't know / Disagree / Strongly disagree

Put a short list of distinctive questions together and run a pilot study with fellow students, parents etc. Avoid any question overlap and leading words (i.e. ones which invite a particular answer). Use the piloting to revise questions before writing up and running off copies of your final questionnaire. Think about practicalities, fieldwork methods. How are you going to use your questionnaire? Decide upon your sampling strategy i.e. random or representative. If representative, what type of person are you looking to interview e.g. old, female, professional or a cross-section of society? Decide on your sample size, such as fifteen or twenty. Bigger is better, but the number must also be practical. Decide how the interview will be given e.g. stopping people in the street, knocking on doors or posting for later collection. Finally, address other safety and risk assessment issues e.g. ID cards; working in pairs. Your results will need some processing, perhaps in a summary table e.g. 75 % of people sampled believed the management measures adopted were effective in reducing the exploitation of the coastline.