WHOSE POO?

Activity overview

Age: 7 – 11 years old

Time: 30 min

Topics: Living things and their habitats, DNA, working scientifically

Learning objectives:

- All living things have DNA.
- Faeces (poo) can provide useful information on a species from diet to identity.
- DNA can be extracted from poo.

BACKGROUND

Sometimes it is not always easy to spot animals in the wild. They may be nocturnal, only coming out at night, or they may be secretive and hard to observe during day light hours. However you don't always need to see an animal to know that it is there. Animals leave behind clues that can tell us where it is living and what it has been eating. But what are these clues? You guessed it - poo!

Faeces (or poo) can be a really useful tool, not only telling scientists what species it is from, but it can also tell them what the animal has been eating. This information is really important for

understanding how that animal is surviving in that environment. Sometimes there are remains in the poo such as beetle body parts or fish bones – this can help identify prey items. But what if there are no identifiable remains? In that case, DNA can be used. Scientists can extract DNA from poo and it can reveal what that animal has eaten. For example scientists studying a group of bats analysed the DNA in their droppings and were able to identify 130 different insects eaten by the bats over a two year period.

DNA from poo can tell you a lot more than only what an animal has eaten. It can also identify individual animals and reveal how related they are to others in that area. Scientists have used this technique to understand more about endangered gorilla populations in Africa. Closer to home in the UK, scientists have used DNA extracted from otter spraints (poo) to study their populations, identify individuals and estimate how many are living in a particular area.

This activity will challenge participants to match the animal to the poo and also to think about how droppings can be used by scientists to answer scientific questions.

Find out more

What is DNA:
www.yourgenome.org/facts/what-is-dna

What can poo be used for:
www.bbc.co.uk/earth/story/20160711-five-surprising-uses-of-poo

ACTIVITY PREPARATION

Materials

- ☐ PowerPoint slides
- ☐ Worksheet

Set up

1. Print out the worksheets and load the PowerPoint before the session starts.

ACTIVITY GUIDANCE

Warm up

1. Using the PowerPoint slides provided show the group a picture of animal dung. Explain that the activity is all about poo and what it can tell us about animals.

2. Run a quick poll with thumbs up or thumbs down. Ask the group if they think poo can help scientists identify animals?

Run the activity

1. Explain that they are going to have a go at identifying an animal from a picture of poo.

2. Using either the worksheet or the PowerPoint slide, ask students to match the poo to the animal.

3. In groups ask the students to discuss and explain their ideas and answers. Encourage them to share them with everyone. Do they all agree?

4. Reveal the answers:
   - Poo 1 = Water Vole
   - Poo 2 = Eurasian Otter
   - Poo 3 = Common Pipistrelle Bat

5. Use PowerPoint slides 3 to 5 to reveal the answers. Each slide is animated to reveal the answer.

6. Next use PowerPoint slide 6 to ask the group if poo can tell us anything else about an animal, other than what type of animal it is. What ideas do they have?

7. Discuss that poo can tell us what an animal has eaten but can also tell us where it is living, identify individuals and even who they are related to.

8. Use the final slides to explore the idea that poo contains DNA. What could the DNA tell you about an animal?

Reflect on it

Encourage discussion about the different ways you can check for different creatures living in a given location. Which of these would give an opportunity to collect a DNA sample? Which features would be of most interest to explore through looking at DNA?

Take it further

Why not take this activity further by extracting DNA (not from poo) from fruit with our hands on DNA extraction activity.

Extracting DNA from fruit: www.yourgenome.org/activities/extracting-dna-from-fruit