

# UKBC Website Specification

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## Preamble

United Kingdom Biology Competitions (UKBC) runs three yearly competitions, and lends its software to the BPhO. The website is to be the interface for all exam administration, from teachers signing up and invoicing to the setting, sitting, and marking of exams. The website is under most use during the “Biology Challenge” competition, where >30’000 students sit an exam over the period of two weeks, requests per second to the website are expected to peak at about 30.

## Overview

### Main requirements

- A. Splash: Outward facing splash page, with information about the competitions
- B. Student: An exam interface for students to sit exams
- C. Teacher: A teacher interface to set up students, and review marks, pay/receive invoices
- D. Examiner: An admin interface to set up exams and teachers and control splash content
- E. Statistics / Archive: An archive of past performance on exams and questions

### Key considerations

GDPR compliance: find and delete student data upon request, only store the bare minimum, archive anonymous aggregate data

Cookie consent compliance

A ‘Biology Olympiad style’ and a ‘Physics Olympiad style’ – i.e. ability to create two parallel websites with different branding

Responsive website (i.e. mobile friendly) intuitive interface for all users

## A – Splash

Not dissimilar to the current homepage (<http://www.ukbiologycompetitions.org/>).

- Links for information about competitions
- Clear and easy login for students and teachers

## B – Student

- Intuitive interface
- List of questions
  - Denoted if answered, unanswered, flagged by student
- Save answers as and when pressed
- Log time spent on each question
- Timed exam
  - Timer on screen
- Access of second exam paper in series dependent on completing first
- Question numbers throughout paper
- Ask student whether they’ve taken part in previous UKBC competition (checkbox)
- “Call teacher” button – in case they get stuck on something during the exam – press this button and the teacher will be informed of which student needs assistance

## C – Teacher

- Self-register teacher
- Choose number of students to purchase

- Generate an invoice
  - Pricing structure should be editable on D – Examiner interface
  - Pay online
- Receive information about students
  - Marks for exams
  - School level aggregate specification results
- Change all details about students (including name, year group and password)
- IBO eligible tickbox
- Resources page, including instructions on how to register students and make amendments to registration, instructions on how to run/invigate the competition, syllabus for competition, sample exam papers
- Maybe a Feedback page which opens after the competition has ended, so teachers can enter the comments as soon as possible

## D – Examiner

- Set exams
  - Set time and date period for exam running
  - Choose exam structure – number of questions, papers, time-limit of exam
  - Score exam at end
    - Automated scoring, which updates if questions are changed
    - Automatic grade boundary setting on percentage values of students
- Write questions
  - Choose question type
    - Multiple choice (one answer (radiobutton))
    - Lists
      - Ordering (single list)
        - Including images
      - Divide into groups
    - Check all that apply (checkbox)
    - MTF
      - Multiple column radio buttons
    - One word answer
      - Include numeric
    - Drag and drop
      - Onto image
  - Add media
  - Add specification link
  - Question value
  - Edit answer after exam has been sat (corrections)
  - Same stem, multiple a) action statements b) statements
- Edit information on A - Splash pages
  - WYSIWYG editor
- Control teacher account
  - Change password
  - Mark if paid
- Add specification
  - To link to question

- To link to aggregate statistics
- Supports different media – images, animations, videos
- Overwriting permissions (e.g. change school name, student details)
- Question(s) and exam export
  - Format: PDF/CSV/Word
  - With and without answers and statistics

## E – Statistics / Archive

- Statistics at several levels: school, question, specification
- Question analysis:
  - Percentage correct
  - Question discrimination metric
    - Item level
    - U-L index or point-biserial correlation
  - Time spent on question
- Exam stats archiving
  - Save data on question performance
  - Compare between uses
  - Save when last used
  - Compare exams over different years (e.g. spread of student scores)
  - Allow exam reuse – wholesale as template for new exam
- Plot geographic location of schools on a map
- Quick analysis of ‘top schools’ per competition, i.e. ranking by gold, silver, bronze, etc. awards