Isaac Physics Teacher CPD

Follow up:
developing your teaching with isaacphysics.org

This session's objectives:

- using the Specification Table to find syllabus-appropriate questions
- using quizzes
- using the spreadsheet for GCSE Boards for Lessons and making your own boards
- cloze text for lessons and revision
- Our lessons for remote learning
- Master Mathematics
- opportunities for students e.g. mentoring, Challenges and Masterclasses
- using spreadsheets for displaying results

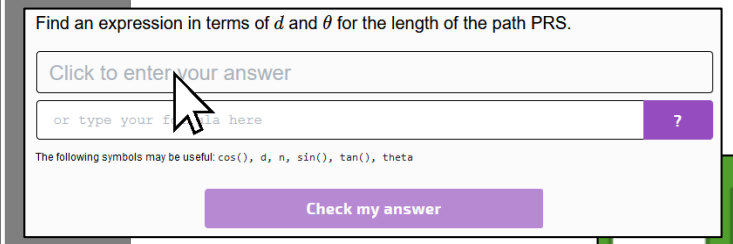
- **You will be guided to explore the resources on Isaac additional to the text books. You will have the opportunity to make your own boards and collection of useful URLs.**

Equation editor: Algebra

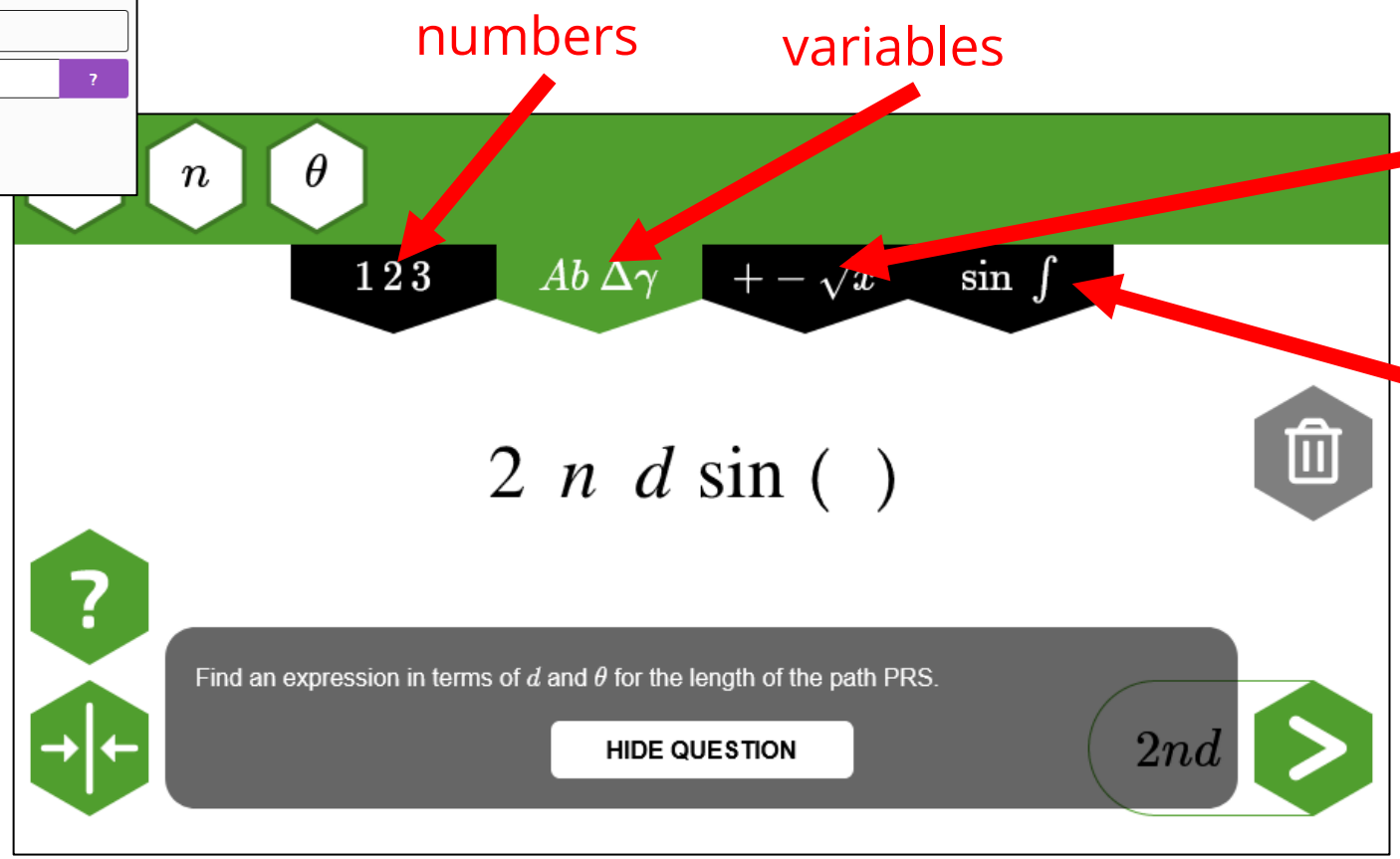
Help Video

youtu.be/9674mtN2Mvc

› Use mouse/touch to answer symbolic questions

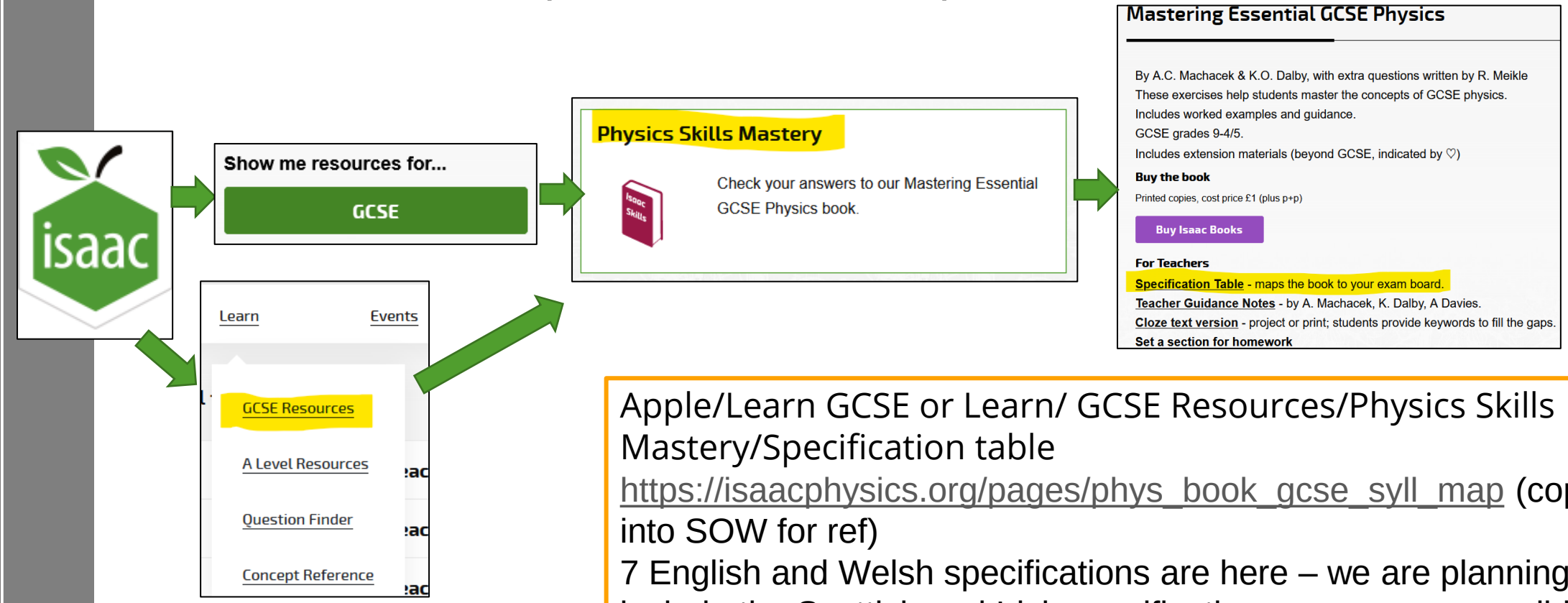


Link to question



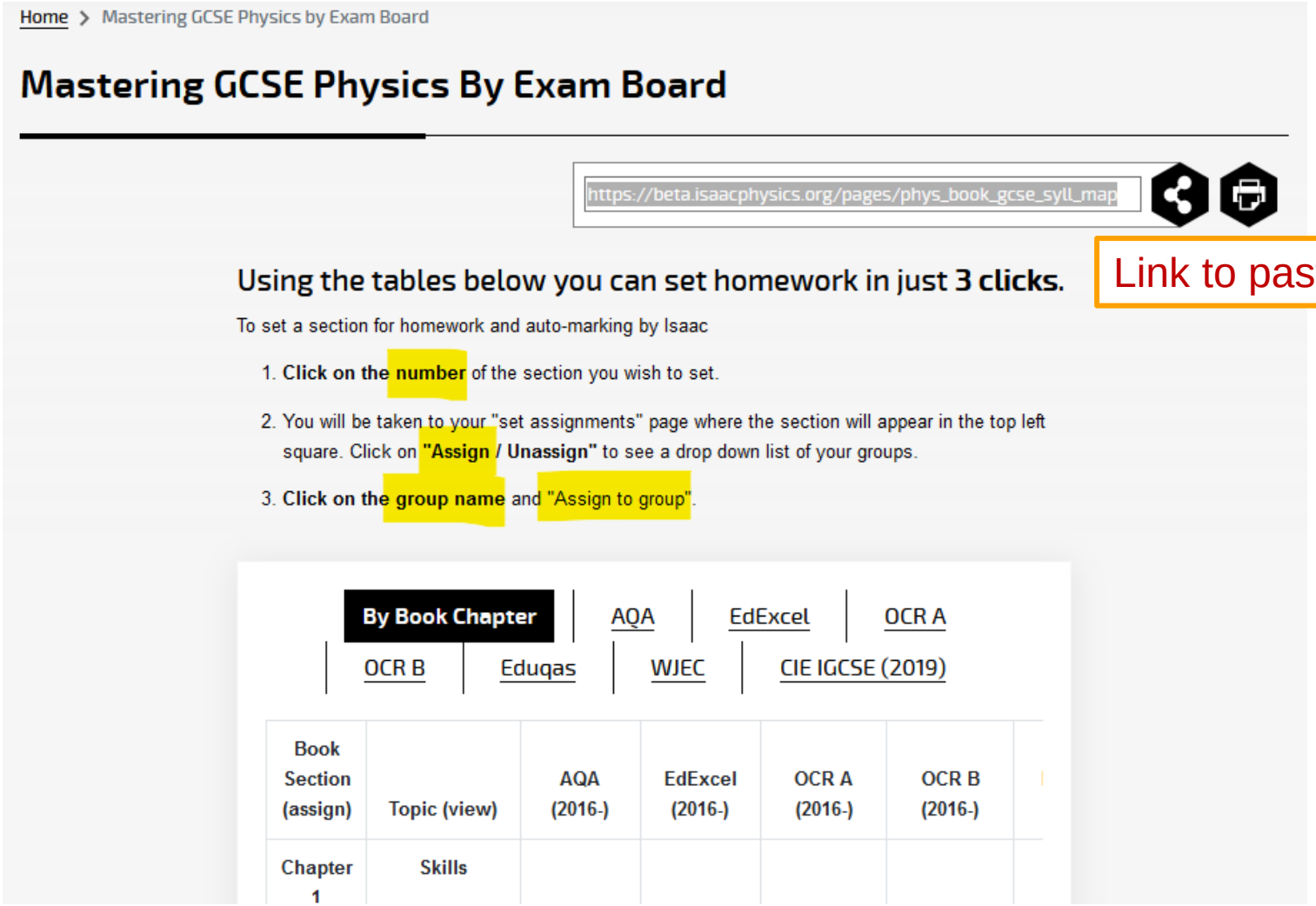
Using the Specification Table to find syllabus-appropriate questions

