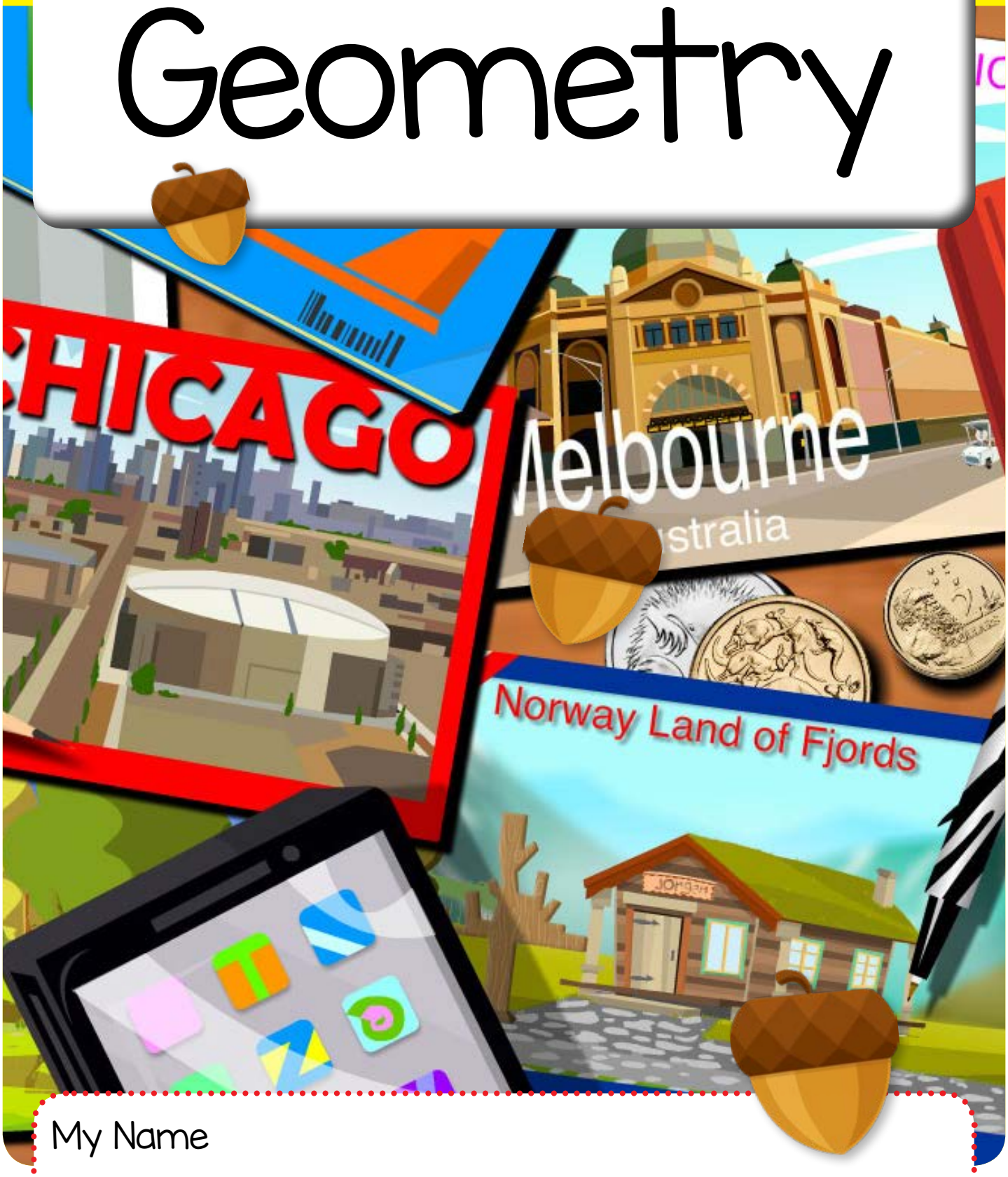
SERIES D STUDENT BOOK

Geometry



My Name

www.mathseeds.com.au

Mathseeds Geometry Series D Student Book

ISBN: 978-1-74215-386-5

Copyright © Blake eLearning 2020

Blake Publishing
Locked Bag 2022
Glebe NSW 2037
www.blake.com.au

Publisher: Katy Pike
Written by Megan Smith
Design and layout by the Modern Art Production Group

