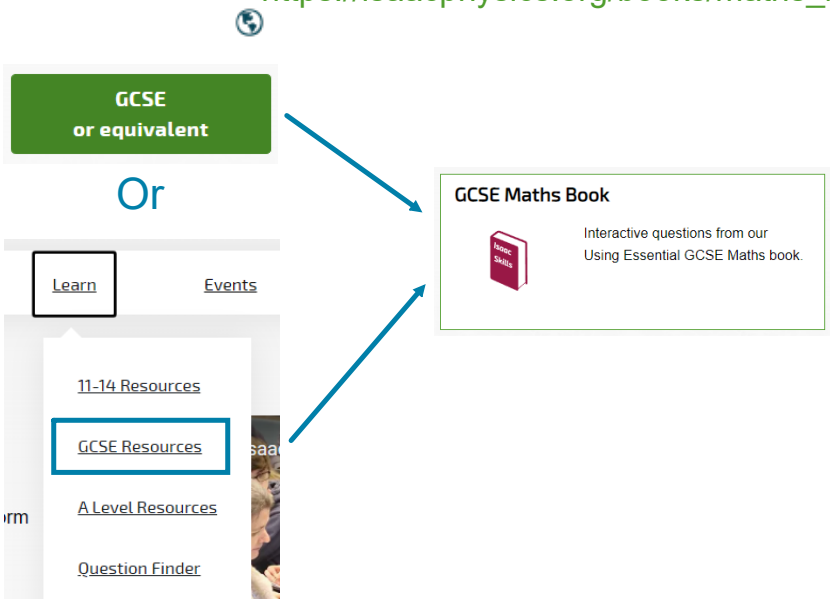
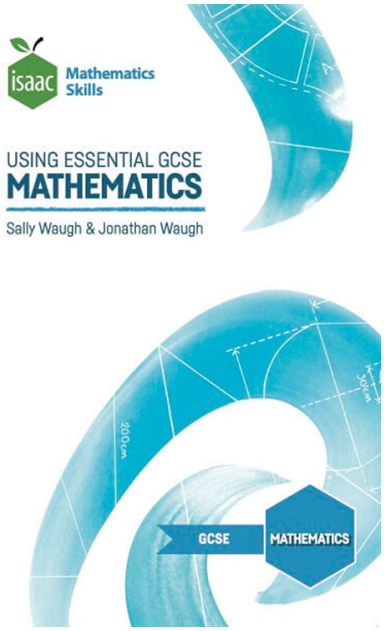
Isaac Maths Resources

GCSE Book	https://isaacphysics.org/books/maths_book_gcse
A-level Book	https://isaacphysics.org/books/pre_uni_maths
Practise Maths	https://isaacphysics.org/pages/maths_practice
Master Maths	https://isaacphysics.org/pages/master_maths
Question finder	https://isaacphysics.org/gameboards
Concepts	https://isaacphysics.org/concepts

GCSE Book

https://isaacphysics.org/books/maths_book_gcse





Available for £1 in print, or online for free.

Buy the book

Printed copies, cost price £1 (plus p+p)

Buy Isaac Books

Teacher resources.

