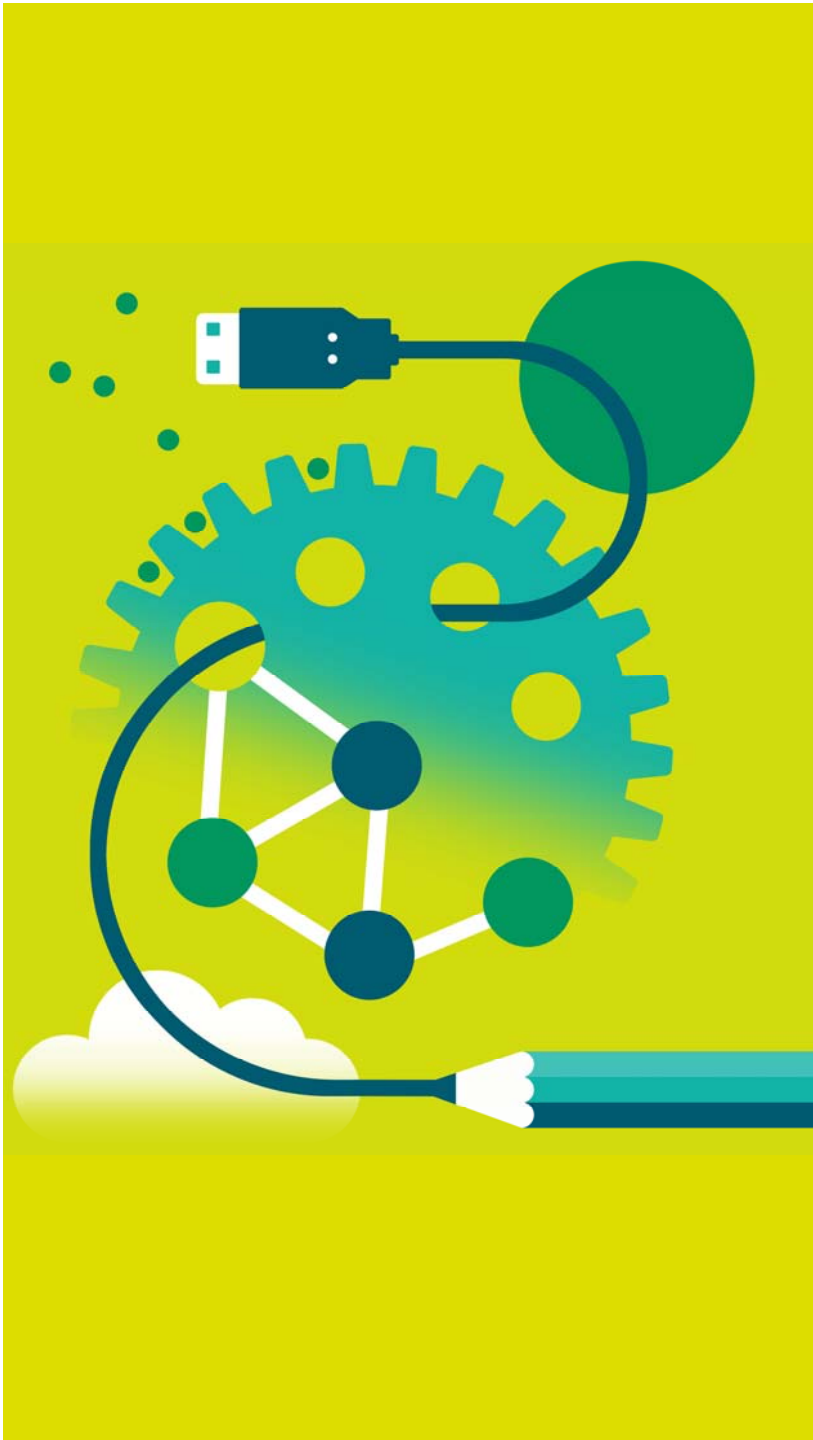


# Getting Ready to Teach the Pearson Edexcel International GCSE Human Biology (9-1) (4HB1)

17IOAS12



# Your Online Environment

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**XX** Technical Difficulties & Support

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**XX** Recording

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**XX** Communication in an online environment

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**XX** Asking Questions

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**XX** Using Polls

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**XX** Downloading Documents



## Aims and Objectives

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During the event you will have the opportunity to learn about:

- the changes to the content
- structure and assessment of the revised International GCSE in Human Biology
- take an in-depth look at the sample assessment materials
- ask questions of our trainer
- learn about the new 9-1 grading scale
- learn about the free and published support for the qualification.

# Agenda

0800-0830

Session 1 – overview of changes; detailed Human Biology changes

0830-0915

Session 2 – retained questions

0915 -0945

Session 3 – new questions; command words & terms, mathematical and practical skills

0945-0955

Session 4 – support and resources

0955-1000

Session 5 – questions?

