# **PESTICIDES GAMES: THE PEREGRINE'S FATE**

## OBJECTIVE

This game explores how toxins like pesticides accumulate in the food chain.

## **OVERVIEW**

Some pesticides remain poisonous after they have entered an animal. A predator that feeds on the animal is then at risk. This game shows how poisons may not immediately kill the animal that eats them, but instead accumulate as they travel up the food chain, with dire consequences for animals at the top

#### TIME NEEDED

10 minutes

# PARTICIPANTS

Group of six or more

#### **RESOURCES NEEDED**

- a numbered card for each player
- three containers, each filled with a different grain (kidney beans, chickpeas, lentils, seeds)
- a bag with a mixture of each of the grains
- a card entitled The Peregrine's Fate.

# LEARNING OUTCOMES

- understand that toxins like pesticides can accumulate as they pass through the food chain
- understand that this accumulation can be fatal for animals at the top of the food chain

#### INSTRUCTIONS

- 1. Ask for a volunteer peregrine falcon. The rest of the group are pigeons and given a numbered card.
- 2. Put three containers of grains in the centre of the group. Tell them that each container represents a field of grain that pigeons eat.
- 3. Each pigeon is now allowed to feed on the grain. They can take six pieces in any combination.
- 4. The peregrine picks six numbers, each one representing a pigeon. The pigeons come forward and give their seeds.
- 5. One of the fields is covered in a toxic pesticide. Unfortunately, this will have a bad effect on the peregrine if it has absorbed too much of it.
- 6. To decide which was the contaminated grain, choose without looking, one grain from the mixed grain bag.
- 7. Count the number of contaminated grains that the peregrine has received. The Peregrine's Fate is now passed to the volunteer peregrine.
- 8. What was the peregrine's fate?

#### THE PEREGRINE'S FATE

8 or fewer poisoned seeds 9 poisoned seeds

No eggs failed to hatch, four young raised

One eggs failed to hatch, three young raised

**10 poisoned seeds** Two eggs failed to hatch, two young raised

**12 poisoned seeds** Four eggs failed to hatch, no young raised **11 poisoned seeds** Three eggs failed to hatch, one young raised

**13 or more poisoned seeds** Too much poison – YOU DIE

# DDT

Worldwide peregrine falcon populations plummeted from tens of thousands to several hundred from the 1950s to the 1970s. The culprit was the widely used pesticide DDT, as high concentrations of DDT in birds cause weakness in the shells of their eggs, leading to a reduction in their population. DDT is now banned.

#### WHAT WOULD HAPPEN IF BIRDS OF PREY WERE REMOVED FROM THE FOOD CHAIN?

If you removed the top predator from a food chain there would be lots more of their prey, which could increase competition for limited resources such as food and shelter.

# HOW CAN WE HELP TO RESTORE PEREGRINE FALCON POPULATIONS?

Peregrine falcons have been known to roost in tall, city structures like bridges, cathedrals and skyscrapers as these replicate the cliff edges they would naturally nest on.

Specially designed nest boxes have been installed in cities to give birds a safe place to nest. Charities like the Wildlife Trusts work with planners, developers and landowners to help make our towns and cities as good for wildlife as they are for people.

Discover more about the future of sustainable farming: http://www.bbc.com/future/bespoke/follow-the-food/ the-clean-farming-revolution/