



The Physics IA

Eugenio Salazar

Agenda

Purpose: Discuss challenges presented by the Physics IA for the May 2020 session (including guiding students and giving feedback) and suggestions on overcoming these.

- An overview of the Internal Assessment (IA)
- Guiding students through the process
 - Working at a distance
 - Guaranteeing probity
 - Giving feedback
- Questions

The Internal Assessment



An overview

The Internal Assessment

Objective:

- *“to demonstrate the application of their skills and knowledge, and to pursue their personal interests”* (IB Physics Guide)

Independent investigation:

- 10 hours: planning + implementation
- Final product: 6-12 pages (ideally: 10-12 pages)
- May 2020 candidates: **main evaluation component**

Guiding students



Common problems with the IA and
suggestions on how to overcome these

Working at a distance

Establish clear communication channels

- Dependent on the school model:
institutional email, video calls
- 'Recreate' real-time interactions

Stress the importance of completing this assignment

- *"What was it all for?"*

Working at a distance

Greatest challenge: students that have yet to collect data

1) Experiments in Kinematics / Mechanics, to be carried out at home

- Free software such as Tracker can help generate lots of data regarding: velocity, acceleration
- Downloadable sensors in cellphones

2) Use of secondary sources (Databases / simulations)

Working at a distance

Greatest challenge: students that have yet to collect data

- 1) Experiments in Kinematics / Mechanics, to be carried out at home
- 2) Use of secondary sources (Databases / simulations)

PROs:

- allows the student to circumvent limitations on equipment
- Can eventually produce lots of raw data
- Might more closely resemble modern physics

CONs:

- Students often have a harder time defining what is an appropriate 'difficulty level'
- Need to select valid resources (e.g., not overtly simplistic simulations, but rather ones which actually enable the student to actively participate, measure, etc)

Guaranteeing Probity

- Students are **not** more likely to cheat in online courses ... but they **are** more likely to cheat while under stressful conditions
- Moral and professional obligation to ensure academic integrity



Guaranteeing Probity

- Have a frank discussion about integrity policies
 - Refer to school rules + IB indications on probity
- Request regular updates
 - Make sure the end product is the result of your students' work
- If reports look “too good to be true”, follow-up with oral interviews
 - Ask students to explain their process / conclusions



Giving feedback - the evaluation criteria

1. Personal Engagement
2. Exploration
 - Experimental Design
3. Analysis
 - Record, process and interpret data
4. Evaluation
 - Discussion, limitations and improvements
5. Communication

Giving feedback



Real-time feedback

- For students still working on their IAs, try to set up 10-15 min individual interviews
 - Use class time, set students to self-monitored tasks while you talk with them. (e.g.- break-out rooms in Zoom)
 - Idea here is to monitor progress, not go over every single detail
 - Remind them that this is an independent investigation, so the end result is up to them - don't solve their every problem!
- Set clear due dates and enforce them
 - Important to see intermediate products to guarantee academic honesty
 - Simplify your evaluation process

Giving feedback

- Check a rough draft
 - Read and evaluate one full draft using the IB rubric (use this to inform your feedback)
 - Signal weak areas, but don't give the "correct solution"
 - Look for common errors in rough drafts: scientific vocabulary, processing error/uncertainty, lackluster introductions, simple analysis, shallow conclusions
 - Have students co-evaluate their work
- Have a clear-cut ending to the process





Thanks for coming!