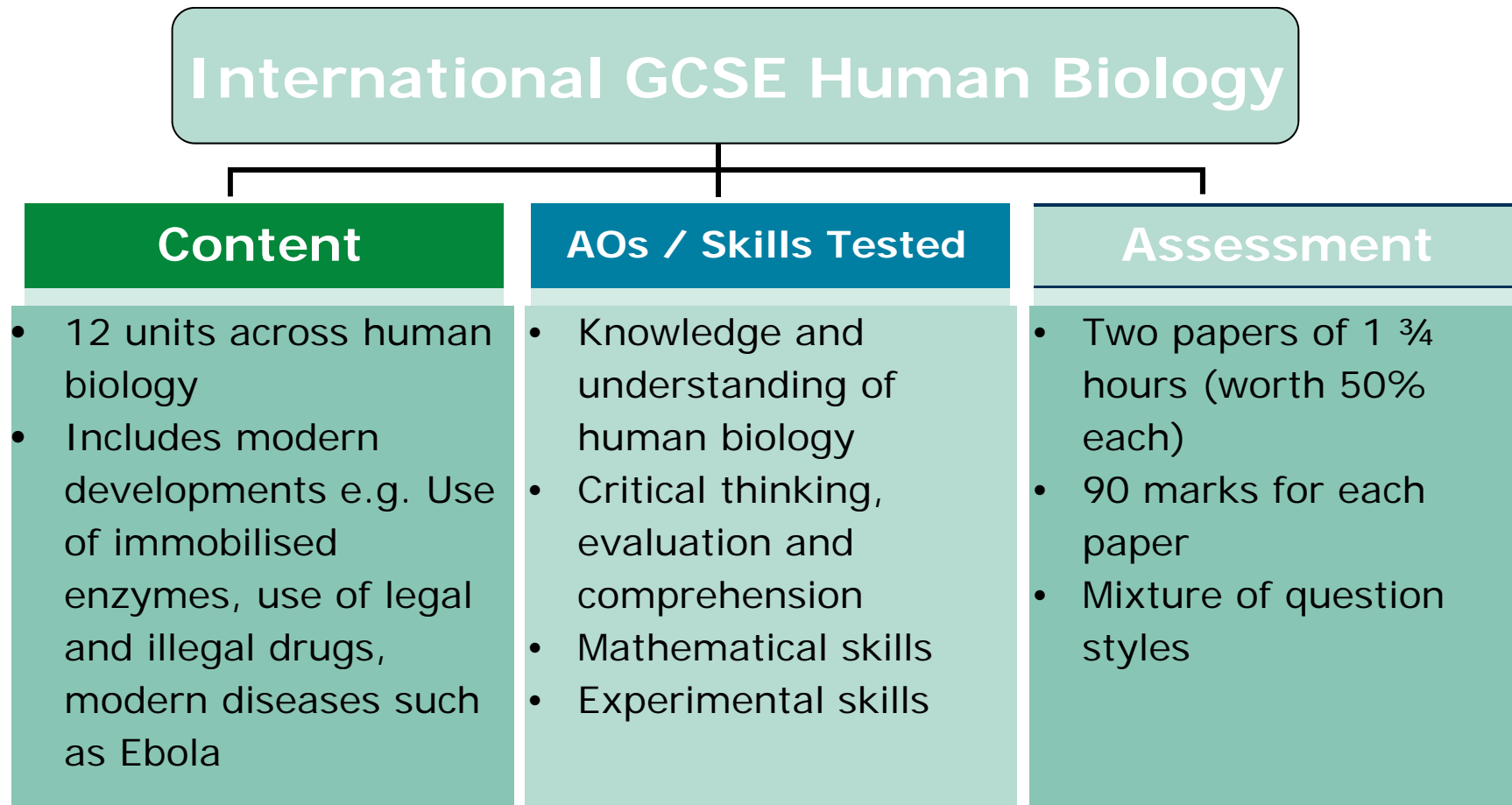
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# POLLS TO GET TO KNOW YOU

Multiple choice question 1 (i)  
from June 2017 was not well  
answered. Why do you think  
that this was the case?

**Question 5(b)(ii) from May 2017  
paper 1 was poorly answered by  
candidates. Why do you think  
this was the case?**

# Overview of new specification



# Why are changes happening?

- Internationally benchmarked standards and curriculum
- Encourages deep learning by prioritising depth and cognitive demand
- Assessment tasks which seek to measure higher-order knowledge and skills

- Conceptualises learning as continuous
- Recognises that students progress at different rates and have different learning needs
- Provides detailed information on student achievement and a clear indication of progression possibilities



- Sets and maintains high standards over time
- Reliable and valid assessment tasks and processes that can withstand close scrutiny
- End-users (e.g. employers/universities) can be confident of the knowledge, skills and competencies of certified students

- Assures progression, provides access to a culture and promotes active citizenship
- Develops learner adaptability, initiative, resilience and metacognition
- Builds the capacity to work collaboratively and to lead

## Additional student performance recognition at grade 9

# The new 9-1 grading scale

- Broadly the same proportion of students will achieve a grade 4 and above as currently achieve a grade C and above
- Broadly the same proportion of students will achieve a grade 7 and above as currently achieve a grade A and above
- The bottom of grade 1 will be aligned with the bottom of grade G

New grading structure	Current grading structure
9	A*
8	
7	
6	B
5	
4	
3	C
2	D
1	E
U	F
	G
	U

GOOD PASS (DfE)  
5 and above = top of C and above

AWARDING  
4 and above = bottom of C and above

Source:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/465873/your\\_qualification\\_our\\_regulation.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/465873/your_qualification_our_regulation.pdf)