Reproduction and communication for educational purposes
The Australian *Copyright Act 1968 (Cth)* (the Act) allows a maximum of one chapter or 10% of the pages of this work, whichever is the greater, to be reproduced and/or communicated by any educational institution for its educational purposes provided that the educational institution (or the body that administers it) has given a remuneration notice to **Copyright Agency Limited** (CAL) under the Act. For details of the CAL licence for educational institutions contact:

Copyright Agency
Level 12, 66 Goulburn Street
Sydney NSW 2000
Australia
Phone: +612 9394 7600
Fax: +612 9394 7601
E-mail: memberservices@copyright.com.au

Reproduction and communication for other purposes
Except as permitted under Australian *Copyright Act 1968 (Cth)* (the Act), for example a fair dealing for the purposes of study, research, criticism or review,) no part of this book may be reproduced, stored in a retrieval system, communicated or transmitted in any form or by any means without prior written permission. All inquiries should be made to the publisher at the address above.

All material identified as **Australian Curriculum** is material subject to copyright under the Act and is owned by the Australian Curriculum, Assessment and Reporting Authority (ACARA) 2019. For all Australian Curriculum material, this is an extract from the Australian Curriculum.

Disclaimer: ACARA neither endorses nor verifies the accuracy of the information provided and accepts no responsibility for incomplete or inaccurate information. In particular, ACARA does not endorse or verify that:

- The content descriptions are solely for a particular year and subject;
- All the content descriptions for that year and subject have been used; and
- The author's material aligns with the Australian Curriculum content descriptions for the relevant year and subject.

You can find the unaltered and most up to date version of this material at http://www.australiancurriculum.edu.au
This material is reproduced with the permission of ACARA.

Contents

Topic 1: 3D objects

Page		Date Completed
1	• Basic 3D objects	/ /
2	• Prisms	/ /
3	• Pyramids	/ /
4	• Cube nets	/ /
5	• Nets	/ /
6	• Prisms and pyramids	/ /
7	• 3D objects	/ /
8	• Who am I? problems	/ /
9	• 3D games	/ /

Topic 2: Angles

Page		Date Completed
10	• Angles	/ /
11	• Right angles	/ /
12	• Perpendicular lines	/ /
13	• Angle sizes	/ /
14	• Comparing angles	/ /
15	• Angles in objects	/ /
16	• Angle problems	/ /
17	• Angles games	/ /

Mathseeds © Blake eLearning

Contents

Topic 3: 2D shapes

Page		Date Completed
18	• Polygons	/ /
19	• Parallel lines	/ /
20	• Quadrilaterals	/ /
21	• Quadrilateral descriptions	/ /
22	• Quadrilateral comparisons	/ /
23	• Angles in shapes	/ /
24	• Regular and irregular shapes	/ /
25	• 2D shape sudoku	/ /
26	• Guess my shape game	/ /

Topic 4: Symmetry

Page		Date Completed
27	• Symmetrical or not?	/ /
28	• Lines of symmetry	/ /
29	• Identify symmetry	/ /
30	• Symmetry in shapes	/ /
31	• Symmetry problems	/ /
32	• Symmetrical pictures	/ /

Mathseeds © Blake eLearning

Topic 5: Location

Page		Date Completed
33	• Location	/ /
34	• Compass directions	/ /
35	• Directions	/ /
36	• Coordinates	/ /
37	• Map reading	/ /
38	• Make a map	/ /
39	• Map problems	/ /
40	• Coordinate games	/ /

Resources

Page	
41	• Grid paper
42	• 10 x 10 coordinate grids
43	• 10-sided spinner

Mathseeds © Blake eLearning

In this book

The **Mathseeds** program teaches children the core maths and problem solving skills needed to be successful at school.

Each online lesson begins by introducing and modelling a mathematical concept. The child then completes a wide range of activities to practise the new skill. These activities present the content in many different ways, so children learn to use and apply each new skill in a variety of situations.

This book is designed to supplement the online program with more exercises in the core mathematical concepts. Each unit focuses on a topic within the main learning strand, presenting a series of pen and paper activities, word problems, puzzles and games to practise their skills and understanding.

