Cambridge International’s vision of education in the future and its role in supporting schools

Cambridge Schools Conference
Sri Lanka November 2018

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Director Education
1. The challenge

2. The characteristics of excellent, highly effective schools

3. Cambridge’s strategy to support schools
   ▸ Product developments. What is new?

4. The future of assessment
   ▸ Product developments. What is new?

5. Questions and discussion
The Challenge: Education fit for the future

Schools are complex social organisations, an intricate web of interdependent parts, and they are becoming more complex…

Impacts of globalisation… interconnected world

Changing nature of the workplace Uncertainty

New skills needed to succeed

Today's students are different

Research in cognitive science, neuro-science, genetics about how we learn.

Continued or even increased pressure for the ‘best results’

Increased accountability… drive to improve performance

Education fit for the future
Excellent, highly effective schools are schools that:

- Successfully progresses **the learning of all of their students,** regardless of background, beyond their normal expected developmental rate of growth
- Prepare students to **get on in life** not just to get into University
- **Measure impact.** Ensure the educational **experience students actually receive,** including the impact of the school curriculum, teaching approaches, the co-curriculum and the learning environment, closely **aligns to the school’s vision** and educational aims.
Excellent schools have:
1. A broad and balanced curriculum

- Develop **Powerful Understandings**
- **Language development** is prioritised [both the mother tongue / best language of the student and the language of instruction in the school] All teachers are language teachers.
- **Less can be more** [the curriculum is not overcrowded with content so that depth is emphasised].
- Engaging and challenging content.
- The development of **learner attributes** [Cambridge’s and those the school identifies]
- Consistent [stages build logically on the previous stage based on a learning spiral]
Excellent schools have: 1. A broad and balanced curriculum

Qualifications are only one part of the Curriculum
1. A broad and balanced curriculum:
Interdisciplinary understanding that is based on disciplinary understanding

Example: Cambridge Global Perspectives aims to develop learners who are:

- “independent and empowered to take their place in an ever-changing, information-heavy, interconnected world”
- “enquire into and reflect on issues independently and in collaboration with others from a variety of different cultures, communities and countries”
- “can support judgements with lines of reasoning”
- “can communicate sensitively with people from a variety of backgrounds”
- “work independently as well as part of a team, directing much of their own learning with the teacher as facilitator”
Excellent schools have:
2. A learning rather a performance orientation [Chris Watkins]

- Goal orientation: learning goals are primary
- Learning becomes an object of learning
- Locus of control: sense of student being in control of their learning. **Learning how to learn**
- Self-esteem and self-efficacy
- Self-regulation (take responsibility for own learning)
- High expectations of all learners
- Valuing broader educational experiences that are not assessed through examinations
Excellent schools:
3. Make thinking and learning Visible. Formative assessment as a cycle

Define learning goals → Learning → Progress → Elicit evidence of learning → Interpret evidence → Compare outputs with objectives; identify gaps → Feedback → Set new actions → BETTER NEXT STEPS
3. [continued]: Most assessment should be about making learning and thinking visible to help guide future learning

Through assessment for learning, the learner:

1. comes to hold a concept of performance similar to that held by the teacher
   - i.e. develops the notion of a standard

2. monitors the quality of his/her own performance
   - i.e. can compare own performance with the standard

3. sees how the quality of performance can be improved
   - i.e. engages in the action that closes the gap between own performance and the standard

[adapted from Professor David Hargreaves]
Excellent schools:

4. Have a culture of continuous improvement

- Professional Development
- Measuring impact
- Evaluation
- Marginal gains

Make neural 'connections'
LEARN

Try out 'new' learning
APPLY

Reflect or think
REVIEW

Concrete experience
DO

Cambridge Assessment International Education
How we support schools
Cambridge’s strategy to support schools

Cambridge will provide:

- flexibility and choice to schools
- School support and a learning community
- An aligned instructional system
- clear, thoughtful and useful standards
- valid, reliable and fair assessments that prepare students for the next stage
- as far as humanly possible, right grade first time and on time
- inspiring and relevant professional development opportunities
- School improvement support
- Research in support of practice
Cambridge Pathway:
Primary and lower secondary
[English / English as a second language, Maths, Science, GP, ICT starters]

70+ IGCSE subjects
40 O level subjects

55 A level subjects
24 Pre U subjects
See the implementing the curriculum with Cambridge guide [2nd Edition], developing your school with Cambridge and the developing the learner attributes and other resources:

http://www.cambridgeinternational.org/support-and-training-for-schools/teaching-cambridge-at-your-school/

Orientation is an induction package for newly registered schools. The package includes:

- A PowerPoint presentation
- An information pack (PDF)
- A new area on the website
- Follow up support
A secure, online site for Cambridge Upper Secondary and Cambridge Advanced available to all registered schools.