# Grade 9

- Originally intended to be “the top 20% of those scoring Grade 7”
- However, this way of finding Grade 9 has been changed, as this method is not fair on students in subjects with skewed distributions
- New method of working out Grade 9 will be:

Proportion of Grade 7 students awarded Grade 9  
= ( $\% \text{ of students who achieved Grade 7} \div 2$ ) + 7%

# Grade 9 – an example

- An exam is sat by 12 000 students
- The grade boundaries are set – and 6 000 students achieve Grade 7 or higher

## How many students get a Grade 9?

- 50% of the students have achieved a Grade 7
  - So,  $(50 \div 2) + 7 = 32\%$  **of the Grade 7 students** will get a Grade 9
  - 32% of 6 000 students = 1 920 students achieving Grade 9
-

# Dates for the new specifications

- New specifications are designed for first teaching in **September 2017**, with first exams in Human Biology in **May 2019**
- Final [specifications](#), [sample question papers](#) and answers are now available on the website for Human Biology. It is expected that two further SAM papers (1 and 2) will be produced to assist centres.

# Transition assessment dates

SEPTEMBER 2016	SEPTEMBER 2017	MAY 2018	MAY 2019
<p>"LEGACY"</p> <p>Yr 10 / 4<sup>th</sup> Form continue with specifications</p>	<p>"LEGACY"</p> <p>Yr 11 / 5<sup>th</sup> Form continue with specifications</p>	<p>"LEGACY"</p> <p>Final summer exam series for specifications</p>	<p>"LEGACY"</p> <p><b><u>NO FURTHER</u></b> EXAMINATION SERIES FOR SPECIFICATIONS</p>
<p>"NEW 9-1 spec"</p> <p>Centres taking 3 years will embark on specifications</p>	<p>"NEW 9-1 spec"</p> <p>All students* now being taught specifications * except students being taught over 1 year</p>	<p><b>JANUARY 2019</b></p> <p><b>"LEGACY"</b></p> <p><b>Final resit series</b></p>	<p>"NEW 9-1 spec"</p> <p>First exam series for specifications</p>

# INTERNATIONAL GCSE HUMAN BIOLOGY

## Specification content



# Overview of changes in Human Biology

## ADDITIONS TO THE SPECIFICATION

- DNA/RNA structure, protein synthesis, genetic modification and stem cells.
- Immobilised enzymes.
- Osteoporosis.
- Eye defects.
- Drugs, legal and illegal including the use of statins and beta-blockers.
- Dementia in its various forms.
- Circulatory disorders.
- Gene therapy.
- Ebola virus

# Overview of changes in Human Biology

## REMOVALS FROM THE SPECIFICATION

- Recall that a mutation is rare, random change in genetic material that can be inherited.
- Recall that many mutations are harmful but some are neutral and a few are beneficial.
- Understand that mutant organisms can increase in a population by natural selection.
- Recall that the incidence of mutations can be increased by exposure to ionising radiation etc.
- Sickle cell anaemia is no longer specifically mentioned in the specification.
- In section 12, polio, influenza, TB and thrush removed as specific named infections
- Schistosoma nutrition, life cycle, prevention of spread removed.
- The whole of Section 14 (Environment) has been removed

# INTERNATIONAL GCSE HUMAN BIOLOGY

## Assessment Model



# Summary of assessment

## FAMILIAR ...

100% external assessment – with no coursework

Linear assessment – all exams taken in the same exam session

Mixture of question types – all marked with 'points-based' mark schemes

Single tier of entry (untiered)

Each paper will have some longer questions . These have appeared in the current (legacy) paper 2 (4 – 6 marks)