The topics in this book align with the following components of the Australian Curriculum:

Australian Curriculum content codes and descriptions

ACMMG063 - Make models of three-dimensional objects and describe key features

ACMMG064 - Identify angles as measures of turn and compare angle sizes in everyday situations

ACMMG065 - Create and interpret simple grid maps to show position and pathways

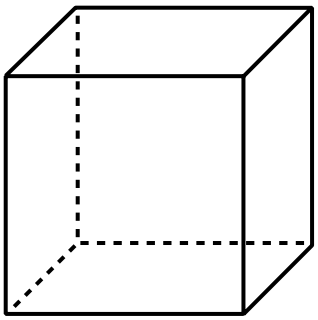
ACMMG066 - Identify symmetry in the environment

Basic 3D objects

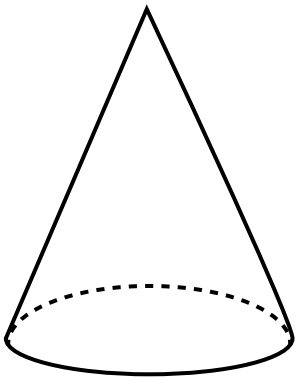
3D objects

1 Name the 3D objects.

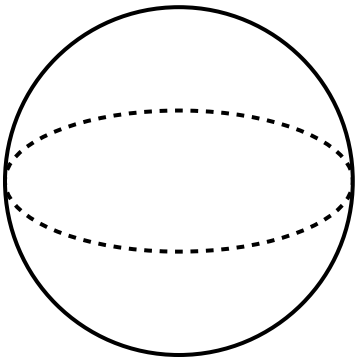
a



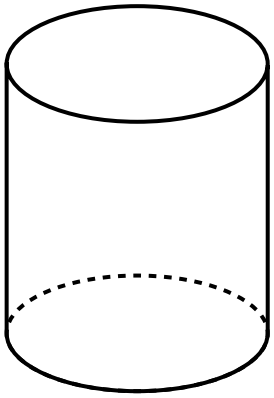
b



c



d



2 Which 3D objects have a curved surface? _____

3 Count the flat faces in these objects:

a _____ **b** _____ **d** _____

4 Count the edges in each object:

a _____ **b** _____ **c** _____ **d** _____

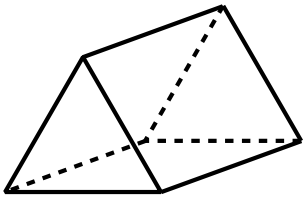
5 Which 3D object has 8 vertices? _____

Mathseeds © Blake eLearning

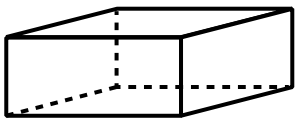
Prisms

1 Colour the end faces of these prisms. **2** Name each prism.

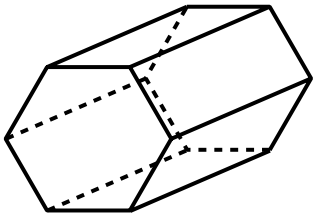
a



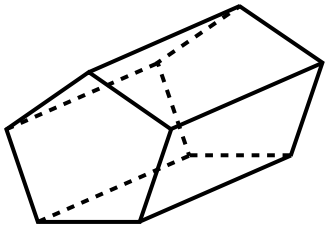
b



c



d



3 Draw the faces for each prism.

Prism	Faces							
a Triangular								
b Rectangular								
c Hexagonal								
d Pentagonal								

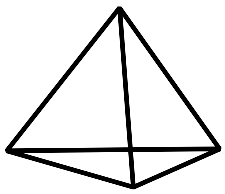
4 Sometimes the end face of a prism is called a "base". Colour the base shapes in the chart above.

5 What do you notice about all the other faces?

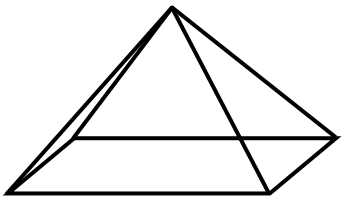
Pyramids

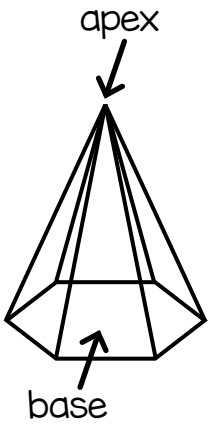
1 Colour the bases of these pyramids. **2** Name each pyramid.

a

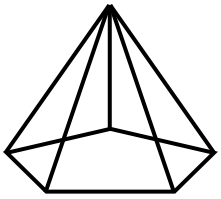


b

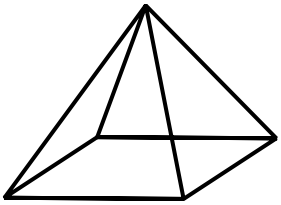




c



d



3 What does a pyramid have that a prism does not? _____

4 Draw the faces for each pyramid.

Prism	Faces							
a Triangular								
b Rectangular								
c Pentagonal								
d Square								

