

# Isaac Physics Teacher CPD

Follow up:  
developing your teaching with [isaacphysics.org](https://isaacphysics.org)



# This session's objectives:

- › Using the Specification Table to find syllabus-appropriate questions
- › Using the new Question Finder
- › Using quizzes
- › Accessing 11-14 resources and the Step-Up to GCSE book
- › Using the spreadsheet for GCSE Boards for Lessons and making your own boards
- › The GCSE Maths book
- › Cloze text for lessons and revision
- › Our lessons for remote learning
- › Master Mathematics and Linking Concepts
- › Opportunities for students e.g. mentoring, Challenges and Masterclasses
- › Using spreadsheets for displaying results
- › You will be guided to explore the resources on Isaac additional to the text books. You will have the opportunity to make your own boards and a collection of useful URLs.



# Equation editor: Algebra

Help Video



[youtu.be/9674mtN2Mvc](https://youtu.be/9674mtN2Mvc)

- › Use the mouse/touchpad to answer symbolic questions

Find an expression in terms of  $d$  and  $\theta$  for the length of the path PRS.

Click to enter your answer  
or type your formula here

The following symbols may be useful: cos(), d, n, sin(), tan(), theta

Check my answer

[Link to question](#)

numbers

$n$   $\theta$

1 2 3

variables

$Ab$   $\Delta\gamma$

$+ - \sqrt{x}$

$\sin$   $\int$

operators,  
equals,  
fractions

$2 n d \sin ( )$



functions  
(trig, logs)



Find an expression in terms of  $d$  and  $\theta$  for the length of the path PRS.

HIDE QUESTION

2nd





# Question Finder

Use the Question Finder to create gameboards

## Route

- Learn/Question finder

Help Video



[https://youtu.be/9docn\\_H8hh4](https://youtu.be/9docn_H8hh4)

Learn      Events

Find out... 11-14 Resources GCSE Resources A Level Resources Question Finder Concepts

Topics: Physics Mechan... Multipl...

Click these buttons to choose your question gameboard

I am interested in stage... ?

A Level

I would like questions for... ?

Practice

P1 P2 P3

Challenge

C1 C2 C3

Topics:

Physics Maths Chemistry

Skills Mechanics Electricity Waves & Particles Fields Thermal

Statics Kinematics Dynamics Circular Motion Oscillations Materials

1 Use the dropdown to select a stage (GCSE, A Level, Further A, University)

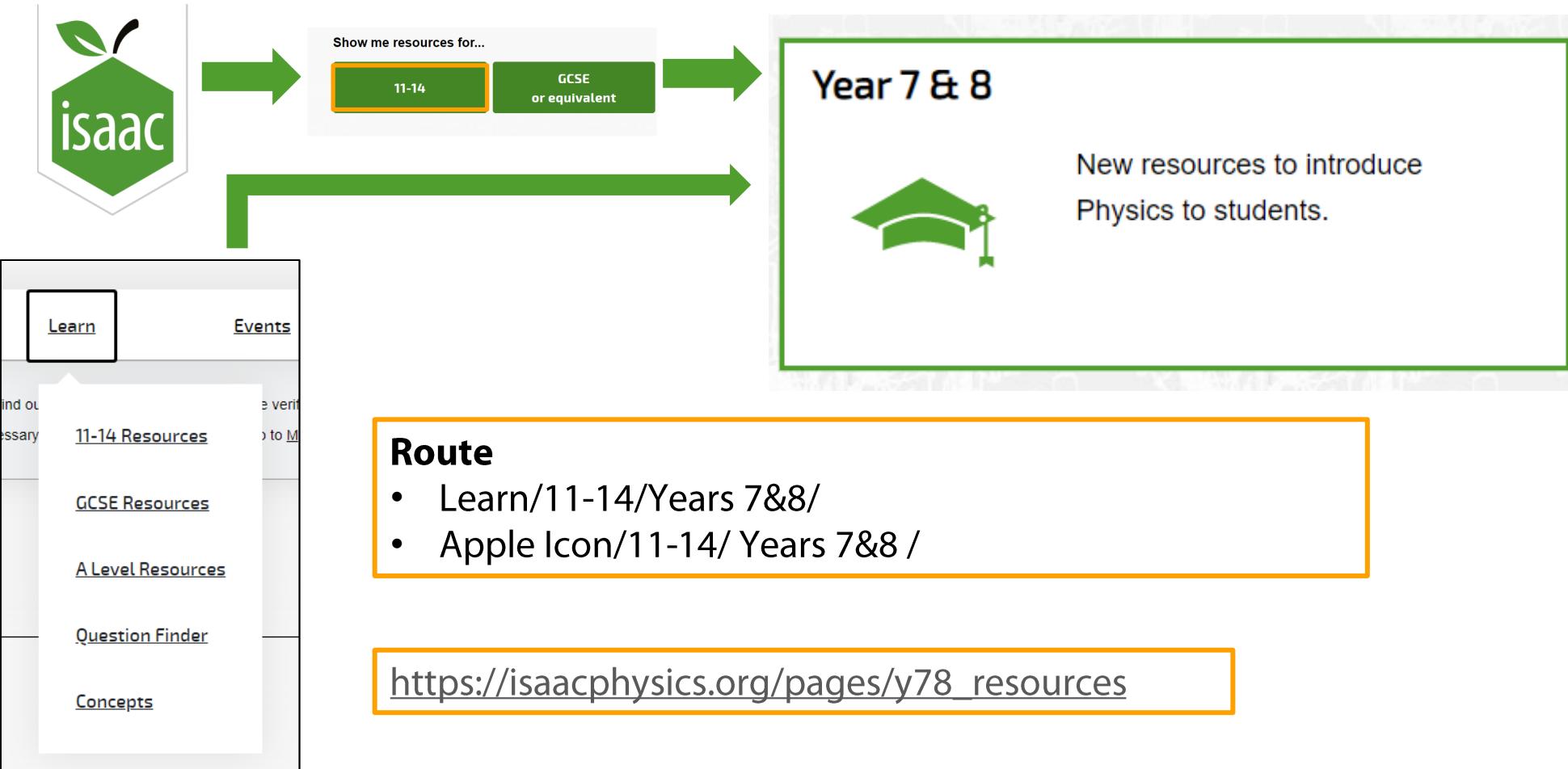
3 Select difficulty levels.  
**Practice:** directly apply 1 idea  
**Challenge:** Apply multiple ideas, use creativity

2 Select a subject, field and topic.



# Years 7 and 8: Resources

- Follow either path to access the new resources for years 7&8:





# Years 7 and 8: Resources

- › Resources are split into concepts and experiments

Concepts



## Resources for Years 7 & 8



**Distance - Time Graphs**  
Learn about distance - time graphs.

**Calculating Speed**  
Learn how to calculate speed.

**Acceleration**  
Learn about acceleration.

**Forces**  
Learn about forces.

**Weight**  
Learn about weight in physics.

**Force and Motion**  
Learn how force and motion are linked.

**Energy Stores**  
Learn about energy stores.

**Work Done**  
Learn about mechanical work and energy.

**Force and Acceleration**  
Learn how force and acceleration are linked.

## Experiments

### Stretching Sweets



Investigate the stretching of sweets.

Experiments





# Years 7 and 8: Resources

Click on a topic and access...

- Class resources**

Notes and questions in full and cloze text form.

- Homework resources**

- Teacher resources**

Teacher guidance notes.

- Teacher Quarter**

15-minute CPD sessions giving you a quick introduction to the concepts and content of each lesson.

**Distance-Time Graphs**

In a **distance-time graph** the total **distance** travelled so far is plotted against the **time** since the journey started.

Here is a distance-time graph. It shows a teenager's journey from home to a sports centre. They **walk** to a bus stop, **wait** for the bus, and then ride the bus to the sports centre.

## Distance Time Graphs Practice



Identifying Motion on a Distance-Time Graph  
Physics > Mechanics

Year 7&8  
P P P >

**Class Resources**

[Online class notes \(cloze text\)](#)

[Online class questions](#)

[Download class material \(pdf\) - full version](#)

[Download class material \(pdf\) - cloze text](#)

**Teacher resources**

Teacher Guidance notes are on the questions are available, along with suggestions for introducing the topic and other conceptual and pedagogical information.

[Distance - Time Graphs Teacher guidance notes](#)

**Teacher Quarter**

The Teacher Quarters are 15-minute video-based CPD sessions giving you a quick introduction to the concepts and content of each lesson. These are primarily intended for teachers new to teaching physics.

Each Teacher Quarter is made up of

- an introductory video
- a selection of questions to practise the idea
- a video which reviews those questions and how they might be tackled in class

[Introductory Video](#)



# Years 7 and 8: Experiments

- › Experiment pages available, including:
  - Background questions
  - Equipment & method
  - Set-up videos
  - Instructions on data processing
    - › Including excel spreadsheet to fill in
  - Pictures where data could be read from
  - Questions on calculations & conclusion

## Example link:

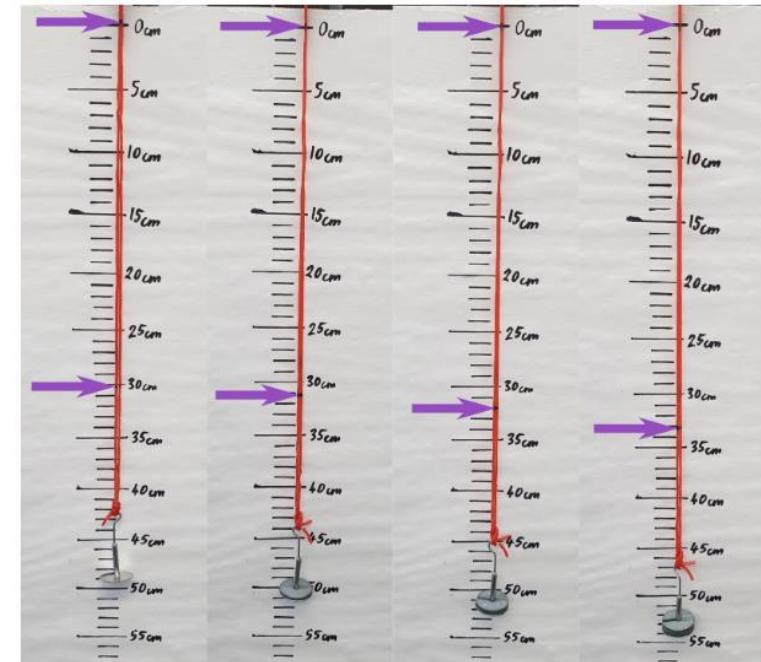
[https://isaacphysics.org/questions/itsp\\_exp\\_sweets?stage=all](https://isaacphysics.org/questions/itsp_exp_sweets?stage=all)

Part F No data?

Use the pictures below to make your measurements for the length of the sweets when different masses are applied and fill in your data in this [Excel spreadsheet](#).

The photographs in [Figure 5](#) shows 2 strawberry laces against a scale with 1 cm markings. Masses have been added 10 g at a time.

