

Growth and movement



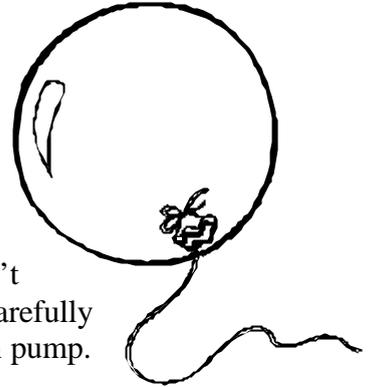
Question: If the locust skeleton (called a cuticle) is on the outside, how does the locust grow?

Answer: The locust grows in stages. When the nymphs need to get bigger they shed their old skin (called moulting) and a new skin forms underneath this which is bigger.

Balloon models

We can demonstrate how a locust moults by using a balloon and papier mâché.

First blow up the balloon to half its size using a balloon pump. Then cover the balloon with strips of papier mâché around the middle. Don't cover up the tied end of the balloon. When the papier mâché is dry, carefully untie the end of the balloon and inflate it to full size using the balloon pump.



Does the layer of papier mâché split? The papier mâché is like the old skeleton that has been shed. The balloon is like the new skeleton.

How do locusts move?

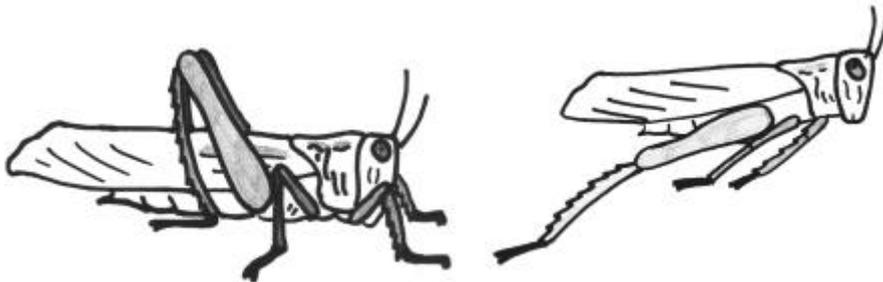
We are able to move because our skeleton has muscles attached to it. They surround the skeleton. Muscles come in pairs; when one muscle contracts and shortens, the other relaxes and lengthens back to its original shape.

Remember When muscles work they get shorter. This makes the animal move.

The locust has an exoskeleton which is on the outside of the body, so the muscles of the locust are attached to the inside of the skeleton rather than outside.

The back leg muscles of the locust are well developed. The back leg is about twice as long as the front and middle legs. When the locust jumps, the back legs work like a 'catapult'. The locust pulls the back legs in slowly, like an archer pulling an arrow back, then the locust releases the spring quickly, like releasing the arrow.

When it is preparing to jump, the locust pulls the bottom part of its back legs (called the tibia) underneath the top part of its legs (called the femur). When the muscles get shorter the leg is pulled straight and the insect is thrown into the air.



Locusts can also fly. When they have jumped as high as they can, they open both pairs of wings and flap the back wings. This propels them forward. If they are flying in the same direction as the wind they can fly up to 19km per hour.