Class Starters & Enders

Making the Most of Instructional Time
Five Minute Lessons

Class Starters and Enders help utilize the last minutes of class when a lesson ends but there is not enough time to start another, or for an interest approach at the beginning of class. Mini-lessons correlate to GPS in the programs areas below.

Rat Poison: How does it Work?

Program Areas: Agriculture, Healthcare Science

Instructions: Read the material and make notes of important points, answer questions, and be ready to discuss this topic.

There are several types of rat poison. The most common are **anticoagulants**, **phosphides**, and **calciferols**. They all take one or more days to work and can be potentially harmful to pets that **ingest** them or the rodent that eats the poison. Rat poisons are slow-to-kill poisons that can injure other animals and humans if ingested. Some can harm animals that consume the dead rodents. For the most part, they are effective and cause the population of rodents to decrease or move to a new location.

Rat poisons, such as those shown above, use either anticoagulants, phosphides, or calciferols to inhibit blood clotting, form a poisonous gas, or cause hypocalcaemia, all of which could kill a rodent.

Anticoagulants

The most popular rat poisons use anticoagulants as the poison. Anticoagulants deplete **vitamin K** – which is important in **blood clotting** – in the rodent's system over several days. Anticoagulants do not allow the growth of vitamin K in the intestinal tract which is where it is produced. Anticoagulants also cause damage to the walls of blood vessels, which increases the risk of internal bleeding. When the rodents begin to bleed internally, there is no vitamin K to help with clotting. The rodents die within one to two days. The only **antidote** for anticoagulants is to increase the amount of vitamin K in the animal.

Phosphides

Zinc phosphide combines with the rodent's stomach acid and forms a gas called phosphide. This method of rat poisoning is a good alternative to the anticoagulants because many rodents have become **resistant** to them. Animals that ingest the rodent are not harmed because the zinc phosphide does not stay in the rodent's tissue. Animals that ingest the poison itself however are harmed and there is no cure aside from making the animal vomit immediately.

Calciferols

This type of rat poison works by affecting the levels of vitamin D and calcium in the body. Ingesting toxic amounts of vitamin D causes **hypocalcaemia**. Hypocalcaemia is a condition where calcium levels are raised to a degree where the kidneys, stomach, lungs, blood vessels, and heart are all damaged by **calcification**, or hardening. This process is slow and takes a week to kill the rodent.

Review

1. What are the three most common types of rat poison?
2. What animals can rat poison harm?
3. How do anticoagulants work?
4. Aside from depleting vitamin K, what other harmful effects do anticoagulants have?
5. What is the antidote to anticoagulants?
6. How do phosphides kill rodents?
7. Why are phosphides a good alternative to anticoagulants?
8. How do calciferols work?
9. When an animal gets hypocalcaemia, what in its body is affected?

Language Connection

Define the following terms.

Anticoagulants	Hypocalcaemia
Antidotes	Ingest
Blood Clotting	Phosphides
Calciferols	Resistant
Calcification	Vitamin K

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