

# Maths

## Resource Guide and Teacher's notes

Based on the picture book *Umbrella*, this is a lovely cross-curricular activity which blends maths, literacy and art.

Teaching ideas for a Year 4 class.

**National curriculum links:** Year 4, maths, geometry, shape. **Learning Objective:** Complete a simple symmetric figure with respect to a specific line of symmetry

1. Show the children the picture of the butterfly band in the book. How many instruments can they spot?
2. Tell the children that they're going to help create a new member of the butterfly band: DJ

### **Symmetry! Discuss -**

What kind of character do you think DJ Symmetry is?  
What do you think DJ Symmetry's favourite song is?  
Imagine you are DJ Symmetry and strike a pose! \*  
Does DJ Symmetry have a catch phrase?

3. Show the children *MATHS Resource DJ Symmetry A/B* and tell them that their task is to design some cool wings for DJ Symmetry. Discuss patterns and symbols they might use. You could prepare some pictures to look at for inspiration. For example, you could look at pictures of butterflies and note the patterns they have on their wings such as eyes. You could think about musical imagery and about what designs DJ symmetry might like.
4. Point out the vertical line of symmetry on a butterfly. Explain what it means to be reflected upon a line of symmetry. You could show some symmetrical images to illustrate this. You could use a mirror to show how the image is reflected along the line of symmetry. You could also tell the children that the effect is similar to folding a page over and 'printing' from one side to the other.
5. As a class, have a go at designing some butterfly wings using an enlarged copy of *MATHS Resource DJ Symmetry A/B* (with the wings already drawn). You can ask one child to come up and draw a simple shape on one side and another child to come and draw the symmetrical image on the other side. Model to the children how to use numbers to check symmetry until you feel they are confident enough to have a go independently.
6. If appropriate for your class, show children *MATHS Resource DJ Symmetry C* (without the wings outline drawn) which is more advanced. Tell them they can choose which level they attempt – resource sheet 1 or 2. If children choose resource sheet 2, they might like to look at a copy of the examples Elena has created (*MATHS Resource DJ Symmetry Teacher's Notes- examples of ways of using ABCD*).
7. Children choose their challenge level and complete the design. If you have small mirrors, children can use these to check their design is symmetrical.
8. Cut out the butterflies to display in classroom



Extension challenges –

Try another design this time with 2 lines of symmetry, vertical and horizontal. *MATHS Resource DJ Symmetry D*

Decorate one side of the butterfly then swap with a friend and complete each other's.

\*= Clear the room and use some masking tape to make a symmetry line on the floor. Everyone dances to the beat of the band (Teacher chooses an upbeat favourite track). Then do musical statues with a symmetrical twist: when the music stops, you have 30 seconds to make your poses symmetrical mirroring what is on the other side of the masking tape line. Take turns to decide which side of the line needs to mirror the other side.

Write a rap/song to be performed by DJ symmetry!

Umbrella Resources:

**MATHS Resource: DJ Symmetry A** – with outline of wings drawn.

**MATHS Resource: DJ Symmetry B** – with outline of wings and numbered grid

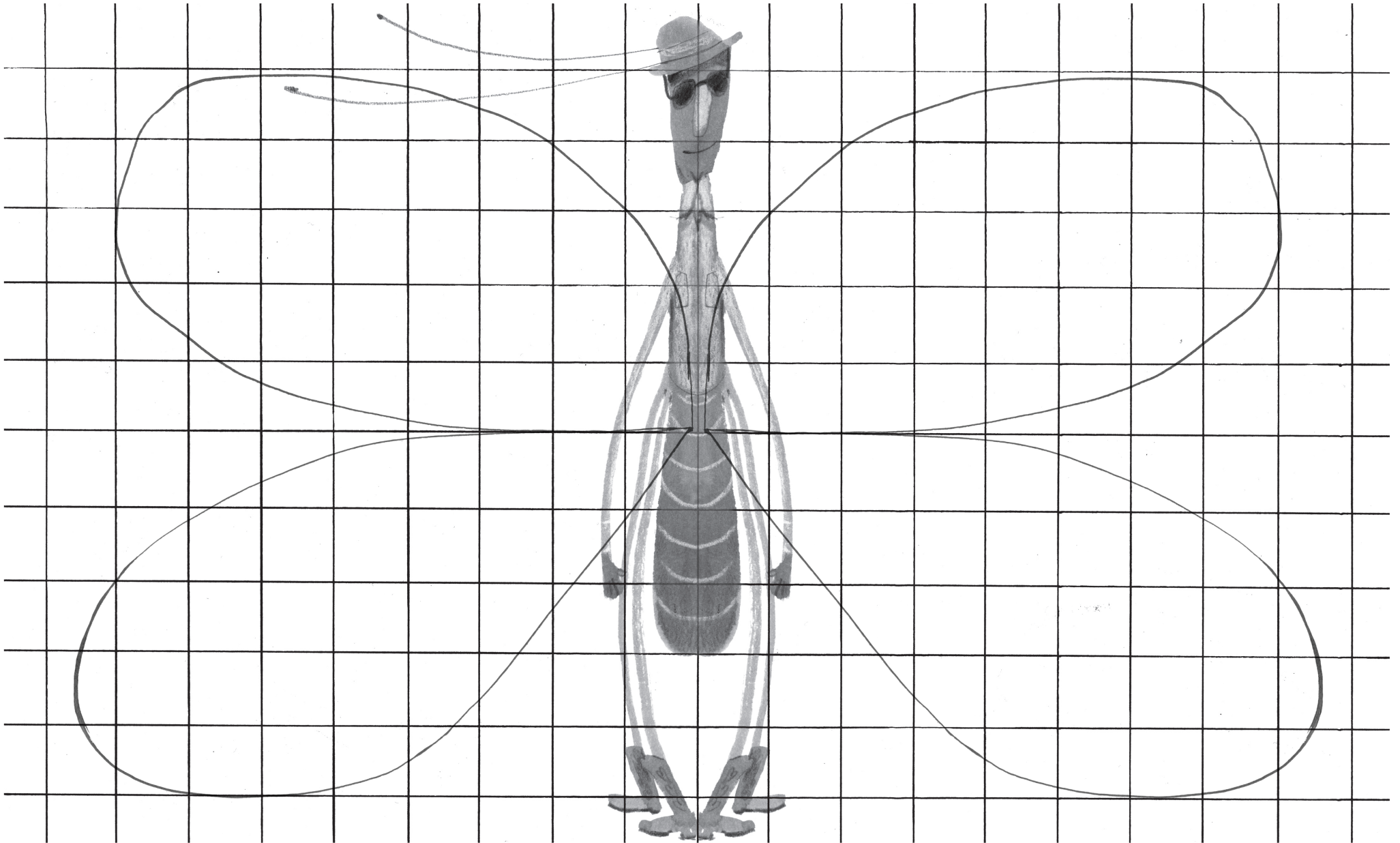
**MATHS Resource: DJ Symmetry C** – no wings drawn and numbered grid