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



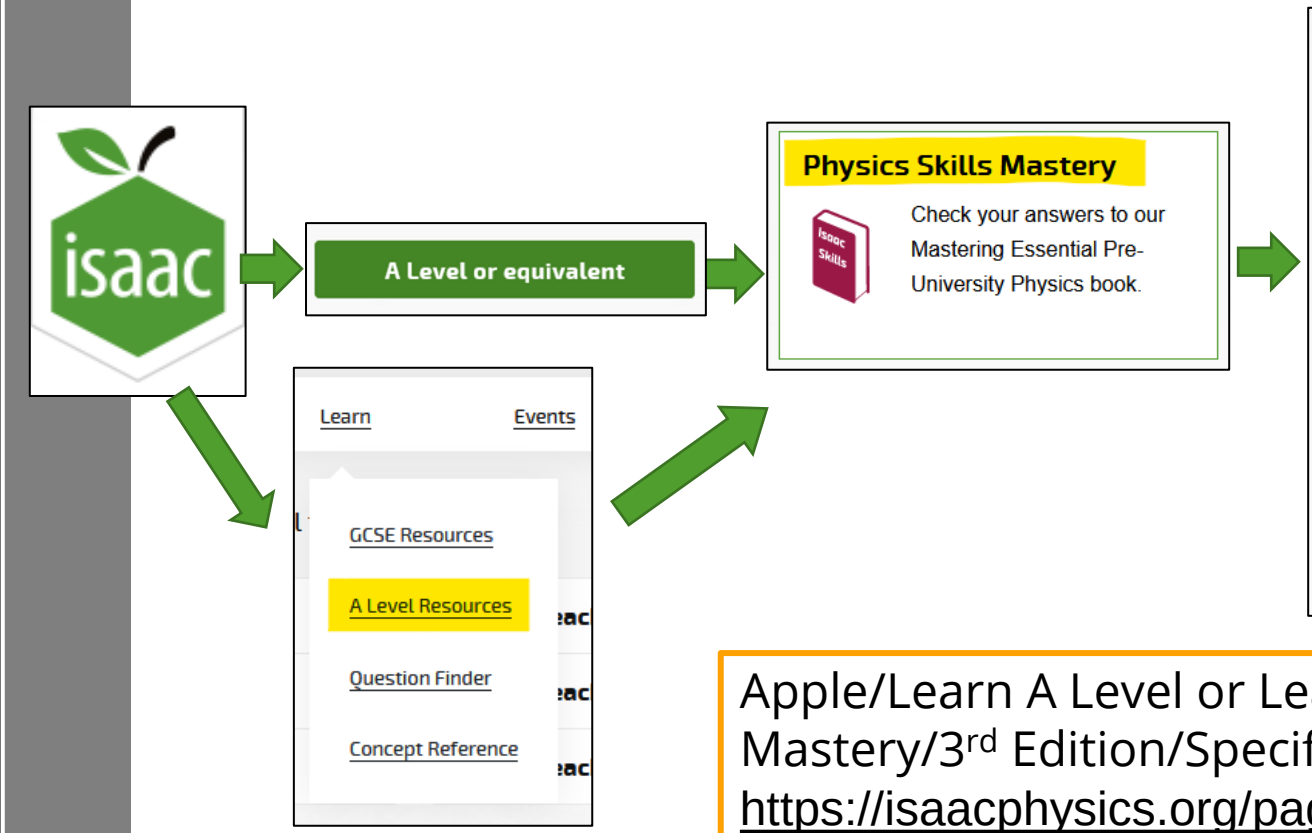
Apple/Learn GCSE or Learn/ GCSE Resources/Physics Skills Mastery/Specification table
https://isaacphysics.org/pages/phys_book_gcse_syll_map (copy into SOW for ref)
7 English and Welsh specifications are here – we are planning to include the Scottish and Irish specifications as soon as possible.
You can also sort by book chapter.

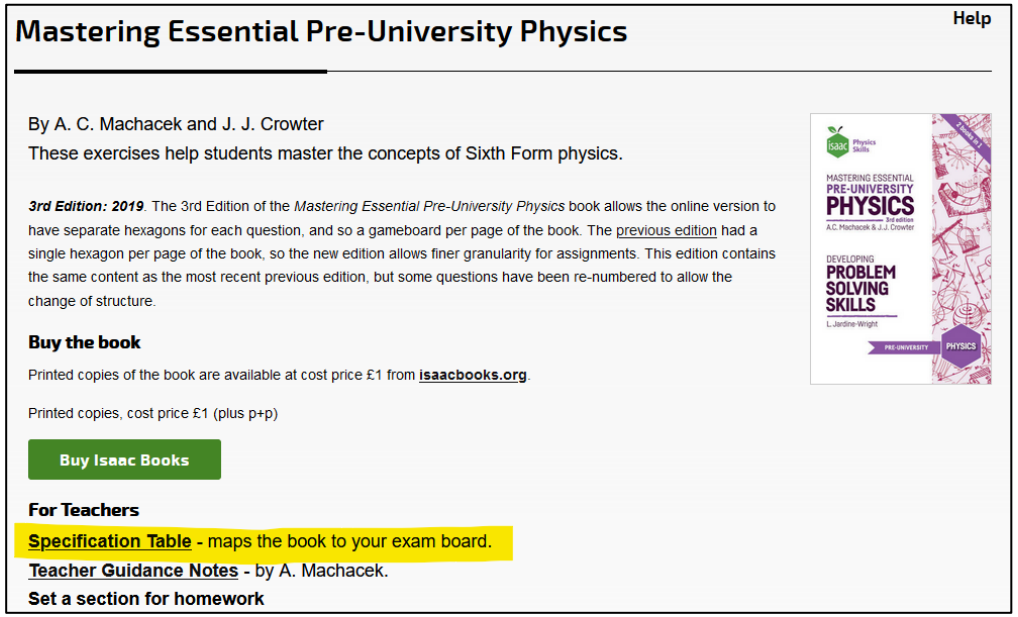
Using the Specification Table to find syllabus-appropriate questions



Using the Specification Table to find syllabus-appropriate questions

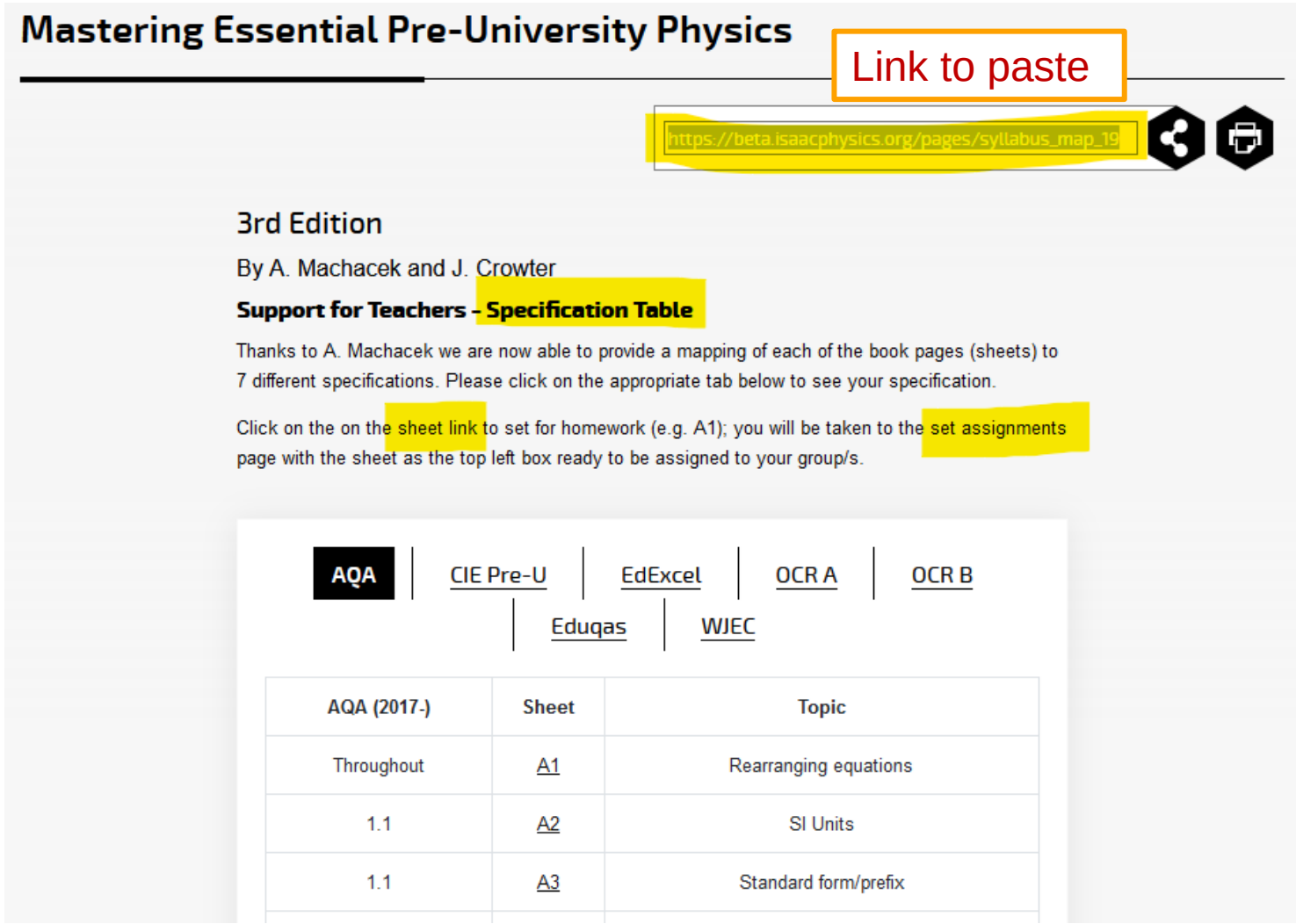
› Follow this path to find the specification table for A Level:





Apple/Learn A Level or Learn/A Level Resources/Physics Skills Mastery/3rd Edition/Specification table
https://isaacphysics.org/pages/syllabus_map_19 (copy into SOW for ref)
7 English and Welsh specifications are here – we are planning to include the Scottish and Irish specifications as soon as possible

Using the Specification Table to find syllabus-appropriate questions



Mastering Essential Pre-University Physics

Link to paste

https://beta.isaacphysics.org/pages/syllabus_map_19

3rd Edition

By A. Machacek and J. Crowter

Support for Teachers - Specification Table

Thanks to A. Machacek we are now able to provide a mapping of each of the book pages (sheets) to 7 different specifications. Please click on the appropriate tab below to see your specification.

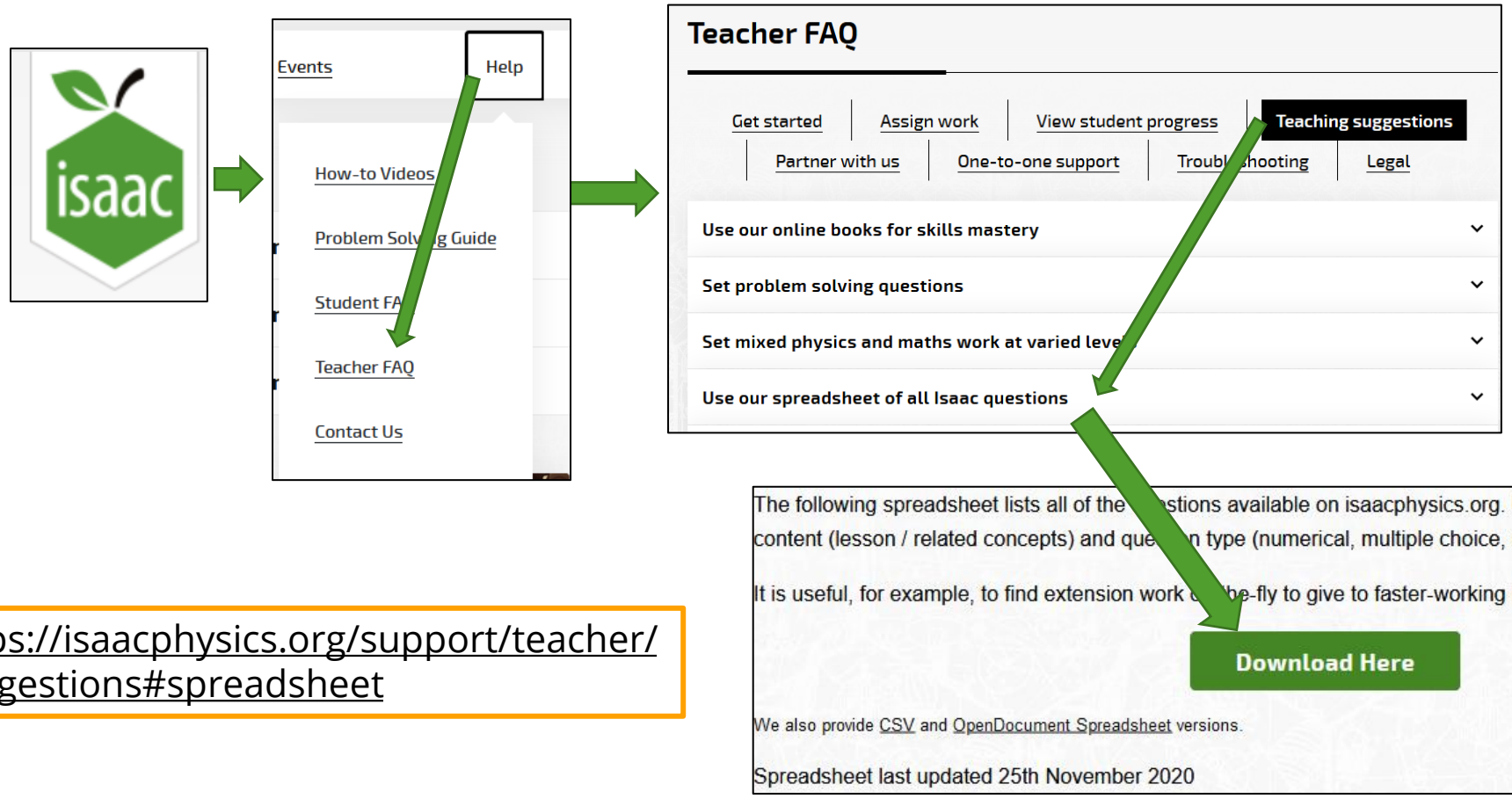
Click on the on the sheet link to set for homework (e.g. A1); you will be taken to the set assignments page with the sheet as the top left box ready to be assigned to your group/s.

AQA | CIE Pre-U | EdExcel | OCR A | OCR B | Eduqas | WJEC

AQA (2017-)	Sheet	Topic
Throughout	A1	Rearranging equations
1.1	A2	SI Units
1.1	A3	Standard form/prefix

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

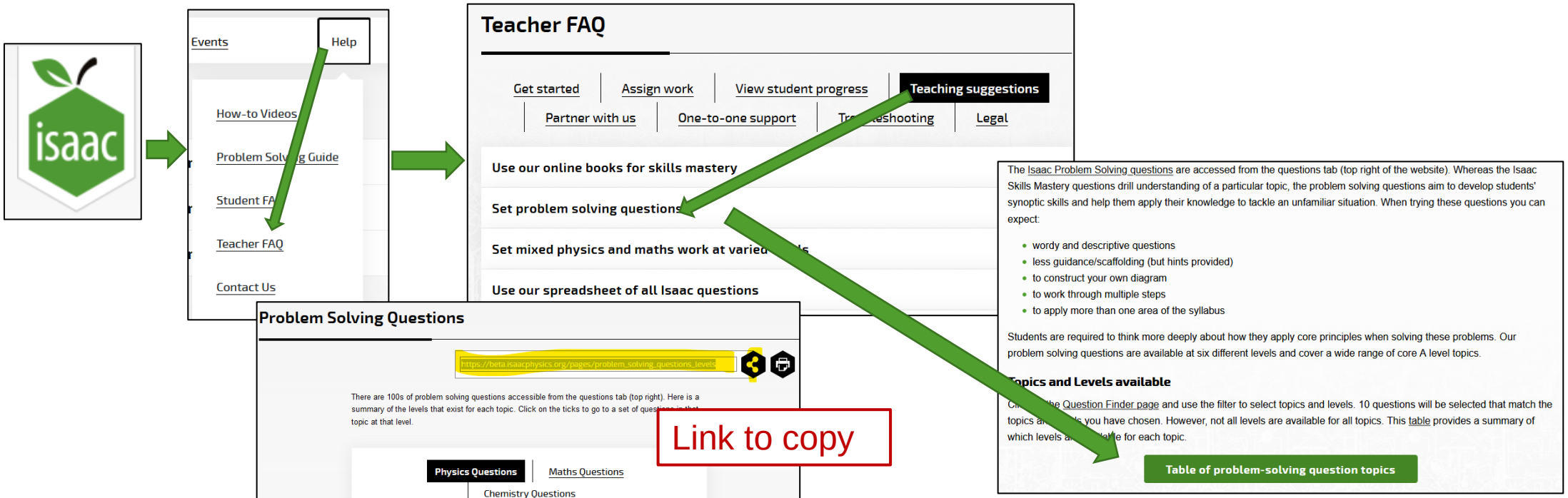
› Apple/Help/Teacher FAQ/Teaching Suggestions/Spreadsheet of all the Isaac Questions



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

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

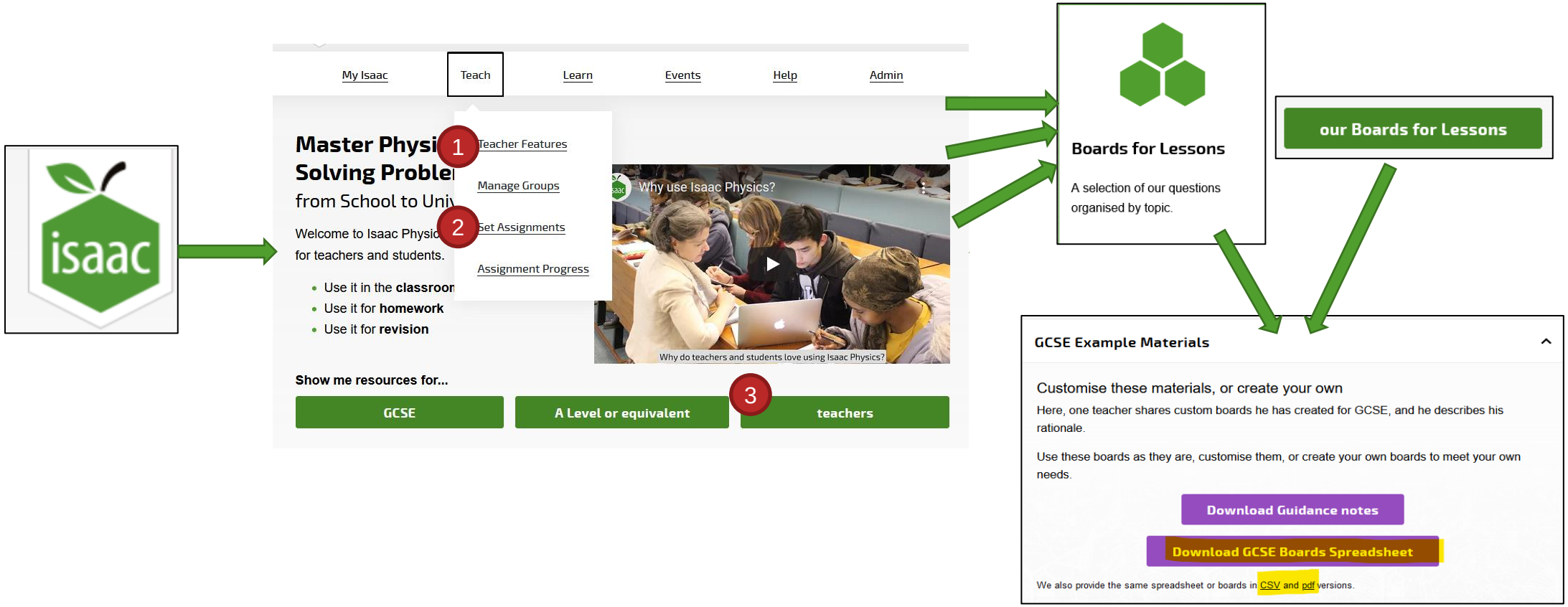
› Apple/Help/Teacher FAQ/Teaching Suggestions/Set problem solving questions/ Table