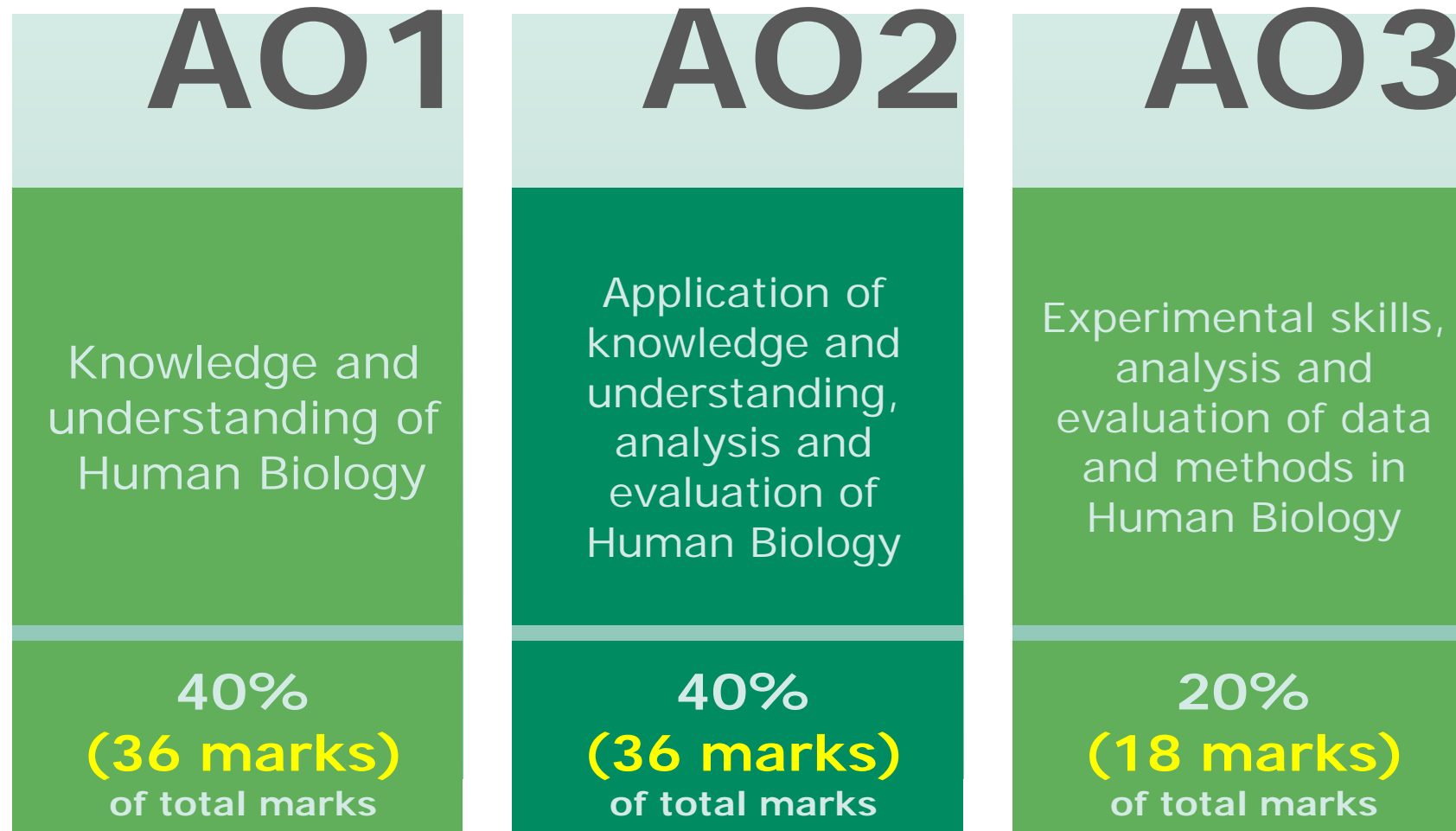
## AND NEW

**Maths skills**  
(10% in H Bio)

**Comprehension**  
type questions

**More data analysis**

# Assessment objectives



# Recall to Higher Order Thinking

**Pure recall restricted to 15%:**

14 marks in Paper 1

14 marks in Paper 2

Remember AO1 = 36 marks for Paper 1 and the same for Paper 2

**The consequence is fewer:**

- Name the part labelled A....
- What is meant by the term...?
- Complete by writing suitable words on the dotted lines...

# Assessment summary

## Paper 1

**One hour and 45 minutes; 90 marks**  
includes **ALL** the specification statements

## Paper 2

**One hour and 45 minutes; 90 marks**  
includes **ALL** the specification statements

Both papers will  
contain  
a mixture of AO1,  
AO2 and AO3

The AO3 questions  
are likely to be in a  
practical context

Both papers have similar question types but  
Paper 2 will have a passage to read on which  
questions will be based

# Command words

- All our qualifications in science now use a common taxonomy for command words
- These can be found in an appendix at the back of the specification
- Students can still expect a range of command words across the demand range of the exam paper
- Expect to see more questions that start with 'explain'.
- Also expect to see occasionally a question that asks the candidate to 'evaluate'.

# Question Styles Retained

- Graph plotting e.g. Question 2 (b)(i) Paper 2 May 2017, Question 6 (a) Paper 2 January 2013
- Mini Essays - points based marking  
e.g. Question 6 Paper 2 January 2016,  
Question 7(a) Paper 2 SAM
- Calculations: see Mathematics taxonomy  
e.g. Question 7 (b)(ii) Paper 2 SAM
- Data use e.g. Question 6 (c)(i) Paper 2 SAM

# Plotting graphs

Often marked as SLAAP, SLAPU or SLAPUK;

- **S** scale linear and half of each axis
- **L** lines straight, between points and neat
- **A** axis correct way around
- **A** axes labelled
- **P** points plotted correctly
- **U** units correct on each axis
- **K** key if two or more lines

Test	Concentration of enzyme solution/%	Time for paste to flow out/s
1	0.00	32.0
2	0.25	29.0
3	0.50	25.0
4	0.75	19.0
5	1.00	11.0

# Mini Essay 1

**Explain why a person who has blood group O cannot receive a blood transfusion of any other blood group than group O.**

(6)

Please construct your mark scheme for this question.

# Mini Essay 1 – mark scheme

1. group O red blood cells have no antigens;
2. group A has A antigens/group B has B antigens;
3. group AB has both A and B antigens;
4. group O has antibodies in plasma;
5. which react with antigens on red blood cells;
6. cause agglutination/clumping;
7. leading to death/blockage of blood vessels;
8. no agglutination with group O blood;

## Answer 1

*If blood group A was given in a transfusion, it would react with the antibodies in the person and the blood would clot. It would kill the blood group O person.*

## Answer 2

*If blood group A or B is transfused into a person of blood group O it will agglutinate. This is because blood group a has A antigens on the surface of the cells, group b has B antigens and group AB has A and B antigens. These react with antibodies in the group O person which causes the clumping. This can lead to death..*

## Mini Essay 2

**The hormonal pill and sterilisation are methods of birth control.**

**Evaluate these two methods to advise a man and a woman who already have two children and want no more to determine the preferred method of contraception for them to use.**

**(6)**

- Please construct your mark scheme for this question.