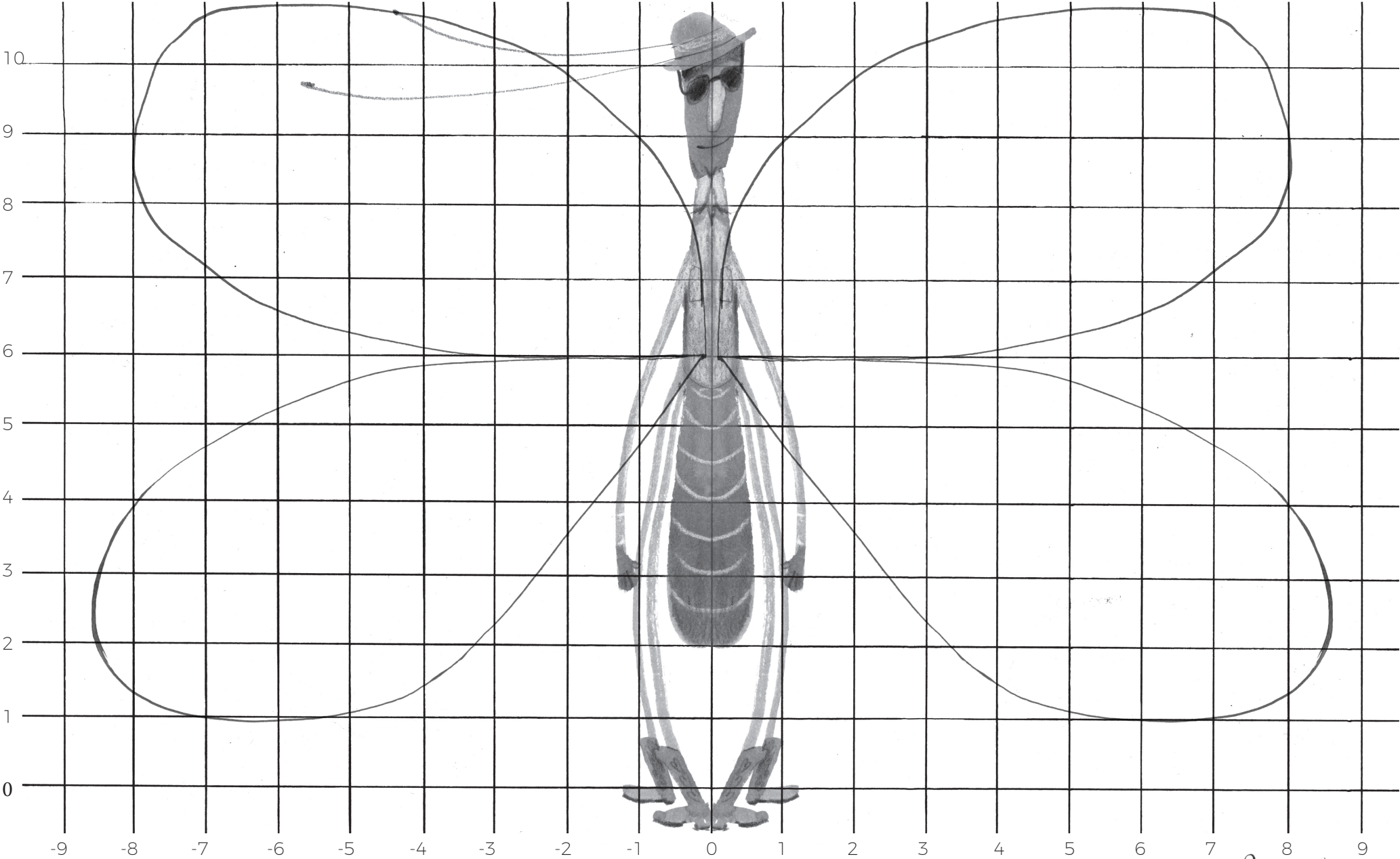
**MATHS Resource: DJ Symmetry D** – no wings drawn and numbered grid including negative numbers (use for symmetry and co-ordinates activities)

