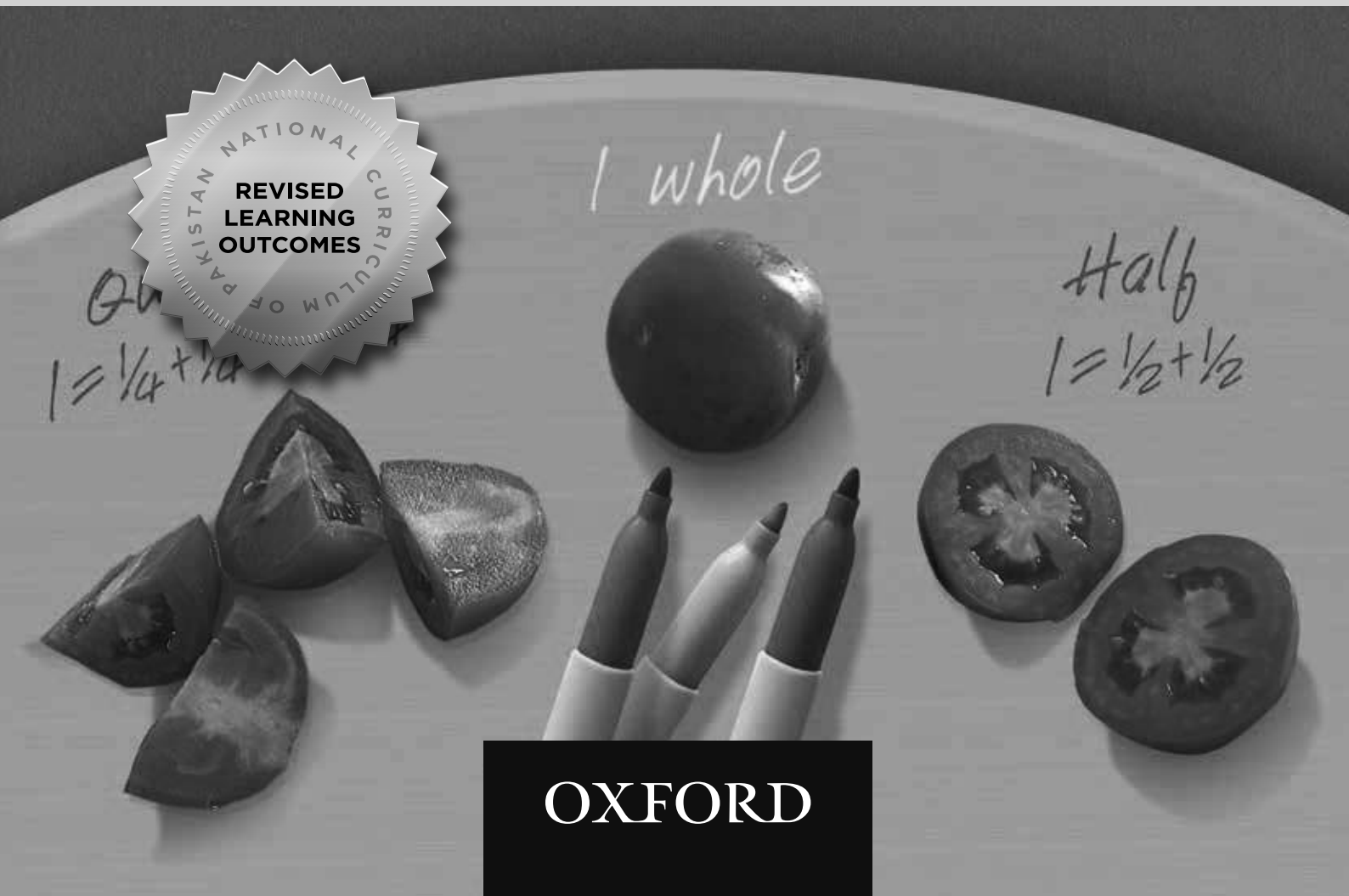


MATHS WISE



OXFORD

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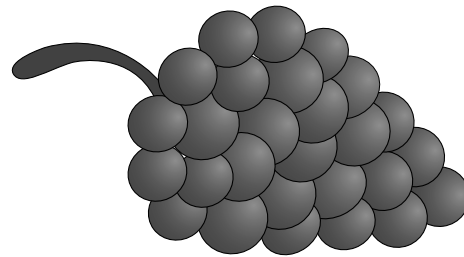
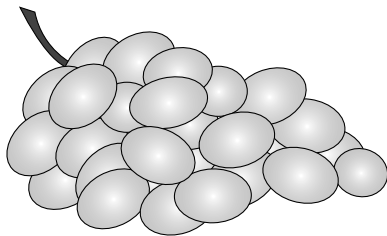


Estimation/Rounding off

▶ Estimation is an approximate calculation of numbers, values, and quantities etc.

