Games, ideas and activities for

Early Years Mathematics

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Games, Ideas and Activities for Early Years Mathematics

Tips

- **Adapt the first point (above) as appropriate to your immediate area.**
- **Model appropriate two- and three-dimensional shape language. For example, a roof may be *triangular*, not a *triangle*. Most children are able very quickly to use appropriate language when it has been modelled by an adult through careful discussion.**
- **Explore why particular shapes are used in different constructions. For example, igloos are dome-shaped because an arch is a strong shape. The dome also requires no other structure (such as beams or poles) to keep it up. Additionally, a dome has the smallest possible surface area, which provides the best insulation.**

Variation

Ask the children to design and model their own house. Discuss where it is going to be located, what materials are going to be used and what shapes it needs to use in order to make it fit for purpose.

How is this maths?

In this activity the children are exploring how shapes are used in construction in order to make the construction strong and fit for purpose.

A nonsense house

Get creative with this nonsense design activity.

Aims and objectives

- To use shape-related language.
- To think about the properties of shapes.

Resources

- Selection of coloured paper shapes
- A4 paper
- Glue

Preparation

- You may wish to make your own nonsense house to show the children.

What to do

- Talk to the children about their houses and why certain features are the shape they are (e.g. 'Why is a door *rectangular*?'). Include items in the house in the discussion (e.g. 'Why is the table *flat*?').
- Now encourage the children to imagine a nonsense world where there were houses that could not be used. For example, a *spherical* house that sat wobbling on top of a hill, a *square-based pyramid* for a bed that was very uncomfortable or a scooter that had *triangular prisms* for wheels.
- Give the children an everyday object, or ask them to think of one of their own. (For example, a car, a house, a bicycle, a table, a television, a sofa).
- Encourage the children to talk with a friend about their object. How could they make it as nonsensical as possible? Then share the answers with the group.
- Arrange the shapes of the object onto an A4 sheet and, when ready, glue them down.
- Share again once finished.

Tips

- **Ensure the children continue to talk about the shapes. They may need to talk about the materials being used, but the focus of this activity is the shapes being used.**
- **You may put the designs together and jointly write a story about a day in the life of Mr and Mrs Shape who live in Nonsenseland.**

Variation

Using junk modelling instead of paper shapes to make the nonsense items.

How is this maths?

The children are using their knowledge of the properties of shapes to create objects that are complete nonsense. By producing a design of something that would not be fit for purpose they are thinking in a creative way about the properties of shapes and why we use specific shapes for particular functions.

Making dens

Children love to make a den and entertain friends and adults in it!

Aims and objectives

- To practise problem solving
- To learn about measurement

Resources

- Items for making a den, inside or out
- Cups, fruit or biscuits and water (or role-play tea-making items)

Preparation

- Check there is an appropriate space for this activity, inside or out.

What to do

- Either independently or with support the children can make a den, choosing from a selection of available resources.
- Once constructed, give the children afternoon tea or a snack and eat it with them in the den. Encourage them to pour the water and share the food out evenly.

Tip

During the construction, talk with the children about their design and why they are choosing to construct it that way. Help them to make sense of the space they are using and model appropriate propositional language, such as *under*, *next to*, *over* and *between*, as well as early geometrical language such as *cover*, *big, corner*, *top* and *side*. When pouring the water talk about *nearly full*, *full*, *empty*, *half-full* and *half-empty*.

Variation

Have afternoon tea in a pre-existing place, such as a Wendy house or outside on the field.

How is this maths?

While the children are creating their den they are solving problems related to the construction. For example they need to reason about the best materials to use and they are communicating mathematically with each other. Pouring water into cups offers an opportunity to develop concepts related to *capacity*. *Sharing* food leads to *division by grouping* later on.

That's just up our street!

Ordering the houses along a street provides a good opportunity for a lot of mathematical talk about numbers.

Aims and objectives

- To recognise numbers.
- To learn about number patterns.

Resources

- Photographs or drawings of front doors with the house number clearly labelled
- A large street or map drawn out where the houses can be placed (optional)

Preparation

- If using a street to lay the houses upon ensure this is out before the children start the activity. Make sure it is securely fastened because the children will bump it as they position the houses in the correct places.

What to do

- Look at the photos or the pictures of the houses. What can we see on them? (The house numbers.)
- Ask, 'Can you work out who might be neighbours? How do you know that those two houses are neighbouring?'
- Encourage the children to place the houses in the correct order, along both sides of the street.

Tips

- **This can be used as part of a theme or topic on the postman and mail. The children could become the post office staff, sorting the mail and then delivering the post to the houses along the street in the most efficient manner.**
- **Encourage the children to look at the starting number and identify any patterns they see along the road (for example one side will have house numbers that end in 2, 4, 6, 8 and 0 only). Talk about the *odd* and *even* numbers.**

Variations

- Some cul-de-sacs contain houses that are in *numerical order*. Younger children or lower-attaining children could be encouraged to place houses around a cul-de-sac that comes off a larger road.
- You may provide a range of properties to challenge further the children's understanding of number. For example, there may be a factory or warehouse that is numbered 24–28 because it takes up three plots on one side of the road.

How is this maths?

This activity encourages the children to look at *patterns*. One pattern uses *counting numbers*, where they cross the street each time they get to the next number. Another pattern is to look at the *odd* and *even* numbers on each side of the street. Being able to spot patterns sets the foundation for later mathematical problems using more complex number patterns. This activity also helps them to see how numbers have a purpose (identifying a home) and how they give order and structure, which makes finding a particular home easier for any visitors.