5 Colour the base shapes in the chart above.

6 What do you notice about all the other faces?

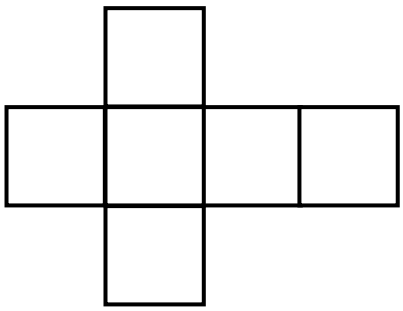
_____

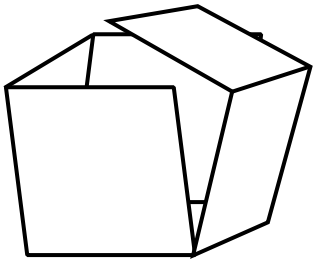
_____

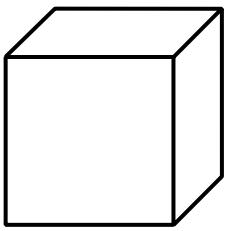
Mathseeds © Blake eLearning

Cube nets

This is a cube net. It has 6 square faces.
It folds up to make a cube.





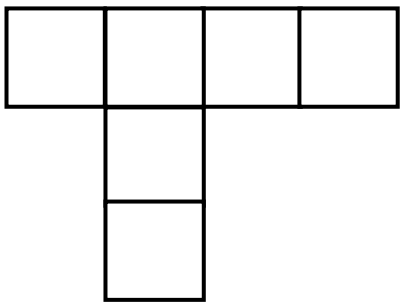


1 Some of the nets below fold up to make a cube.

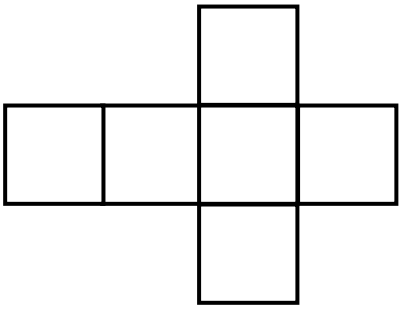
Some do not. Colour the cube nets in blue.

Try to imagine folding them up, or you could copy the nets onto spare paper, cut them out and try folding them up.

