

All About Mealworms

Background

Mealworms are the larval stage of the mealworm beetle, *Tenebrio molitor*, a species of darkling beetle. Like all insects, mealworms have a hard brownish/yellow exoskeleton that surrounds and protects their bodies. Mealworms have large segmented (sectioned) bodies; they move by using their three pair of legs located near their head. Mealworms have three main body parts: the head, the thorax (the middle where the legs are attached), and the abdomen (tail end). Mealworms are scavengers—they eat grains and decomposing plants and animals.

Mealworms are typically used as a food source for reptiles, fish, and birds. In some cultures, baked or fried mealworms are sold as a snack food.

Raising Mealworms

Mealworms are easy to maintain and are useful for biological research. In a relatively short amount of time (30-60 days), students can observe the complete metamorphosis of the insect.

Mealworms grow best in well-ventilated containers eight to 10 inches deep with large surface areas and smooth sides to prevent them from escaping. They are mostly nocturnal and prefer a dark environment. The insects will consume fresh oats, whole wheat bran, or grain, with sliced potato, carrots, or apple pieces as a water source. Replace the moist food every few days so mold doesn't form inside the mealworms' shelter.

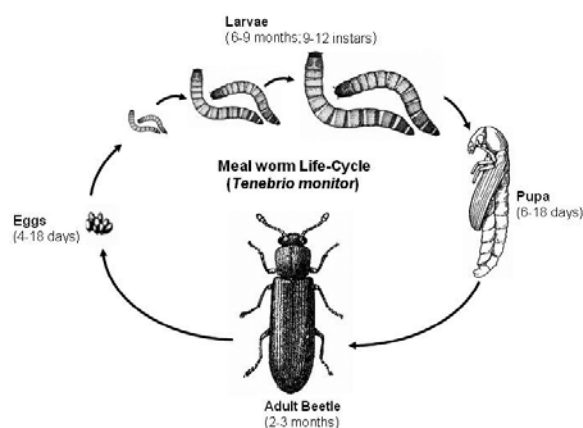
Complete Metamorphosis

A darkling beetle experiences a complete metamorphosis which means it has four distinct stages of life. The four stages are egg, larva, pupa, and adult. The amount of time a darkling beetle spends in each stage can vary greatly due to environmental factors like temperature, humidity, food, and water.

Discoveries

Scientific discoveries about mealworms will be plentiful for students. If the mealworms are kept at room temperature, their life cycle should take between 30 and 60 days.

- ▶ Students will discover the role of exoskeletons (hard outer covering) as the mealworms grow. Mealworms may shed their exoskeleton nine to 20 times depending on their rate of growth.
- ▶ Students will learn about the pupa life stage. The mealworm pupa has no mouth or anus, and does not eat. It does have leg and wing buds, but they do not function. This stage of life will last one to three weeks.
- ▶ Students will explore the final stage of metamorphosis as an adult insect. The darkling beetle has wings, but does not fly. The beetles live approximately three weeks and eat voraciously. Mealworm beetles (darkling beetles) are prolific breeders. Students can observe the mating process. A few days after mating, the female will burrow into soft ground and lay about 500 eggs.



Concluding the Lesson

Once learning opportunities have been concluded, donate your mealworms (in whatever stage they're in) to a reptile owner. Mealworms make excellent feed for a variety of reptiles.