By estimating you guess an approximate value of measurements, amount of money, and distance covered etc.

Can you guess which bunch of grapes is heavier?



Guess the time taken by you, to reach the school.

- about 30 seconds
- about 4 hours
- about 25 minutes

Estimation is rounding off a number to simpler presentation which is not exact but near to the required result.

▶ There are certain rounding rules which we apply to round off a number.


▶ Rounding off to the nearest 10

To round off a number to the nearest 10, we will look at the ones place.

If the digit at the ones place is less than 5, then number at tens place is left as it is and all the digits after tens place will become zero. This is known as rounding down.

If the digit at ones place is greater than or equal to five, then 1 is added to the digit at tens place. All the digits after tens place become zero. This is known as rounding up.





► Rounding off to the nearest 100

For rounding off to the nearest 100, we look at the tens place and follow the same steps as mentioned above.

Example: Round off 573 to the nearest 10 and 100.

Rounding off to the nearest 10

The number at ones place is 3, which is less than 5. Number 3 will be replaced by zero.

573 will be rounded down to 570.

Rounding off to the nearest 100

The number at tens place is 7, which is greater than 5. One will be added to 5 and all digits after 5 will be replaced by zero.

573 will be rounded up to 600.

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Exercise 21

► Round off the following numbers to the nearest 10.

1. 546 2. 807 3. 935 4. 477 5. 350

Exercise 22

► Round off the following numbers to the nearest 100.

1. 109 2. 276 3. 895 4. 963 5. 777

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Line Segments to Nearest Centimetres and Millimetres

► Several objects like pens, pencils, sticks, shoes, rulers and so on, can be measured conveniently in centimetres (cm) and millimetres (mm).



cm



cm



cm



cm

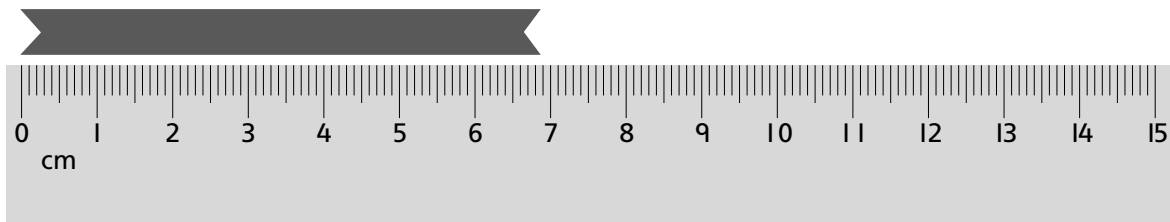


mm



mm

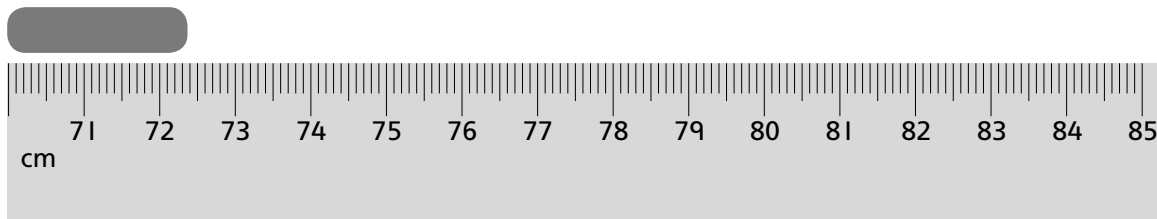
- ▶ We use a centimetre or millimetre scale to measure the objects to the nearest whole centimetre cm or millimetre mm. Take a piece of ribbon and measure it with a centimetre scale. The length of the ribbon is not exactly 7 cm but it is closer to 7 cm and away from 6 cm. We say that, length of the ribbon is 7 cm.



