

Solutions

2.1 A producer (green plant/alga); it makes glucose by photosynthesis.

2.2 Mean = 7; mode = 6; median = 6.

2.3 Methane; fuel – burned in biogas generators for heating/electricity.

3.1 Prey abundant → predators find food easily, so more survive and reproduce, and predator numbers rise; more prey are eaten, so prey numbers fall; food is now scarce, so predator numbers fall; with fewer predators, prey recover – so the cycles continue out of phase.

3.2 Lay a tape/transect line from shade (e.g. under a tree) into open light; place a quadrat at regular intervals, e.g. every 2 m, along it; count the plants (or estimate % cover) in each quadrat; measure the light intensity at each point with a light meter; repeat and take means, then relate abundance to light intensity.

3.3 Oxygen – turning the heap aerates it so aerobic decomposers respire and multiply quickly; water – moist (not waterlogged) conditions keep decomposers active; warmth – a higher temperature towards the enzyme optimum speeds their respiration and growth; accept shredding to increase surface area (any three, 1 mark each plus one for a linked explanation).