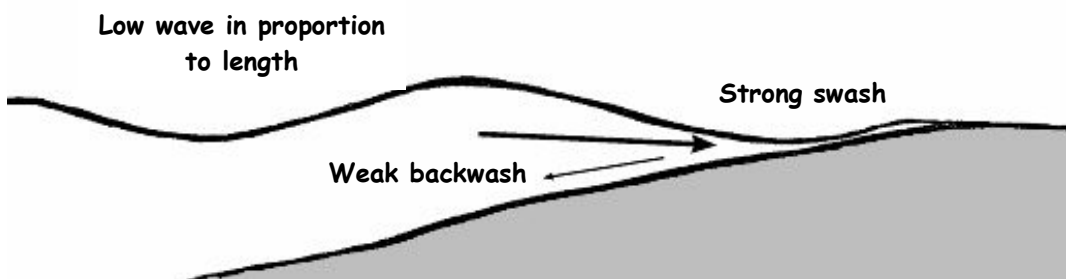


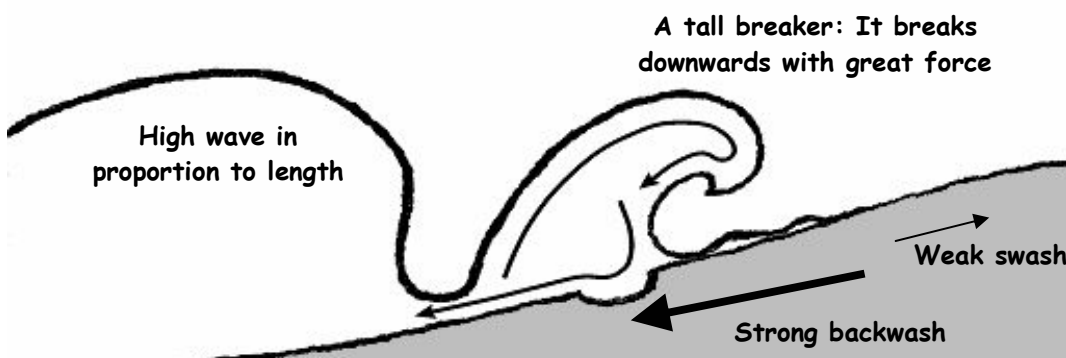
BUILDING UP OR TAKING DOWN?

1. CONSTRUCTIVE AND DESTRUCTIVE WAVES

CONSTRUCTIVE WAVES build beaches, increasing their height and making them more steeply sloping. They are low and relatively far apart. When they break they carry sand and shingle up the beach in their swash. The backwash is weaker than the swash because a lot of water soaks into the beach. As a result less material is dragged down the beach than is carried up. Constructive waves often occur in summer.



DESTRUCTIVE waves erode beaches. Higher and closer together than constructive waves, they tend to break vertically downwards, producing little swash. Because the backwash is stronger than the swash, they drag shingle down the beach. This makes the beach lower and flatter. Destructive waves often occur in winter and can quickly cause



a) Complete the following table comparing the two types of wave.

	Constructive waves	Destructive waves
Usual season		
Height		
Shape	Flattened	
Swash	Strong	
Backwash		
Number per minute	Less than 11	More than 13
Effect on beach	Build it up	

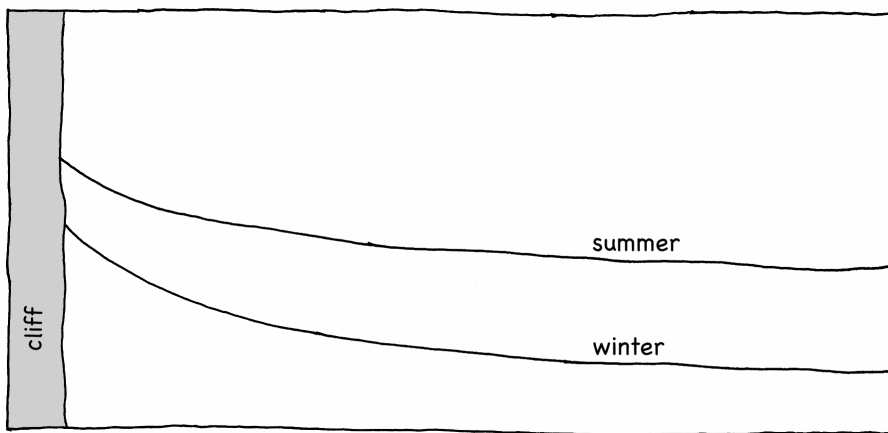


Destructive waves attacking a shingle beach

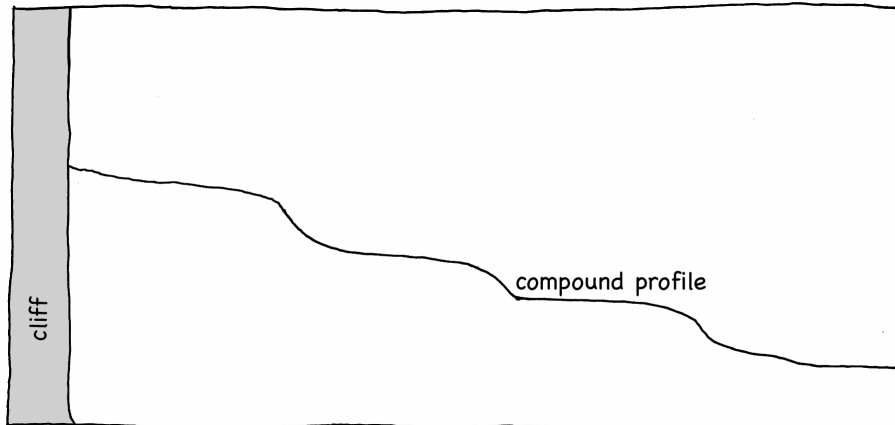


2. BEACH PROFILES

Look at the three beach cross-sections or **PROFILES** below.



Simple winter and summer beach profiles



Compound profile with beach ridges, storm berms etc



a) How do the three profiles differ and why?

b) Why is the third profile so uneven?

3. BEACH GRADIENTS

Shingle beaches usually slope more steeply than sand beaches. Where the upper part of a beach consists of shingle and the lower part of sand, the upper part is normally the steepest. See if you can find out why.

a) Collect various grades of gravel and sand from a garden centre or builder's merchant or substitute dried peas, peppercorns etc. Pour the gravels and sands (or the substitute materials) gently out into piles onto a tray and observe and try to measure the angle of slope of the sides of the piles.

b) On a separate sheet of paper draw diagrams to illustrate your results.

c) How does the angle of slope relate to the size of particle (grade or calibre) of the material?

d) Label the diagrams to explain the reason for the difference in slope angles.

e) On a real beach there is another reason for the difference in slope angle, connected with the backwash of the waves. What is this reason?

