# Evolution: be the bird

Name: Class: Date:

Page 1 is a practical in which you hunt paper dots on fabric for three generations. Page 2 is for recording and graphing your results. Page 3 is for writing a refutation text and explaining the snakes.

## PRACTICAL Hunt the dots for three generations

**Each group of four needs:** two pieces of fabric about 60 cm square, one plain and pale and one busy and darker; paper dots made with a hole punch from four colours of paper, 20 of each colour plus about 100 spare dots of each colour; blunt-ended tweezers; a small cup for the dots that are caught. Choose the paper so that at least one colour matches each fabric.

1. Spread the plain fabric on a bench. One student is the keeper. While the others look away, the keeper scatters 20 dots of each colour over the fabric.
2. Another student is the bird. The bird turns to the fabric, picks up the first dot they see with the tweezers and drops it in the cup. Then the bird looks away and back again before picking up the next dot.
3. Take turns at being the bird until 40 dots, half of them, have been caught.
4. Tip out the cup and count the caught dots of each colour. Take each number away from that colour's number at the start of the generation. These are the survivors. Write them in the table on page 2, then put the caught dots aside.
5. Each survivor has one young of its own colour. For each survivor left on the fabric, the keeper scatters one more dot of the same colour while the others look away.
6. For each colour, double the number of survivors. Write it in the table as the start of the next generation.
7. Repeat steps 2 to 6 for two more generations. If there is time, run the practical again on the busy fabric.

## PREDICT Before you start

**1. Which colour of dot do you think the bird will catch most often on the plain fabric? Why?**

**2. Which colour do you think will be most common after three generations? Give a reason.**

**3. Will any dot change colour during the practical? Explain your answer.**

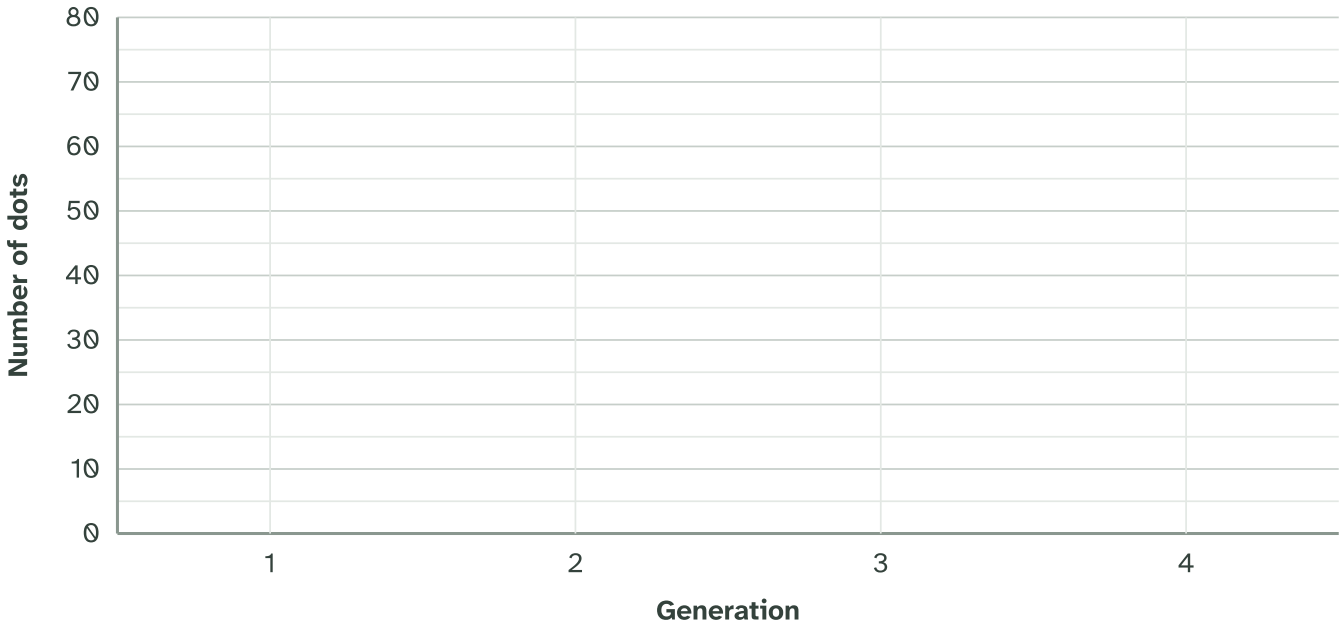
## RECORD Dots of each colour

Write the colours in the first column. Each generation starts with 80 dots, and the bird catches 40 of them.

| Colour | Gen 1 start | Gen 1 survivors | Gen 2 start | Gen 2 survivors | Gen 3 start | Gen 3 survivors | Gen 4 start |
|---|---|---|---|---|---|---|---|
| | 20 | | | | | | |
| | 20 | | | | | | |
| | 20 | | | | | | |
| | 20 | | | | | | |
| **Total** | **80** | **40** | **80** | **40** | **80** | **40** | **80** |

## GRAPH Graph the results

Plot the number of dots of each colour at the start of each generation. Join each colour's points with a line, and add a key.




**1. Which colours became more common, and which became less common? Use numbers from your table.**

**2. Did any dot change colour? What changed instead?**

**3. What do you think would happen on the busy fabric? Explain why.**

## WRITE Write a refutation text

Choose one of the six common ideas from the lesson. Write a short refutation text about it for a Year 7 student, in three parts.

**The common idea**

**Why it's wrong**

**What scientists have found**

## EXPLAIN Explain the snakes

**In places that have had cane toads for longer, red-bellied black snakes have smaller gapes for their body size. Explain how natural selection could have caused this. Use the words variation, inherited, survive and generations.**

Check that your explanation says:

- [ ] how the snakes differed from each other
- [ ] what is passed from parents to young
- [ ] which snakes survived and had young, and why
- [ ] what happened over many generations

**What else would biologists want to know before they could be sure that the snakes changed by natural selection?**