- Each user has own individual account linked to a unique email address.
- Teachers can use the site to access resources including:
  - Online discussion forums
  - Schemes of work
  - Specimen papers & past papers
  - Syllabuses
  - Teacher guides.

In each school, there should be two types of School Support Hub user:
- School support coordinator (one account per school).
- Teacher (one account per teacher)
The content of the curriculum, the pedagogical approach and the assessment approach must be aligned in order to maximize learner achievement.

Roach, A. T., Niebling, B. C., & Kurz, A
Evaluating the alignment among curriculum, instruction and assessments: Implications and applications for research and practice.

See also: National Center on Education and the Economy [NCEE].
Marc Tucker http://www.ncee.org/
Benchmark to clear **standards** that are the **same over time** and **wherever in the world** students complete Cambridge programmes.
Cambridge curriculum-based standards

**Content standard**
- What has to be learned (i.e. the curriculum/syllabus)?
  - does not include concept of demand or difficulty

**Demand standard**
- How demanding are the questions/tasks (in terms of the skills and knowledge that are required)?
  - does not include concept of the level of performance required

**Marking standard**
- How are responses rewarded?

**Awarding standard**
- What quality of performance is required (e.g. for a grade/pass)?

**Attainment standard**
- Preparedness for further progression to study/employment
Valid, reliable and fair assessments
examination series

How our processes and procedures ensure the robust delivery of each:

Two key Documents

1. The Cambridge Approach to Assessment:

2. The Code of Practice:
Ensure the robust delivery of each examination series.

Getting it right matters
Non-assessment related Cambridge standards

- Registration Standards for schools
1. Running about 1000 training events each year

2. Training architecture:
   - Introductory, Extension and enrichment

3. We are developing in-country training capacity by selecting and training trainers based in different countries

4. Introduced quality assurance standards and processes into the training of trainers

5. New online tutor-led introductory and extension training.
New: Teacher Award

Certificate and Diploma Levels in educational leadership, teaching and learning, teaching bi-lingual learners and teaching with digital technologies
What are our standards for school self-evaluation?

- Describe what an effective school looks like
- Tailored to the needs of Cambridge schools
- Grouped into five domains:
  1. The school’s mission and educational aims
  2. School management and leadership
  3. Quality of teaching and learning
  4. Resources for learning
  5. School community engagement.
Based on these standards, three surveys have been designed to gather feedback from:

- parents/carers
- teachers
- students

After the online surveys are completed, school receives a report which shows their performance overall and in each area, based on responses from parents, students and teachers.

This helps them to:

- highlight and celebrate strengths
- identify challenges and areas for improvement
- establish priorities for future development.
School Self-Evaluation

Examples of charts included in the Self-Evaluation report, showing school performance based on feedback.
We also have a team of consultants that can help schools with specific areas of their school improvement process, including:

- School improvement planning
- Improving the quality of teaching and learning
- Teacher appraisal and development
- Student assessment and tracking
- Resourcing the school
- Engaging the school community.

[cambridgeinternational.org/school-improvement](http://cambridgeinternational.org/school-improvement)
Curriculum product developments

Finding out about ‘What’s new’

We provide advance notice of changes to syllabuses a year before first teaching.

- Visit the ‘What’s new’ pages on our public website.
- Download our Syllabus Changes guide for full details of updated syllabuses.
- Sign up for e-Updates to keep up to date with changes to syllabuses.

www.cambridgeinternational.org/new
Support for updated syllabuses

1. Planning and preparation
   - Schemes of work
   - Teacher guides

2. Teaching and assessment
   - Endorsed resources
   - Resource lists
   - Coursework/speaking test support
   - Discussion forums
   - Resource Plus

3. Learning and revision
   - Example candidate responses
   - Specimen paper answers
   - Learner guides

4. Cambridge exams
   - Principal examiner reports for teachers (PERTs)

5. Professional development
   - Face-to-face or online syllabus-specific training

Results

- Exams officers webpage
- Cambridge Handbook
We worked with teachers, subject expert panels and universities around the world to update these Cambridge International AS & A Level syllabuses for assessment in 2021, 2022 and 2023:

- Computer Science 9618
- English Literature 9695
- English Language and Literature 8695
- English Language 9093
- History 9489
- Islamic Studies 9488
- Media Studies 9607
- Sociology 9699
- Hinduism 9487 (October 2018)
A stand-alone, project-based qualification, students can take Cambridge IPQ in addition to Cambridge International AS & A Levels:

- Typically for students aged 16 to 19 years.
- 5000 word research project.
- Students choose topic - to complement Cambridge International AS or A Levels, or a subject they are passionate about.

