

Assessment Prep with Kognity

IBDP Physics

What is this guide for?

This guide is designed to help you make the most out of Kognity as a tool to prepare students for success both in formative assessments and IBDP exam preparation.

How does Kognity help with assessment preparation for IBDP Physics?

According to [John Hattie](#), Professor of Education and Director of the Melbourne Educational Research Institute at the University of Melbourne, Australia, feedback is an important driver for improving teaching and learning. Formative assessments play a large role in consistent feedback throughout the year as students prepare for their IBDP exams. Kognity provides efficient tools for immediate feedback to both the student and teacher.

“

“Think of feedback as received, not given.”

John Hattie

For students:

Students can enhance their problem-solving, interpretation, and analysis skills in Physics by completing worked examples and see immediate solutions to gauge accuracy and understanding. Additionally, at the end of each section, there are five section questions that indicate the level of difficulty and provide solutions and explanations.



For teachers:

Teachers get immediate feedback on their students' progress through Textbook, Questions, Activity and Reflections on the Insights tab. Here, teachers can view a visual representation of student learning from their assigned tasks. Teachers can then easily identify those students who need help, which makes intervention fast and efficient.

Below you will find some ways teachers can use Kognity's resources to successfully prepare their students for IBDP Physics assessment components. Click on each picture to explore more in Kognity Physics!



How does Kognity
help with formative
assessments?



How does Kognity help
with IB Assessment
Preparation?

How does Kognity help with formative assessments?

Question Drills

Kognity's question assignments found under the Assignments tab can be used as question drills for review at the end of a unit. Teachers can drill students on different topics using multiple choice questions which appear on Paper 1A. All question assignments are auto-graded, so students and teachers can immediately receive the results. Teachers can then revise any common mistakes before starting to teach new content.

Question preview

The order that students receive answer options is randomized

Question

The internal energy of an ideal gas of mass, m , is U_1 . The temperature of the gas is now increased while maintaining a constant pressure. The internal energy of the gas after the temperature increase is U_2 .

What can be deduced about U_2 and U_1 ?

Show answers ▾

Add Question

< Previous question

Next question >

Exit Tickets

Exit tickets are a great type of formative assessment. At the end of class, students respond to a series of questions pertaining to the lesson to consolidate their knowledge and understanding. At the end of every Physics section are Strength questions, which teachers can set at the conclusion of the lesson. These questions are auto-graded, so both the students and the teacher get the results immediately.

SL HL Difficulty:

Calculate the power radiated per unit area by an object with an emissivity of 0.8 and a surface temperature of 4500 K.

1 19 MW

2 0.20 mW

3 0.32 mW

4 29 MW

Report feedback or error

Submit answer

How does Kognity help with formative assessments?

Notebook and Checklists

Kognity's Notebook feature allows students to make their own notes and print out if necessary for consolidation. Students can use the Notebook feature when they are performing self-assessment of knowledge and understanding at the end of each chapter with the checklists.

Exam Practice Tasks

Kognity provides exam-style questions, marks schemes and model answers that teachers can use in a variety of different ways with their students. For example, teachers can go over a practice paper as a class, review the solution together, and focus on examiner comments.



What you should know

After studying this subtopic, you should be able to:

- Explain the Doppler effect and its effect on the perception of sound waves and electromagnetic waves.
- Use wavefront diagrams to represent the Doppler effect when the source is moving or the observer is moving.
- Determine the relative change in frequency and wavelength for a light wave using the equations:

$$\frac{\Delta f}{f} = \frac{\Delta \lambda}{\lambda} \approx \frac{v}{c}$$

- Explain that shifts in spectral lines from stars and galaxies give information about their motion in space.

Higher level (HL)

- Determine the observed frequency of waves for a moving source or a moving observer using:

$$f' = f \left(\frac{v}{(v \pm u_s)} \right) \text{ and}$$
$$f' = f \left(\frac{(v \pm u_o)}{v} \right)$$

Question preview

Paper: 2 Marks: 5

Question

Paper 2: Short-answer and extended-response questions

Answer **all** questions.