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

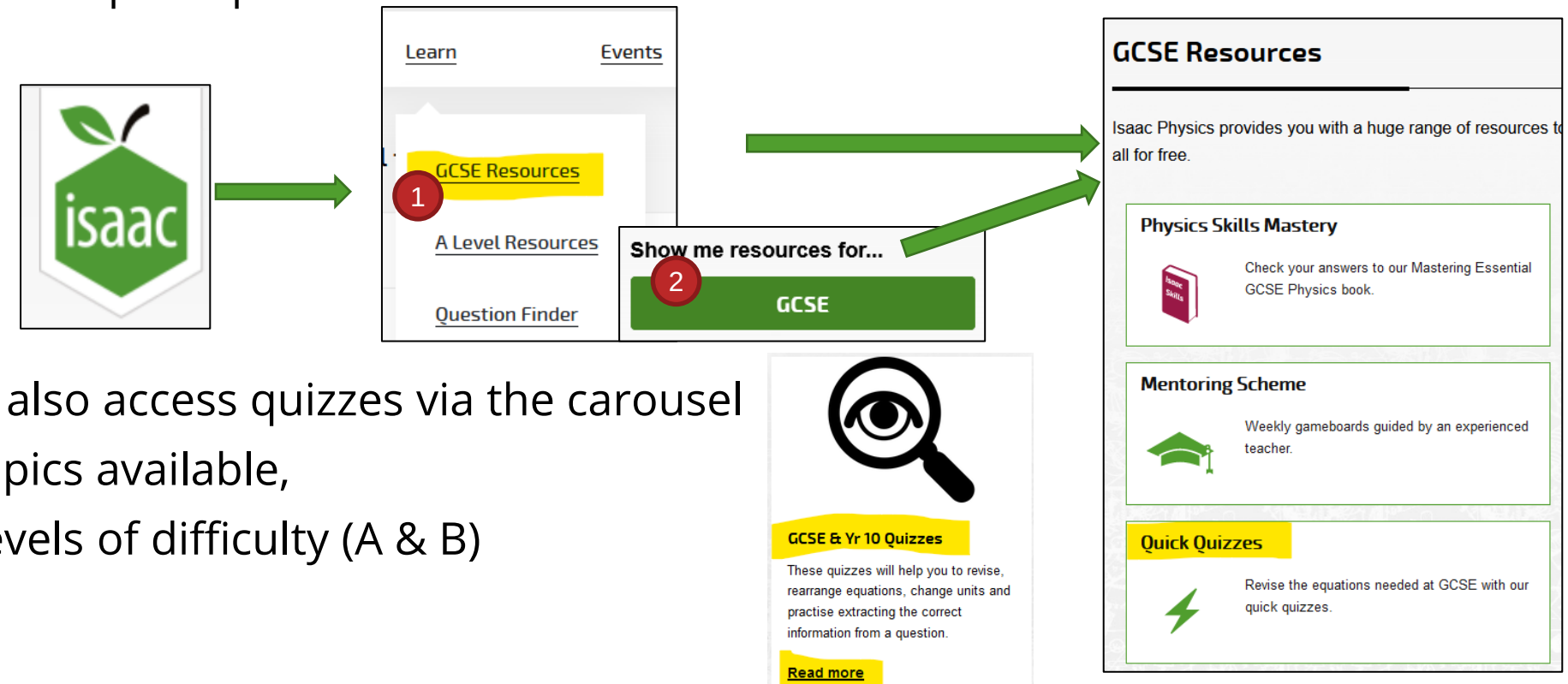
- Spreadsheet has links to ready-made boards you can cut and paste into your SOW (already done for AQA GCSE Physics). There is a lot of guidance information.

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	Charge and Current	11	67 - 68	3	https://isaacphysics.org/s/u82Ssw	Hexagon 22.4 is a straightforward drill practice table to complete. Hexagon 22.6 and 22.5 are worded questions.	Using Q = It and improving students understanding of the term charge flow.	Conversion between time (minutes → seconds), ability to understand standard form, as well as rearrangement of Q=It.
P2	Electricity	Charge and Current (Application Questions)	7	68	7	https://isaacphysics.org/s/UE1Xhm	Worded exam style questions. (22.16 and 22.17 are online only)	Using Q = It, applied in a variety of scenarios.	Conversion between time (minutes → seconds), ability to understand standard form, as well as rearrangement of Q=It.
P2	Electricity	Voltage and Current in series and parallel	9	70 - 71	5	https://isaacphysics.org/s/t2w8JD	Each hexagon corresponds to a circuit diagram. Students are required to input an value.	Most students will be challenged by circuit diagrams and often get confused about the circuit rules. This board will certainly consolidate and assess their understanding.	Understanding of current/voltage circuit rules in series and parallel.
P2	Electricity	Voltage and Current in series and parallel (Hard)	3	72	3	https://isaacphysics.org/board/a9f780cf-ff0f-409f-9eaa-b26d17e76772	Each hexagon is represented by a circuit diagram. Students are required to input an value.	More complex circuit diagrams, extending and deepening student understanding of circuit rules.	Understanding of current/voltage circuit rules in series and parallel.
P2	Electricity	Resistance V=IR	11	73 - 74	6	https://isaacphysics.org/s/ravyRZ	Hexagon 24.1 is a straightforward drill style question. Hexagons 24.2 to 24.6 are worded style exam questions.	Improve use of the basic V=IR formula as well as extension when there are non-identical components in a circuit. Often this is above most GCSE Exam boards.	Lots of prefix use, rearrangement of V=IR, and knowledge of circuit rules in a series and parallel circuit.

Isaac Physics GCSE HW Board

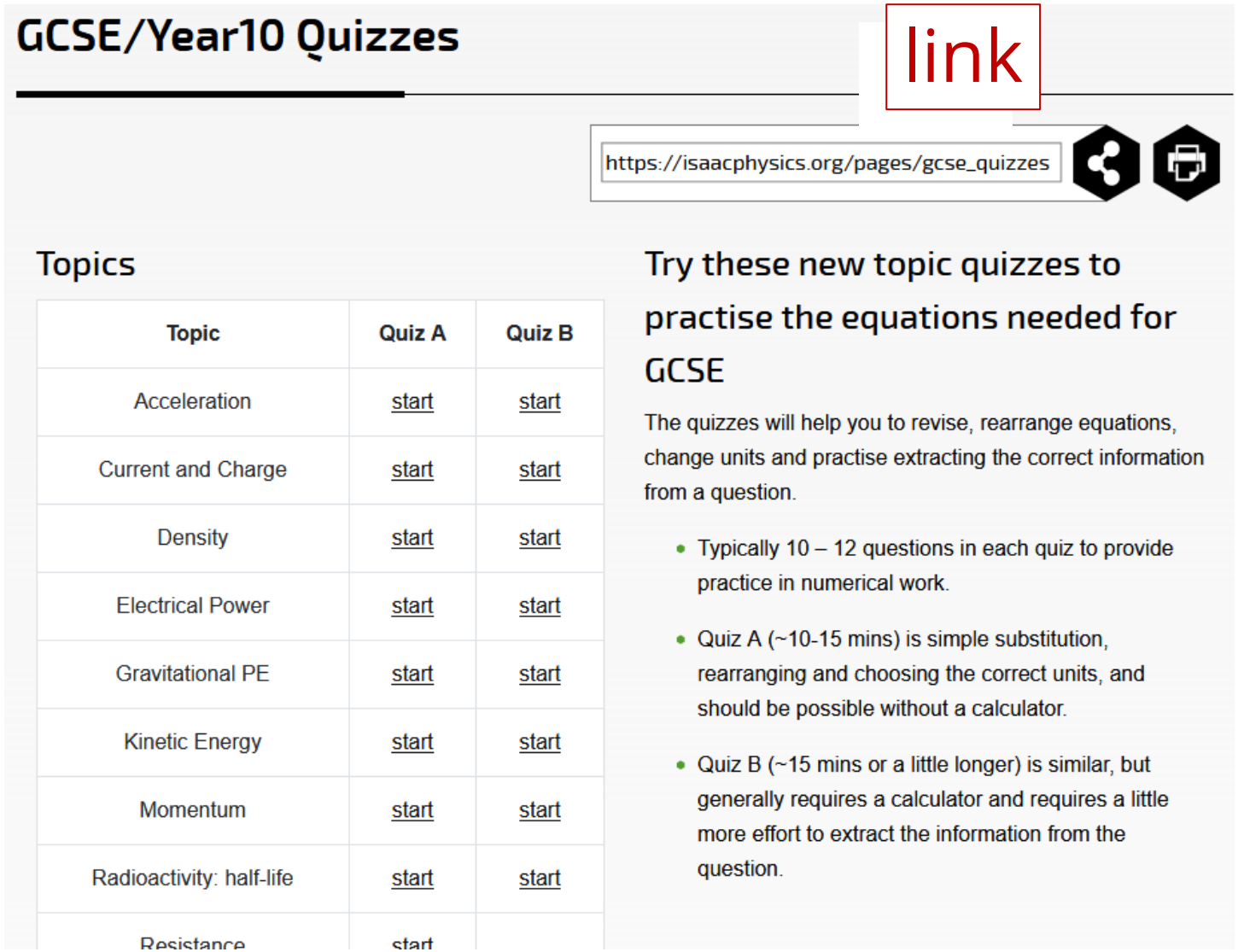
Using quizzes

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



- You can also access quizzes via the carousel
- Some topics available,
- with 2 levels of difficulty (A & B)

