20 Mensuration - 2D Figures

Objectives:

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| Calculate the perimeter and area of quadrilaterals, triangles and circles using formulae |
| Calculate area and perimeter of complex rectilinear and circular closed figures |

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| Content | Teacher's Activity  | Student's Activity | Assignments | Class |
| IntroductionIGCSE: Chapter 7NIOS: Chapter 20  | * + Ask students for definitions of the terms: perimeter and area of closed figures
	+ Discuss examples where perimeter and area are required in daily life
 | * + Explain the meaning of perimeter and area, giving examples of their use in our lives
 |   | 1 |
| Perimeter and Area of quadrilaterals and trianglesIGCSE: 7.1 NIOS: 20.1  | * + Revisit the perimeter and area formulae for common quadrilaterals: square, rectangle, parallelogram, trapezium, rhombus
	+ Revisit the perimeter and area formulae for triangles
	+ Work out examples to calculate area and perimeter for quadrilaterals and triangles
 | * + Calculate perimeter and area for common quadrilaterals and triangles using formulae

  | * + Ex 7.1 (1, 3, 5, 7, 8)
	+ Ex 20.1

  | 1, 2 |
| Heron's FormulaNIOS: 20.2 | * + Work through the process of calculating the area of a triangle, given its three sides
	+ Provide a simpler alternative to the above using Heron's formula to calculate the area of a triangle given the lengths of its sides
	+ Work out examples to calculate area of a triangle using heron's Formula
 | * + Calculate the area of a triangle given the length of its sides

  | * + Textbook examples
	+ Ex 20.2
 | 3 |
| Perimeter and Area of complex rectilinear closed figuresIGCSE: 7.1NIOS: 20.3 | * + Explain how complex rectilinear closed figures (closed figures bound by straight lines) can be broken down into simple, familiar shapes
	+ Work out examples to compute the perimeter and area of complex rectilinear figures by finding the perimeter and area of the simpler figures that make up the complex figure
 | * + Calculate the perimeter and area of complex rectilinear figures by breaking them into simple, familiar shapes

  | * + Ex 7.1 (2, 4, 6)
	+ 20.3 textbook examples
	+ Ex 20.3
 | 4 |
| Circumference and Area of CirclesIGCSE: 7.1NIOS: 20.4   | * + Revisit the formula for circumference and area of a circle
	+ Briefly explain the history of π. Point out that for practical purposes, we will use an approximate value of this irrational number (22/7 or 3.142)
	+ Through examples, show how the circumference and area of calculated for circles as well as combination figures including circles, quadrilaterals and triangles
 | * + Calculate the circumference and area of circular figures
	+ Calculate the circumference and area of complex figures including circles, quadrilaterals and triangles
 | * + Ex 7.2
	+ Example 20.13, 20.14
	+ Ex 20.4

  | 5, 6 |
| Arcs and Sectors  | * + Revisit the definitions of sector, arc, central angle, minor and major sectors
	+ Derive the formula for arc length, perimeter of a sector and area of a sector
	+ Work out examples to compute the perimeter and area of sectors as well as complex figures including sectors and other shapes
 | * + Calculate the arc length, perimeter and area of a sector
	+ Calculate the perimeter and area of complex figures including a combination of rectilinear and circular shapes
 | * + Ex 7.3
	+ Example 20.18
	+ Ex 20.5, 20.6

  | 7, 8  |
| Catch-up class | Clear doubts |   |   | 9, 10 |
| Test |   |   |   | 11, 12 |