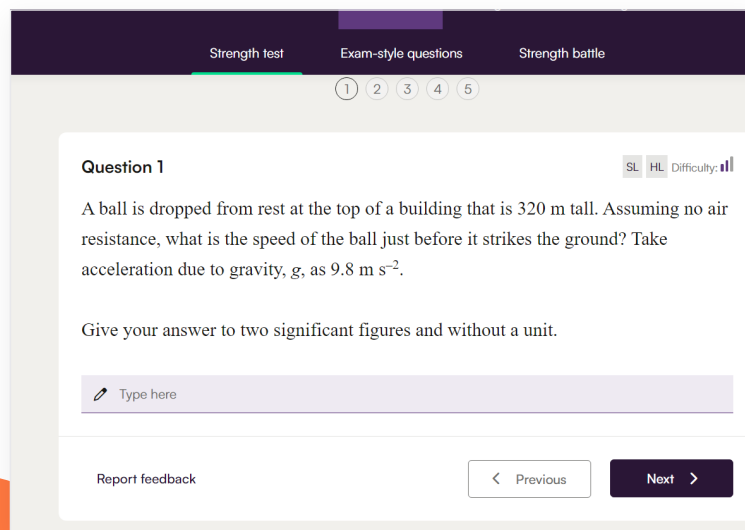
(a) State Lenz's law.

[1]

How does Kognity help with formative assessments?

Self-Study

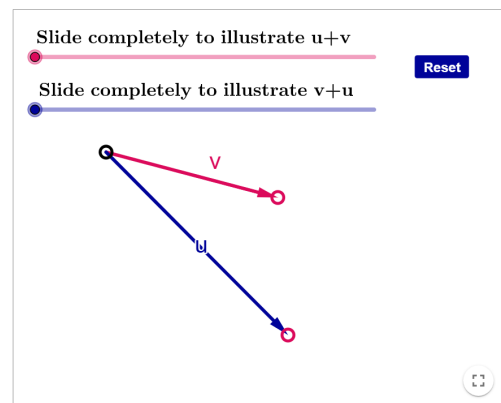
To provide students with resources for self-directed active recall study, utilise strength tests and battles. Additionally, students can use self-assessment checklists before a test or exam to identify areas of weakness and monitor their progress with the strength bar.



Practising data analysis in smaller, quick experiments

Using simulations to replace experiments that don't need to be conducted in a lab can save a significant amount of time. This approach provides excellent formative practice for IB assessment components.

Use the simulation in **Interactive 1** to explore how vectors can be added. You can vary the magnitude and direction of the vectors. The sliders show you the sum of the vectors.




Interactive 1. Adding vectors.

How does Kognity help with formative assessments?

Concept Maps

Have students draw a concept map explaining the key ideas from a section or subtopic.

 **Making connections**

Newton's law of gravitation is covered in [subtopic D.1](#). There are similarities between Newton's universal law of gravitation and Coulomb's law.

Newton's universal law of gravitation:

$$F = G \frac{m_1 m_2}{r^2}$$

Coulomb's law:

$$F = k \frac{q_1 q_2}{r^2}$$

Compare the two equations. In what ways are they similar, and in what ways are they different? Click on 'Show or hide solution' to see an answer.


Reflections

Reflections provide students with an opportunity to reflect on their learning. They encourage students to return to the subtopic's guiding questions, consider what they've learned, and write down their thoughts.

Reflections are an excellent assessment tool for gauging students' development and engagement with the material. As a teacher, you can use the Reflections submitted by your students as an additional tool to assess their conceptual understanding of the course.

A. Space, time and motion / A.2 Forces and momentum

Reflection

 **Reflection**


Now that you've completed this subtopic, let's come back to the guiding questions introduced in [The big picture](#).

- How can forces acting on a system be represented both visually and algebraically?
- How can Newton's laws be modelled mathematically?
- How can knowledge of forces and momentum be used to predict the behaviour of interacting bodies?

With these questions in mind, take a moment to reflect on your learning so far and type your reflections into the space provided.

You can use the following questions to guide you:

- What main points have you learned from this subtopic?
- Is anything unclear? What questions do you still have?
- How confident do you feel in answering the guiding questions?
- What connections do you see between this subtopic and other parts of the course?

 Once you submit your response, you won't be able to edit it.