## Mini Essay 2 – mark scheme

1. both methods are effective;
2. medical risks associated with both;
3. infection from sterilisation  
operation/chance of blood clots with pill;
4. can forget pill but not sterilisation;
5. neither protect against HIV/STD;
6. sterilisation irreversible/permanent;
7. pill can be stopped at any time and  
pregnancy can occur;

## Answer 1

*I think that the pill is better because it is more reliable and easier to take. You have to remember to take it but not sterilisation..*

## Answer 2

*Whilst both methods are good at stopping pregnancy, I think that sterilisation is better because there are health risks associated with the pill and you can also forget to take it.*

# INTERNATIONAL GCSE HUMAN BIOLOGY

## Practical and mathematical skills



# Practicals in the specification

- Specifications contain a number of suggested practicals
- Further suggestions for practicals appear in an Appendix
- The suggested practicals would form a basis for practical work, on which schools would be encouraged to build
- Questions on exam papers test practical skills, rather than recall of specific techniques – so may be in the context of any practical activity

# Developing practical skills

Students should be familiar with a range of laboratory apparatus and its use, including the reading of scales.

Students should be able to

- process and analyse data
- identify and account for anomalies
- evaluate data and methods
- justify a conclusion.

Students should be able to

- plan an investigation and consider control variables
- to collect and record data in a table
- to plot appropriate graphs with lines of best fit.

The specification will include guidance on the use of terminology within practical and experimental work.

# Practical skills in examinations

**Students may be tested on their ability to:**

Describe and plan investigations

Draw conclusions consistent with the evidence, using scientific knowledge and understanding

Describe safe and appropriate practical techniques

Communicate findings from experiments using appropriate vocabulary, graphs and calculations

Analyse and interpret data from experimental activities

Evaluate data and methods

# CORMS and devising investigations

- **Change** = + and - / range of values;  
• (control) Independent variable
- **Organism** = species / size / age / sex / eq;  
• (biotic) Controlled variable
- **Repeat** = more than one reading / eq;  
• (reliable)
- **Measure** = mass / length / units / time / eq;  
• (precise/accurate) Dependent variable
- **Same** = temp. / LI / water / eq;  
• (abiotic) Controlled variable

# Design an investigation to find out if...

- ... the surface area of a cube of solidified egg white affects the rate at which it is digested by pepsin.
- ...drying is a more effective method of food preservation than freezing.
- ...caffeine in coffee acts as a diuretic.
- ...the sense of smell is more effective in identifying food than the sense of taste.
- ...a sample of food contains fat.

# TASK

**Design an experiment to find out if .....**

... the pulse rate of a class of students  
varies at rest.

Apply the CORMS mark scheme

# Design an experiment to find out if .....

...the pulse rate of a class of students varies at  
rest.

- C      number of students i.e. sufficient number/  
         more than 10
- O      same gender/age/rested for five minutes prior  
         to experiment
- R      idea of repeats/more than once
- M      count pulse
- S      same described method of counting i.e. finger  
         on wrist/neck

## ANSWER 1

*I would use five students and tell them to count their pulses for a period of one minute. I would then compare the results to see if there were any differences.*

## ANSWER 2

*I would use twenty students of the same sex and age and tell them to count their pulses for a period of one minute. They would take their pulses by placing two fingers on their wrist and counting the number of beats during the minute. They would repeat the process two more times. I would compare the results to see if there were any differences after working out a mean for each student.*

# Mathematical skills

- The development and use of relevant mathematical skills is key to progress in science subjects
- A list of mathematical skills which should be developed appears in the Appendix for each specification
- These skills will be tested in exam papers within the context of the science
- Assessment of mathematical skills will account for 10% of marks in Human Biology
- See SAMs for an example, but note that mathematics questions have always been asked in previous papers so should not be a surprise