Using quizzes



GCSE/Year10 Quizzes

link

https://isaacphysics.org/pages/gcse_quizzes

Topics

Topic	Quiz A	Quiz B
Acceleration	start	start
Current and Charge	start	start
Density	start	start
Electrical Power	start	start
Gravitational PE	start	start
Kinetic Energy	start	start
Momentum	start	start
Radioactivity: half-life	start	start
Resistance	start	

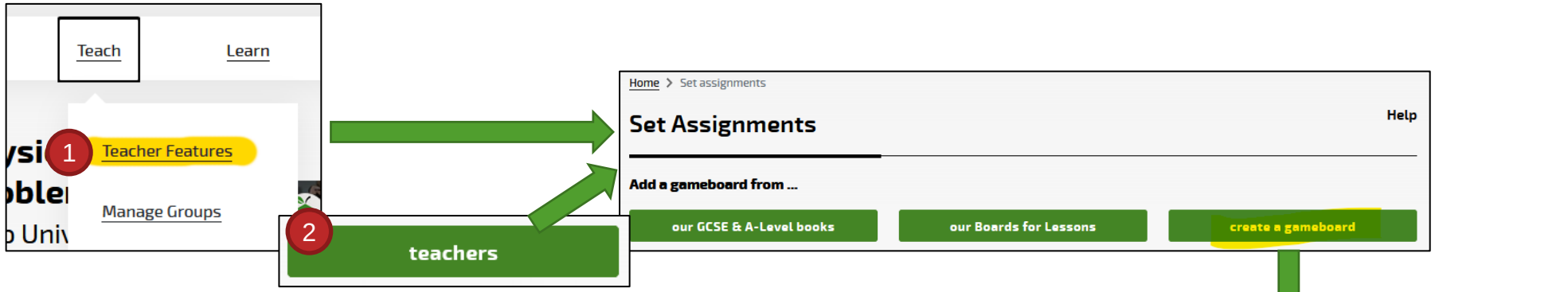
Try these new topic quizzes to practise the equations needed for GCSE

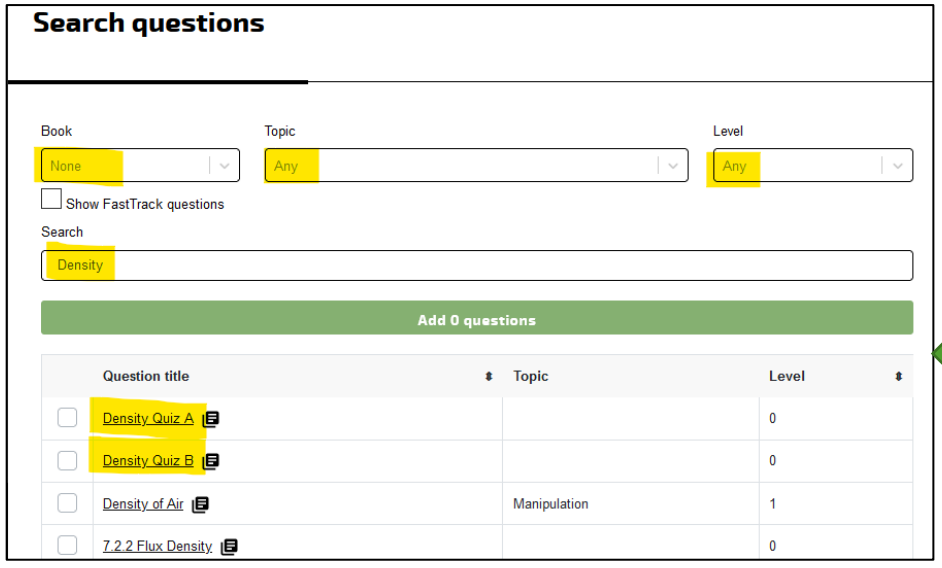
The quizzes will help you to revise, rearrange equations, change units and practise extracting the correct information from a question.

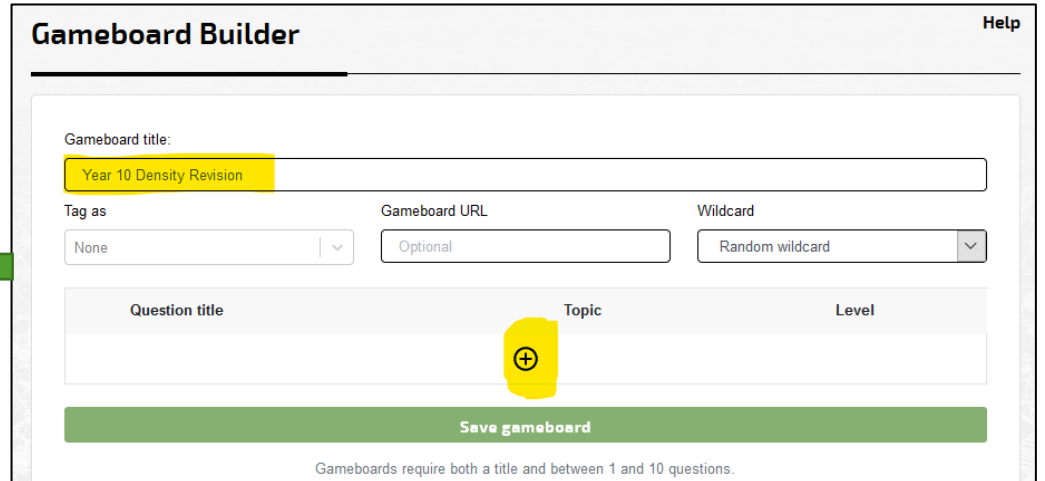
- Typically 10 – 12 questions in each quiz to provide practice in numerical work.
- Quiz A (~10-15 mins) is simple substitution, rearranging and choosing the correct units, and should be possible without a calculator.
- Quiz B (~15 mins or a little longer) is similar, but generally requires a calculator 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” selected
  › search questions for the word “*quiz*”

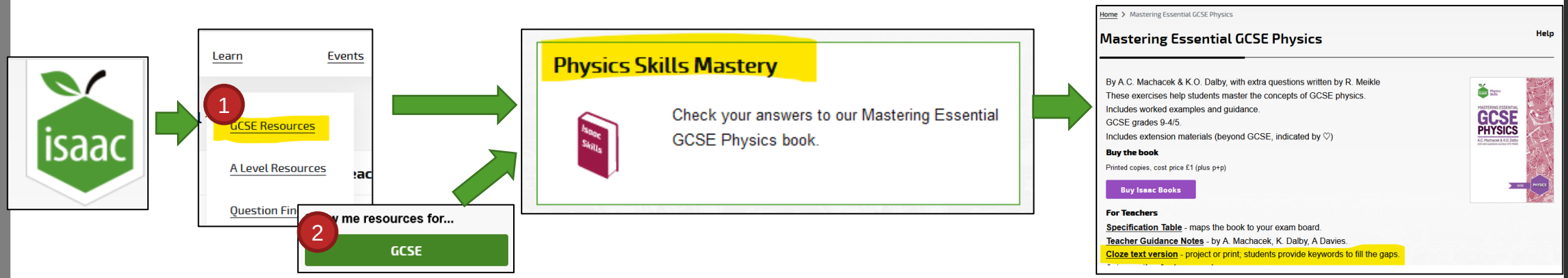






Cloze text for lessons and revision

› Apple/GCSE or Learn: GCSE Resources/Physics skills mastery/cloze text version

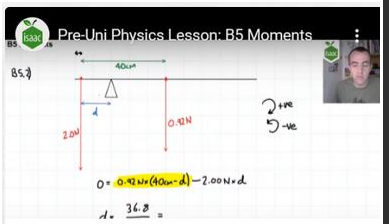


› https://cdn.isaacphysics.org/isaac/books/isaac_gcse_physics_book_teacher_version.pdf

› Gapped text for GCSE book: good for cover lessons, EAL students and students with SpLD (dyslexia)

Our lessons for remote learning

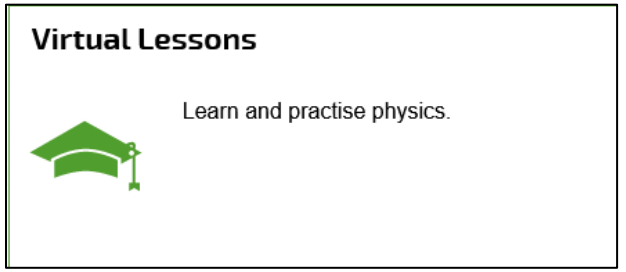
- Isaac Physics has complete, ready-made lessons for remote learning at GCSE and A Level.
- These can be used as online lessons for live teaching and for independent work.
- Format:
  - Introduction video(s),
  - questions to answer online, with interactive feedback and automatic marking (a hard copy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

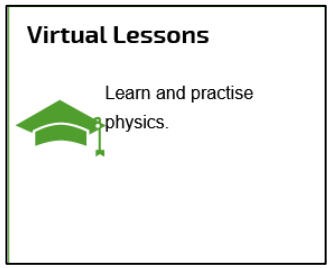


Lessons for remote COVID-19 learning

Packaged by topic and ready for self-learning or teaching. Virtual lessons blending intro videos, explanations, auto-marked questions and tutorials.