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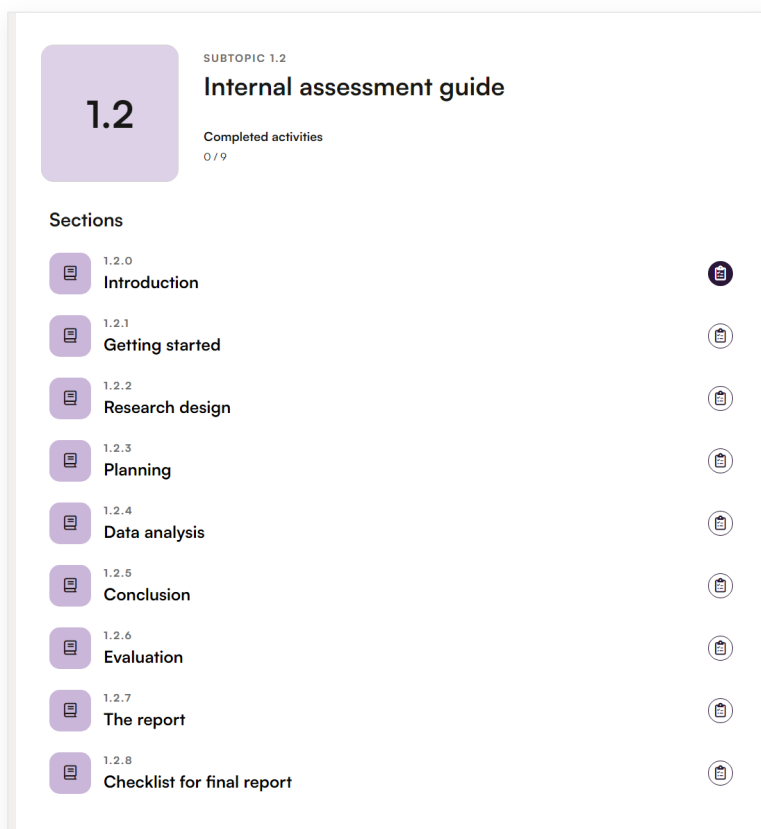
Close

How does Kognity help with IB Assessment Preparation?

There are three big IB-specific components to the Physics class which all students must comply with: the required practicals, the internal assessment, and the exams. While the required practicals are not a part of a student's IB grade, all students are expected to have a working knowledge of these, and might eventually find questions relating to these in Paper 1B.

Internal Assessment










To ensure success in the Internal Assessment (IA), teachers must dedicate time to introducing and explaining the criteria and responsibilities to their students. Users will find a detailed guide outlining the components of the IA, the expected outcomes for students, and the evaluation process. Additionally, students will find a section on how to get started with the IA, which is often the most challenging part of the process.