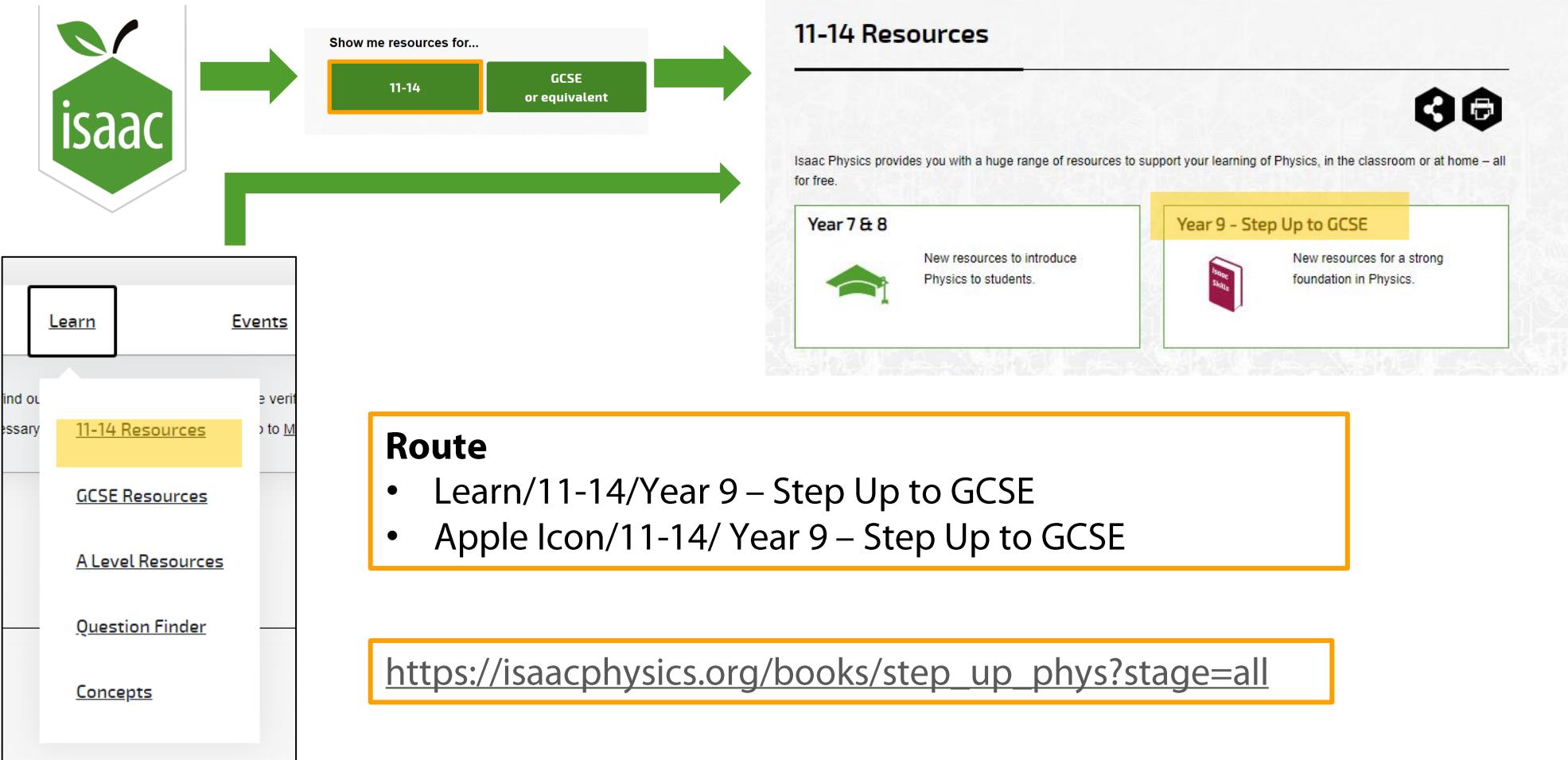
The photographs in [Figure 6](#) shows a peach against a scale with 1 cm markings. Masses have been added 100 g at a time.





# Step Up to GCSE Physics

› Book available for Year 9 students





[https://isaacphysics.org/books/step\\_up\\_phys?stage=all](https://isaacphysics.org/books/step_up_phys?stage=all)

# Step Up to GCSE Physics

- › Book available for Year 9 students
  - The chapters are available online
  - There is a **question board** for each section. It is possible to assign this to a group (info on group creation and management in later slides)
  - **Quick questions** available

**Force and Motion**

1 Displacement [View board](#) | [Assign](#)

1Q Displacement Quick [View board](#) | [Assign](#)

**1. Displacement**

Manage assignment of groups to the selected gameboard

Group(s): trial x

Schedule an assignment start date (optional)

Due date reminder (optional)

Notes (optional):

0/500 characters

**Assign to group**

Board currently assigned to:  
No groups.

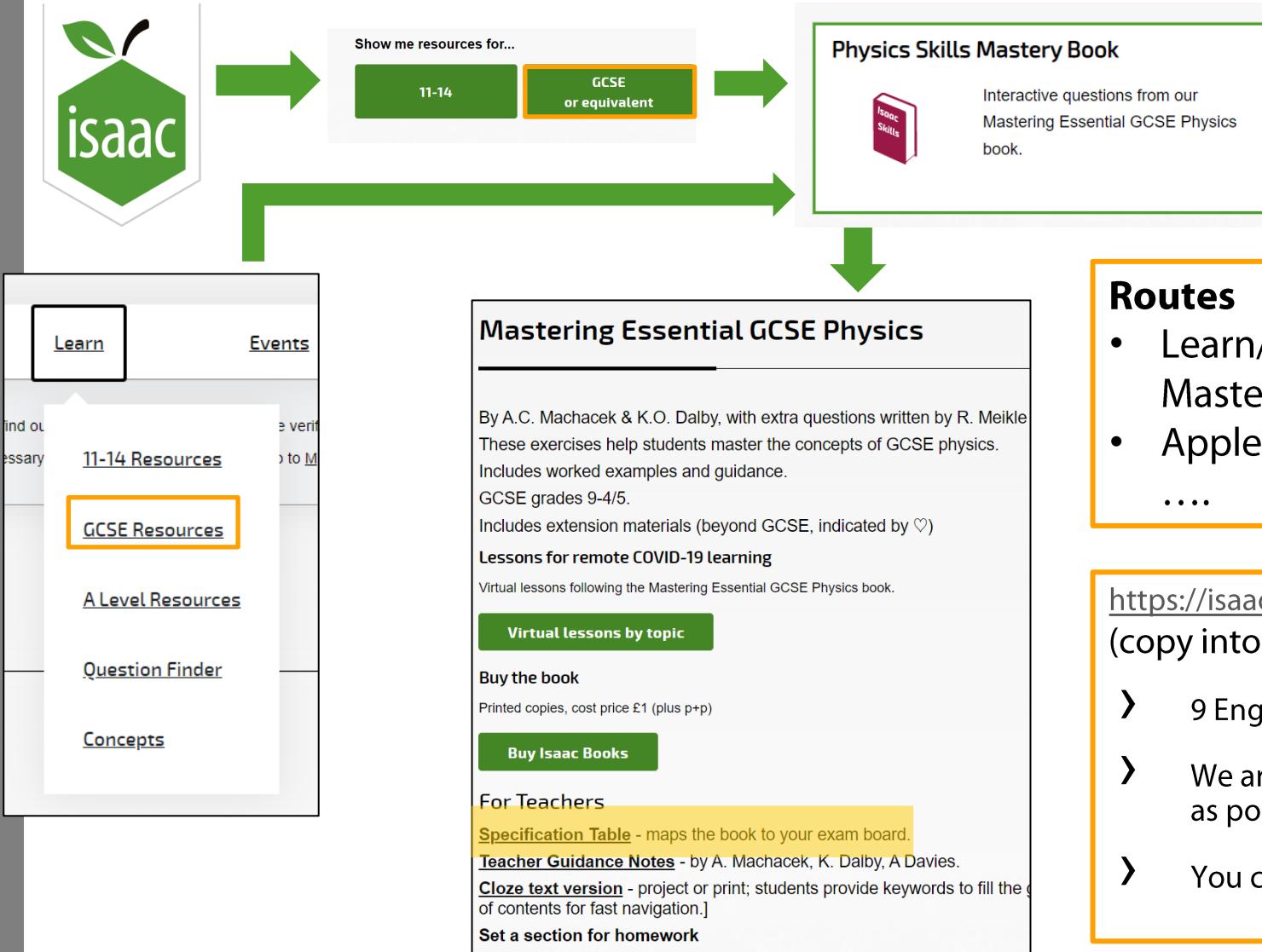
Pending assignments: 7  
No groups.

**Close**



# GCSE Specification Table

› Follow either path to find the specification table for GCSE:



## Routes

- Learn/GCSE Resources/Physics Skills Mastery/ Specification table
- Apple Icon/'Show me resources for GCSE'/ ....

[https://isaacphysics.org/pages/phys\\_book\\_gcse\\_syll\\_map](https://isaacphysics.org/pages/phys_book_gcse_syll_map)  
(copy into SOW for reference)

- › 9 English, Welsh and Scottish specifications are here.
- › We are planning to include Irish specifications as soon as possible.
- › You can also sort by book chapter.



# GCSE Specification Table

› Find syllabus-appropriate questions:

[Home](#) > Mastering GCSE Physics by Exam Board

## Mastering GCSE Physics by Exam Board

[Link to paste](#)

[https://isaacphysics.org/pages/phys\\_book\\_gcse\\_syll\\_map](https://isaacphysics.org/pages/phys_book_gcse_syll_map)



Using the tables below you can set homework in just 3 clicks.

To set a section for homework and auto-marking by Isaac

1. Click on the number of the section you wish to set.
2. You will be taken to your "set assignments" page where the section will appear in the top left square. Click on "Assign / Unassign" to see a drop down list of your groups.
3. Click on the group name and "Assign to group".

[By Book Chapter](#)

[AQA](#)

[EdExcel](#)

[OCR A](#)

[OCR B](#)

[Eduqas](#)

[WJEC](#)

