

# ES&S Internal Assessment: An alternative approach

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# Overview of the webinar

- Overview of the Internal Assessment (IA)
- Challenges for the students
- General timeline
- Making use of Kognity
- Getting the students started

# An overview of the Internal Assessment

- Students should have a copy of the relevant sections of the Guide – from “Purpose of Internal Assessment” to the end of the assessment criteria
- Kognity has a comprehensive IA guide: Section 9.1 in the textbooks which summarises the salient points from the guide.
- **Marking criteria**
  - Students should be exposed to these regularly.
  - At all stages of the discussion use the criteria as a basis to guide them in the right direction
- **Presentation requirements**
  - This is a single individual investigation that should take about 10 hours.
  - Word limit is between 1,500 and 2250 words and the moderator will not read beyond that upper limit.
- **Schedule for the IA**
  - It is important to set a realistic schedule for initial discussion, time to collect data, feedback discussion.
  - This will vary by school depending on where you are in the world and other subject IA deadlines

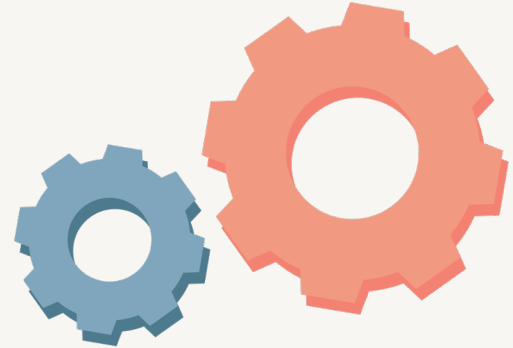
## A few things to consider:

- I teach the ES&S topics in an order that maximises practical work and allows the to start the IA investigation over the summer between G11 and G12. My order is usually topics 1, 2, 8 6 and 7 in the first year.
- I start the IA process in May of G11 so that by the time they go on summer break they have a fairly solid research question and they know their methods of data collection – either primary or secondary.
- Academic honesty, as ever is very high on the list of things to reinforce – I give them “Guidelines and Declaration” document very early.
- At this time of uncertainty it is good to give them the option of using secondary data as the basis for their investigation.



# The biggest challenges

- Choosing suitable topics. This is a bit of a beast because there are so many elements that need to be considered.
- Maintaining clarity is sometimes hard so I insist they use the criteria as sub-headings.
- Meeting deadlines – IB students have a lot of deadlines, that is why I get the ES&S IA in early. What they lose in maturity and content knowledge they gain from not having too many other subjects due at the same time.



# Stages: My general timeline



- Mid May introduce the IA to the students, go over the process and discuss the criteria.
- Class time is used for open discussions and students start researching topics and available data.
- By the end of May I will discuss with each student individually
  - The topic they have chosen
  - An approximate research question
  - Methods of data collection
- First draft is due in around about late August early September
- Final draft due in late September to early October

# Making use of Kognity

- Kognity has a section on the IA – 9.1
  - Starts with student responsibilities then teacher responsibilities.
  - Separate sections on each of the criteria with a sample IA.
  - Sample research questions for each topic with suggested methodology.
  - How to do questionnaires and surveys
- The students can look through these sections for ideas.



# Discussions with students

- Firstly I go over the process and discuss the criteria.
- For methods of data collection they can consider
  - “Traditional” data collection investigations
  - Secondary based data collection – web-based resources,
  - Questionnaires, surveys and bi-polar analyses etc.
- Get them to consider a topic that
  - Involves a local or global environmental issue that is clear and worthy of investigation
  - Can lead to a relevant focused research question.
  - Allows them to link the issue and the research question sensibly and directly.





# The assessment criteria

- By the time the students get to the IA they will have done various practical activities and have done practice assignments for most of the criteria – either alone or in combination with each other
- To get them going on the individual investigations I start by discussing the criteria and how to achieve the top mark band.
- I emphasise the application criteria because if they miss that they have a great deal of difficulty getting a good grade.
- I give them the IA criteria and a Guidelines and Declaration document from the start.

# Traditional “wet lab” IA’s

- These are probably the ones that the students and the science teachers are most familiar with
- Basic rules apply
  - Independent variable, dependent variable and control variables
  - I tell students to remember the 5x5 rule
  - Risk assessment and ethical considerations
- The method is usually appropriate and repeatable method?
- The biggest mistake in these labs is the absence of an environmental issue and application of the results.
- These may be harder due to the online learning.

## Less traditional “secondary data based”

- These are the ones that many science teachers do not like
- Many of the same rules apply so my students identify the IV and DV that are in the research question (hypothesis if appropriate)
- Repeatability means the method is described in enough detail so that the reader can replicate the data collection.
- The method must generate sufficient relevant data; that means
  - Three sources / data set – validity and reliability discussed
  - Minimum of 30 countries when looking at population data
  - Justification of choice of sampling strategy

# Questionnaires and surveys in IA's

- These seem to scare a lot of people; but they can generate great data
- They need a good collation method – I get them to use excel.
- There should be a MINIMUM of 30 respondents
- Students can still have an IV and a DV
- E.g. – age of a person (IV) and their carbon footprint (DV)
  - Age in 5 categories Under 18, 18 – 35, 36 – 50, 51 – 65, over 65
  - Income in 5 categories – this varies a lot by country
  - Education in 5 categories no education, primary only, up to middle school, up to high school, further education





**Questions?**

**Other ideas you'd like to see  
addressed in a webinar?**