Read more



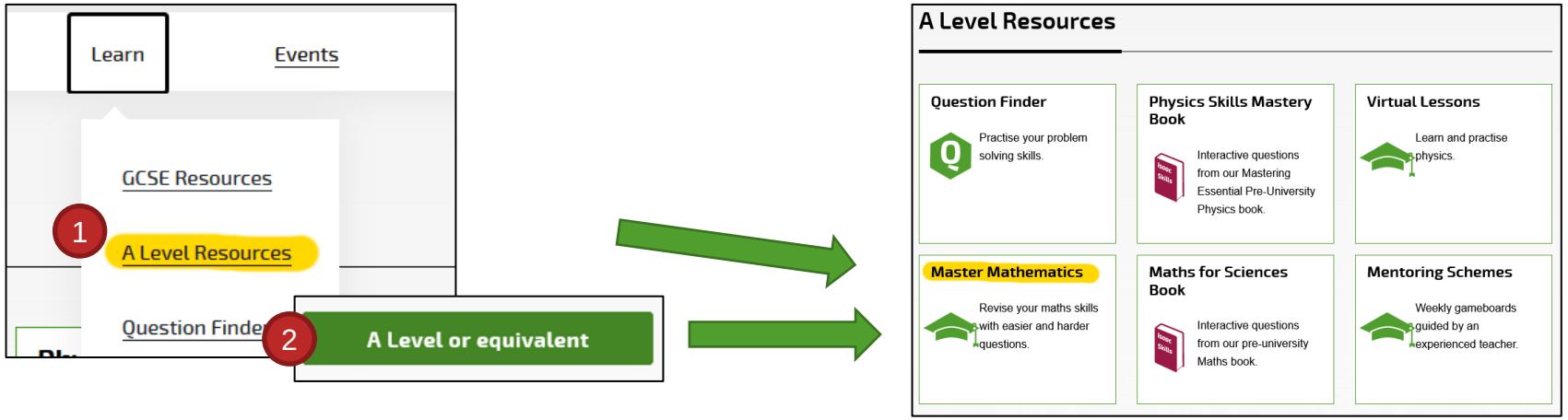


Master Mathematics

Help Video

youtu.be/9674mtN2Mvc

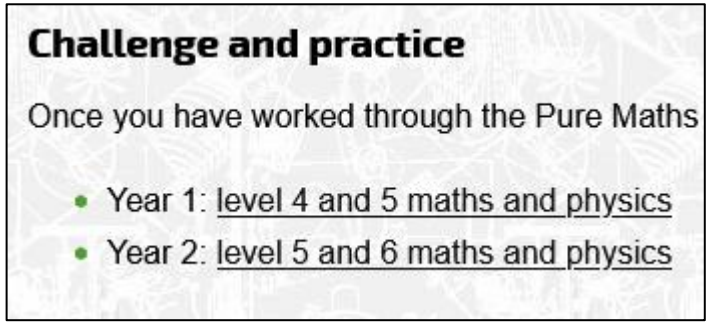
› Apple/Learn A Level or Learn A Level Resources/Master Mathematics