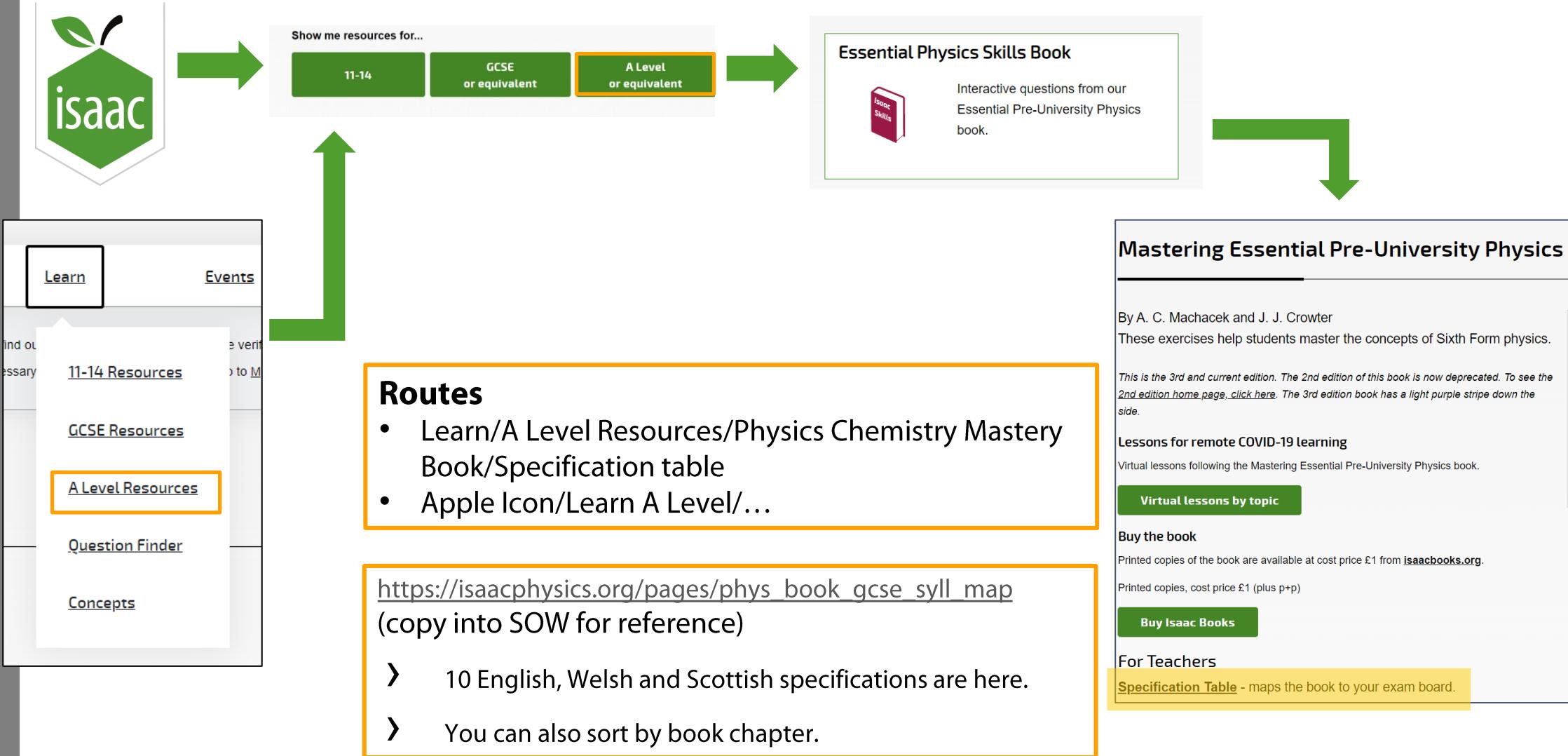
[CIE IGCSE \(2019\)](#)

[SQA](#)



# A Level Specification Table

› Follow this path to find the specification table for A Level:





# A Level Specification Table

- › Find syllabus-appropriate questions:

## Mastering Essential Pre-University Physics

Link to paste

[https://isaacphysics.org/pages/syllabus\\_map\\_19](https://isaacphysics.org/pages/syllabus_map_19)



3rd Edition

By A. Machacek and J. Crowter

### Support for Teachers - **Specification Table**

Thanks to the work of various teachers we are now able to provide a mapping of each of the book pages (sheets) to 10 different specifications. Please click on the appropriate tab below to see your specification.

Click on the **sheet link** to set for homework (e.g. A1); you will be taken to the **set assignments page** with the sheet as the top left box ready to be assigned to your group/s.

[AQA](#)

[CIE Pre-U](#)

[EdExcel](#)

[OCR A](#)

[OCR B](#)

[Eduqas](#)

[WJEC](#)

[SQA](#)

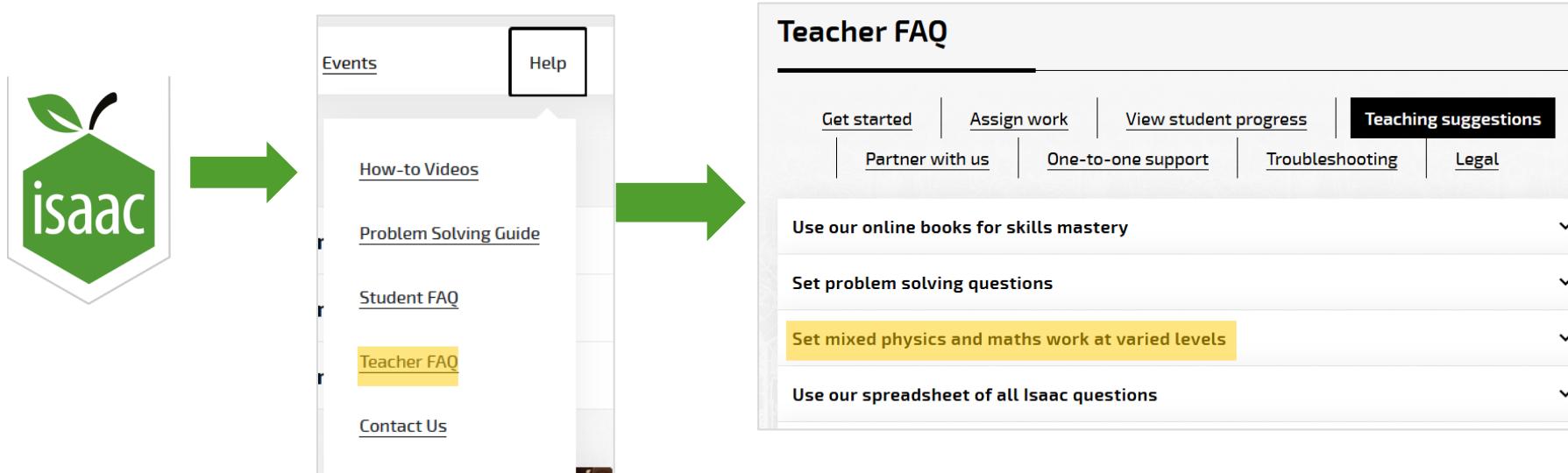
[CCEA](#)

**LC (ROI)**



# Using the spreadsheet of Isaac questions to select appropriate questions by topic/level

- › Apple/Help/Teacher FAQ/Teaching Suggestions/Spreadsheet of all the Isaac Questions



The following spreadsheet lists all of the questions available on [isaacphysics.org](https://isaacphysics.org). Use it to search for questions by question content (lesson / related concepts) and question type (numerical, multiple choice, symbolic) as well as by topic and level.

It is useful, for example, to find extension work on-the-fly to give to faster-working students.

[Download Here](#)

<https://isaacphysics.org/support/teacher/suggestions#spreadsheet>

We also provide [CSV](#) and [OpenDocument Spreadsheet](#) versions.

Spreadsheet last updated 25th November 2020



# Using the Problem Solving Table to find questions by topic and level

- › Apple/Help/Teacher FAQ/Teaching Suggestions/Set problem solving questions/ Table

The diagram illustrates the navigation path:

- The **Isaac** logo leads to the **Website**.
- The **Website** has a **Help** menu item.
- The **Help** menu item leads to the **Teacher FAQ** page.
- The **Teacher FAQ** page has a **Teaching suggestions** tab selected.
- The **Teaching suggestions** tab leads to the **Set problem solving questions** section.
- The **Set problem solving questions** section leads to the **Problem Solving Questions** table.

**Teacher FAQ**

Get started | Assign work | View student progress | **Teaching suggestions**

Partner with us | One-to-one support | Troubleshooting | Legal

Use our online books for skills mastery

**Set problem solving questions**

Set mixed physics and maths work at varied levels

Use our spreadsheet of all Isaac questions

The Isaac Problem Solving questions are accessed from the questions tab (top right of the website). Whereas the Isaac Skills Mastery questions drill understanding of a particular topic, the problem solving questions aim to develop students' synoptic skills and help them apply their knowledge to tackle an unfamiliar situation. When trying these questions you can expect:

- wordy and descriptive questions
- less guidance/scaffolding (but hints provided)
- to construct your own diagram
- to work through multiple steps
- to apply more than one area of the syllabus

Students are required to think more deeply about how they apply core principles when solving these problems. Our problem solving questions are available at six different levels and cover a wide range of core A level topics.

**Topics and Levels available**

Click on the [Question Finder](#) page and use the filter to select topics and levels. 10 questions will be selected that match the topics and levels you have chosen. However, not all levels are available for all topics. This [table](#) provides a summary of which levels are available for each topic.

**Table of problem-solving question topics**

**Problem Solving Questions**

[https://isaacphysics.org/pages/problem\\_solving\\_questions\\_levels](https://isaacphysics.org/pages/problem_solving_questions_levels)

**Link to copy**

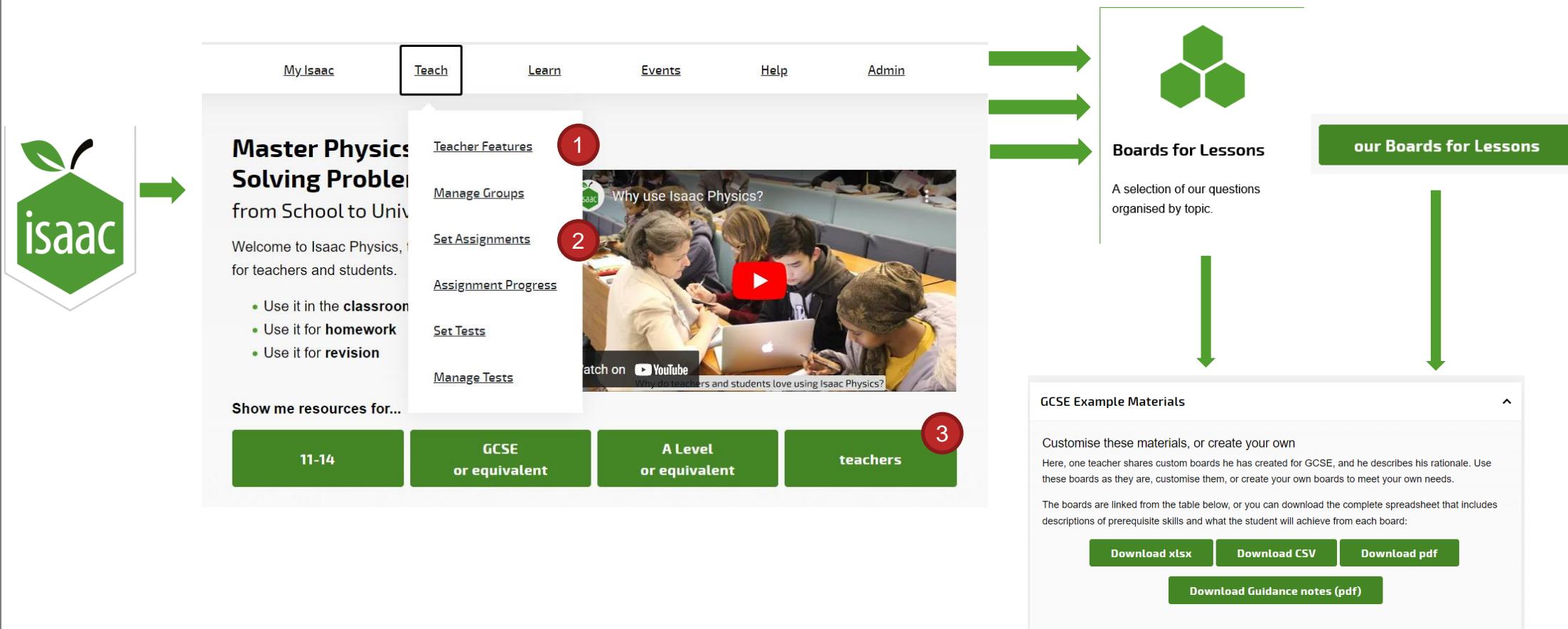
Topic		Level					
		1	2	3	4	5	6
Mechanics	Statics	✓	✓	✓	✓	✓	✓
	Kinematics	✓	✓	✓	✓	✓	✓

[https://isaacphysics.org/pages/problem\\_solving\\_questions\\_levels](https://isaacphysics.org/pages/problem_solving_questions_levels)



