

## Activity 6a (Maths): What's this shape?

### Objectives

To help students learn about the value of talk for mathematical thinking and learning.

To enable the teacher to explore productive ways of supporting small group and whole-class discussion.

(‘What’s this shape?’ is the main version of the activity. ‘Can you draw this quadrilateral?’ is a more difficult version which can be used either as a follow-on activity or as an alternative for high-attaining groups.)

### Time

40 minutes.

### Resources

Slide 8: ‘What’s this shape?’ and/or Slide 8: ‘Draw this quadrilateral?; Worksheet 4M: and/or 4M+ for students.

### Activity

*Whole-class activity*

Organise the class into groups of 3 or 4. Hand out **Worksheet 4M: ‘What’s this shape?’**.

Alternatively, use **Worksheet 4M+: ‘Can you draw this quadrilateral?’** if you judge ‘What’s this shape?’ to be too easy for your class.

**If using Worksheet 4M:** Explain that the group work task is to try to decide, as a group, what mathematical terms can be applied to the shape shown and described at the top right. In particular, each group needs to decide which, if any, of the boxed statements about the shape are mathematically correct. Remind the students of the ground rules of the class (and have them visible in class). Each of the statements suggests a mathematical word to describe the shape, and gives a reason for choosing that word. For each statement, the group should discuss (and eventually decide) not only whether or not the choice of word is mathematically correct, but if the reason offered for using it is a sound one. They should make sure that everyone in the group has a chance to put forward their point of view, and that different points of view are properly discussed.

**What's this shape?**

A: It's a diamond, not a square, because its sides are slanting.

B: It's a rectangle because all its angles are right angles.

C: It's not a quadrilateral because all its sides are the same length.

This shape has all its sides the same length and all its angles right angles

**Draw this quadrilateral?**

X: It has exactly one pair of sides that are equal in length.

Y: It has exactly one angle that is a right angle.

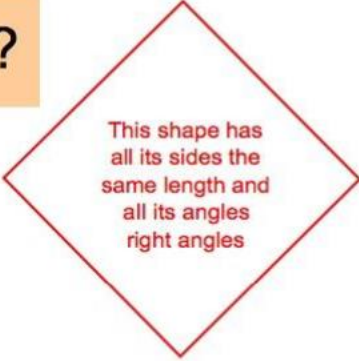
Z: It has exactly one pair of sides that are parallel to each other.

Can you draw a quadrilateral that has all three of these properties?

*(Continued on the next page.)*

## Worksheet 4M: What's this shape? (page 1/2)

### What's this shape?



**A** It's a diamond, not a square, because its sides are slanting.

**B** It's a rectangle because all its angles are right angles.

It's not a quadrilateral because all its sides are the same length. **C**

The box contains some statements about the shape shown at the top right.

Discuss these statements in your group.

Decide, as a group, whether to agree or disagree with each statement and how best to explain your reasons.

Come up with a better statement if you can.

Use the table on the back of this sheet to record your conclusions.

Later on this will help your group to contribute to discussion in class.

## Worksheet 4M: What's this shape? (page 2)

<i>STATEMENT A</i>
<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>
<i>BETTER STATEMENT</i>

<i>STATEMENT B</i>
<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>
<i>BETTER STATEMENT</i>

<i>STATEMENT C</i>
<i>DECISION (Agree or disagree)</i>
<i>REASONS</i>
<i>BETTER STATEMENT</i>