› Pure Maths and Mechanics revision boards for Year 1 and Year 2 of A Level

› Option of extra practice questions

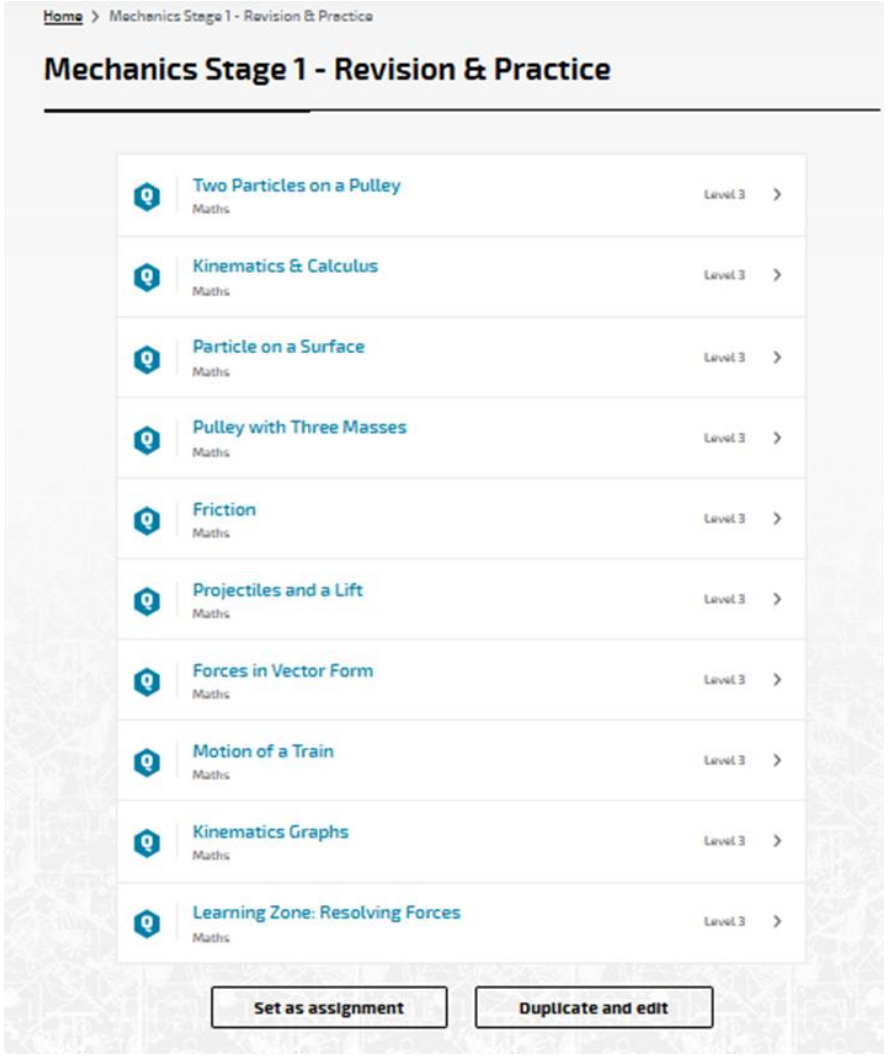
› Progression to problem solving

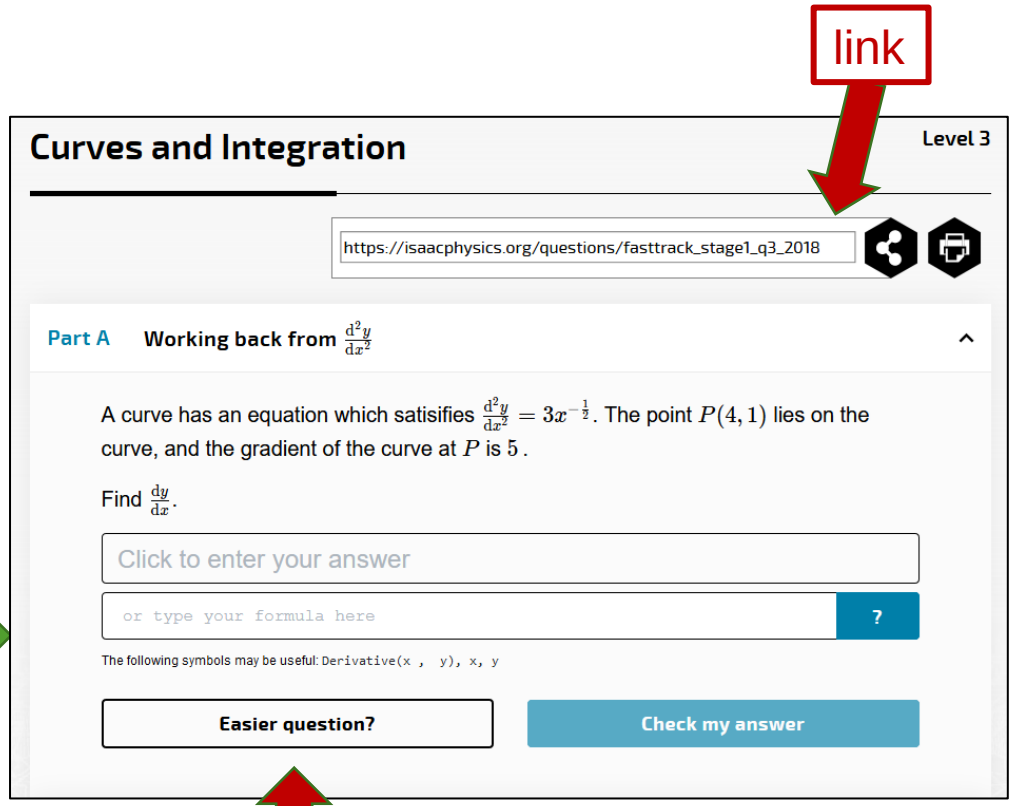


Master Mathematics

Help Video

youtu.be/9674mtN2Mvc

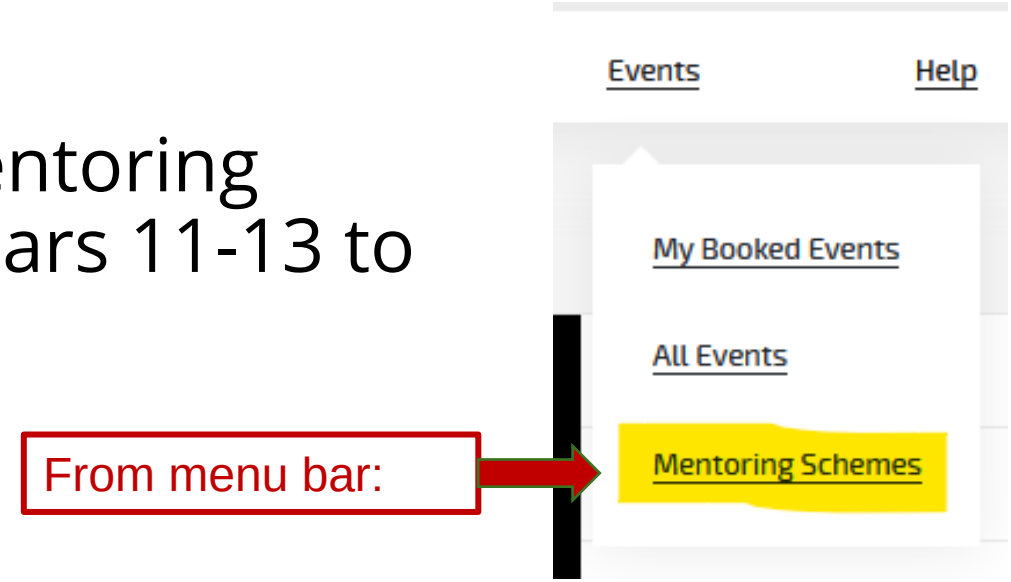


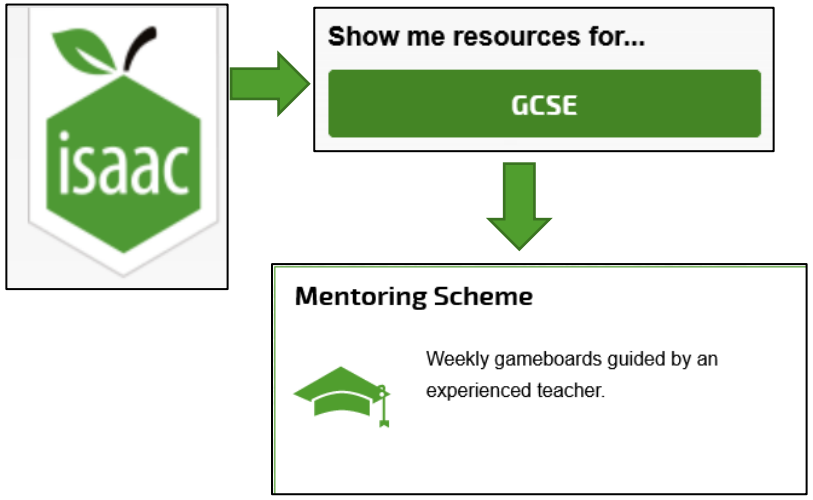


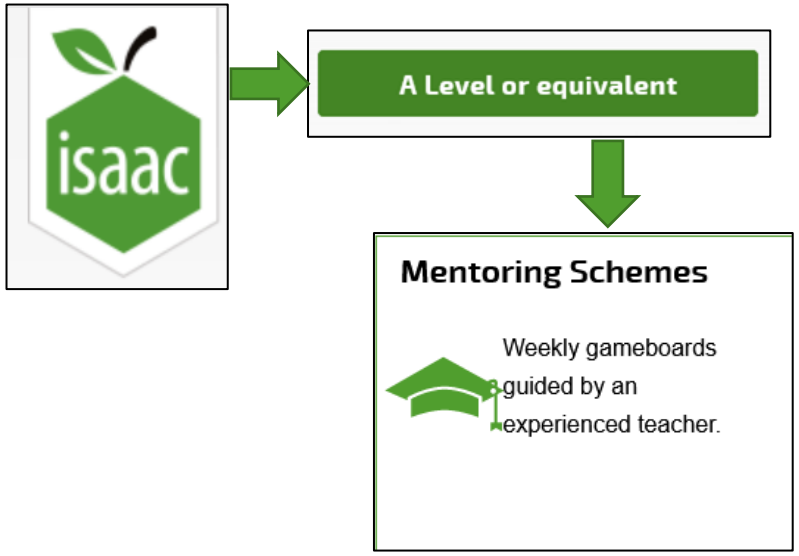
2 levels of easier questions are available to build confidence

Opportunities for students: Mentoring

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







Opportunities for students: Mentoring

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

The scheme for the 2020-21 academic year is now OPEN for registration.

To join the scheme, see below.
You need to join a new year group for the one starting in September. You can join anytime; catch-up or just join in now - it doesn't matter. Just do some questions!

- 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 small task - a set of questions, that are at a mixed level (book questions and Level 1 to 6 questions through the year) that should take about **one hour** to attempt.
- 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.

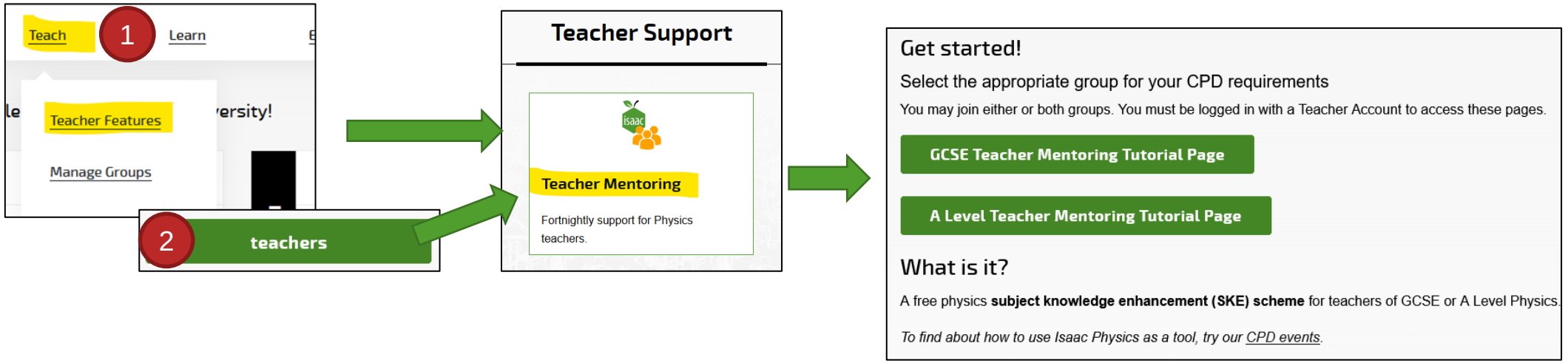
Tutorial Pages | The Reward - Why Join the Scheme? | How Do I Join?

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.

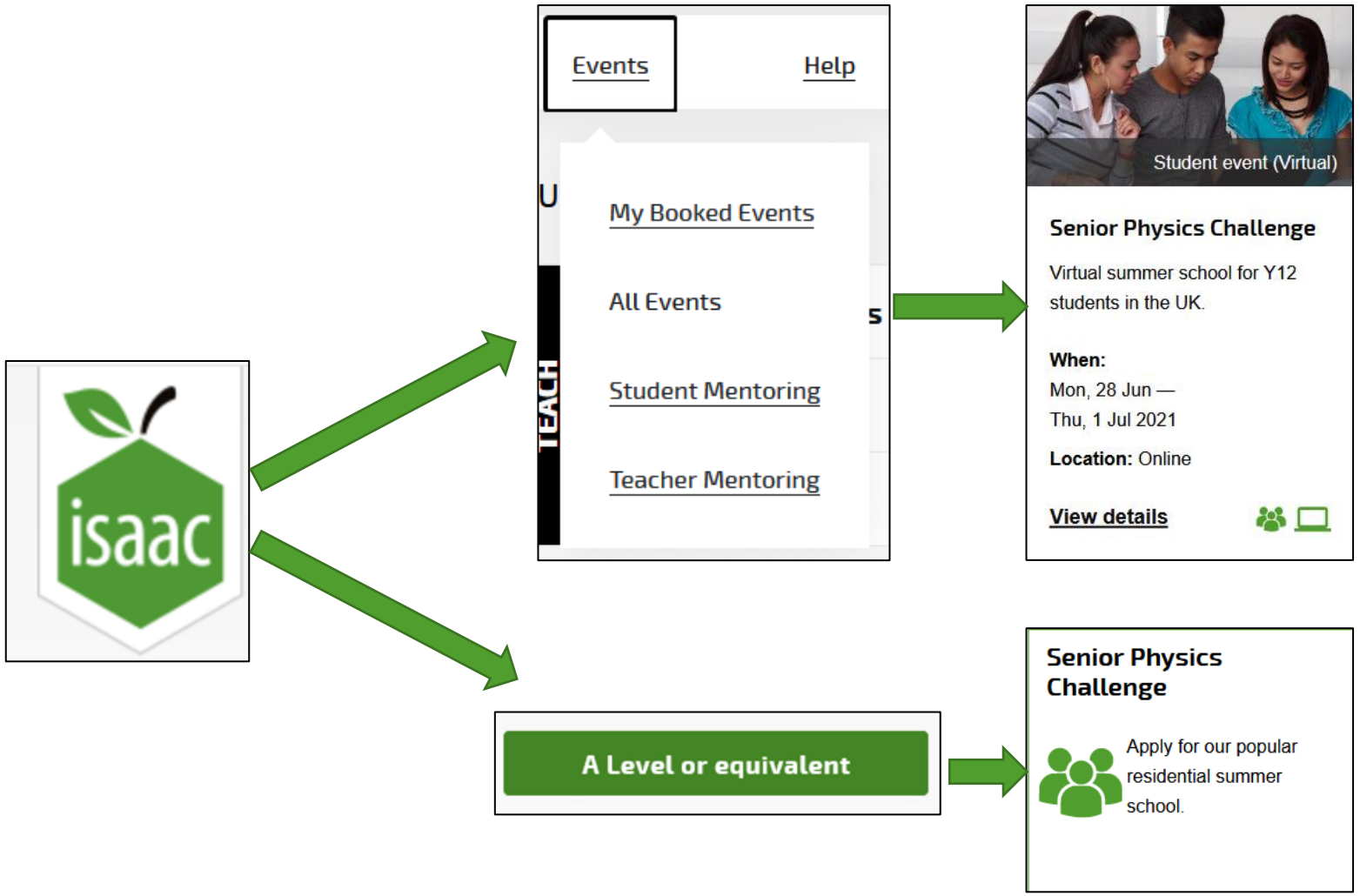
- Y11 Mentor Group Page
- Y12 Mentor Group Page
- Y13 Mentor Group Page

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

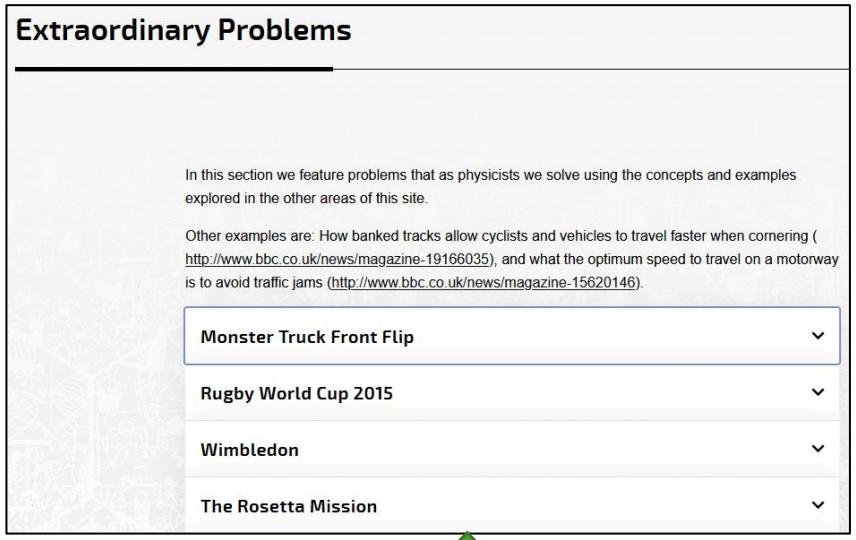
› Isaac Physics offers online mentoring schemes for teachers covering the GCSE and A Level Physics Mastery books.