# Using the spreadsheet for GCSE Boards for Lessons

- › Apple/Pod or Teach: Set Assignments or Teacher Features/ Set Assignments/our Boards for Lessons/ GCSE Example Materials- download GCSE Boards spreadsheet (3 routes at present)





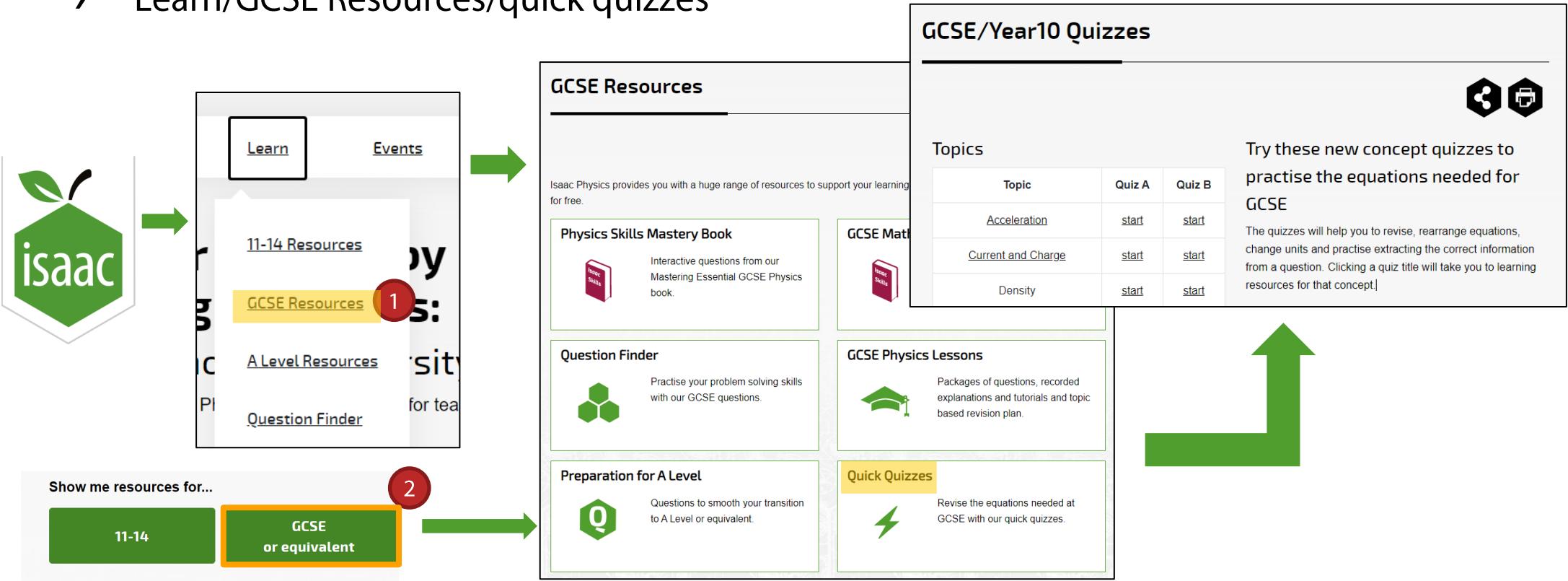
# Using the spreadsheet for GCSE Boards for Lessons

- › Spreadsheet has links to ready-made boards you can cut and paste into your SOW (already done for AQA GCSE Physics).
- › There is a lot of guidance information.

AQA Spec ref.	Unit	Topic	Number of Questions	GCSE Book Page number	Number of Hexagons	Link	What type of question will the student face	What will the student achieve by completing this board	What skills will the student need to know to successfully complete each board
P2	Electricity	Characteristics and Graphs	7	77 - 78	5	<a href="https://isaacphysics.org/board/a3803f51-ad3e-4832-92f1-b069f8ac7db5">https://isaacphysics.org/board/a3803f51-ad3e-4832-92f1-b069f8ac7db5</a>	Each hexagon requires students to read and interpret graphs.	Often an area students struggle with, interpreting graphs. Students will improve their ability to recall I-V graphs as well as ability to calculate gradients and interpret graphs.	Ohmic conductors, knowledge of I-V graphs and ability to calculate R from these graphs.
P2	Electricity	Power Formula Practice	24	79 - 80	2	<a href="https://isaacphysics.org/board/91625808-71b3-431c-a213-980cc5d42447">https://isaacphysics.org/board/91625808-71b3-431c-a213-980cc5d42447</a>	Both hexagons are straightforward drill style questions.	Use of both formula P=IV and P=W/t. Students will develop the link between both formulae and appreciate when to use which one.	Understanding of P=W/t and P=IV. Ability to rearrange both, a range of prefixes, convert between units (time), and standard form.
P2	Electricity	Power Calculations (Application)	11	81	7	<a href="https://isaacphysics.org/board/16254e2c-96c9-4dff-a200-6b09065cb76d">https://isaacphysics.org/board/16254e2c-96c9-4dff-a200-6b09065cb76d</a>	Simple worded style exam questions.	Application of P=IV and P=W/t formula to worded problems.	Rearrangement of both formulae as well as ability to convert between units (time); knowledge of Q=It.
P2	Electricity	Power and Resistance (Multi Step Approach)	18	83	1	<a href="https://isaacphysics.org/board/f0239629-a2ba-4e6c-9dd-84466b9dcba1">https://isaacphysics.org/board/f0239629-a2ba-4e6c-9dd-84466b9dcba1</a>	Straightforward drill practice.	Practice using P=IV and V=IR.	Students will need to be able to rearrange both formulae, as well as understand prefixes.
P2	Electricity	Power Wasted Multistep Approach	7	83 - 84	5	<a href="https://isaacphysics.org/board/41ca3e5-f34e-45c8-acc7-c1846167c8ff">https://isaacphysics.org/board/41ca3e5-f34e-45c8-acc7-c1846167c8ff</a>	Worded style exam questions that vary in length.	Applying V=IR and often require many steps to complete the board, although the questions are broken down into parts a, b, c etc.	Rearrangement of V=IR and P=IV. Knowledge and understanding of prefixes. Specialist terms such as voltage dropped.

# Using quizzes

- › Quizzes are great for starters, plenaries, revision and short, low demand homework tasks
  - Currently only available for GCSE – developing resource
- › Learn/GCSE Resources/quick quizzes



- › Some topics are available at 2 levels of difficulty (A & B)
- › Use A for Foundation/start of topic and B for Higher/revising topic



# Using quizzes

## GCSE/Year10 Quizzes

link

[https://isaacphysics.org/pages/gcse\\_quizzes](https://isaacphysics.org/pages/gcse_quizzes)



### Topics

Topic	Quiz A	Quiz B
Acceleration	<a href="#">start</a>	<a href="#">start</a>
Current and Charge	<a href="#">start</a>	<a href="#">start</a>
Density	<a href="#">start</a>	<a href="#">start</a>
Electrical Power	<a href="#">start</a>	<a href="#">start</a>
Gravitational PE	<a href="#">start</a>	<a href="#">start</a>
Kinetic Energy	<a href="#">start</a>	<a href="#">start</a>
Momentum	<a href="#">start</a>	<a href="#">start</a>
Radioactivity: half-life	<a href="#">start</a>	<a href="#">start</a>
Resistance	<a href="#">start</a>	

Try these new topic quizzes to practise the equations needed for GCSE

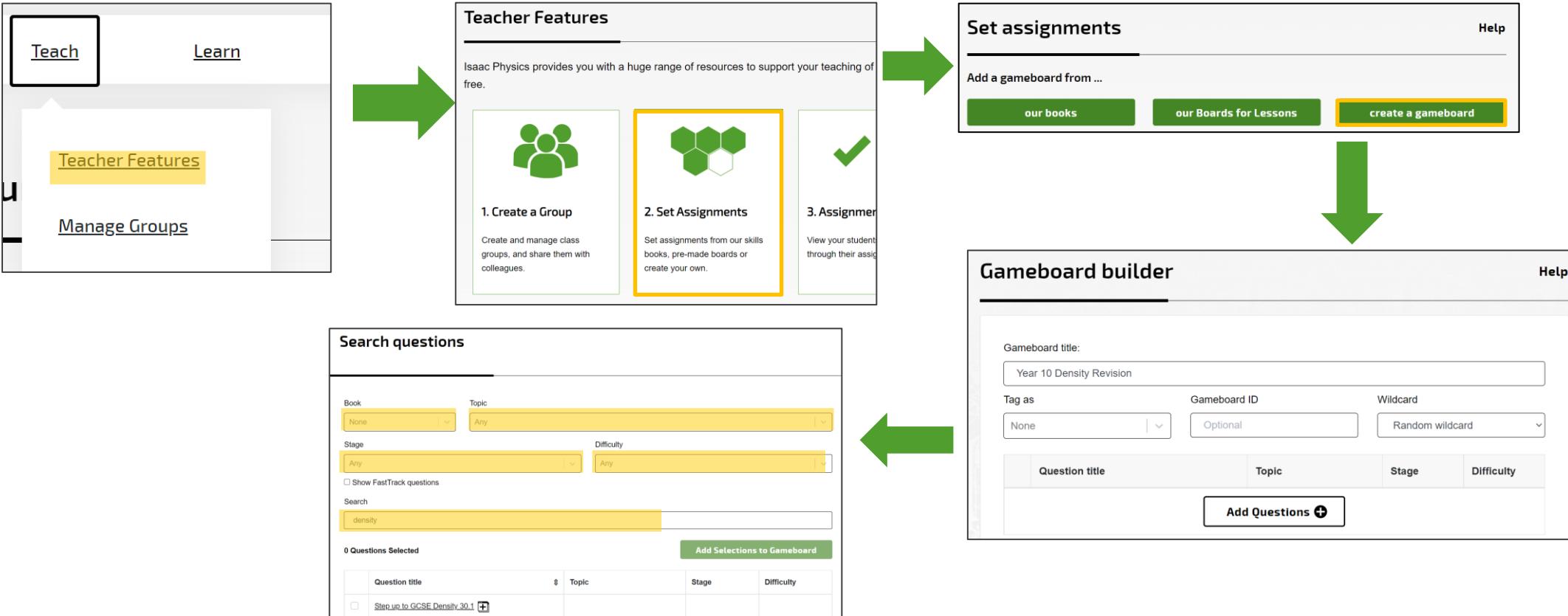
The quizzes will help you to revise, rearrange equations, change units and practise extracting the correct information from a question.

- Typically 10 – 12 questions in each quiz to provide practice in numerical work.
- Quiz A (~10-15 mins) is simple substitution, rearranging and choosing the correct units, and should be possible without a calculator.
- Quiz B (~15 mins or a little longer) is similar, but generally requires a calculator and requires a little more effort to extract the information from the question.



# Using quizzes

- › You can include quizzes in a board if “all levels” is selected
  - › search questions for the word “quiz”



- › You can alternatively press ‘show me resources for teachers’ on the home page

Show me resources for...

