**Urban fox**

The picture shows a fox in an urban area where people live.

Some children talk about the picture.

**Ava**

Urban foxes are found in lots of cities in the UK. The urban environment is their ecosystem. I read that they usually have about 40 gardens in their territory.

**Kate**

I don’t think foxes live in urban areas. I think the fox is just passing through. Urban areas aren’t ecosystems because they were made by humans.

**To talk about in your pair**

1. Who do you **agree** with?
2. Who do you **disagree** with, and why?
3. If a fox did live in an urban area, what do you think it would eat?
4. If a fox did live in an urban area, where do you think it would build its den?
5. If an urban area is an ecosystem, what other animals do you think might live there?

*Biology > Big idea BOE: Organisms and their environment > Topic BOE2: Organisms in their environment > Key concept BOE2.1: Ecosystem components and their dynamics.*

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| **Response activity** |
| **Urban fox** |

**Overview**

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| Learning focus: | The environmental conditions in different ecosystems, and in different parts of an ecosystem, affect and are affected by the organisms that live there. |
| Observable learning outcome: | Recognise that there are different environmental conditions in different ecosystems, and this affects what lives there. |
| Activity type: | Discussion, talking heads |
| Key words: | ecosystem, urban areas, man made |

This activity can help develop students’ understanding by addressing the sticking-points revealed by the following diagnostic question:

* Diagnostic question: Ecosystems

**What does the research say?**

For students to appreciate and understand that humans have an impact on ecosystems they must first appreciate that humans are part of an ecosystem. Work conducted by Casper and Balgopal (2018) found that many students used the word ‘natural’ when referring to ecosystems, and that those students who defined ecosystems as natural “usually excluded human society and/or the built environment from ecosystems”.

**Ways to use this activity**

Students should complete this activity in pairs. The focus of the activity should be on group discussion to decide whether an urban area, which consists of many man-made structures, is an ecosystem, and to answer the questions.

It is through the discussions that students can check their understanding and develop their explanations. Listening in to the conversations of each pair will often give you insights into how your students are thinking. The quality of the discussions can be improved with a careful selection of pairs, or by allocating specific roles to students in each pair. For example, you may choose to select a student with strong prior knowledge as a scribe, and forbid them from contributing any of their own answers; they may question the others and only write down what they have been told. This strategy encourages contributions from more members of each group.

After their discussions, each pair should be prepared to report the key points of their discussion to another pair, or to the class.

**Expected answers**

1. Students should agree with Ava. A man-made environment is an ecosystem. There are many animals and plants living there and they interact with each other and the physical environment.
2. Students should disagree with Kate, just because a structure is manmade does not mean that it is not an ecosystem.
3. Foxes typically feed on small mammals and birds and rotten food in urban areas. They are essentially scavengers.
4. Dens known as earths are often found under garden sheds, but they could also be found among tree roots, in bushes or on railway embankments.
5. In the UK badgers, hedgehogs, bats, pigeons, mice, rats as well as many invertebrates can be found living in urban environments.

Interestingly the number of urban foxes in the UK is rising. In 1195 it was estimated that around 33 000 foxes lived in urban areas. This estimation rose to 150 000 in 2017. For further information about urban foxes the following website may be useful:

<https://www.nhm.ac.uk/discover/the-secret-life-of-urban-foxes.html>

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Images: Ava Marsden

**References**

Casper, A. M. A. and Balgopal, M. M. (2018). Conceptual change in natural resource management students’ ecological literacy\*. *Environmental Education Research,* 24(8)**,** 1159-1176.