

# FREE RESOURCES

The Why and How Challenge

The 'Why and How' Challenge is intended to be something for the staffroom table that lots of teachers will try.

This issue's Why and How Challenge is a version of the one we suggested in the summer 2018 newsletter. It will encourage the children to look at their surroundings with more purpose and accuracy. It can be run with small groups, a class or as a whole school competition.

## How many different ... can you find?

There are many different categories you could choose to challenge the children to find. For example:

- *types of material, metals, textures, coloured objects*
- *living things (see newsletter from summer 2018)*

### Resources

- *30 cm rulers – 4 per group of children*
- *elastic bands – 4 per group of children*
- *clipboards, paper and pencils*

### Optional extra resources

- *hand lenses, metre rulers (or other longer sticks) for making larger frames*

Using rulers means that large numbers of children/groups can have the same sized and shaped frame which then means they can compare what they find in a fair way. Hoops or other types of rigid frame could also be used. String or rope loops are less good as it is hard to ensure they always outline the same sized area.

### WHAT TO DO

Each child or group of children needs to make a frame out of four 30 cm rulers. The corners should be held together with elastic bands.

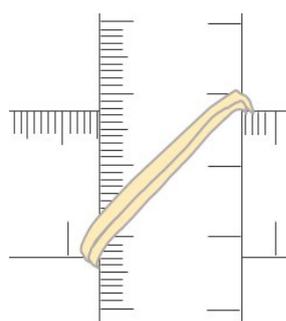
Give the children the challenge "How many different [INSERT YOUR CHOSEN CATEGORY] can you find?"

### Tell the children to:

- *choose a place around the school – inside or out - and put down their frame*
- *identify how many different things in the given category they can find inside the frame*
- *record what they have found*
- *choose another place to put the frame and repeat*

### Making it into a whole school competition

Decide on a category for the whole school (or key stage, or year group). Each class carries out the challenge and then submits a photo of their frame in the place where their class found the greatest number of things in the given category. Each photo should have a list of all things they found in the frame. Compile the pictures as a slide show for the whole school to watch ... and the winning class/ key stage/year group is revealed.



e.g. putting the frame down on a desk – the materials that can be seen inside it are: wood, plastic, metal, fabric, rubber, paper. Older children might also say graphite (or pencil lead), paint (on the outside of the pencils), ink (squares on the paper) and they might want to give specific names to the metal of the scissors, the wood of the desk and the fabrics in the pencil case.

### Points to note:

- *The children should be encouraged to observe inside the whole frame and to use hand lenses*
- *Children should look for how many different things they can find – they can only count each type once*
- *The children could take photographs of their frames in different places and annotate these with what they found when they are back in the classroom*
- *This challenge is particularly suited to younger children. To make it more challenging for older children, try introducing additional elements, e.g. if the category is materials, for each material they find, ask them to list three other objects that are made of the same material, and say why they think it is used/ describe its properties.*
- *The children might like to know that a frame like this with sides of 1 m is used by scientists to mark out random areas to be surveyed. Its scientific name is a quadrat.*