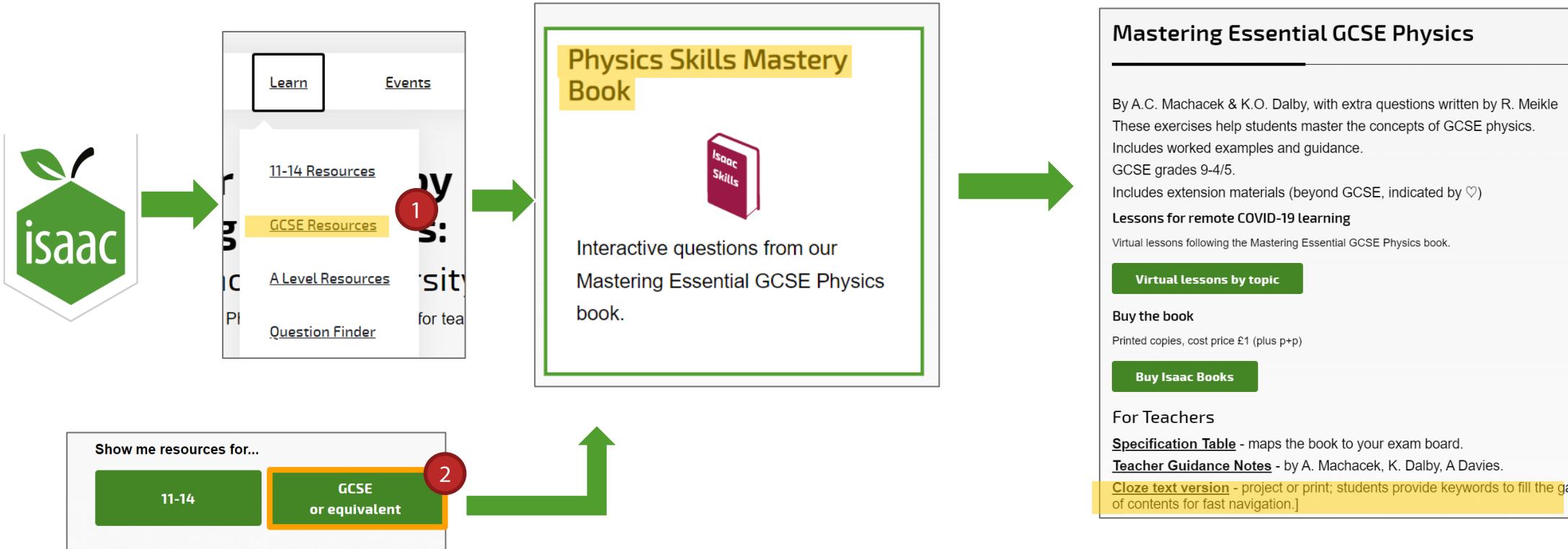
11-14    GCSE or equivalent    A Level or equivalent    teachers



# Cloze text for lessons and revision

## Routes:

- › Learn/GCSE Resources/Physics skills mastery/cloze text version
- › Apple Icon/GCSE/...

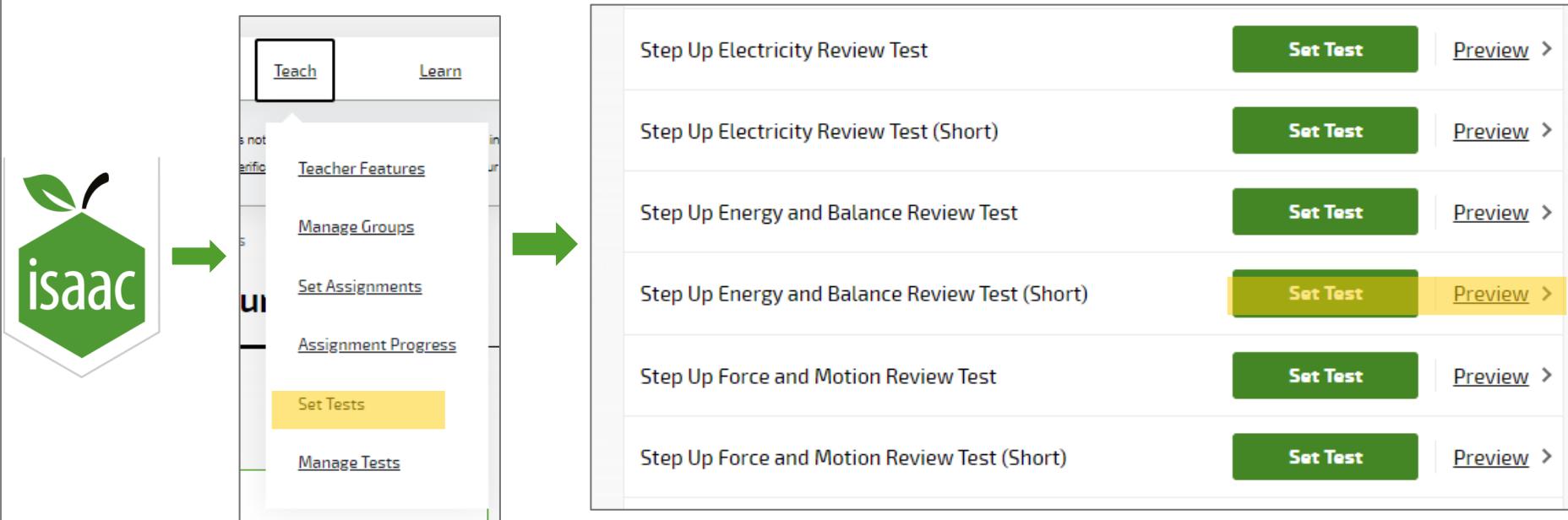


- › [https://cdn.isaacphysics.org/isaac/books/isaac\\_gcse\\_physics\\_book\\_teacher\\_version.pdf](https://cdn.isaacphysics.org/isaac/books/isaac_gcse_physics_book_teacher_version.pdf)
- › Gapped text for GCSE book: good for cover lessons, EAL students and students with SpLD (dyslexia)



# Using Tests

- › Tests on a particular topic are available for years 10 to 13
- › **Route:** Teach/Set tests



- › Short tests are available
- › Some tests are visible to students
- › You can preview a test before setting it

**Link:** [https://isaacphysics.org/set\\_tests?stage=all](https://isaacphysics.org/set_tests?stage=all)

[CLOSE](#)

# Using Tests

- › Click on '**Set Test**'
- › Choose the **group** and **due date** (optional)
- › **Feedback** options are available:
  - No feedback
  - Overall mark
  - Mark for each section
  - Detailed feedback on each question

## Setting test 'Step Up Waves Review Test (Short)'

Set test to the following groups:

trial

Set an optional due date:

8

October

2022

What level of feedback should students get:

Select...

No feedback

Overall mark

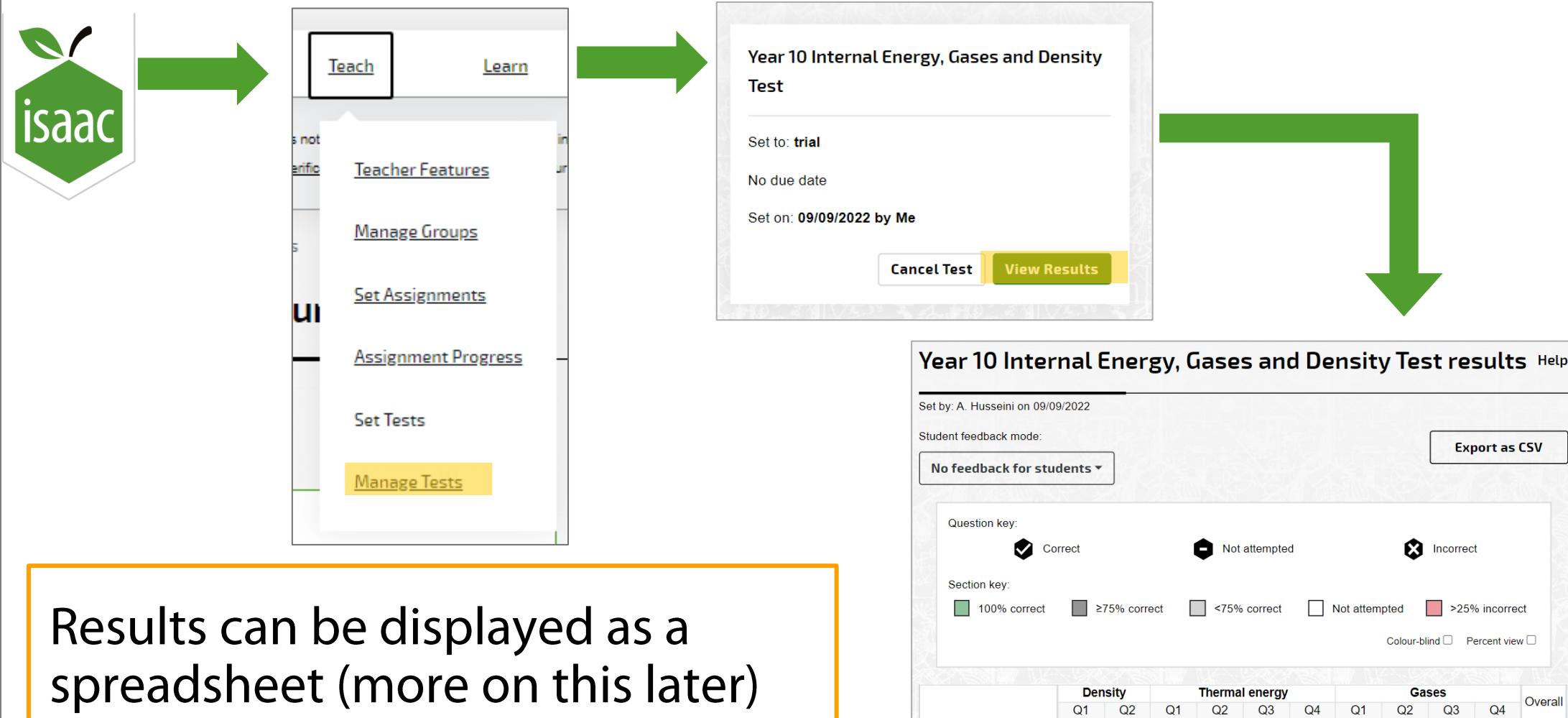
Mark for each test section

Detailed feedback on each question



# Manage Tests

- › You can view the results of each test
- › Teach/Manage Tests/View Results



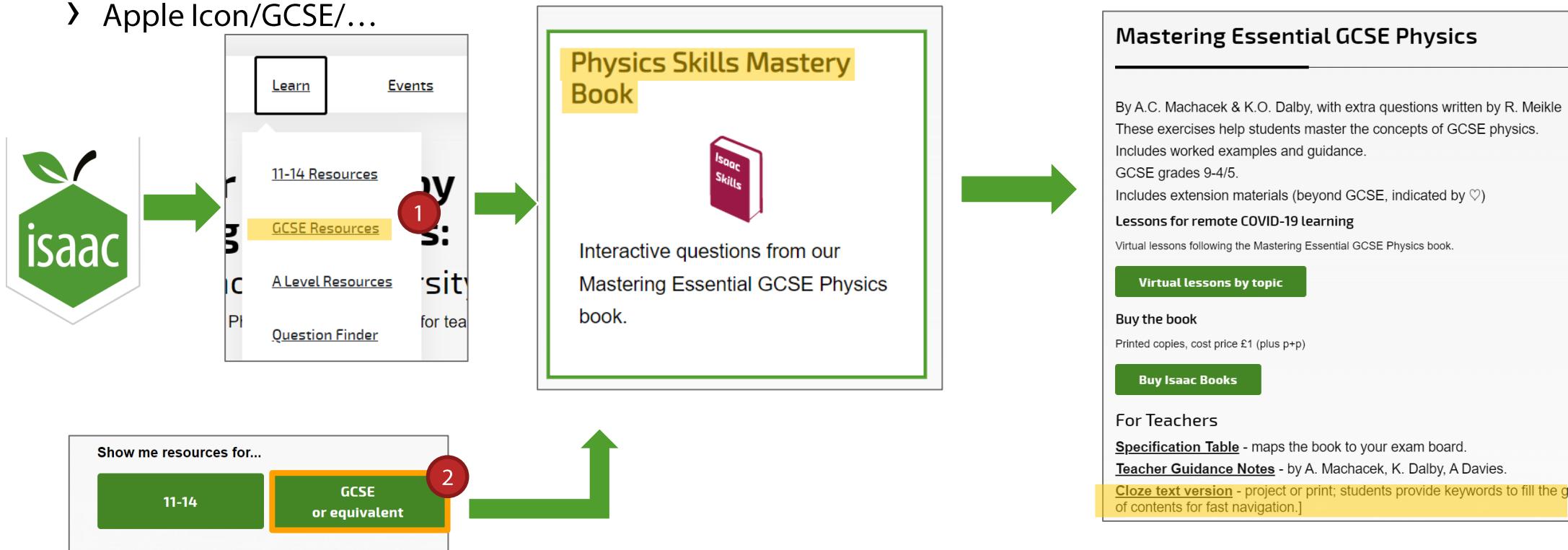


# Cloze text for lessons and revision

## Physics Skills Mastery Book

### Routes:

- › Learn/GCSE Resources/Physics skills mastery/cloze text version
- › Apple Icon/GCSE/...