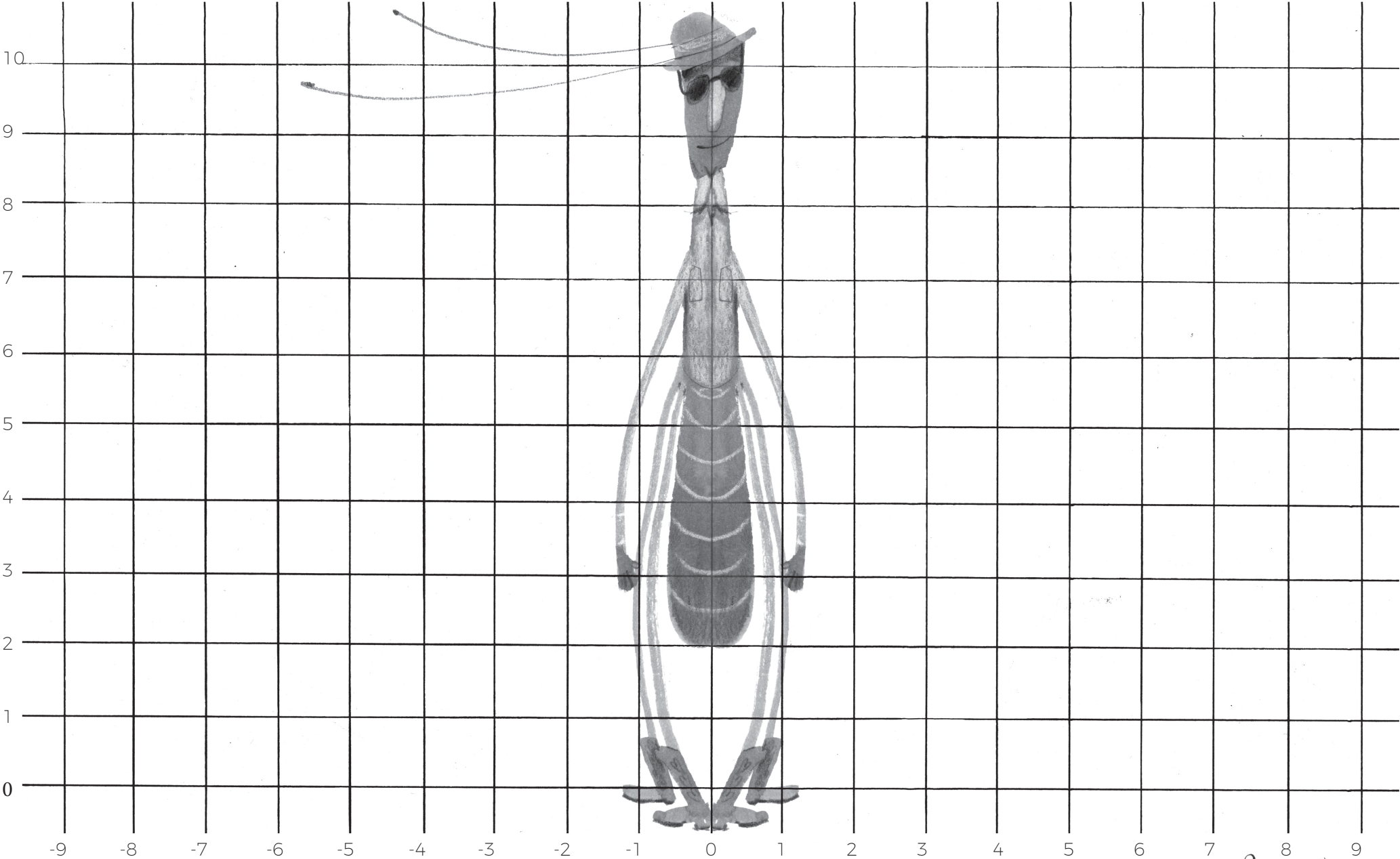
**MATHS Resource: DJ Symmetry Teacher's Notes** – examples of ways of using ABCD