- ▶ To measure an object to the nearest centimetre, we measure the object with a centimetre scale. If the length is at or over the half centimetre mark, round up the number. If not, we round down.
- ▶ Similarly, smaller objects can be measured on a millimetre scale.

Example:

- Find the length of the following object to the nearest centimetre.



The reading is closer to 72 cm than to 73 cm.

So, the length of the given object to the nearest centimetre is 72 cm.

Similarly, we can measure to the nearest millimetre by using metric scale with millimetres.

Exercise 1

- Measure the length of the following lines to the nearest centimetre and millimetre.

1.

2.

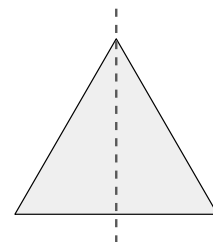
3.

4.

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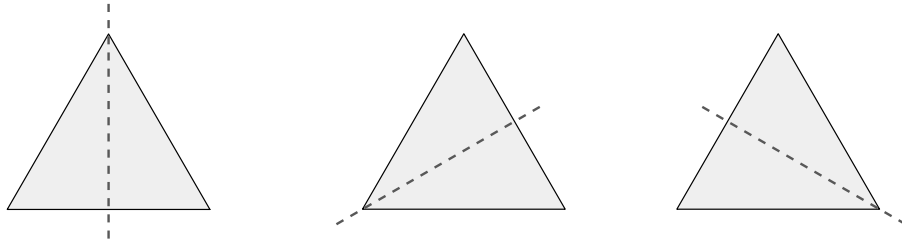
Symmetry

- Take a cut-out of a triangle with all sides equal. Fold it along one of the corner and opposite side. The folding line will divide the triangle in two equal parts. The folding line is **the line of symmetry** and triangle is said to have a **symmetry**.



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There are 3 lines of symmetry in the triangle which are shown below.

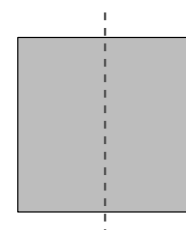
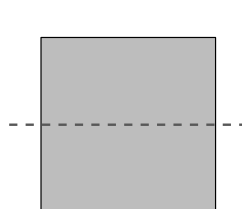
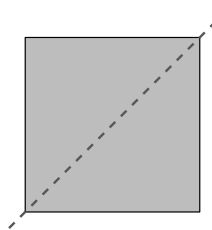
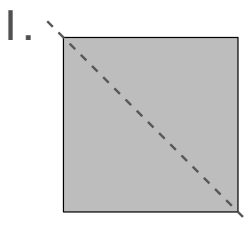
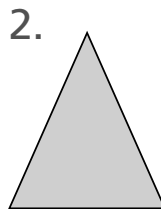
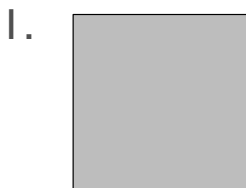


When we fold along the line of symmetry, both parts will exactly be the same.

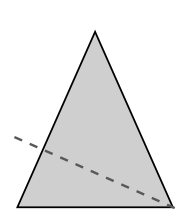
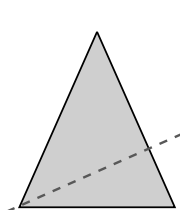
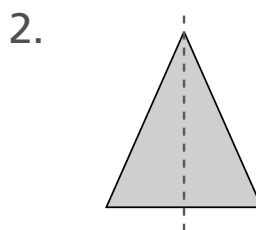
The shapes which have symmetry are called **symmetric shapes**.

The symmetry which divides a shape into two identical parts which are mirror image of each other is called **reflective symmetry**.

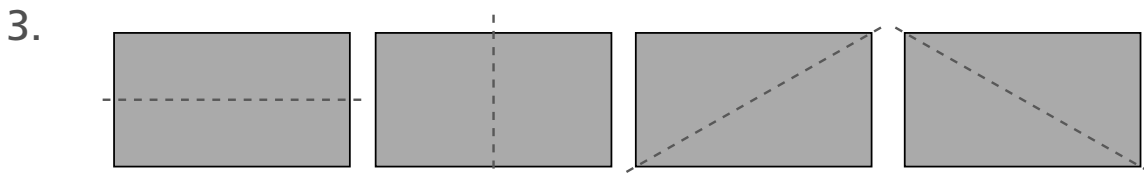
► Mark the lines of symmetry in each figure below.