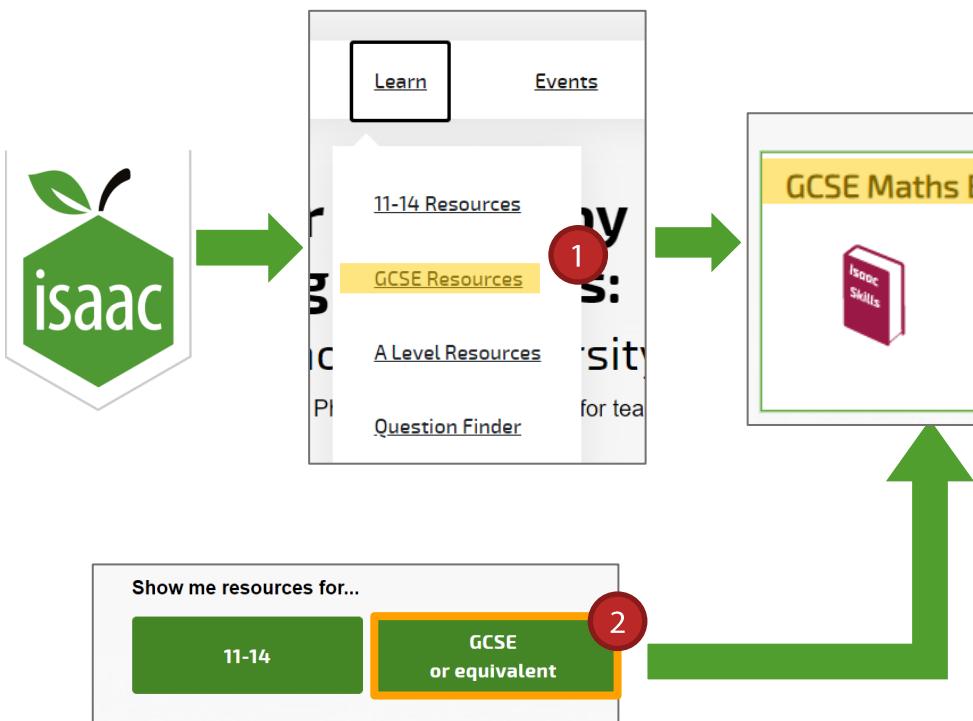
- › [https://cdn.isaacphysics.org/isaac/books/isaac\\_gcse\\_physics\\_book\\_teacher\\_version.pdf](https://cdn.isaacphysics.org/isaac/books/isaac_gcse_physics_book_teacher_version.pdf)
- › Gapped text for GCSE book: good for cover lessons, EAL students and students with SpLD (dyslexia)



# GCSE Maths Book

## Routes:

- › Learn/GCSE Resources/Physics skills mastery/cloze text version
- › Apple Icon/GCSE/...



- › Access a specification table
- › List of questions linking to STEM subjects
- › Teachers manual available
- › Guidance on preparation for sixth form
- › Set different sections as homework

## Using Essential GCSE Mathematics

By S.A. Waugh & J.N. Waugh

This book is designed to provide practice for GCSE-level mathematics. It can be used by those taking GCSE mathematics courses, and also by students in other subjects who need to learn or brush up on their knowledge of particular topics. The goals of the book are to help students master the skills they learn at GCSE level, and act as a resource for students who need to use these skills in their courses at A-level.

Includes worked examples and guidance.

Suitable for use with students working at the level of all GCSE grades. Boards of questions suitable for students working towards foundation and higher tier examinations are provided separately within each topic section (where relevant).

### Buy the book

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

[Buy Isaac Books](#)

### 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.

[Set a section for homework](#)

Click "Assign" below the section of the book you wish to set as an assignment.



# Our lessons for remote learning

- › Isaac Physics has complete, ready-made lessons for remote learning at GCSE and A Level.
- › These can be used as online lessons for live teaching and for independent work.
- › **Format:**
  - Introduction video(s),
  - questions to answer online, with interactive feedback and automatic marking (a hard copy can be printed off if necessary),
  - help via concept pages,
  - A recorded tutorial going through the full written solutions for the question
- › **Where do I find them?**
  - 2<sup>nd</sup> pod on Homepage
  - 3rd box in GCSE and A Level Resources

G1 Kelvin scale of temperature

• Temperature      kelvin      K

0      100      200      300      400      500

-120    -100    -80    -60    -40    -20    0    100    200    300    400    500

0°C = 273K

Watch on YouTube

Click on the topic to find relevant material for your learning and teaching.

- There are resources for teaching each concept and for revising the topic as a whole.
- Numbers refer to sections of the *Mastering essential Pre-university Physics* book.
- A syllabus map shows which concepts are required by each examination board.

**GCSE Physics Lessons**

Packages of questions, recorded explanations and tutorials and topic based revision plan.

**A Level Physics Lessons**

Resources for learning and consolidation



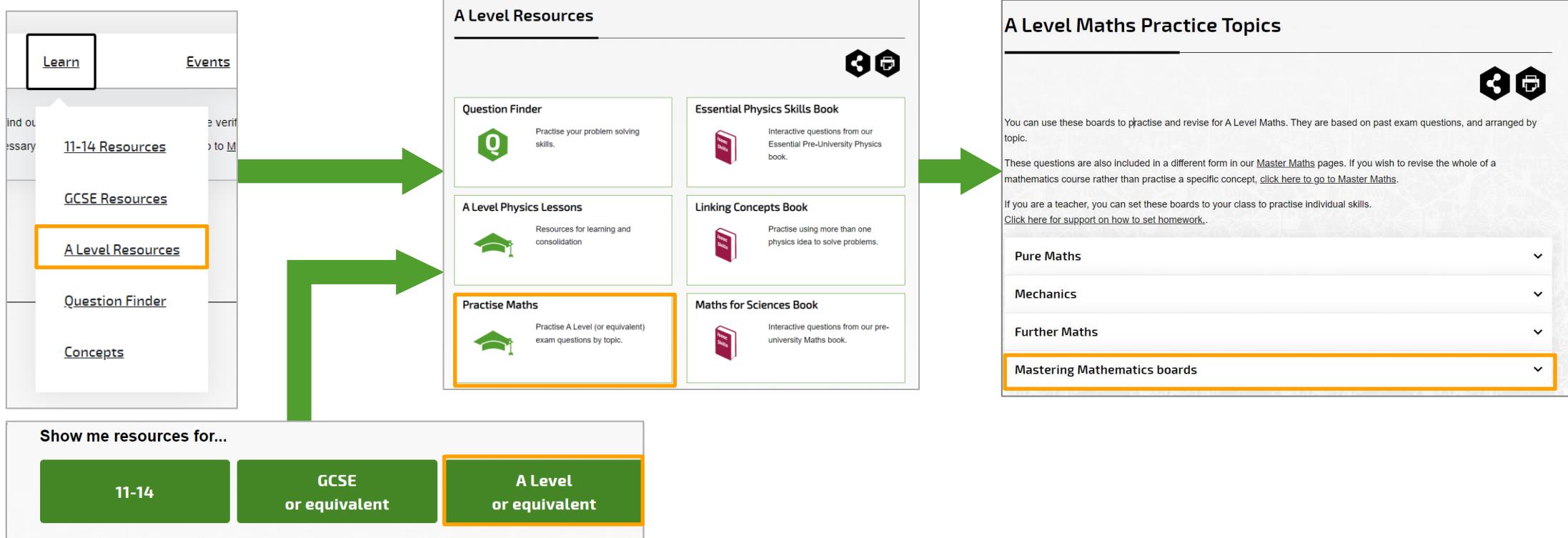
# Master Mathematics

Help Video



[youtu.be/9674mtN2Mvc](https://youtu.be/9674mtN2Mvc)

- › Apple Icon/Learn A Level or Learn A Level Resources/Practise Maths/Master Mathematics



- › Pure Maths and Mechanics revision boards for Year 1 and Year 2 of A Level
- › Option of extra practice questions
- › Progression to problem solving



# Master Mathematics

## Mechanics Stage 1 - Revision & Practice

- Significant Figures  
How to use significant figures [>](#)
- Two Particles on a Pulley  
Maths [A Level](#) [>](#)
- Kinematics & Calculus  
Maths [A Level](#) [>](#)
- Particle on a Surface  
Maths [A Level](#) [>](#)
- Pulley with Three Masses  
Maths [A Level](#) [>](#)
- Friction  
Maths [A Level](#) [>](#)



## Curves and Integration

Level 3

[https://isaacphysics.org/questions/fasttrack\\_stage1\\_q3\\_2018](https://isaacphysics.org/questions/fasttrack_stage1_q3_2018)



### Part A Working back from $\frac{d^2y}{dx^2}$

A curve has an equation which satisfies  $\frac{d^2y}{dx^2} = 3x^{-\frac{1}{2}}$ . The point  $P(4, 1)$  lies on the curve, and the gradient of the curve at  $P$  is 5.

Find  $\frac{dy}{dx}$ .

[Click to enter your answer](#)

or type your formula here

?