For Teachers

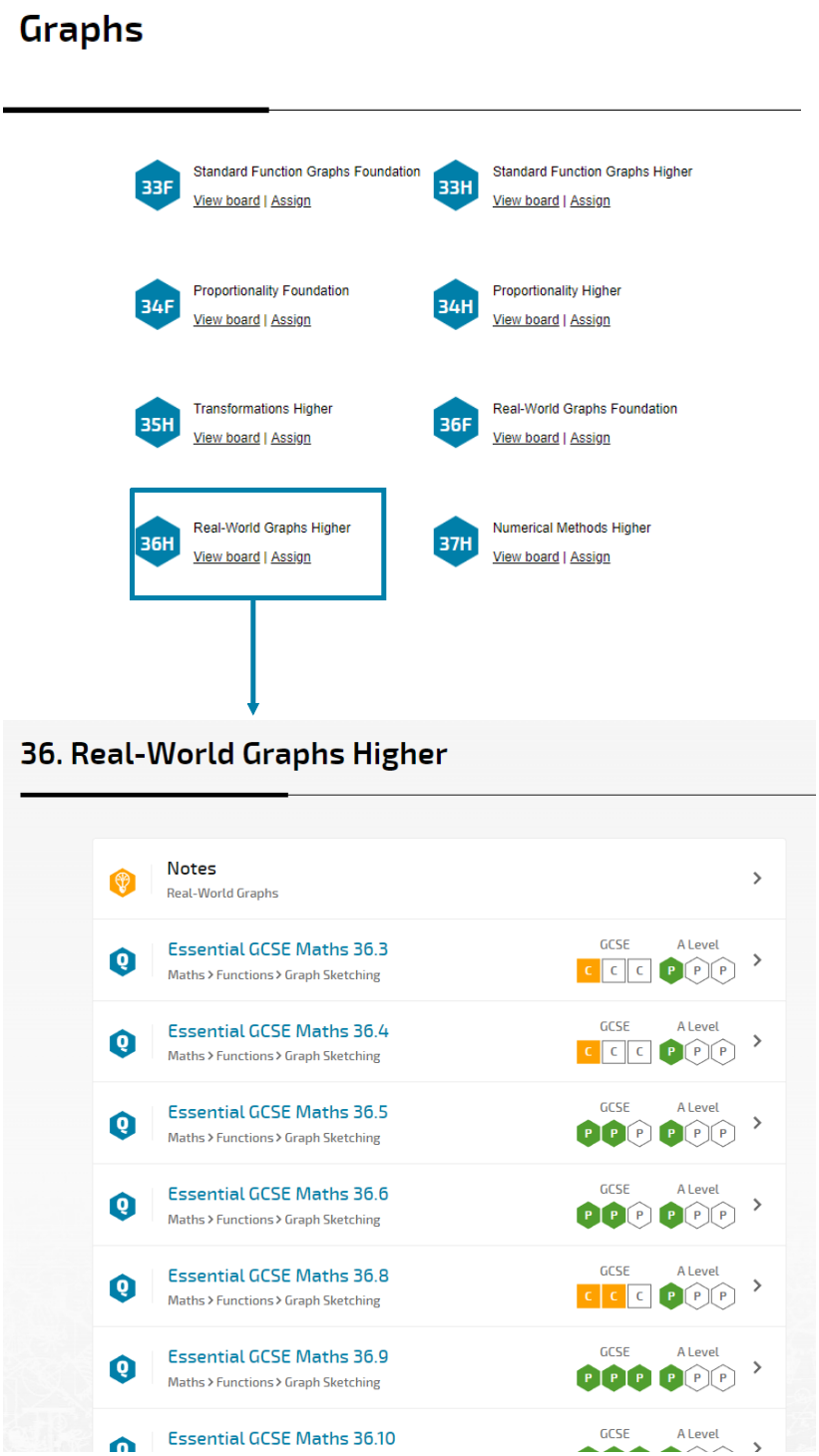
Specification Table - maps the book to your exam board.
Teacher's Manual - authors' notes for teachers.
Preparation for Sixth Form (pdf) - by the authors.
STEM Question Finder - table of problems that relate to STEM subjects.
Maths Skills for GCSE Science - table of assumed skills for GCSE science courses.

Covers all of GCSE Maths, with sections for Foundation or Higher.

Chapters:

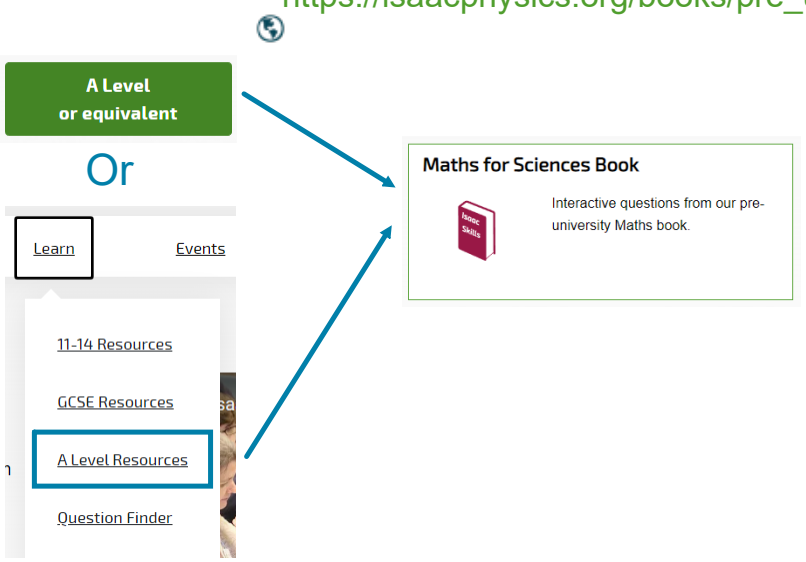
1. Solving Maths Problems (Section 1)
2. Skills (Sections 2-11)
3. Algebra (Sections 12-22)
4. Linear Functions (Sections 23-25)
5. Quadratic Functions (Sections 26-30)
6. Inequalities (Sections 31-32)
7. Graphs (Sections 33-37)
8. Geometry (Sections 38-50)
9. Probability and Statistics (Sections 51-57)