The square has 4 lines of symmetry.



There is only one line of symmetry in the given triangle.



The rectangle has 2 lines of symmetry.

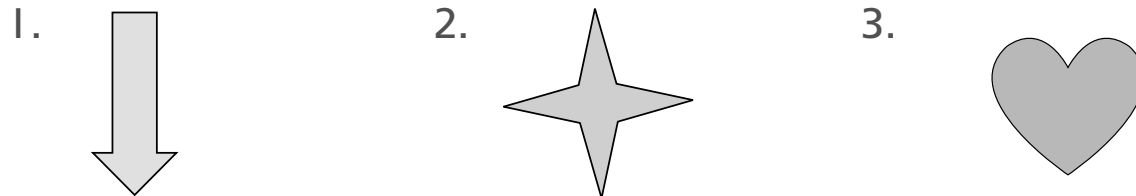
Exercise 7

Are the dotted lines on the shapes, line of symmetry?



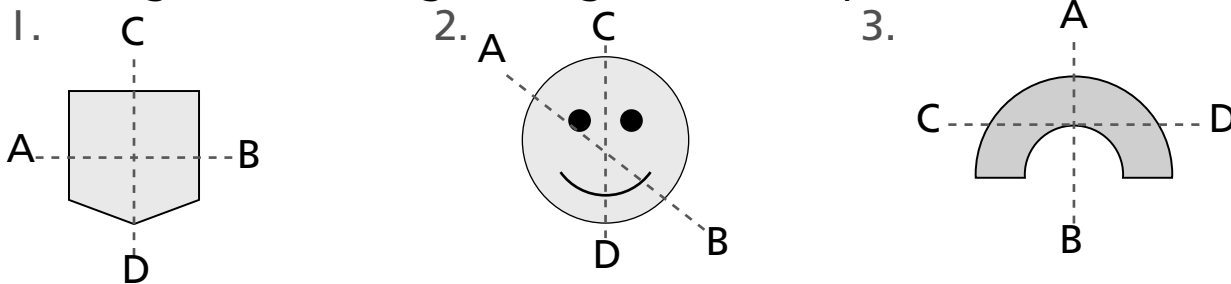
Exercise 8

Draw the lines of symmetry in the following figures and write how many are there for each shape?



Exercise 9

Identify the line of symmetry in each shape.



Three-dimensional Objects

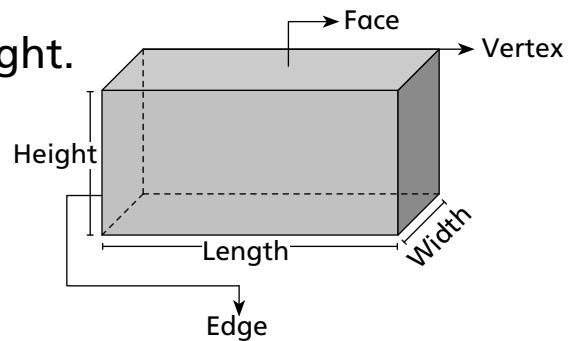
A three-dimensional or 3-D object is an object with three dimensions: a length, a width, and a height.

3-D shapes are made up of faces, edges, and vertices.

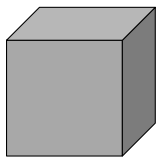
- The flat part of a 3-D shape is called the face of the shape.
- The straight line that separates the faces is called the edge.
- The vertices are the corners of the shape.

A cuboid has length, width, and a height.

It is important to note that a face must be flat, so a sphere technically does not have a face, it has a curved surface.

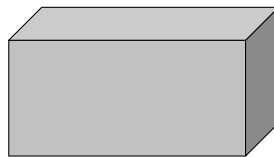


▶ Three-dimensional shapes can be of different types.



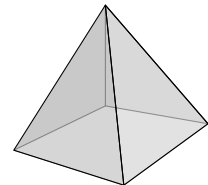
This is a cube.

- All sides are equal.
- It has 6 faces.
- It has 12 edges.
- It has 8 corners.



This is a cuboid.

- It has two opposite sides equal.
- It has 6 faces.
- It has 12 edges.
- It has 8 corners.



This is a pyramid.

- It has a square base.
- It has 5 faces, 1 square face and 4 triangular faces.
- It has 8 edges.
- It has 5 corners.

