

**9** A child throws a pebble of mass 40 g vertically downwards with a speed of  $6 \text{ m s}^{-1}$  from a point 0.8 m above a sandy beach.

**(a)** Calculate the speed at which the pebble hits the beach. **[2]**

The pebble travels 3 cm through the sand before coming to rest.

**(b)** Find the magnitude of the resistance force of the sand on the pebble, assuming it is constant.  
Give your answer correct to **3** significant figures. **[5]**