Ecology with Dr Sarah Guindre-Parker

Talking points

Knowledge

- 1. What are four examples of heavy metals?
- 2. What technique is used to analyse the starling tail feathers?

Comprehension

- 3. Why did Sarah choose to focus her study on starlings?
- 4. Why are scientists worried about heavy metal pollution?
- 5. Why do the researchers introduce an unfamiliar object into the open field test tent?

Analysis

- 6. What difference has the tail feather analysis revealed about nestlings from urban habitats and those from rural habitats?
- 7. What has led Sarah to the conclusion that nestling birds might be a better indicator of elevated lead in the environment than adult birds?
- 8. How might ecological research on starlings be relevant to human health?

Evaluation

- 9. If Sarah's prediction that birds from urban areas with higher lead concentrations are more aggressive is correct, what do you think might be the cause of this? Which other factors, other than higher lead concentrations, might have an impact, and why?
- 10. With her love of biology, Sarah had initially thought she might go into medicine. Why has ecology proved such a rewarding field for her? Which aspects of ecology do you think you would enjoy, and why?

Creativity

10. What else do you think the researchers could do, or add, during the 12-minute open field tests to help assess the behaviour of the starlings?

More resources

- Have a look at Sarah's website to learn more about her work: www.sarahguindreparker.weebly.com
- Read about the team of researchers who found that some community gardens contained dangerous concentrations of lead in the soil and shared their results to tell people not to consume vegetables from those gardens: www.atlsoilsafety.com
- Visit the website for the Agricultural and Environmental Services
 Laboratories at the University of Georgia which runs the feather samples for heavy metals: aesl.ces.uga.edu

Activities

Get involved with recognising wild species in your own local area. Head outside and look for insects, mammals, worms, weeds, trees, fungi or anything else you can find.

Once you have seen something interesting, sketch it. This is a great way to develop your observation skills and get to know what you are looking at. Afterwards, look up the species online, in a field guide, or with the use of a nature-based app, such as iNaturalist or Merlin Bird ID, which are both brilliant ways to help you learn to recognise different organisms.

iNaturalist helps people identify and share observations of species from around the world. You can be a total beginner to get involved – take a photo of something, write down what you think it is (or leave it blank if you do not know), submit the photo along with the location, and then wait for an iNaturalist expert to help you figure out what the species is.

There are also projects such as 'Biodiversity in the state of Georgia' and 'Birds of Georgia' that you can join to help you find out more what is living near you. You can also try '**Seek** by iNaturalist' – a great beginnerfriendly version designed by the same nonprofit organisation.

The Merlin Bird ID app, developed by Cornell Lab of Ornithology, is brilliant for helping with bird identification. When you are out in your neighbourhood or local park, record any birdsong you are hearing on the Merlin app. The app will then tell you in real-time which birds are singing, as well as let you listen between your own recording and confirmed recordings, to help you recognise each specific bird.

Finally, develop a nature-based bingo game using your new species. Test out your game on your friends, family or classmates, and try to give a fun fact about each species as you read out the names too!