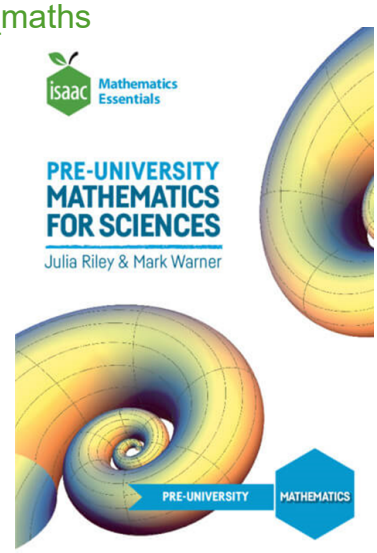
Questions in gameboards for each chapter.



A-level Book

https://isaacphysics.org/books/pre_uni_maths





Available for £1 in print, or online for free.

Buy the book

Printed copies, cost price £1 (plus p+p)

Buy Isaac Books

Specification table for teachers

For Teachers

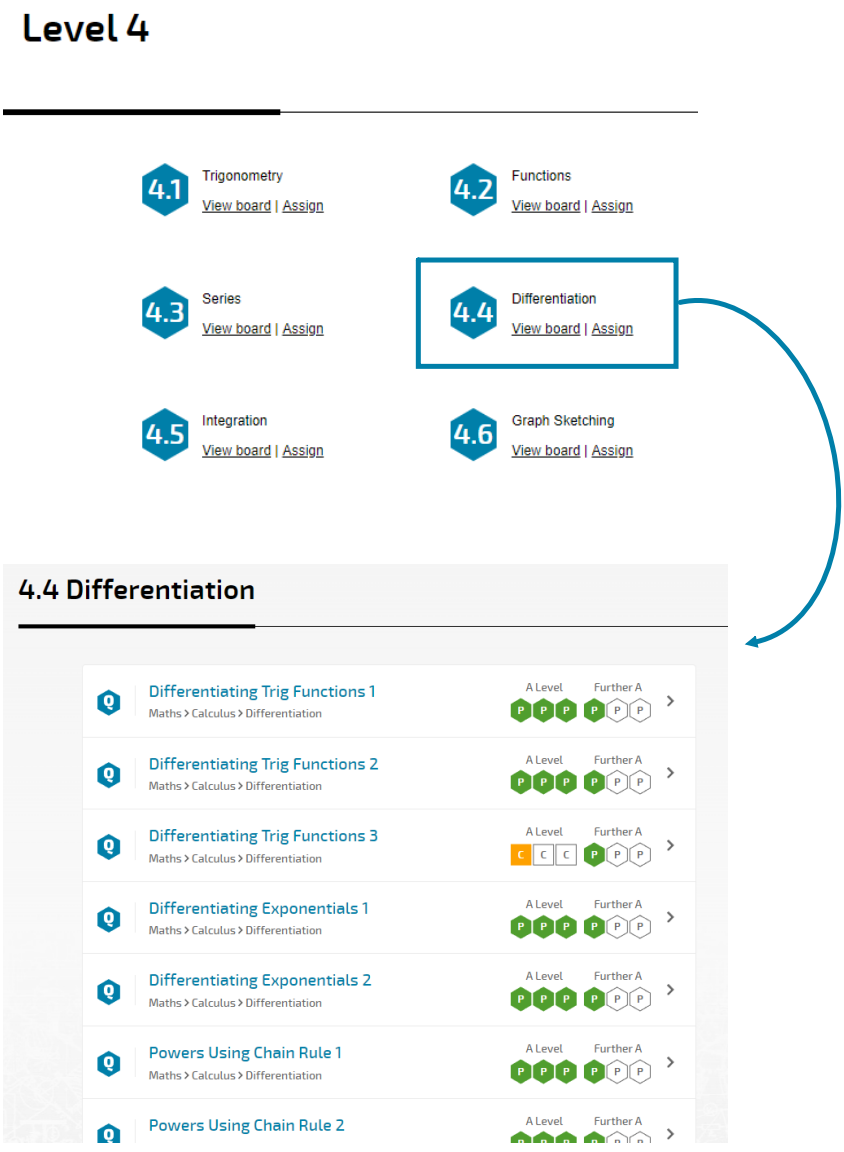
Specification Table - maps the book to your exam board.