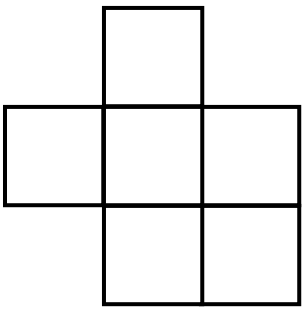
a



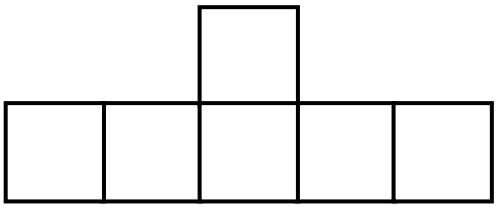
b



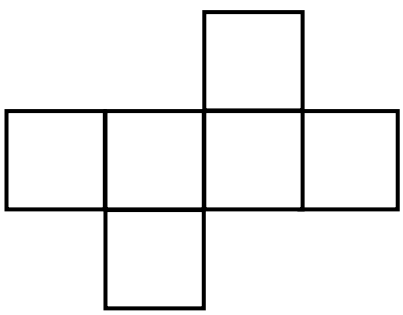
c



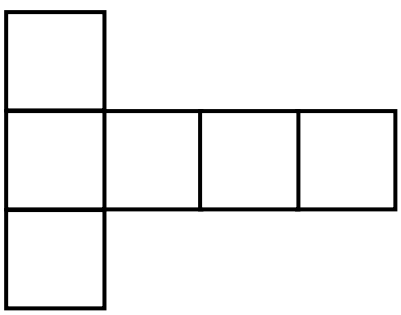
d



e



f

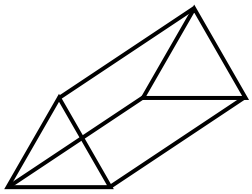


Mathseeds © Blake eLearning

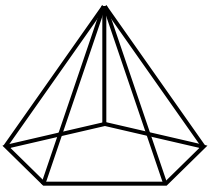
Nets

1 Name the 3D objects. **2** Match the 3D objects to their nets.

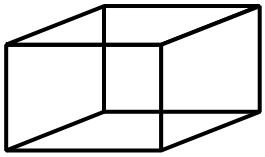
a



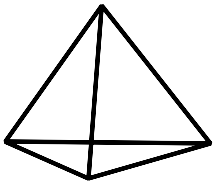
b



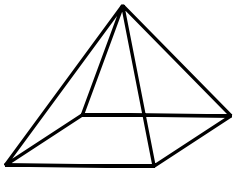
c



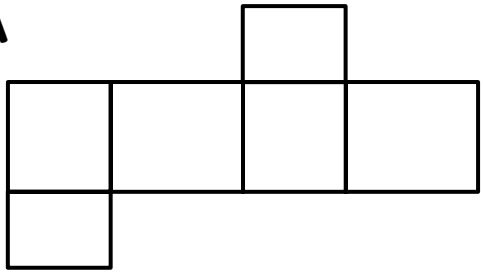
d



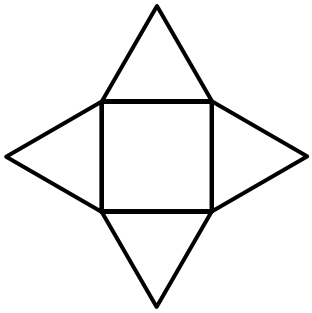
e



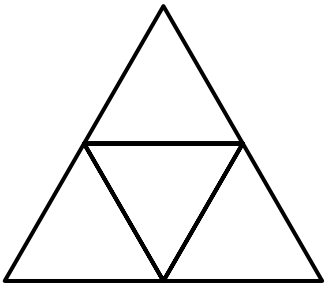
A



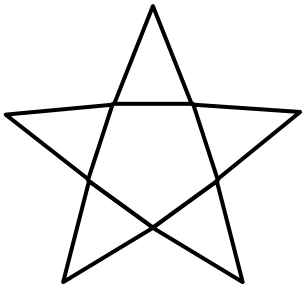
B



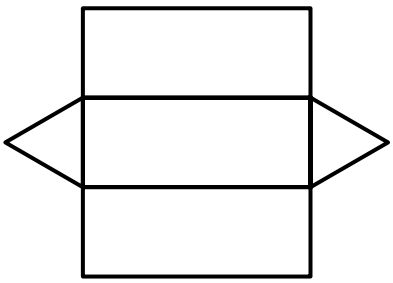
C



D



E



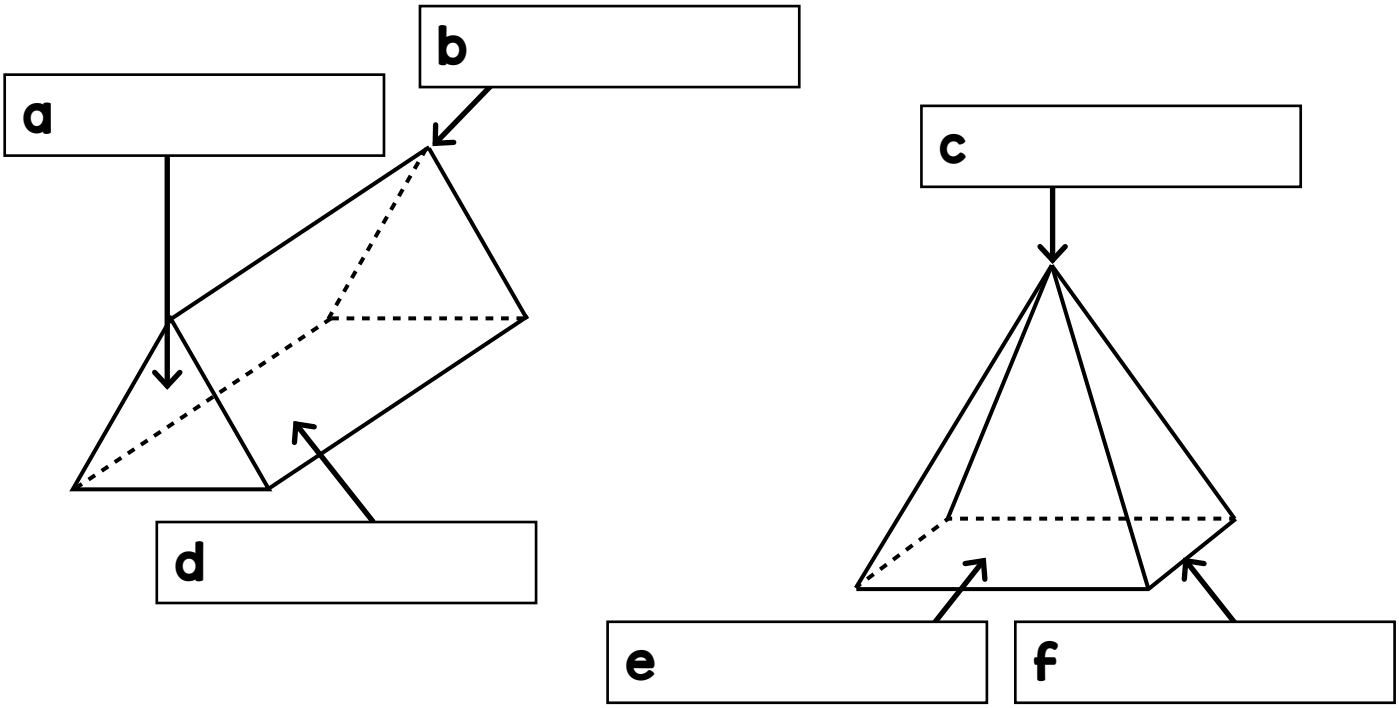
Mathseeds © Blake eLearning

Prisms and pyramids

1 Label the features of these 3D objects. Use the word bank.

Word bank

vertex base face apex edge



2 Draw the net for these 3D objects.

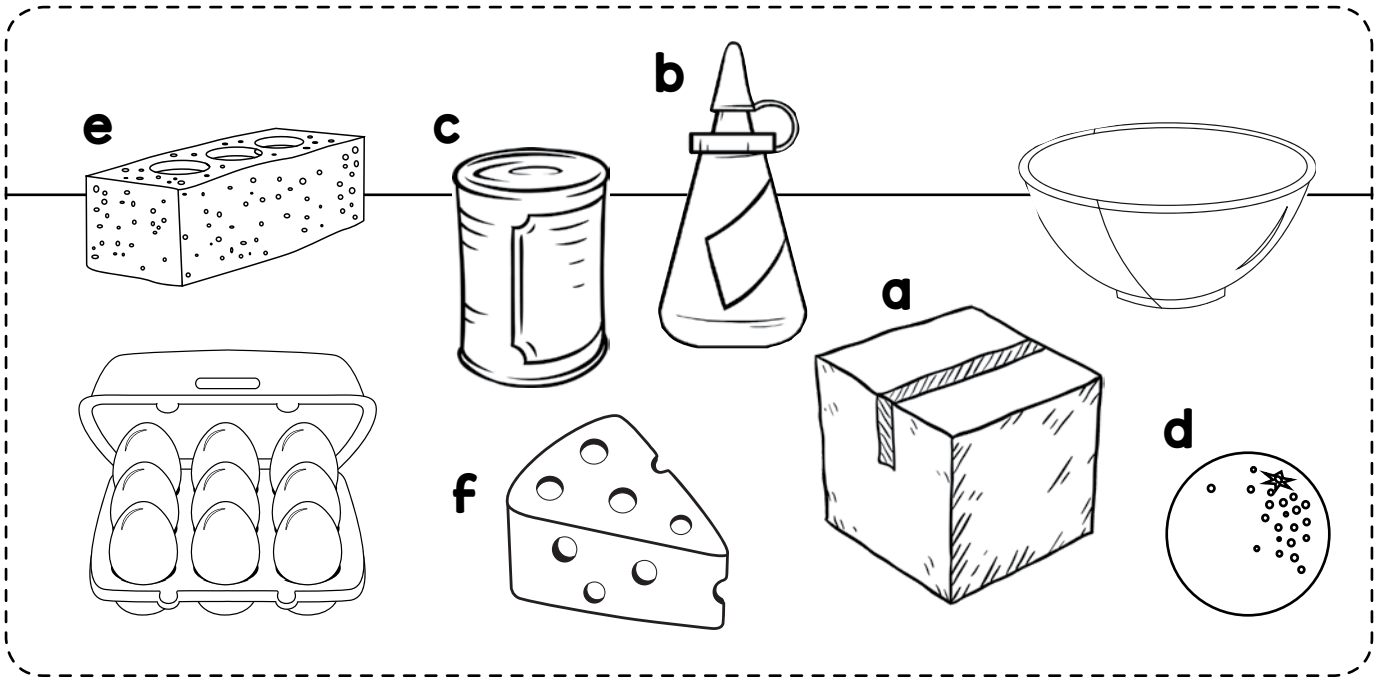
a square prism