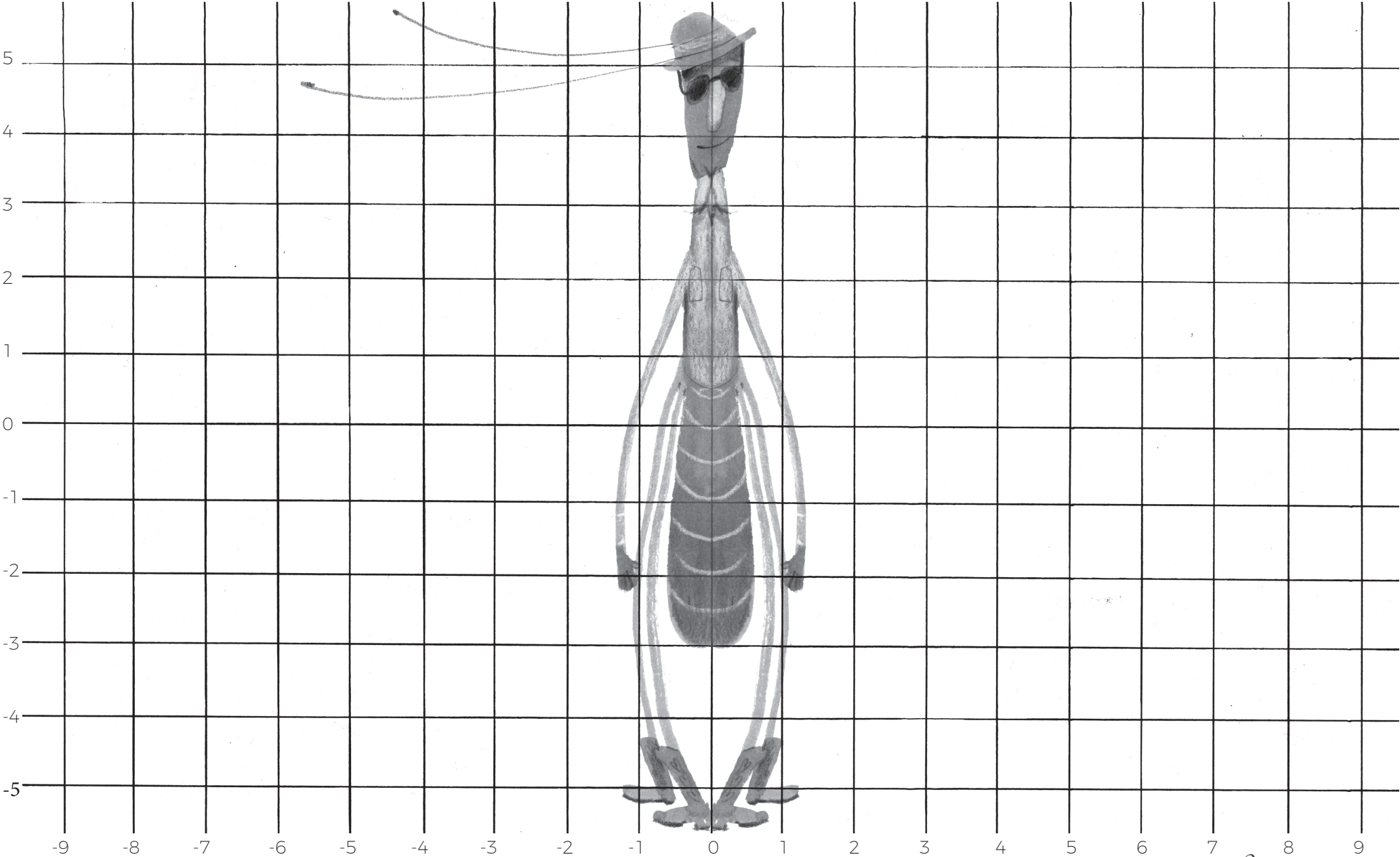
Name: \_\_\_\_\_

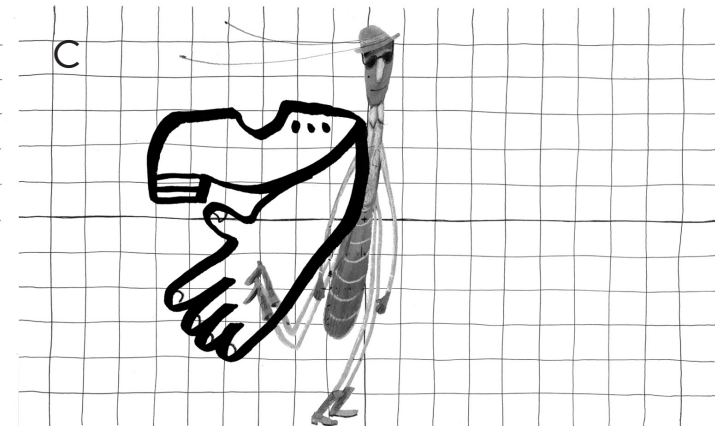
