

UNIT 1 *Indices*

Lesson Plans



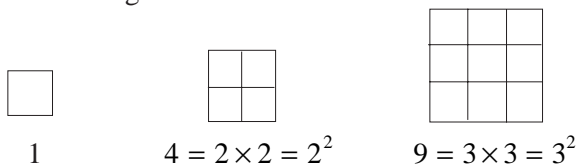
Lesson No. *References*

1 Multiplication and Division

Mental Test
 Review basic multiplication and division T1.1
 Mental practice and tests M1.1
 Multiplication Table A1.1
 Exercises T1.1
 Homework A1.2 and P1.1 (Q.14 and 15)

2 Squares, Cubes, Square Roots and Cube Roots

Mental Test M1.1
 Introduce squares and cubes T1.2
 e.g. use of diagrams



and cubes for 1^3 , 2^3 , etc.

Introduce through example above – work backwards from area to length for square root, etc. OS1.1
 Exercises T1.2
 Homework P1.2 (Q.4)

3 Index Notation

Mental Test M1.3
 Introduce through need for more efficient way of writing expressions, e.g. $2 \times 2 \times 2 \times 2 \times 2 = 2^5$.
 Develop rules of indices ($a^m \times a^n = a^{m+n}$ and $a^m \div a^n = a^{m-n}$)
 through examples and justify $a^0 = 1$.
 Exercises T1.3
 Introduce factors T1.4 and A1.6
 Homework Complete A1.6 and P1.4

4. Prime Factors

Definition of a prime number T1.5
 Identifying primes – Eratosthenes Sieve A1.7
 Exercises T1.5
 Highest common factor – Exercises T1.5
 Homework P1.5 (Q.5 and 6)

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*Lesson No.**References***1 Squares, Cubes, Square Roots and Cube Roots**

Mental Test

M1.1

Introduce squares and cubes
e.g. use of diagrams

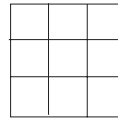
T1.2



1



$$4 = 2 \times 2 = 2^2$$



$$9 = 3 \times 3 = 3^2$$

OS1.1

and cubes for 1^3 , 2^3 , etc.Introduce through example above – work backwards
from area to length for square root, etc.

Exercises

T1.2

Homework

P1.2 (Q.4)

2 Index Notation

Mental Test

M1.3

Introduce through need for more efficient way of writing
expressions, e.g. $2 \times 2 \times 2 \times 2 \times 2 = 2^5$.Develop rules of indices ($a^m \times a^n = a^{m+n}$ and

$$a^m \div a^n = a^{m-n}) \text{ through examples and justify } a^0 = 1.$$

Exercises

T1.3

Introduce factors

T1.4 and A1.6

Homework

Complete A1.6 and P1.4

3 Prime Factors

Definition of a prime number

T1.5

Identifying primes – Eratosthenes Sieve

A1.7

Exercises

T1.5

Highest common factor – Exercises

T1.5

Homework

P1.5 (Q.5 and 6)

4 Standard FormNeed for shorthand way of expressing very large and very
small numbers – time line

Worked examples

T1.7

Calculator display warning

Exercises

T1.7

Homework

P1.7

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*Lesson No.**References***5** **Calculations with numbers in standard form**

Worked examples

T1.8

Exercises

T1.8

Activity to help understanding of standard form

A1.11

Exercises

T1.8

Homework

P1.8 (Q. 12, 13 and 15)

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<i>Lesson No.</i>		<i>References</i>
1	Index Notation	
	Introduce through need for more efficient way of writing expressions, e.g. $2 \times 2 \times 2 \times 2 \times 2 = 2^5$.	T1.3
	Develop rules of indices ($a^m \times a^n = a^{m+n}$ and $a^m \div a^n = a^{m-n}$) through examples; justify $a^0 = 1$.	
	Exercises	T1.3
	Activity to introduce factors and prime numbers	A1.6
	Worked example for HCF	T1.3
Homework	P 1.3 (Q.8) and P 1.5 (Q.5 and 6)	
2	Rules of Indices	
	Mental Test	M1.3
	Activity to consolidate notation	A1.10
	Extension of index notation to negative and fractional powers	
	Worked Example	T1.6
	Exercises	T1.6
Homework	P 1.6 (Q.7, 8 and 9)	
3	Standard Form	
	Mental Test	M1.5
	Need for shorthand way of expressing very large and very small numbers – time line	OS1.2
	Worked examples	T1.7
	Exercises	T1.7
	Homework	P1.7
4	Calculations with numbers in standard form	
	Worked examples	T1.8
	Activity to help understanding of standard form	A1.11
	Exercises	T1.8
	Homework	P 1.8 (Q.12, 13 and 15)