Examples:

▶ We see three-dimension objects all around us.



Egyptian dome-pyramid



Shoe box-cuboid



Soda can-cylinder



Dice-cube



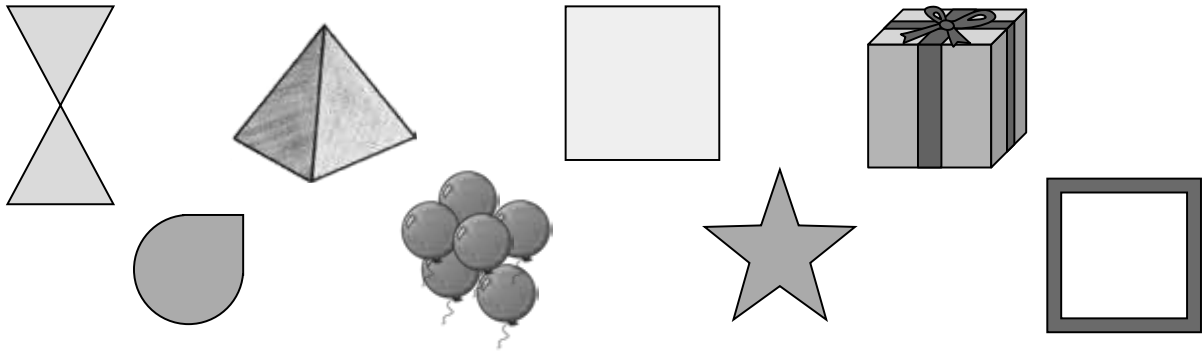
Ice-cream cone-cone



Globe-sphere

Exercise 10

► Identify 3-D objects from the following figures.



Exercise 11

► Complete the following statements.

1. A book is a _____ dimensional object.
2. A cuboid has _____ faces and _____ edges.
3. A cube and a cuboid have _____ number of edges and faces.
4. A pyramid has _____ flat faces and _____ edges.

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Carroll Diagram

► A Carroll diagram is a method of sorting objects, numbers, and shapes with more than one criterion. It is a four-square diagram and allows to sort data with more than two criteria into boxes.

Example:

Let us use Carroll diagram to sort the following vegetables with two traits i.e. colour and seeds.



	With seeds	Without seeds
Red Vegetables		
Green Vegetables		

Tally charts

A tally chart is a method of collecting data using tally marks in group of five. The initial data is recorded using tally marks, and every fifth tally is drawn diagonally as shown below.



These tallies can then be counted to organise the data.

Examples:

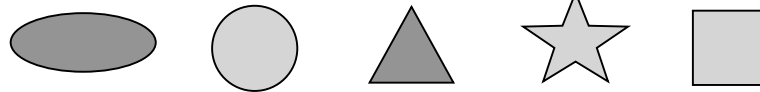
Draw tally marks for each number of objects. Then write the total numbers. The first one has been done for you.

Objects	Tally marks	Numbers	Objects	Tally marks	Numbers
		10			

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Exercise 13

Sort the shapes in the Carroll diagram.



	With curved surface	With straight surface
Blue shapes		
Green shapes		



Maths Wise meets the objectives of the Pakistan National Mathematics Curriculum. The contents of the course meet the requirements of other mathematics curricula as well.

Mathematics has always been central to a child's education and is a vital tool in dealing with real-life problems. The main objective of this course is to present lessons in a simple but interesting manner so that students make their own discoveries with some help from the teacher. Each lesson is preceded by a practical activity that helps learning through discovery.

Key features:

- An interactive teaching method is used. Lessons include real-life, multi-sensory learning situations.
- The colourfully illustrated books are attractive to learners.
- Plenty of exercises and suggestions for extra activities are included, which provide sufficient problem-solving practice for each concept.
- Great emphasis is placed on allowing each student to learn at his/her own pace.
- Teaching Guides, which include extra worksheets, indicate how lessons can be taught in order to derive maximum learning. Suggestions for making attractive charts and a Maths Lab are also included in the Guides.

Components:

- Introductory Books 1, 2, and 3
- Books 1 - 8
- Teaching Guides for all levels (available in print as well as on OUP website.)
- Wall charts for Introductory Books 1, 2, and 3

Supplementary reading:

OUP's *Oxford First Maths Dictionary* is recommended as reference material for primary level.

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