b rectangular pyramid

Mathseeds © Blake eLearning

3D objects

1 Name the shape of the 3D objects in the picture.



a _____ **b** _____

c _____ **d** _____

e _____ **f** _____

2 Draw a real-life item for these 3D objects:

a pyramid

b cylinder

Mathseeds © Blake eLearning

Who am I? problems

3D objects

1 Use the clues to name and draw each 3D object.

a I have an apex and a base.
I have 1 curved surface
and 1 flat face.

I am a _____.

b I have 6 flat faces.
They are all the same shape and size.
I have 8 vertices.

I am a _____.

c I have one curved surface.
I also have 2 flat faces
and 2 edges.

I am a _____.

d I have an apex and a base.
My sides are all triangles
and there are 4 of them.

I am a _____.

e I have 7 flat faces.
Most of my faces are rectangles
but two are pentagons.

I am a _____.

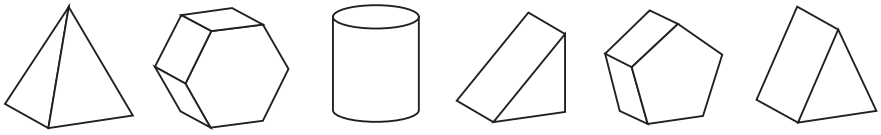
Mathseeds © Blake eLearning

3D games

I SPY

Play with a group of 4 or more. No equipment needed.

1. One person is the 'spy'. The spy describes an object in the room, using only geometrical terms for 3D objects, eg faces, surfaces, curved, flat, edges, apex, base, vertices.