Helps students increase value of university application:

- show in-depth interest in course they are applying for.
- demonstrate ‘college readiness’ (independent learning, research and ‘dissertation style’ report skills)
Additional teaching and learning resources created by subject experts.

Help teachers deliver challenging topics and skills in some of our most popular syllabuses.

Available through our Online Learning area.

Resource Plus materials are slightly different for each syllabus, but all include:

- Ready-made lesson plans and activities
- Teaching materials
- Activities for learners
- Video content and multimedia
- Worksheets
- Schemes of work
What’s available in resource plus?

Cambridge IGCSE

- IGCSE Literature in English 0475
- IGCSE Mathematics 0580
- IGCSE Biology 0610
- IGCSE Chemistry 0620
- IGCSE Physics 0625

Cambridge International AS&A Level

- Biology 9700
- Chemistry 9701
- Physics 9702

For 2019 we are also working on Resource Plus for IGCSE English Language, IGCSE Business Studies and A/AS Level Maths.
Introducing the Cambridge Upper Secondary Science Competition

A competition for Cambridge Upper Secondary learners (typically 14 to 16 years)

- Students choose a team and a topic for their project.
- Produce a portfolio of work.
- Completed over 20-25 hours.
- Present portfolio to teacher and peers.
Who marks the projects?

- Teachers assess projects using mark scheme provided.
- Marks awarded for investigation, collaboration & communication.
- Teams awarded a Participation, Bronze, Silver or Gold certificate.
- Schools produce these certificates using the templates provided.

<table>
<thead>
<tr>
<th>Participation</th>
<th>Bronze</th>
<th>Silver</th>
<th>Gold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 marks</td>
<td>6 to 9 marks</td>
<td>10 to 12 marks</td>
<td>13 to 15 marks</td>
</tr>
<tr>
<td>out of 15</td>
<td>out of 15</td>
<td>out of 15</td>
<td>out of 15</td>
</tr>
</tbody>
</table>
What support is available?

Once students are entered for the competition, schools can find supporting documents on the School Support Hub:

- Teacher guide
- Learner guide
- Example projects
- Mark submission forms
- Certificate templates.

Next steps:

- To apply, complete the application form at www.cambridgeinternational.org/science-competition
- Next entry deadline: 31 January 2019
The Future of Assessment
In August 2018, Cambridge International issued about **1.2 million certificates**.

To generate each grade, over **2 million candidate scripts** were processed, more than **3 million components** (question papers) were marked, which involved about **8000 trained examiners**.

A majority (over 75%) of candidate scripts were marked using an on-screen interface.
Are examinations evil and outdated?

“Existing models of assessment typically fail to measure the skills, knowledge, attitudes and characteristics of self directed and collaborative learning that are increasingly important for our global economy and fast changing world.”

Darling-Hammond L [2000]. Education Policy Analysis Archives. 8 [1]
Where do you think this Cambridge exams is being administered?
Fair, reliable and valid assessments
Why Cambridge insists on high standards of security:

India students caught 'cheating' in exams in Bihar
Source: http://www.bbc.co.uk/news/world-asia-india-31960557
Different forms of summative assessment

- Written exams:
  - Multiple choice
  - Short answer questions
  - Extended response question
- Oral exams
- Coursework
- Practical work

Assessment is criterion referenced and synoptic
The future is digital

- Technology is set to transform education, including educational assessment.
- It is possible to imagine a future in which examinations and tests are 100% digital.
- Ours will be a gradual evolution led by good practice rather than what is technologically possible.
What is e-assessment?
On-screen marking
Aim: to extend the purposes we support with our assessments with new product types
Test Maker

- New digital service for Cambridge teachers
- Create high-quality, customised practice papers using Cambridge questions
- Choose from 500 questions for each syllabus – sort questions by topic, number of marks and level of difficulty
- The first release of Test Maker will include these Cambridge IGCSE syllabuses:
  - Biology
  - Chemistry
  - Mathematics
  - Additional mathematics
  - Physics

Coming in 2019: Advanced Level Sciences & Mathematics
Test Maker

Features

- Up to 500 Cambridge questions per syllabus
- Questions are indexed into topics and subtopics tagged to unique Cambridge taxonomies.
- Dynamic content with more questions to be added after every exam series

Functionality

- Easy to drill down through topics and subtopics to find questions.
- Simple, one-click test construction.
- Mobile enhanced design means it works on any device.
- Ability to save tests.
- Easily display a question on-screen.
1. A biologist made a slide of some epidermal cells from a scale leaf of an onion bulb.