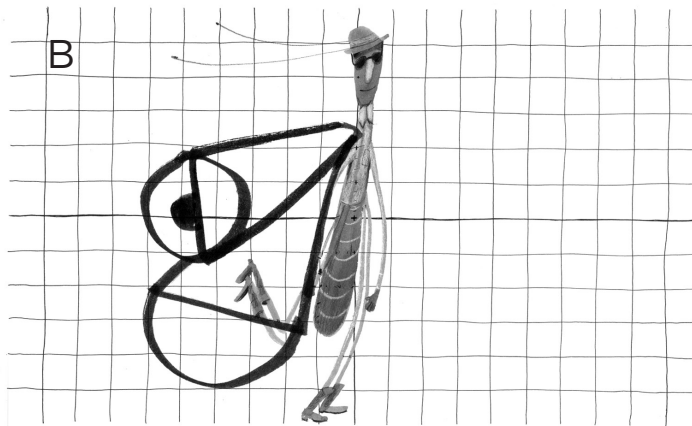
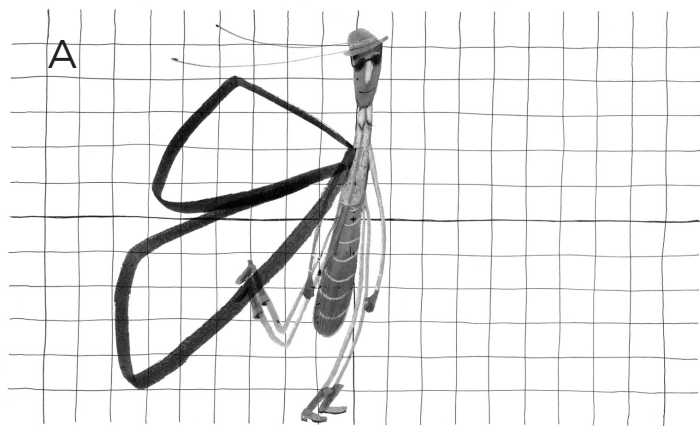




