# LEARNING JOURNEY

# MATHS

**Indices**

Multiples and LCM

Positive Integers recognise powers

Finding Square, cube and other roots

*ASSESSMENT* ✓✓✓

**Surds**

Pythagoras's Theorem using Surds

*ASSESSMENT* ✓✓✓

Simplification with surds

Surd Arithmetic

**Expressions**

*ASSESSMENT* ✓✓✓

Simplifying expressions involving indices

Simplifying expressions involving indices

Calculate negative and fractional indices

Converting numbers to and from standard form

Calculations with standard form

Simplifying and manipulating expressions

**Polynomials**

Expanding single brackets with indices

*ASSESSMENT* ✓✓✓

Expanding products of two binomials

Exploring and applying difference of two squares

Exploring difference of two squares with surds

Finding Factors HCF

Factorising single bracket

Factorising Monic Quadratics

*ASSESSMENT* ✓✓✓

Factorising Non-Monic Quadratics

Investigating completing the square

Completing the square

*ASSESSMENT* ✓✓✓

**WE ARE HERE**

Key:
Foundation
Crossover
**Higher**

**VOCABULARY**
- ❑ **Index**
- ❑ **Surd**
- ❑ **Quadratic**
- ❑ **Factorise**
- ❑ **Root**
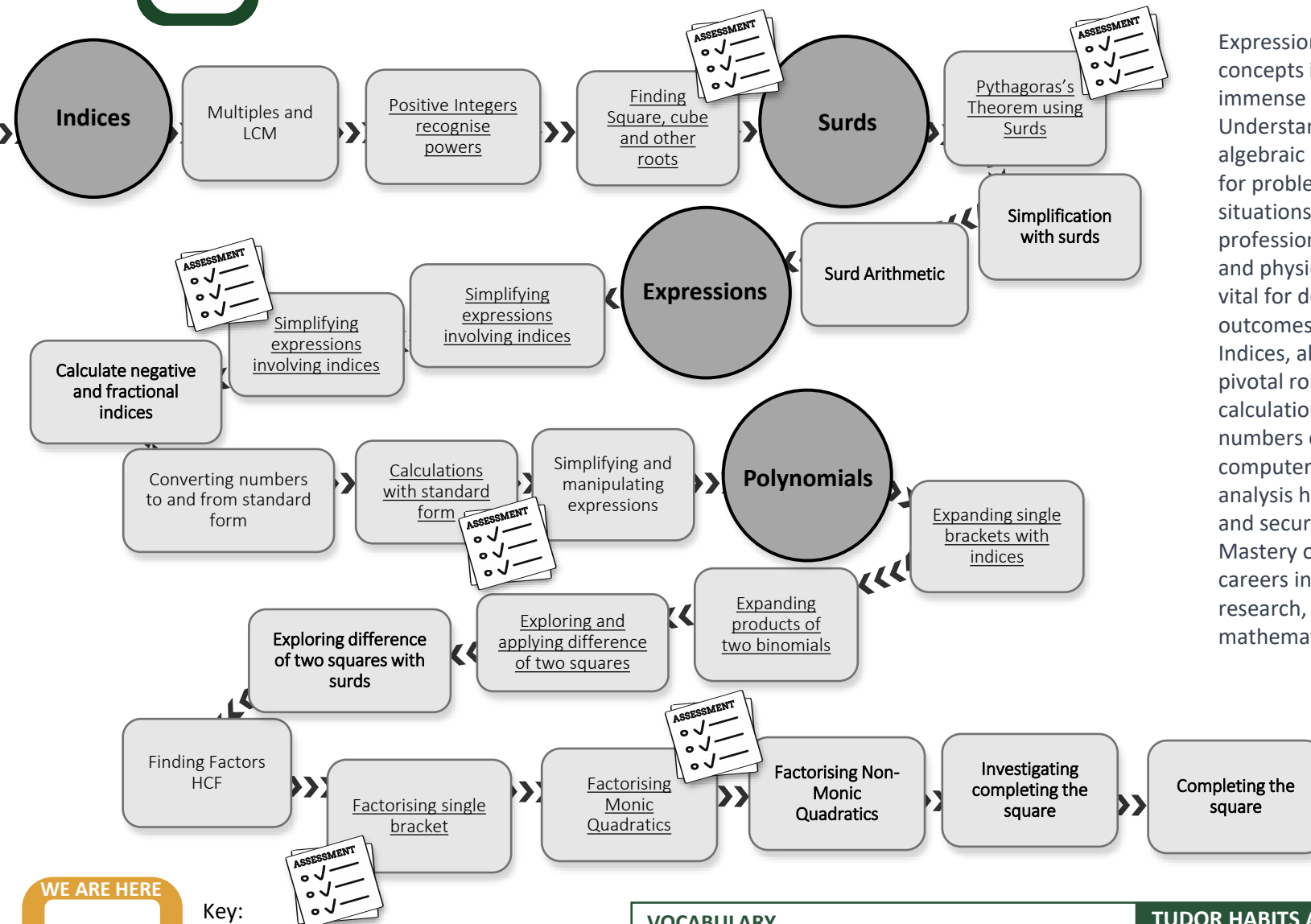
Expressions and indices are fundamental concepts in mathematics that hold immense importance in various fields. Understanding expressions, such as algebraic equations and formulas, is crucial for problem-solving, modelling real-world situations, and advanced calculations. In professions like engineering, architecture, and physics, knowledge of expressions is vital for designing structures, predicting outcomes, and optimising systems. Indices, also known as exponents, play a pivotal role in simplifying complex calculations and representing large numbers compactly. Professions like computer science, cryptography, and data analysis heavily rely on indices to process and secure information efficiently. Mastery of these concepts opens doors to careers in STEM fields, finance, economics, research, and technology, where mathematical skills are in high demand.

**TUDOR HABITS AND VALUES**
Navigating expressions and indices in math cultivates grit and determination through overcoming challenges, developing perseverance, and building resilience in problem-solving.