## Considering Delivery Strategies and sharing best practice

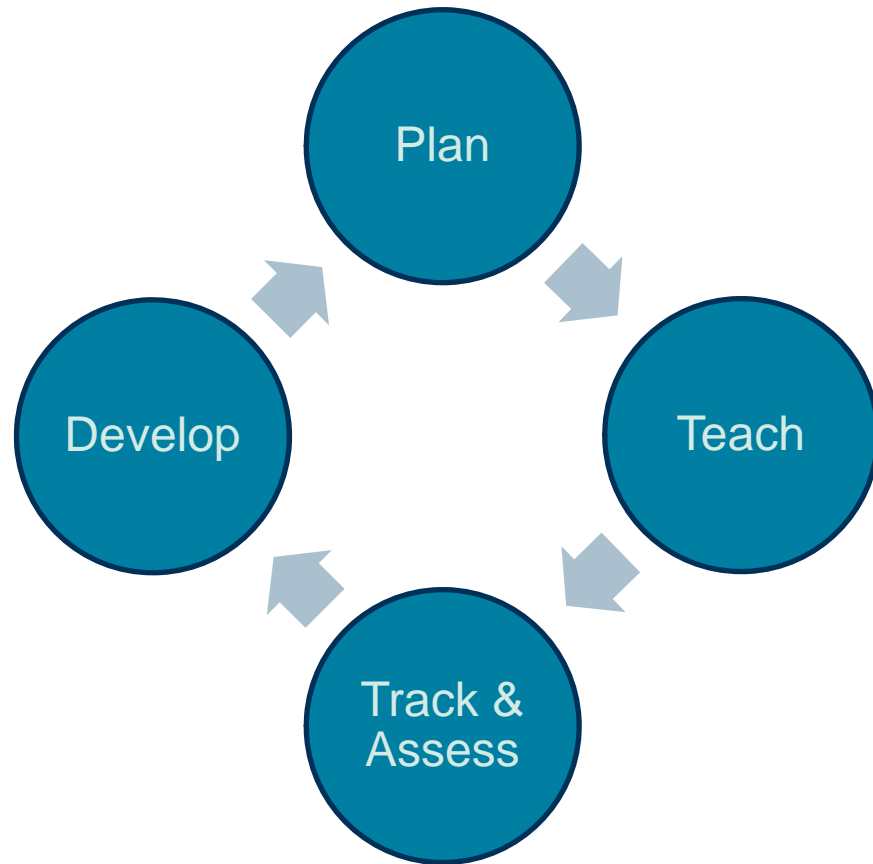
1. Teaching Strategies.
2. Resources.
3. Technology.

# INTERNATIONAL GCSE Human Biology 2017

## Support and published resources



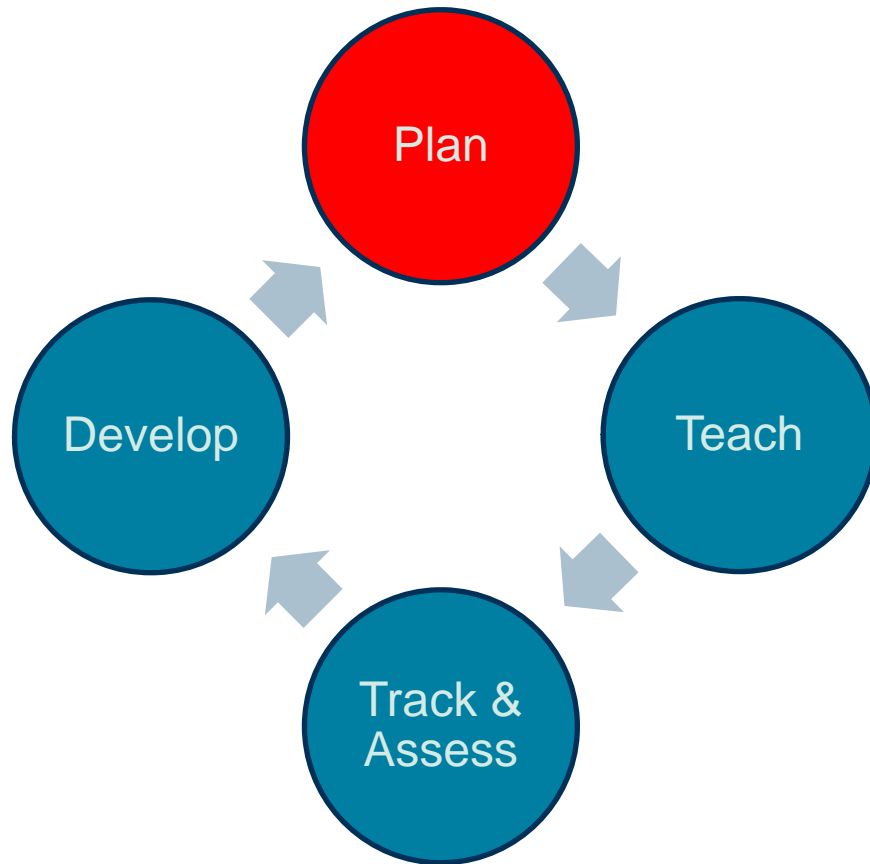
# Supporting great science teaching



- We will provide a range of support to help you plan, teach, track and assess, and develop the new course.
- This includes free qualification support to download from our website as well as published resources\*