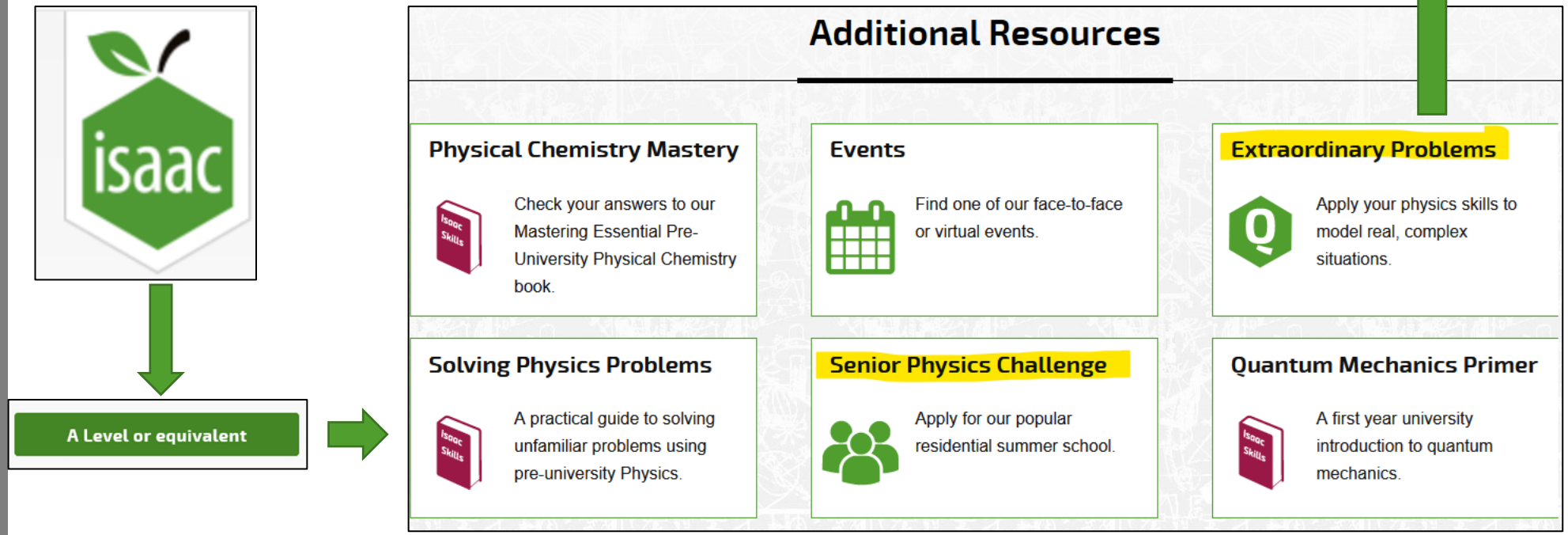


Opportunities for students: Challenges



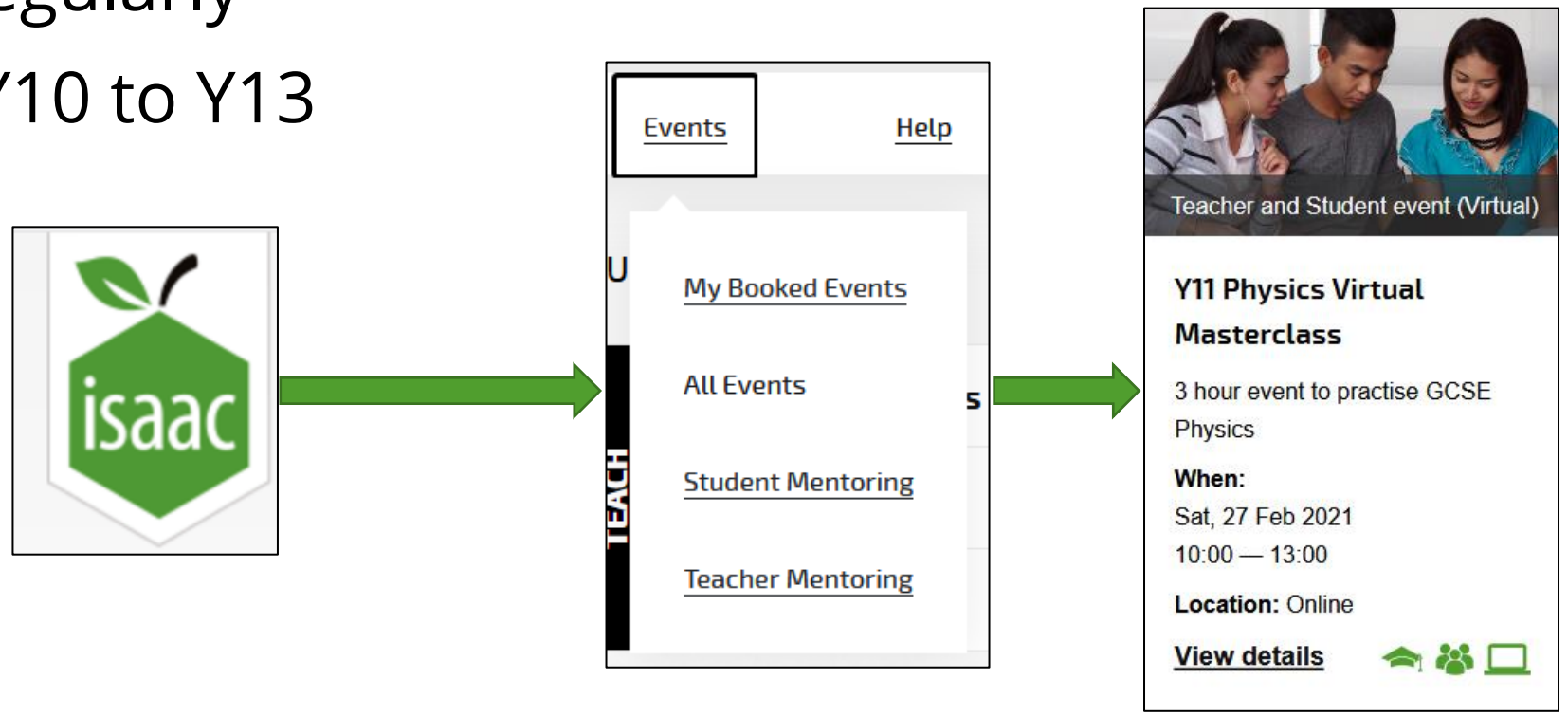
Opportunities for students: Challenges contd.





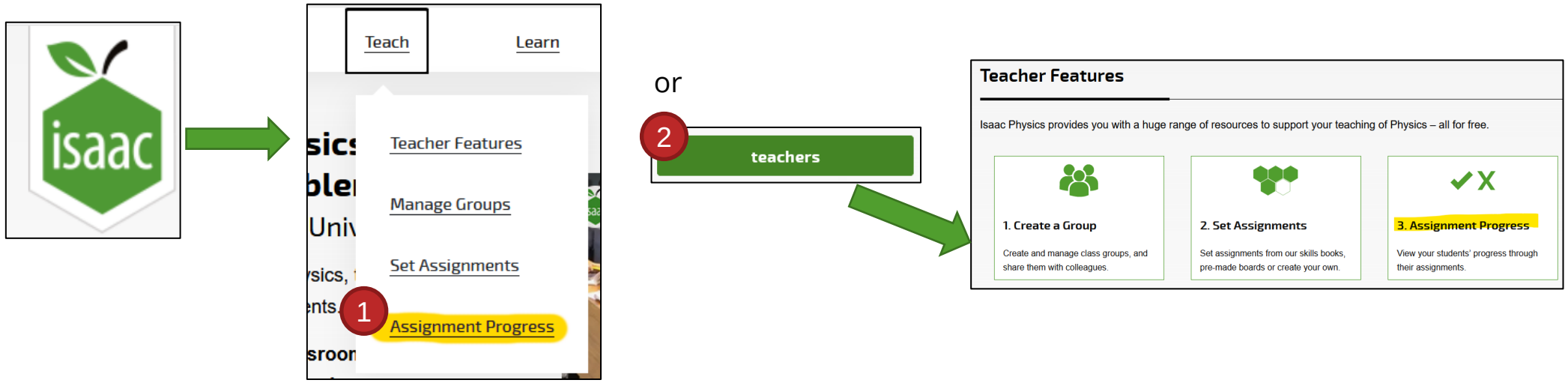
Opportunities for students: Masterclasses

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

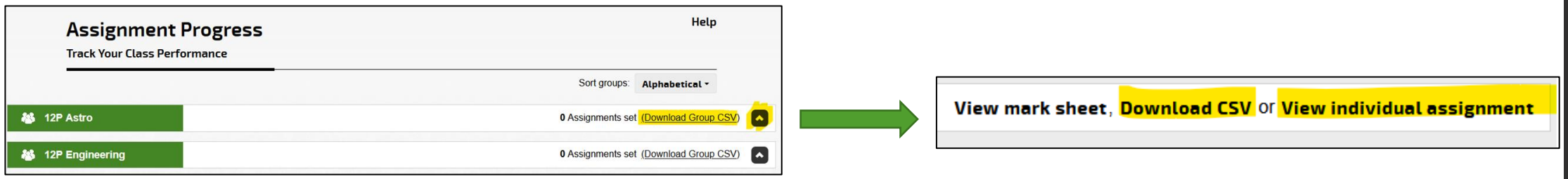


Using spreadsheets for displaying results

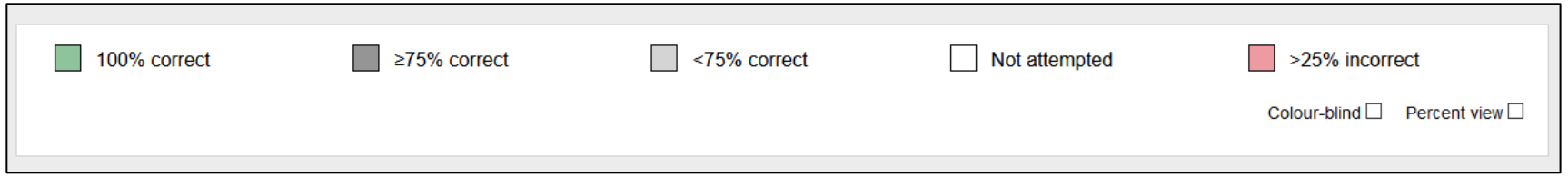
› Apple/menu/assignment progress or Teach: Teacher Features/download group csv (paste into your spreadsheet)

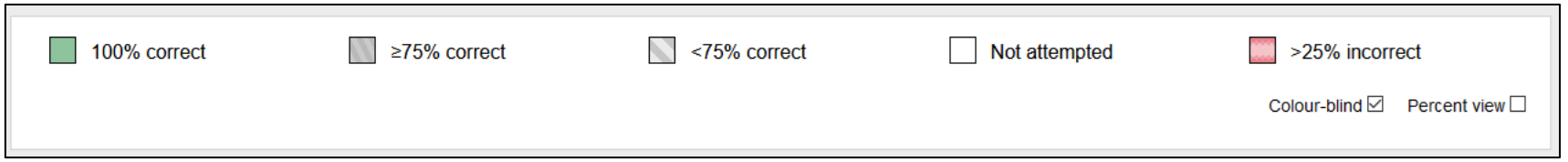


› Or click down arrow for individual assignment class results



Using 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%	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%	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/ 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