1.2 SUBTOPIC 1.2
Internal assessment guide

Completed activities
0 / 9

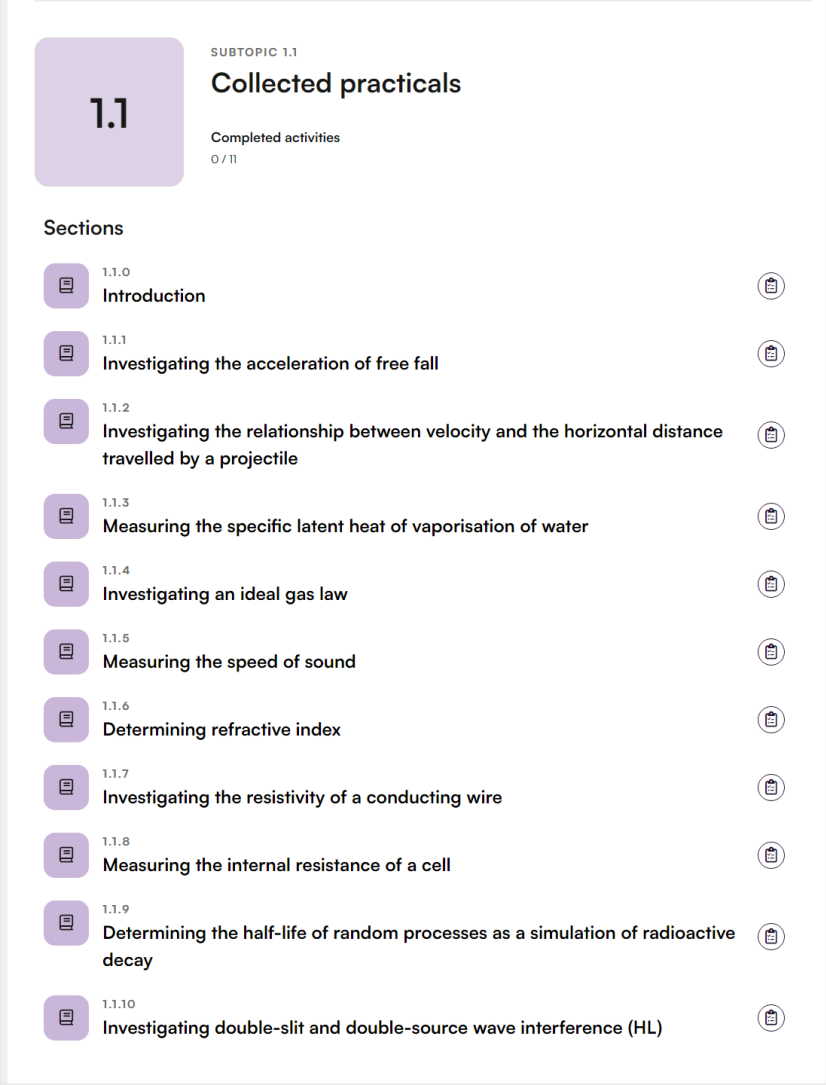
Sections

- 1.2.0 **Introduction** 
- 1.2.1 **Getting started** 
- 1.2.2 **Research design** 
- 1.2.3 **Planning** 
- 1.2.4 **Data analysis** 
- 1.2.5 **Conclusion** 
- 1.2.6 **Evaluation** 
- 1.2.7 **The report** 
- 1.2.8 **Checklist for final report** 

How does Kognity help with IB Assessment Preparation?

Collected Practicals

Kognity provides a step-by-step guide for each of the 10 collected practicals. Students can follow along or, as they gain more experience, try one of the suggested alternative experiments. This allows them to compare their data and process to ensure thorough understanding.



1.1

SUBTOPIC 1.1
Collected practicals

Completed activities
0 / 11

Sections

- 1.1.0 Introduction
- 1.1.1 Investigating the acceleration of free fall
- 1.1.2 Investigating the relationship between velocity and the horizontal distance travelled by a projectile
- 1.1.3 Measuring the specific latent heat of vaporisation of water
- 1.1.4 Investigating an ideal gas law
- 1.1.5 Measuring the speed of sound
- 1.1.6 Determining refractive index
- 1.1.7 Investigating the resistivity of a conducting wire
- 1.1.8 Measuring the internal resistance of a cell
- 1.1.9 Determining the half-life of random processes as a simulation of radioactive decay
- 1.1.10 Investigating double-slit and double-source wave interference (HL)

How does Kognity help with IB Assessment Preparation?

IB Exam Papers

Exam prep is always something students worry about. Kognity is an invaluable tool for these final assessments: students will find boxes that highlight study skills that provide insights for exam papers. Each subtopic in the textbook includes questions to practise, has a summary and key terms, a checklist recapping all the important ideas, which students can quickly go over when studying for their finals.



Study skills

In an assessment question, you may be given the energy per second emitted by the Sun and the distance from the surface of the Sun to the surface of the atmosphere of a planet and asked to calculate its 'solar constant'.

Kognity's exam-style assignments are all based on Papers 1A, 1B and 2. It contains questions, example answers and commented mark schemes that provide students tips for success written by examiners. Just add a timer when using an exam-style assignment to model real exam conditions!

IB DP Physics SL/HL FE2025 (NEW) - All

119 questions [Add exam-style question](#)

<input type="checkbox"/>	Sent	Question	Level	Paper	Marks
<input type="checkbox"/>		Paper 2: Short-answer and extended-response questions Answer all questions. TI	SL HL	2	9 Q
<input type="checkbox"/>		Paper 2: Short-answer and extended-response questions Answer all questions. TI	SL HL	2	12 Q
<input type="checkbox"/>		Paper 2: Short-answer and extended-response questions Answer all questions. B	SL HL	2	10 Q
<input type="checkbox"/>		Paper 2: Short-answer and extended-response questions Answer all questions. A	HL	2	9 Q