Covers pure content for A-level Maths, and some of Further Maths.
Focuses on mathematical methods used in the sciences.

Chapters:

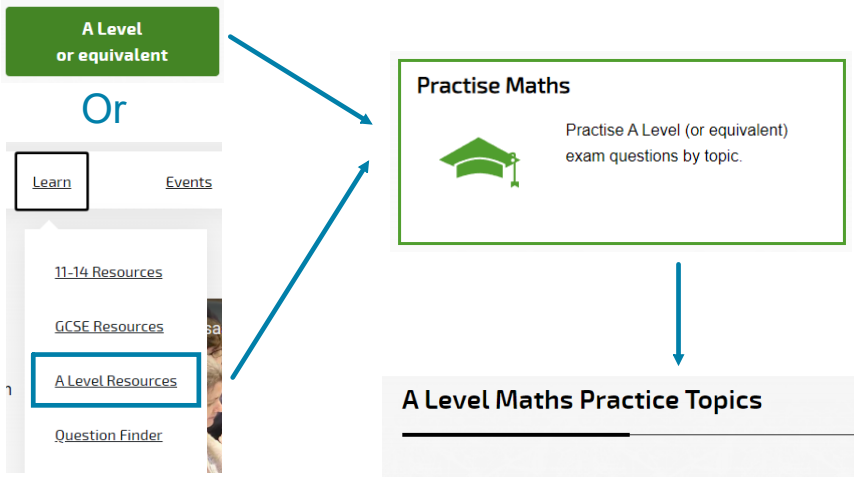
1. Level 1
2. Level 2
3. Level 3
4. Level 4
5. Level 5
6. Level 6
7. Level 7

Questions in gameboards for each chapter.



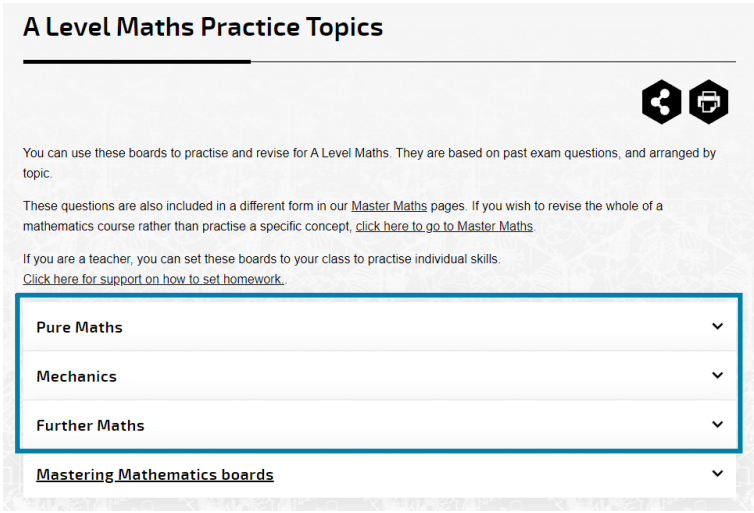
Practise Maths

https://isaacphysics.org/pages/maths_practice



Over 1000 past exam questions, arranged by topic

Ideal for practising a specific topic

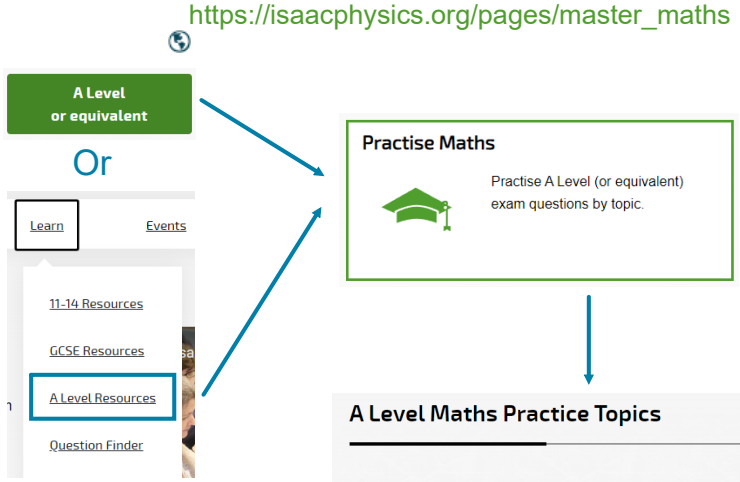


Stage 2 (Year 13)