The following symbols may be useful: Derivative(x , y), x, y

[Easier question?](#)

[Check my answer](#)



2 levels of easier questions are available to build confidence

link

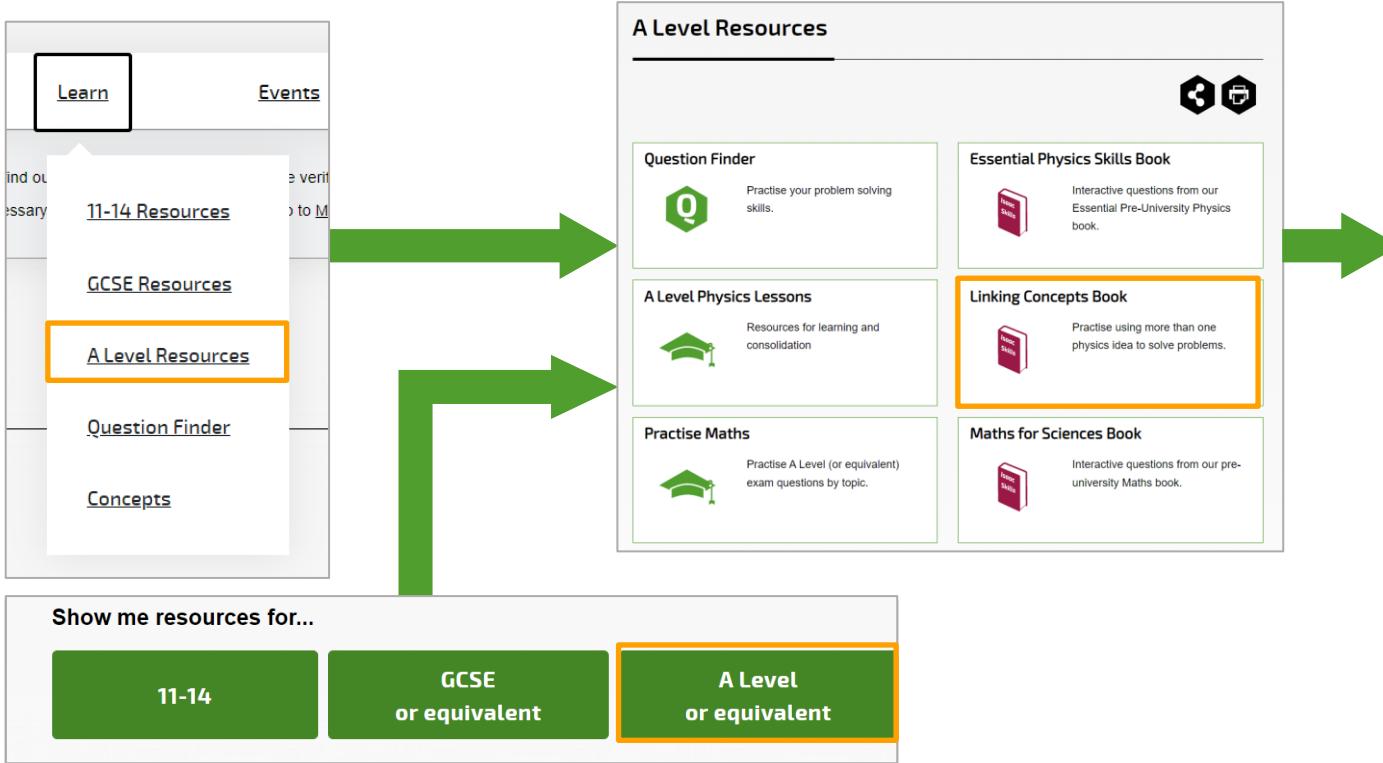
Help Video

[youtu.be/9674mtN2Mvc](https://youtu.be/9674mtN2Mvc)



# Linking Concepts

› **Route:** Apple Icon/Learn A Level or Learn A Level Resources/Practise Maths/Linking Concepts



- › Book available for Y12 and Y13 students
- › Each double page spread contains a link between concepts
- › Practice questions and worked examples



# Linking Concepts

- › Assign and view boards on each chapter
- › Quick questions available

*Chapters:*

- 1 Mechanics I**  
(Sections 1-6)
- 3 Mechanics II**  
(Sections 17-20)
- 5 Vectors, Forces and Fields**  
(Sections 26-30)



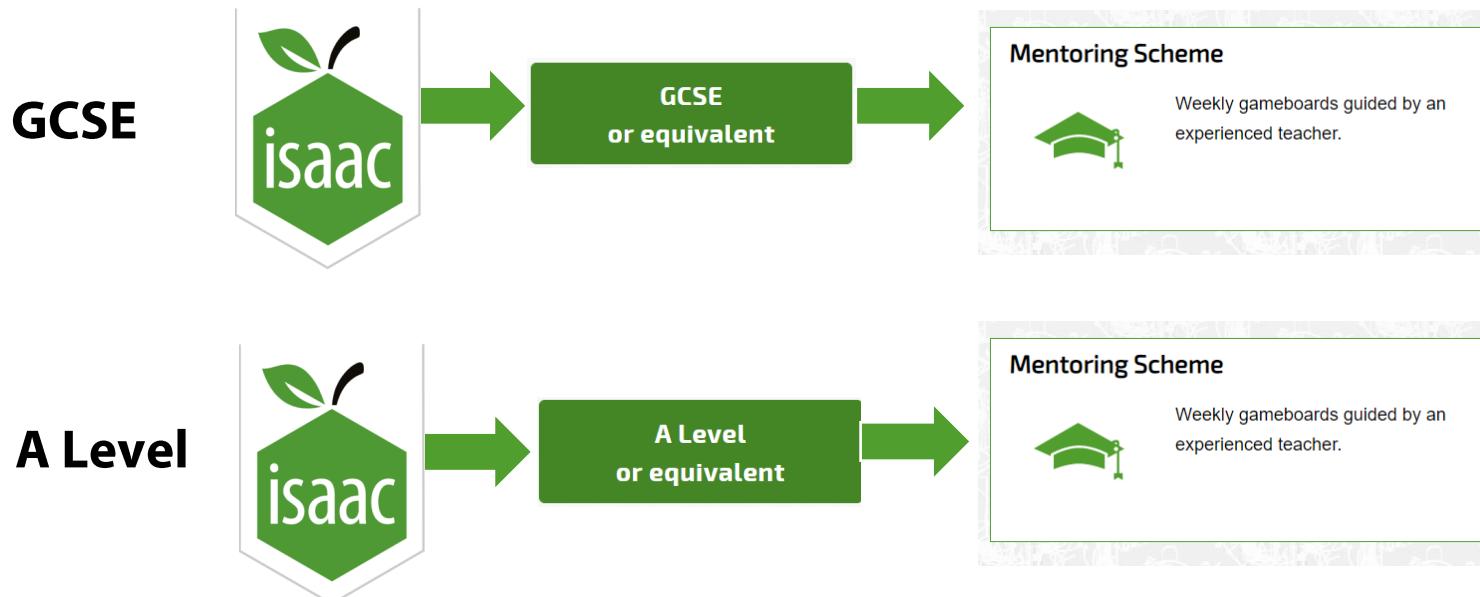
## Mechanics I

- 
- |   |  |
|---|--|
| <b>1</b><br>Gravitational potential and kinetic energy<br><a href="#">View board</a>   <a href="#">Assign</a> | <b>10</b><br>Gravitational potential and kinetic energy Quick<br><a href="#">View board</a>   <a href="#">Assign</a> |
| <b>2</b><br>Gravitational, elastic and kinetic energy<br><a href="#">View board</a>   <a href="#">Assign</a>  | <b>20</b><br>Gravitational, elastic and kinetic energy Quick<br><a href="#">View board</a>   <a href="#">Assign</a>  |



# Opportunities for students: Mentoring

- › Isaac Physics offers online mentoring schemes for all students in Years 11-13 to develop their physics skills.



A screenshot of the Isaac Physics website interface. At the top right, there is a navigation bar with links for "Events" (which is highlighted with a black border), "Help", and other menu items. Below this, there are sections for "My Booked Events" and "All Events". A red arrow points upwards from a red-bordered box at the bottom left towards the "Events" link in the menu bar. The red box contains the text "From the menu bar:".



# Opportunities for students: Mentoring

## Mentoring Scheme 2022/23

- Begins on Tuesday 6<sup>th</sup> September
- As a student and / or teacher you can have a direct interaction with one of the Isaac Physics team.
- Each week (including through school holidays) your mentor will set a task - a set of questions, that are at a mixed level (book questions and Levels 1 to 6 questions through the year) that should you should spend **at least one hour** in attempting.
- Tutorials that have been recorded will be deleted on a termly basis.
- The questions are for YOU and NOT for your teacher! If you really are stuck, ask us for help. use the **Contact Us** at the bottom of the page.
- The point? To encourage you to try out some physics problems as a social activity, joining in with the struggle to solve them. Work with an Isaac Physics Mentor struggling through the problems themselves.



**Tutorial Pages**

[The Reward - Why Join the Scheme?](#)

[How Do I Join?](#)

Once you have signed up to a particular mentoring scheme group, you can use the following pages in order to watch the tutorials and check on the work set.

- [Y11 Mentor Group Page](#)
- [Y12 Mentor Group Page](#)
- [Y13 Mentor Group Page](#)



# Opportunities for Teachers: Mentoring Subject Knowledge Enhancement (SKE)

- › Isaac Physics offers online mentoring schemes for teachers covering the GCSE and A Level Physics Mastery books

Events Help  
How-to Videos  
Problem Solving Guide  
Student FAQ  
**Teacher FAQ**  
Contact Us

[https://isaacphysics.org/pages/teacher\\_mentoring?stage=all](https://isaacphysics.org/pages/teacher_mentoring?stage=all)

## Teacher FAQ

Get started! Select the appropriate group for your CPD requirements You may join either or both groups. You must be logged in with a Teacher Account.

[GCSE Teacher Mentoring Tutorial Page](#)

[A Level Teacher Mentoring Tutorial Page](#)

### What do we offer?

Drop-in surgery (online / phone)

Teacher Mentoring schemes (SKE)

### Enhance your Subject Knowledge - Join our teacher mentoring schemes

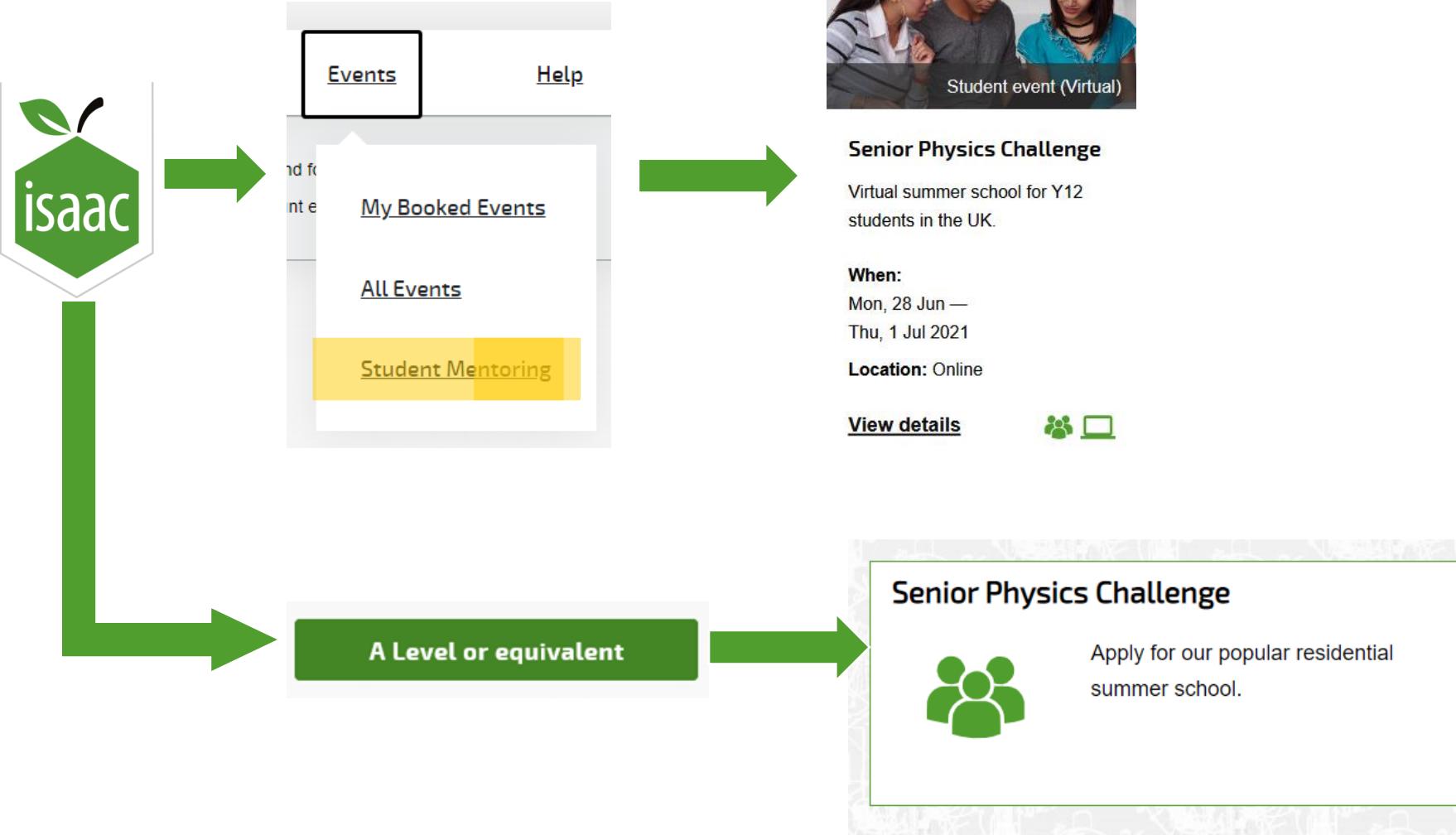
We offer free fortnightly subject-specific CPD for all teachers of GCSE or A-level Physics (trainees, new - or returning - to teaching, and experienced specialists of physics or other related subjects). The aim of this programme is simple - you become confident to tackle and set Isaac Physics's Skills Mastery questions.