The diagram below is a drawing that the biologist made of one of the cells.

![Diagram of a cell]

The table below shows the functions of the structures within a plant cell. Complete the table by:

- naming the part of the cell that carries out each function
- using the letters from the diagram to identify the part of the cell named.

<table>
<thead>
<tr>
<th>Function</th>
<th>Part of the Cell</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Organs of the organism**

Jun 14 | Paper 2 | 3 marks | Grade C-D

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**Levels of organisation**

Jun 14 | Paper 2 | 3 marks | Grade C-D

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**Cell structure and organisation**

Jun 15 | Paper 3 | 3 marks | Grade E-G

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**Size of specimens**

Jun 14 | Paper 6 | 3 marks | Grade A*
**Preview mark scheme**

<table>
<thead>
<tr>
<th>Question</th>
<th>Mark scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept and use of a classificatory system</td>
<td></td>
</tr>
<tr>
<td><strong>Multiple topics</strong></td>
<td></td>
</tr>
<tr>
<td>Jun 14</td>
<td>Paper 3</td>
</tr>
<tr>
<td>Characteristics of living organisms</td>
<td></td>
</tr>
<tr>
<td><strong>Multiple topics</strong></td>
<td></td>
</tr>
<tr>
<td>Jun 15</td>
<td>Paper 3</td>
</tr>
<tr>
<td>Dichotomous keys (core only)</td>
<td></td>
</tr>
<tr>
<td>Characteristics and classification of living organisms</td>
<td></td>
</tr>
<tr>
<td>Jun 15</td>
<td>Paper 3</td>
</tr>
<tr>
<td>Features of organisms</td>
<td></td>
</tr>
<tr>
<td>Characteristics and classification of living organisms</td>
<td></td>
</tr>
<tr>
<td>Nov 14</td>
<td>Paper 3</td>
</tr>
</tbody>
</table>
Add questions and make your test

Your test summary

Test difficulty

Questions 5
Marks 14
Topics 3

Edit your test

Move your questions using the icon.

1. Concept and use of a classificatory system
   - Multiple topics
   - Jun 14 | Paper 3
   - 4 marks
   - Grade C-D

2. Characteristics of living organisms
   - Multiple topics
   - Jun 15 | Paper 3
   - 3 marks
   - Grade C-D

3. Dichotomous keys (core only)
   - Characteristics and classification of living organisms
NEW On-screen Progression Tests

- On-screen tests in English, mathematics and science.
- Alternative choice to paper-based
- The on-screen versions:
  - save time
  - simplify marking
  - require less administration
  - link to a unique analysis tool
  - align with curriculum frameworks

Play video
# Lower Secondary Progression Tests - Reporting

**Matthew C Learner**

**Gender:** Not specified  
**Date of birth:** 14 October 1999  
**Current stage:** Stage 8

## Learner progress

This report has a table and a line graph. The table shows the percentage and grade achieved by the learner for the progression tests taken, listed by stage and subject. The graph shows for each of these tests, how far into each grade the learner's result was.

<table>
<thead>
<tr>
<th>Stage</th>
<th>English</th>
<th>Mathematics</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 7</td>
<td>80%</td>
<td>90%</td>
<td>85%</td>
</tr>
<tr>
<td>Stage 8</td>
<td>85%</td>
<td>90%</td>
<td>80%</td>
</tr>
<tr>
<td>Stage 9</td>
<td>90%</td>
<td>90%</td>
<td>85%</td>
</tr>
</tbody>
</table>

The line graph visually represents the learner's progress across different stages and subjects.
On-screen Progression Tests

Available now
English, English, Mathematics and Science
Stages 7, 8, and 9

Coming soon: new IGCSE progression tests [Sciences from September 2019]

Administration
Available through the Cambridge Lower Secondary support site
Each token covers all the papers in a particular test
One token per test per learner
Tokens remain in a bank, no expiry date

Pricing
£3.25 (GBP), €4.50 (EUR) or $5.00 (USD) per token.
Visit Cambridge lower secondary support site for more information
Our research priorities

• Validating our curriculum frameworks, syllabuses, qualifications and assessments
• Informing best practice
• Maintaining standards
• Comparability of standards
• Investigating impact
• Ensuring fair measurement and reporting reliability

See:

http://www.cambridgeassessment.org.uk/our-research/
We Are Here To Help

https://help.cambridgeinternational.org