Field	Topic	Board
Algebra and functions	Algebraic Division	Link
	Curve Sketching and Combined Transformations	Link
	Functions and Algebra	Link
	Functions: Graphs and Inverse Functions	Link
	Modulus	Link
	Partial Fractions	Link
	Graphs and roots in context	Link
Coordinate geometry	Parametric equations	Link
Differentiation	Constructing Differential Equations	Link
	Differentiation and Gradients: Beyond Polynomials	Link
	Differentiation: Chain Rule	Link
	Differentiation: Implicit	Link
	Differentiation: Products	Link
	Differentiation: Quotients	Link
	Differentiation: Synoptic Problems	Link
Integration	Area Between Two Curves	Link
	Integration by Parts	Link
	Integration by Substitution	Link
	Integration by substitution (trig)	Link
	Integration: General	Link

Master Maths

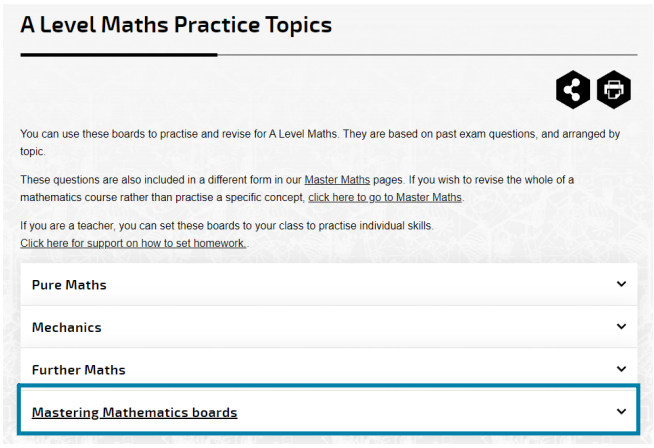
https://isaacphysics.org/pages/master_maths