2. Everyone else tries to guess what the object is.
3. When someone guesses correctly, it is their turn to be the spy. If no one guesses, the spy gets another turn. (Any disputes about the accuracy of the spy's description should be settled by a group vote.)



3D BINGO

Play in small groups or as a class. You all need pen and paper.

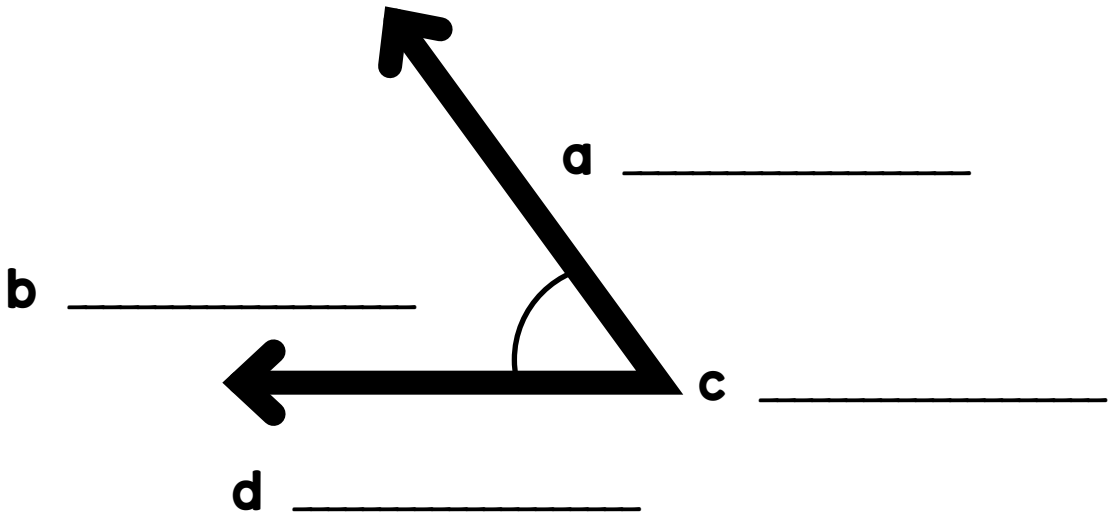
1. One person is the 'caller'. They run the game for the players.
2. Each player rules up a grid, four columns across and four rows down. In each square draw a 3D object (you can repeat objects).
3. The caller calls out a feature of a 3D object, eg 'I curved surface, 6 flat faces, 2 edges, an apex, 6 vertices, a square base ...'
4. Anyone who has that feature in one or more of the shapes on their grid can cross off I shape.
5. Repeat steps **3** and **4** until someone has a complete row or column crossed off and calls 'Bingo!' The winner becomes the caller for the next game.

