Barefoot Computing at School

In collaboration with BT

Recommended for ages 5-11

Introduction to Pattern Unplugged

Elephants, Cats and Cars

Duration: **25 minutes**

Concepts and approaches covered

Patterns

Overview

This is an unplugged activity in which pupils work in pairs to spot patterns in sets of pictures of objects and think of general statements to describe these things e.g. elephants, cats, cars. The emphasis of this activity is on pupils thinking what is the same, what is different and and if there are general statements they can make about things.

Pupil objectives

- I can say what is the same
- I can say what is different
- I can what is generally true about...

Resources

Dowloadable from webpage

- Lesson presentation
- Copies of pattern challenge

Introduction 5 minutes

Show **slide 2** of the presentation. Ask pupils to look at the pictures with a partner and give them a few minutes to discuss what is the the same and what is different and what we can generally say about the images of elephants.

Lead a class discussion about what is the same e.g. they all have big ears, a trunk etc. Discuss what is different e.g. some have tusks, others do not. Agree a general 'statement' about elephants e.g. all elephants have big leathery ears, a long wrinkled trunk, are big and usually live somewhere hot.

If it is your normal practice, share the learning intentions with the class (**slide 3**) or explain that today pupils are spotting patterns.

Main activity 15 minutes

Give each pair of pupils a copy of the patterns challenge sheet and ask them to work out what is the same, what is different and to discuss how we generally describe the object. Older pupils can jot down their ideas on the sheet. Guidance for pupils appears on **slide 4**.

Mini plenary

Test pupils general statements by asking if they can think of any exceptions. For example, some cats are hairless, some elephants may have been injured and not have part of an ear, some cars have three wheels. Explain that we can make general statements but there may be exceptions to their ideas on the sheet. Guidance for pupils appears on **slide 4**.

Plenary 5 minutes

Ask a selection of pupils to describe what patterns they found and what general statements they thought of or jotted down. Lead a class discussion to discover if all pupils thought the same.

Explain that in computer science we often look for patterns. This helps us find general ways of looking at things. This helps us to reuse ideas. For example, if we created a program to make cars, we could design a machine to make wheels and put the same wheels on different cars. If we wrote a computer game program with cats in it, we could write code to draw a basic body, and change the colour and size of each cat by reusing the basic cat body code.

Differentiation

Support

Use additional targeted questions during the main task to support pupils in thinking what is the same, different and to think of a general statement. Some pupils may only think what is the same.

Stretch and Challenge

Encourage pupils to test their general statements with examples, can they think of exceptions? For example, think of all the cats they have heard about, do they all fit with the statements they made? Do some cats have no fur? Could a cat have lost its tail in an accident? Do some cars have three wheels? Can they make their general statement more accurate and complete? For example, most cats have fur except for the sphynx cat or those with some kind of problem with their fur. If tackling the challenge related to computer games, encourage pupils to think about any games they have made and if there were similarities and differences to commercial software games they know about.

Assessment opportunities

Informal teacher assessment of pupils during main task and plenary. Focus on pupils thinking what is the same, what is different, thinking of a general statement and considering any exceptions.

Teaching notes

Concepts and approaches

Pattern

Patterns are everywhere, for example, we use weather patterns to create weather forecasts; pupils might notice patterns in how teachers react to their behaviour to work out how to behave next time. By identifying patterns we can make predictions, create rules and solve more general problems. In computing, the method of looking for a general approach to a class of problems is called generalisation.

In this activity, pupils work to spot patterns and create a general statement. They look at pictures of familiar things such as elephants. They think what is the same about the images and what is different. Also ask what is it that makes an elephant an elephant to create a general statement.

Curriculum links

Please refer to the resource overview page on the website, to understand how the learning objectives covered in this lesson relate to the curriculum in your country.

Related activities

Introduction to Patterns: Reusing Recipes

Spelling Rules

Logical Number Sequences

Shapes and Crystal Flowers

Barefoot

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