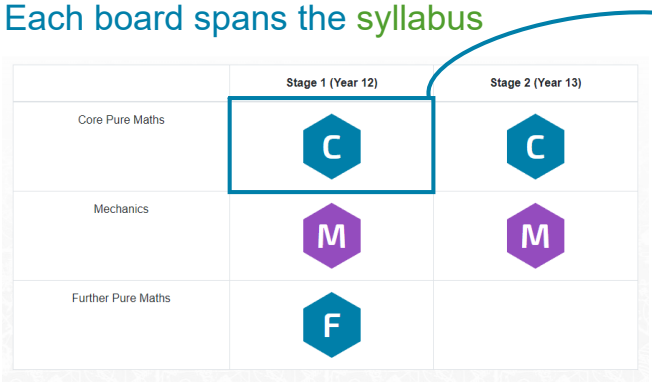
Past exam questions that span A-level

Linked to easier questions

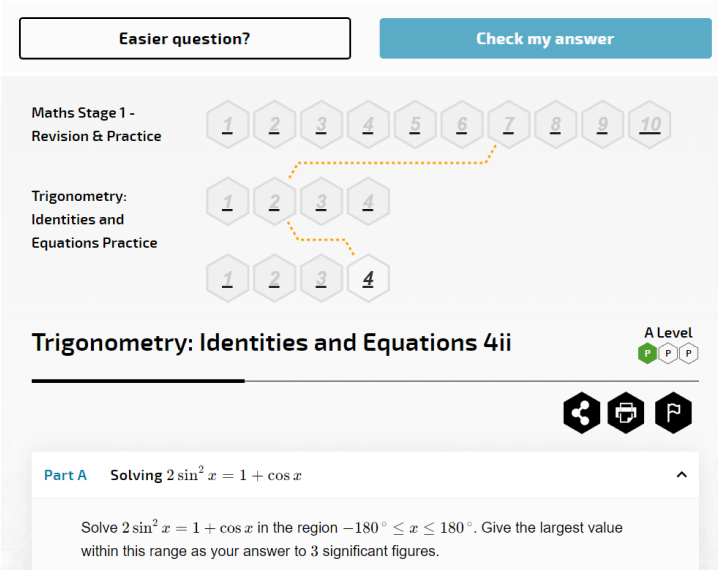
Ideal for revision



Each board spans the syllabus

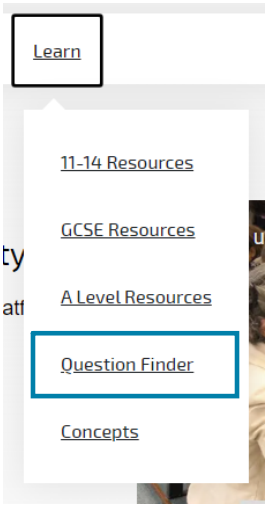


Each question part links to an easier question on the same topic

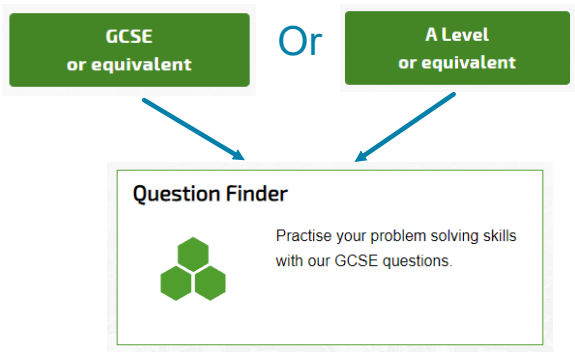


Question Finder

https://isaacphysics.org/gameboards



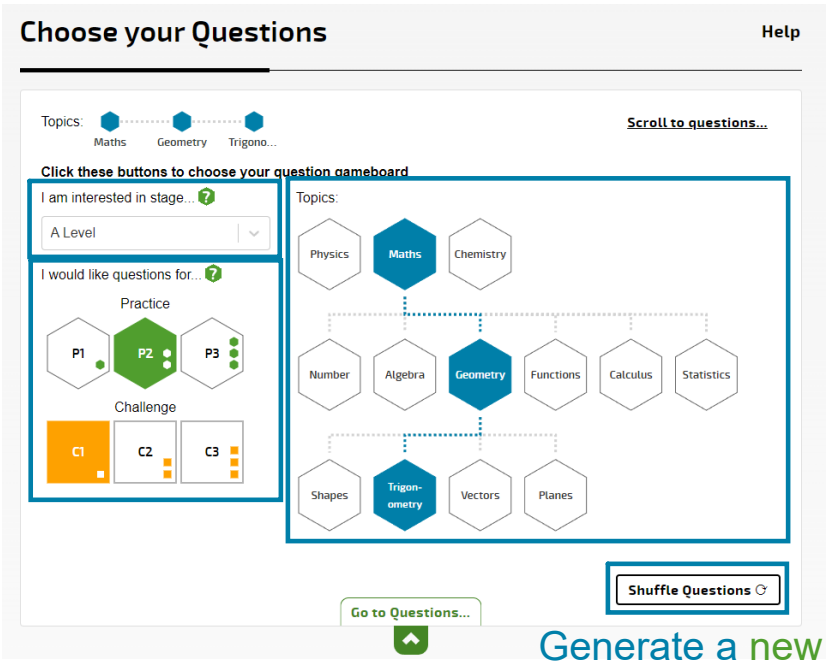
Or



Search for questions by stage, topic or difficulty.

