

Classification

These activities may be run as an extended lesson on classification or split into two linked sessions.

Age range

9-11

Learning outcomes

How living things can be classified into groups scientifically. Learn about the work of a 'real life' scientist in using classification keys to identify insect pests in the UK.

Working scientifically

Record data and results of increasing complexity using scientific diagrams and labels, classification keys and tables.

Report and present findings from enquiries in oral and written forms such as displays and other presentations.

Resources

Copies of beetle picture, one for each pair, pooters, hand lenses, pond dipping nets, white trays, bug collection pots, classification PowerPoint.

Introduction

Tell the children that walking home last night you spotted an insect that you hadn't seen before so you took a picture of it and hoped that the children could help you identify it. Show the children the picture of the insect. (See tansy beetle photo.)

Try to avoid using the word beetle to see if the children know this term and use it in their own descriptions.



Tansy Beetle | Image © Geoff Oxford, via Wikimedia Commons

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Discussion

Ask the children how we could go about identifying it? They may suggest looking online but to be able to do this we need a very clear description of the insect. In pairs the children should write down a very detailed description of the insect on a copy of the picture. Allow the children to feedback their descriptions. You may get something like: green and gold beetle with shiny covering. Six segmented legs, three body sections, a split running down its' back, two antennae, small spots on the wing cases etc.

Explain to the children that a long time ago this would be how all living things would have been described. There were not names for everything and when people discovered new species they would describe them using physical characteristics. Why might this not work? Refer children back to their descriptions of the tansy beetle - are they all the same? It could also be a problem when working with people from other areas.

Activity

Play an identification game with the children where you describe a member of the class and say this is their name. The other children have to guess who you are calling on. Then allow the children time to play the game.

Can they see how impractical this would have been? In the 1700s a scientist named Carl Linnaeus came up with a way of naming living things called the binominal system. This means two names. Scientists had already sorted living things, organisms, into kingdoms based on their characteristics. There are five kingdoms. Can the children think of any they know? Animals and plants are the easiest. The others are: fungi, protists and eubacteria.

Activity

Watch [this video](#) which explains clearly how animals are classified. Linnaeus described the last two levels, genus and species.

Activity

So if we were going to classify our insect we can follow the system. Discuss with the children which kingdom it belongs in Animalia. Introduce the classification presentation and work through it together with the children.

Next ask: 'Does it have a backbone?' Answer: 'No, so it is an invertebrate.'

Invertebrates are categorised into arachnids, insects, echinoderms and insects. Do the children know any of these names? Can they say anything about them? Can they describe an animal from each of these classes?

We know that our animal is a beetle but we will need to know a lot more about it to fully name it.

Activity

Watch Joe's video. What was he doing? What did he use to help him identify the caterpillar in the chilli? A key. What did he have to be very good at? Close observation.

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Activity

Explain to the children that they are going to be working like Joe to identify animals found in their local habitat. The children will then go out and collect mini-beasts from around the school grounds. If the children haven't had an opportunity to use insect collecting equipment before explain how it is used and how to look after the animals collected. Each group (4 to 6 children) should collect between 4 and 6 different mini-beasts to examine. They could collect and photograph the animals and return them to their natural home or return them to the classroom and draw them. They should take notes on their features, such as number of legs and antennae, colour etc.

Using [OPAL's identification charts](#) the children can then identify the mini-beasts they have collected.

On a photograph of their invertebrate the children should add annotations to describe it. They could also use a photo annotation app on a tablet to do this. Include the genus and species name if appropriate and any extra information they wish to add. They may need access to the internet to research their mini-beast further. They will then present this to the rest of the class.

All animals should be returned carefully to their homes after this session.

An alternative activity if there is not an opportunity to go outside to collect mini-beasts:

[OPAL has a presentation](#) with photos of invertebrates that the children could examine and annotate:

Plenary

What was it that Joe had to be good at to succeed at his job? He needed careful observation skills. What was the hardest part about identifying the animal that you collected? Were there any that looked similar? Does it matter what stage of life the animal was in? (This will be important if the children have collected any larval stage mini-beasts as they appear completely different to the adult stage.)

Follow up session

The children have identified an invertebrate from their area and now they can create a class set of top trumps cards to play with. They need to agree on the criteria to include on their cards and the values assigned to each criteria. They can use the photos they took of their mini-beast and include data from personal research.