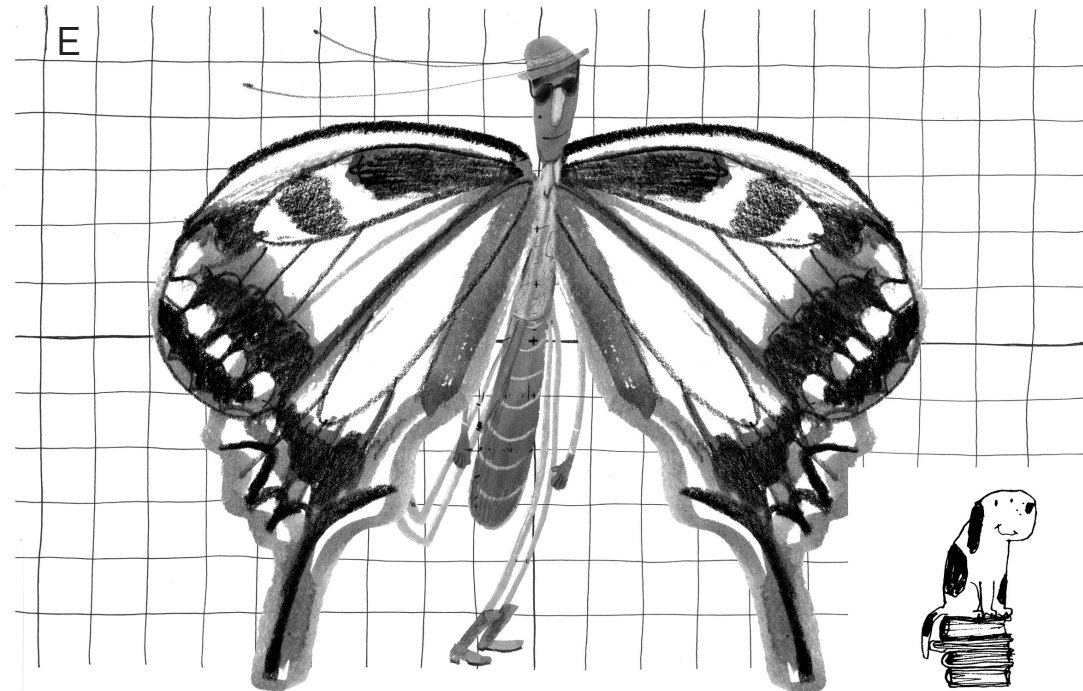
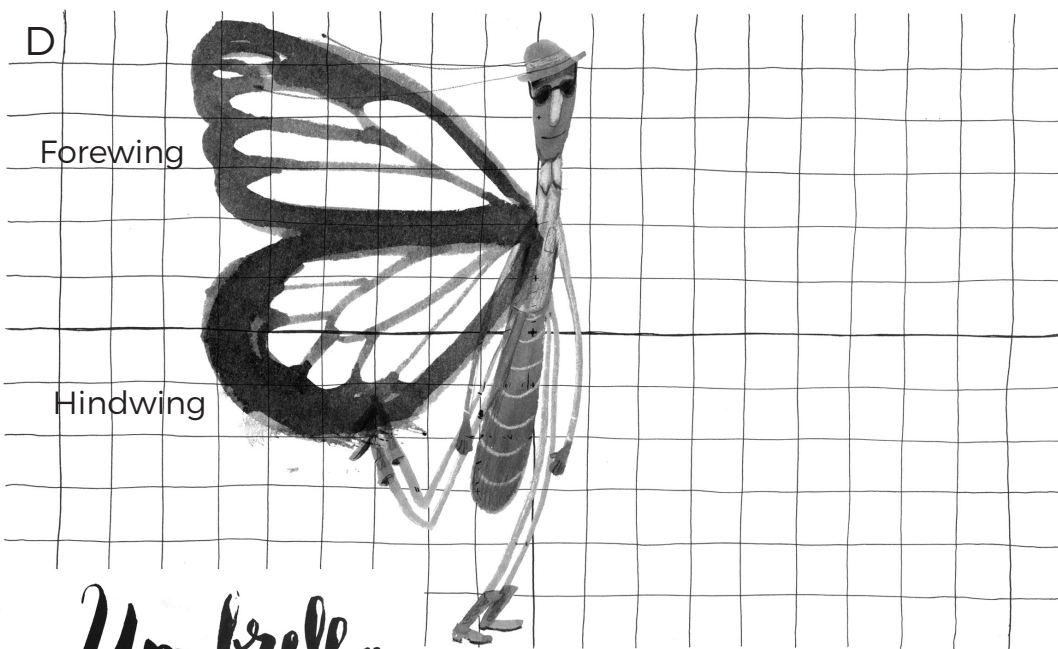








Start by drawing the wing on one side of DJ Symmetry. Use the grid to draw the mirror image of the wing, or use the grid to mark co-ordinate dots to join. Butterflies have two wings on each side, a Forewing and a Hindwing. You can make up the wing shape or research butterfly wings on line as in D and E. You can start with a very simple out-line (A) or use geometric shapes (B) or go for a more imaginative approach and use the shape of objects (C). In pairs one child could draw the left wing and their partner could follow their design to complete the task symmetrically.



*Umbrella*

©ELENA AREVALO MELVILLE

MATHS: DJ Symmetry (Teacher Notes)

**DJ Symmetry examples.**



A book to share from  
Sallywag Press