\* You do not have to purchase any resources to deliver our qualifications

# Supporting great science teaching

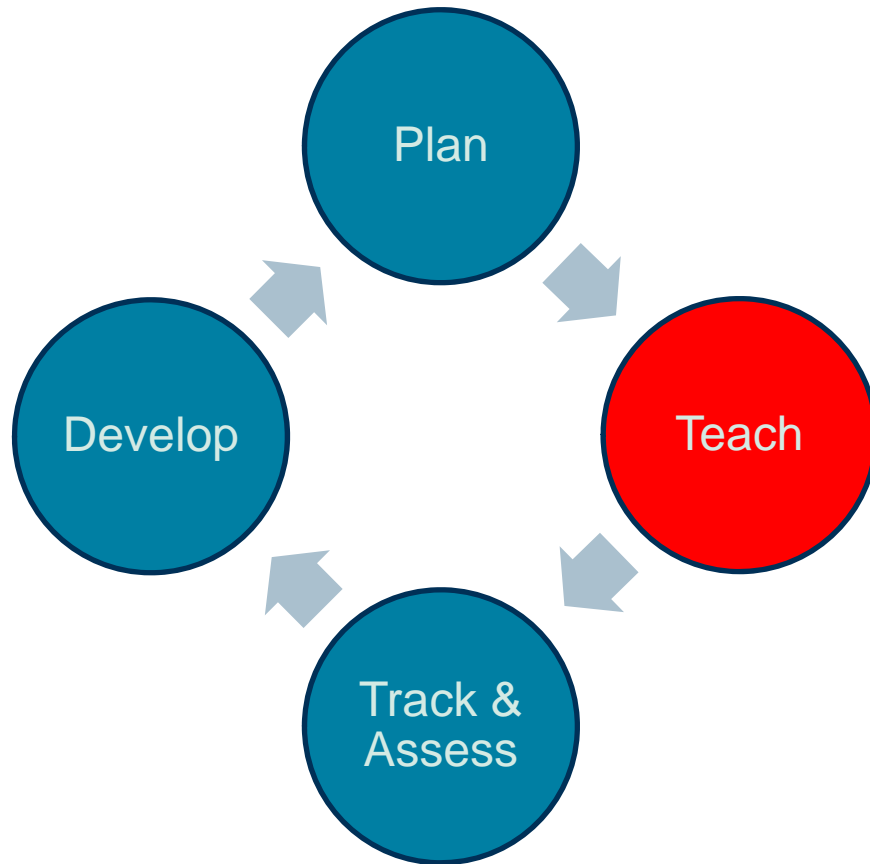


To help you plan the new course we are providing:

## **Free support for the qualification-**

- Getting Started Guide
- Course planners / schemes of work
- Mapping documents

# Supporting great science teaching



There will be teaching and learning support to help you deliver the new qualification:

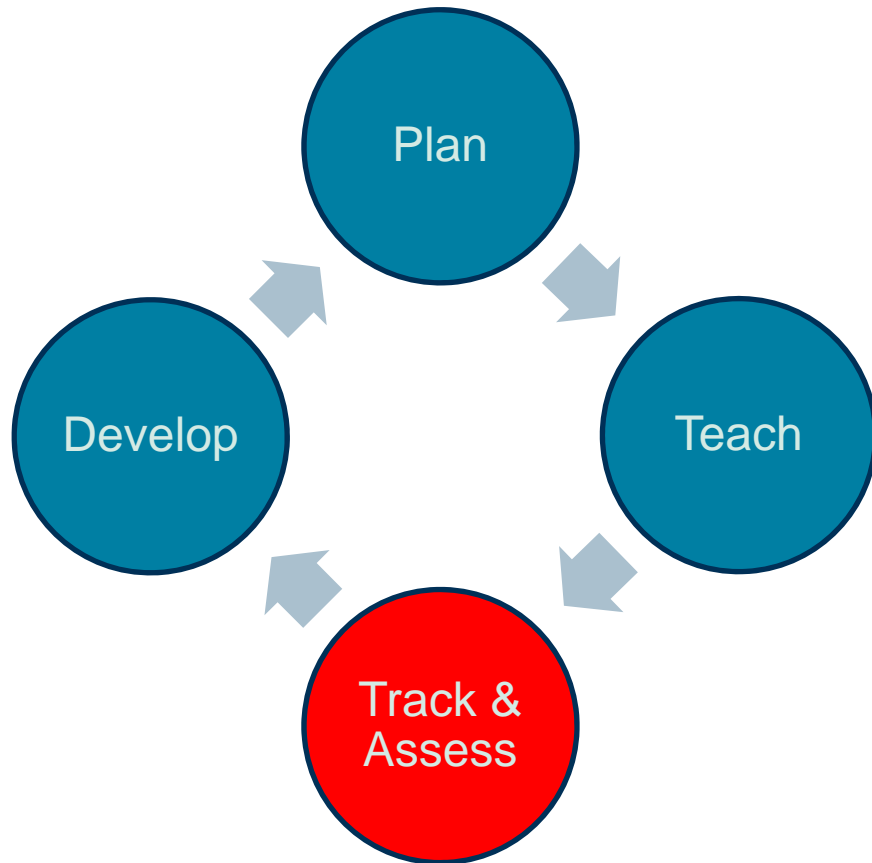
## **Free support for the qualification:**

- Support for maths

## **Published resources from Pearson:**

- Student book and ActiveBook

# Supporting great science teaching



To help you prepare your students for the assessments:

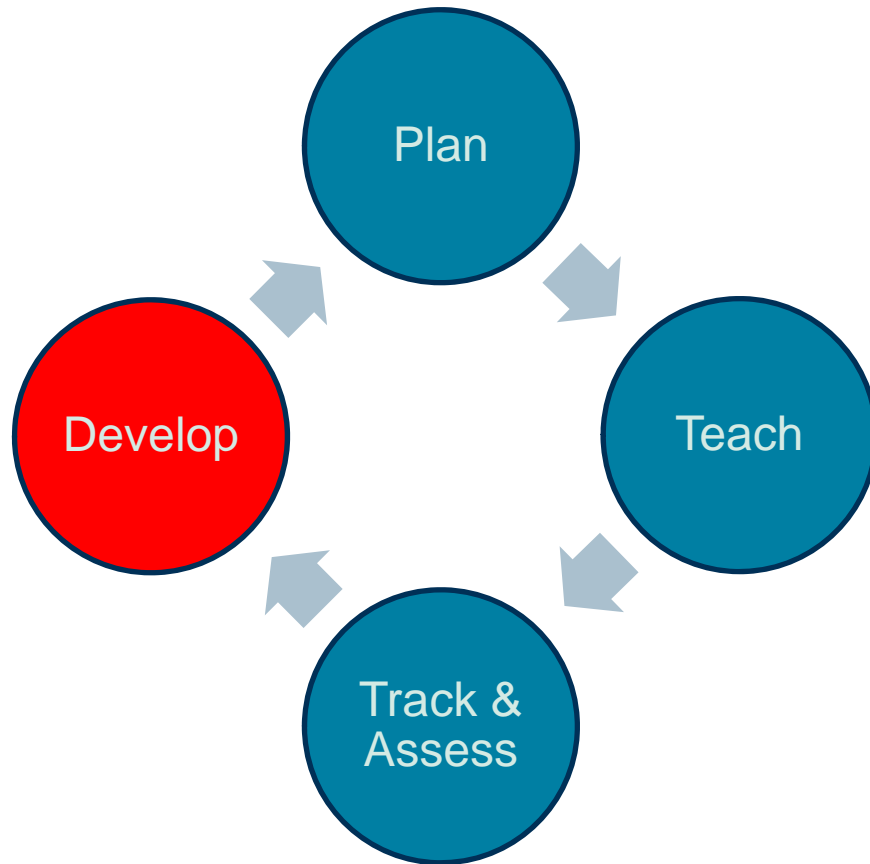
## **Free support for the qualification:**

- Specimen papers to support formative assessment and mock exams
- ResultsPlus and ExamWizard

# ResultsPlus and ExamWizard

- . **ResultsPlus** provides the most detailed analysis available of your students' exam performance. This free online service helps you identify topics and skills where students could benefit from further learning, helping them gain a deeper understanding.
- . **ExamWizard** is a free exam preparation tool containing a bank of past Edexcel exam questions, mark schemes and examiners' reports, so you can create mock papers, homework or practice tests in minutes.

# Supporting great science teaching



Our training programme includes:

- Launch events
- Getting Ready to Teach events

Our subject advisor team, led by **Stephen Nugus**, will guide you through all the changes and are on hand to answer any questions you might have.

[TeachingScience@pearson.com](mailto:TeachingScience@pearson.com)

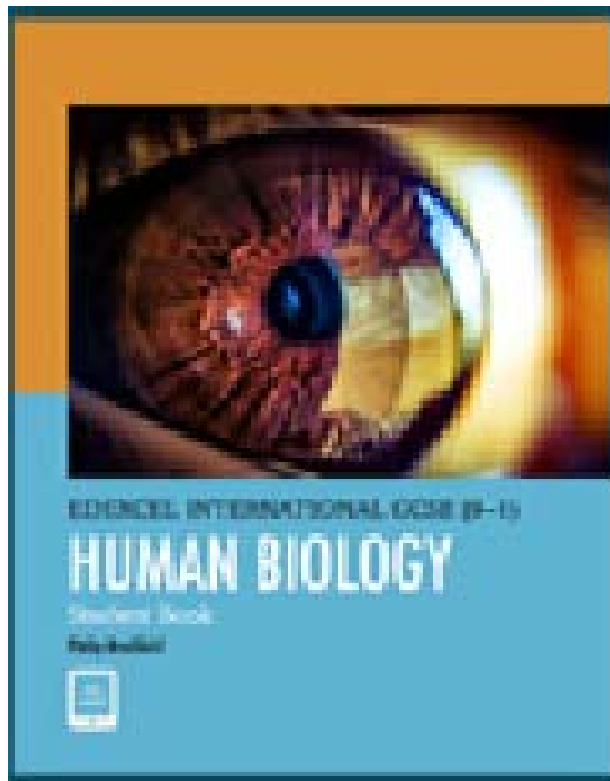
# Published resources

We are committed to helping teachers deliver our Edexcel qualifications and students to achieve their full potential. To do this, we aim for our qualifications to be supported by a wide range of high-quality resources, produced by a range of publishers.

However, it is not necessary to purchase endorsed resources to deliver our qualifications.

# Published resources – Pearson

<http://www.pearsonglobalschools.com>



- **Student Book**

This new resource, which includes access to an eBook, has been developed for the new Edexcel International GCSE specification with progression, international relevance and support at their core, and is designed to supply students with the best preparation possible for the examination

# Other useful links

## **1. [Grade Boundaries](#)**

This page shows the minimum marks needed to achieve a certain grade for all UK and international examinations. Also refer to the examiners report which is available for download with other documents.

## **2. [Examination Results Statistics](#)**

Results statistics summarise the overall grade outcomes of candidates sitting Edexcel examinations.

**Any questions?**

**Thank you for  
attending this event.**

*How did we do?*

*Please fill in the evaluation form that you'll  
receive via e-mail in a few minutes.*

**ALWAYS LEARNING**