Mathseeds © Blake eLearning

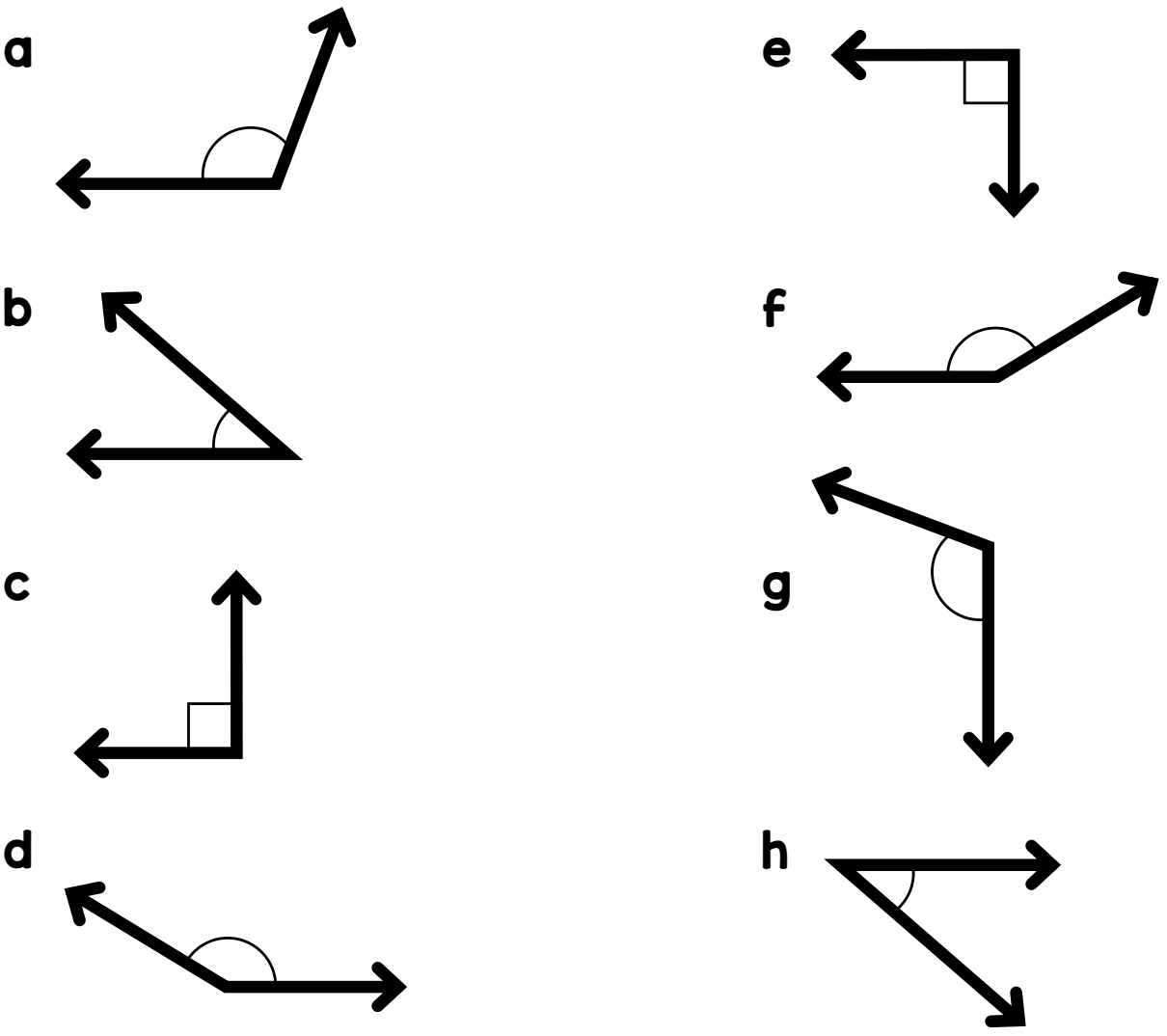
Angles

1 Name the parts of the angle.

arm
angle
vertex
arm



2 Connect the angles that are the same size.



Mathseeds © Blake eLearning