To join the teacher mentoring schemes, click here:

[Teacher Mentoring Home](#)

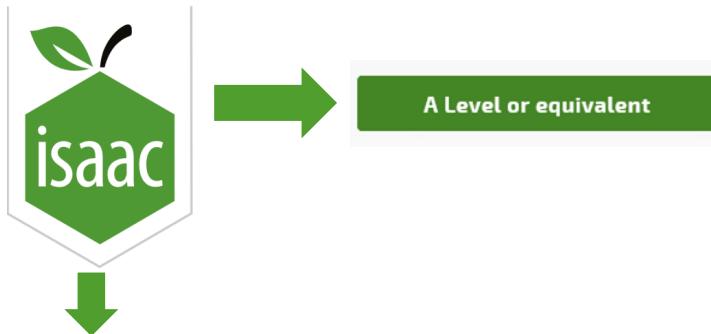


# Opportunities for students: Challenges





# Opportunities for students: Challenges contd.



A Department for Education project at the University of Cambridge, supported by The Ogden Trust

**Links**

- About Us
- Contact Us
- Accessibility Statement
- Privacy Policy
- Terms of Use

**Get social**

- YouTube
- Twitter
- Facebook

**Extraordinary Problems**

Isaac Chemistry

## Extraordinary Problems

In this section we feature problems that as physicists we solve using the concepts and examples explored in the other areas of this site.

Other examples are: How banked tracks allow cyclists and vehicles to travel faster when cornering (<http://www.bbc.co.uk/news/magazine-19166035>), and what the optimum speed to travel on a motorway is to avoid traffic jams (<http://www.bbc.co.uk/news/magazine-15620146>).

Monster Truck Front Flip

## Additional Resources

### Events



Find one of our face-to-face or virtual events.

### Physical Chemistry Mastery Book



Interactive questions from our Mastering Essential Pre-University Physical Chemistry book.

### Mentoring Schemes



Weekly gameboards guided by an experienced teacher.

### Solving Physics Problems Book



Our printed guide to solving unfamiliar problems using pre-university Physics.

### Senior Physics Challenge



Apply for our popular residential summer school.

### Quantum Mechanics Primer Book

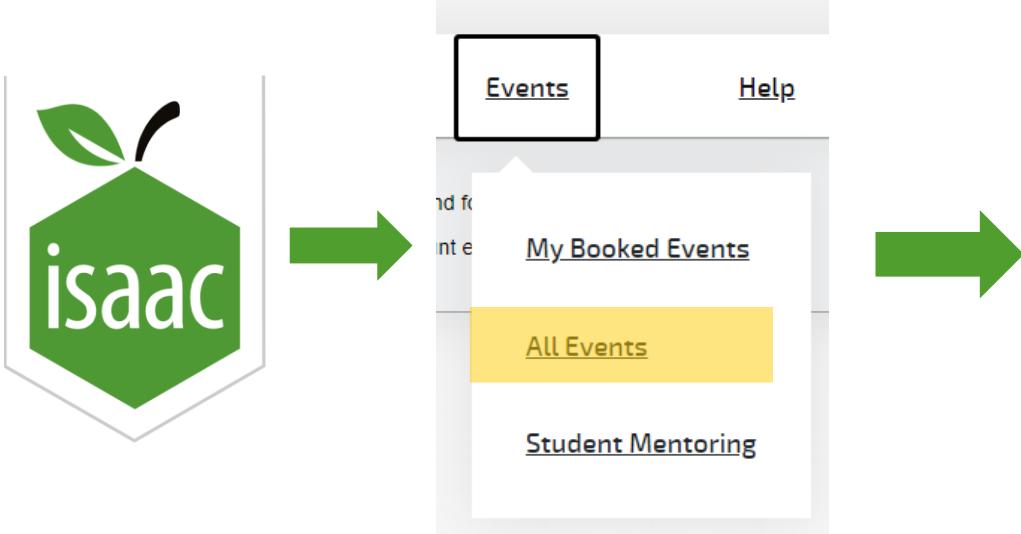


Interactive questions from a first year university introduction to quantum mechanics.



# Opportunities for students: Masterclasses

- › Intense workouts for students to practice and improve their grades
- › Held regularly
- › From Y10 to Y13

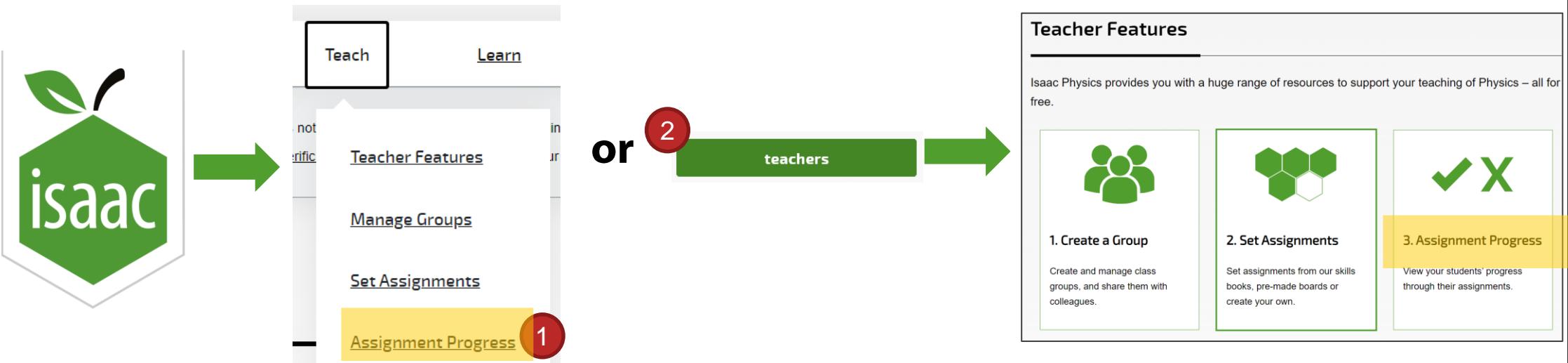
A screenshot of a web page titled "Events". At the top right is a "Filter" button. Below it is a thumbnail image of three people looking at a screen, with the caption "Teacher and Student event (Virtual)". The main content area displays the following information:

**A Level Autumn Masterclass**  
Virtual event to practise A Level Physics for Y12 and Y13  
**When:**  
Sat, 12 Nov 2022  
10:00 — 14:00  
**Location:** Online  
[View details](#)



# Use spreadsheets to display results

- › Apple/menu/assignment progress or Teach: Teacher Features/download group csv (paste into your spreadsheet)

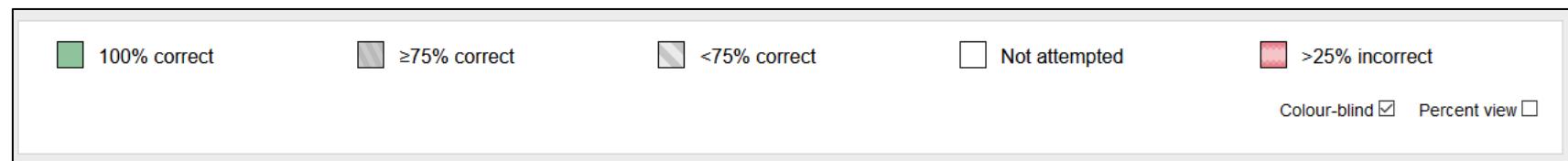
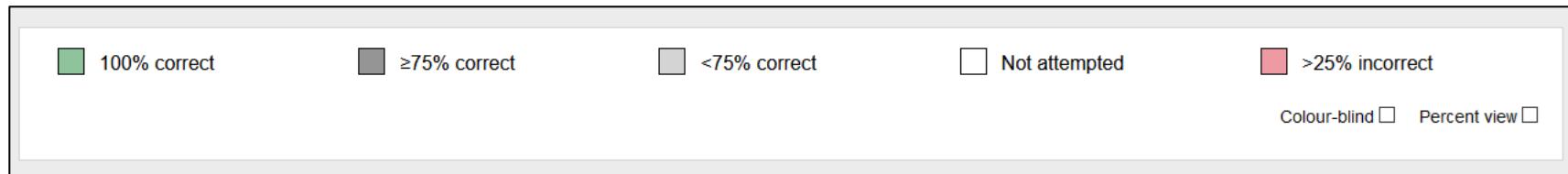


- › Or click down arrow for individual assignment class results





# Use spreadsheets for displaying results



[Download CSV](#)

2 of 2 students have completed the gameboard A Level Pot-Pourri correctly.

Question: Sketching graphs of sin and cos squared												
	100%	100%	100%	100%	100%	100%	100%	100%	100%	Total Parts	Total Qs	
	4/4	7/7	1/1	13/13	1/1	2/2	2/2	1/1	4/4	2/2	37/37	10/10
	4/4	7/7	1/1	13/13	1/1	2/2	2/2	1/1	3/4	2/2	36/37	10/10
	100%	100%	100%	100%	100%	100%	100%	100%	100%	Total Parts	Total Qs	



# Thank you for attending this CPD!

- › Need support?
- › <https://isaacphysics.org/contact> anyone able to help will pick this up
- › [ingrid@isaacphysics.org/](mailto:ingrid@isaacphysics.org) goes to Teacher Manager only
- › <https://www.talkphysics.org/groups/isaac-physics/> an Isaac community
- › Apply to join our WhatsApp community:  
[https://isaacphysics.org/support/teacher/suggestions#teacher\\_forums](https://isaacphysics.org/support/teacher/suggestions#teacher_forums)