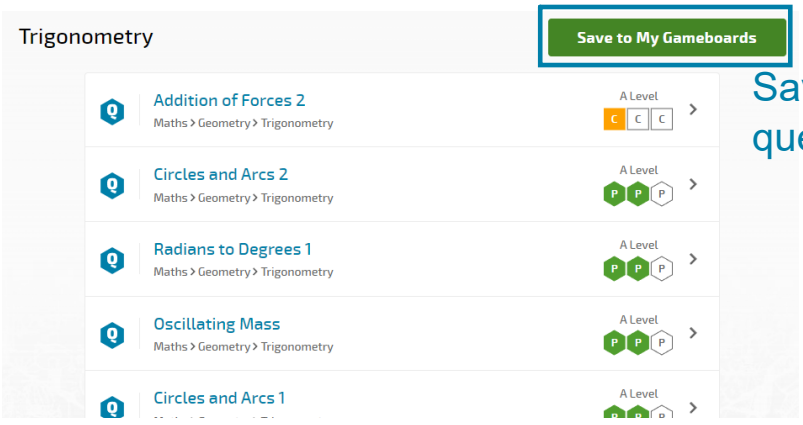
Select stage

Select difficulty



Select topic

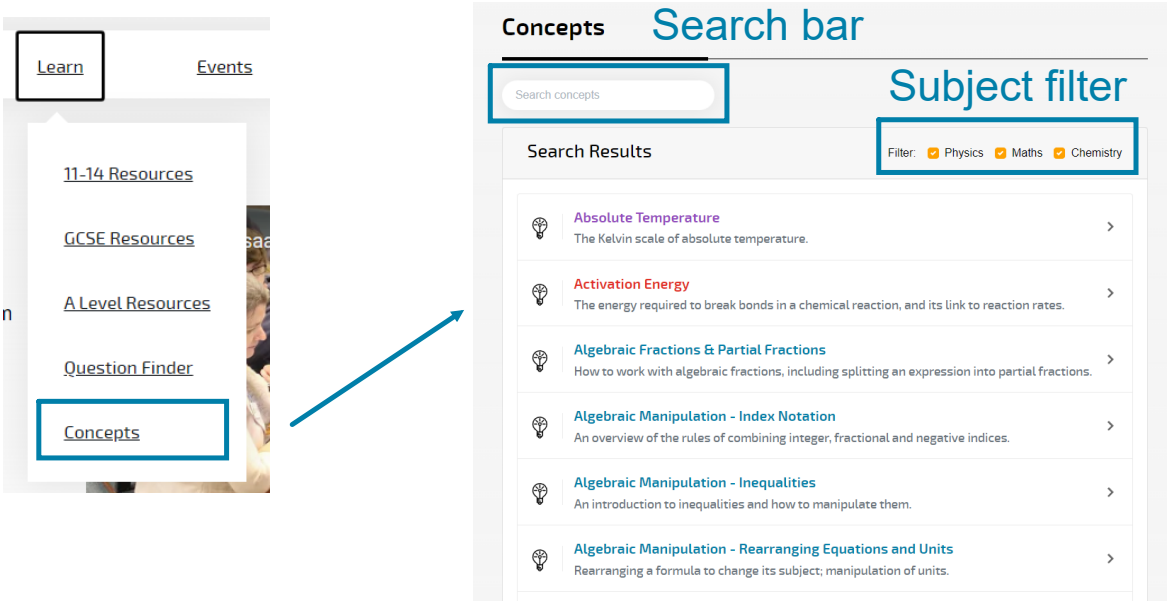
Generate a new set of questions



Save board of questions

Concept Pages

https://isaacphysics.org/concepts



Concepts pages explain a concept in detail.

Matrices - Definition

All Stages

Matrices have many applications in Mathematics, Physics, Chemistry and Computer Science. They can be used to represent systems of simultaneous equations, stess and strain in materials, geometrical transformations of objects as well as having many uses in statistics, quantum mechanics, graph theory and artificial intelligence.

A matrix is an array of elements set out in a pair of brackets and arranged in rows and columns. We can describe the size of a matrix using the number of rows and columns, $m \times n$.

$\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ 2×2 matrix

$\begin{pmatrix} 4 \\ 1 \\ -2 \end{pmatrix}$ 3×1 matrix

$\begin{pmatrix} 0 & 0 & -3 \\ -2 & 2 & k^2 \end{pmatrix}$ 2×3 matrix

$\begin{pmatrix} a_{11} & a_{12} & a_{13} & \dots & a_{1n} \\ a_{21} & a_{22} & a_{23} & \dots & a_{2n} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & a_{m3} & \dots & a_{mn} \end{pmatrix}$ $m \times n$ matrix

Further A	Special types of matrix
Further A	Matrix addition and subtraction
Further A	Scalar multiplication

Question Types

There are many different types of questions available on Isaac Physics. Here are some examples of different types.

Numeric	https://isaacphysics.org/questions/gcse_maths_ch2_11_q1
Symbolic	https://isaacphysics.org/questions/algebra_level2_ineq_5
Graph sketcher	https://isaacphysics.org/questions/sketch_reciprocal_trig
Cloze text	https://isaacphysics.org/questions/proof_surface_areas
Reorder	https://isaacphysics.org/questions/combined_transformations

Board link: https://isaacphysics.org/gameboards#tcpd_newtoisaac_maths3