**NUMBER AND ALGEBRA**

# Let's Visit 'Six-land'

Adapted from an activity by Askew in 'Primary Mathematics', Vol 18 (3).

## Learning focus

- Group and exchange in different number bases
- Record numbers in different bases
- Understand the role of zero as a place holder
- Use number facts to multiply (up to 10 × 10) and add whole numbers

## Key vocabulary

- Group
- Exchange
- Value
- Worth
- Place holder

## Resources

- 3 different types of natural resources such as conkers, twigs and leaves
- Pencils, paper and clipboards for recording
- Camera



## Activity

Today we are going to visit Six-land. In Six-land, no-one can count beyond six! Give each group a different number of conkers. Ensure that some have fewer than 6, some have exactly 6, and some have between 7 and 15.

Explain that you need exactly 6 conkers to make a tree in Six-land.

> *Do you have enough conkers to make a tree?*

Allow children to arrange their conkers in groups of 6.

Talk about each arrangement.

> *How many trees do you have?*
> *How many conkers do you have left over?*

Invite children to exchange each group of 6 conkers for a twig (a tree).

### Teaching point

Reinforce the principle of exchange: a group of 6 conkers can be exchanged for 1 twig.

Discuss how they might record their findings. Encourage children to suggest ideas.

For example, they could record the number of trees and the number of conkers left over in tabular form.

| Number of conkers | Trees (or T) | Conkers or (C) |
|---|---|---|
| 4 | | 4 |
| 6 | 1 | 0 |
| 8 | 1 | 2 |
| 15 | 2 | 3 |
| 22 | 3 | 4 |

## Teaching point

Emphasise the importance of zero as a placeholder. It indicates that there are no 'items' in this place. For example, in the table above 6 is recorded as 1T and 0C. The 6 conkers have been exchanged for 1 tree and the 0 indicates that there are no conkers left.

Next, give each group a larger number of conkers. Explain that 6 trees make a wood in Six-land. They can exchange each group of 6 twigs (6 trees) for 1 leaf (a wood).

Invite them to explore their collections and record their findings.

For example:

| Number of conkers | Woods (W) | Trees (or T) | Conkers or (C) |
|---|---|---|---|
| 37 | 1 | 0 | 1 |
| 49 | 1 | 2 | 1 |

## Taking ideas further

Invite children to create a picture using conkers, twigs and leaves. They should take a photograph once it is complete. Ask children to calculate the value of their picture (in conkers). Remind them of the value of each item: 1 leaf is worth 6 twigs and 1 twig is worth 6 conkers

They could then discuss and compare their pictures.

> *How many conkers is your picture worth?*
> *Whose picture is worth the most conkers?*
> *Whose picture is worth the least conkers?*
> *Are there any pictures which have the same value?*

This picture has 4 leaves, 3 twigs and 2 conkers.

It is worth (4×36) + (3×6) + 2 conkers = 164 conkers



You may wish to limit the number of leaves used so that the calculation is not too difficult for children.

As a challenge, you could ask children to make a picture that is worth an exact number of conkers.

This activity could be adapted for work in other bases. For example, children could be invited to visit 'Seven-land', 'Eight-land', 'Nine-land' and of course 'Ten-land'.

## Assessment opportunities

Are the children able to:

- Exchange 'one of these' for 'six of those'
- Record each number correctly using the given number base
- Use their number facts to calculate accurately when multiplying and adding whole numbers