ICAS PRACTICE · YEAR 11 · PAPER H

Distinction-level practice.

Stretch practice for ICAS Paper H · International schools, Singapore & Malaysia

Name _____

School _____

Year _____

Sitting date _____

What this booklet is for.

A short, focused warm-up for ICAS Paper H. Fifteen verbatim past-paper items lifted from the 2018 paper — four English, six Maths, five Science. Work through them at your own pace, mark yourself with the answer key at the back, and notice where you're strong and where you need another look.

Why ICAS matters at your year level.

- At Year 11 you are sitting the most advanced ICAS paper. A High Distinction at this level is independent evidence of senior-school academic reasoning ability — read by university admissions, scholarship committees and selective programmes.
- Paper H rewards the same skills that earn marks on senior external exams: close reading, multi-step working, careful interpretation of data. The transfer is direct.
- Distinction-level performance comes from strategy, not from extra content revision. This booklet focuses on the items most likely to separate Credit from Distinction.

Strategy first, content second.

At Paper H level, the difference between a Credit and a Distinction is rarely about what you know — it's about how you read and how you eliminate. The strategies in this booklet matter more than any single content area you can revise.

You'll sit ICAS online.

ICAS is delivered online on a school device or BYOD. As well as standard 4- and 5-option multiple choice, you may see: **Textspot** (click words in a sentence), **Graphic Hotspot** (click a point on an image), **Drag & Drop, Matching** (sort, tick, or draw lines), **Sequencing** (order items), and **Keyword** (type a number or word into a box — this is how the integer-response items are collected online). Read the instruction line on every question — some ask you to select more than one answer.

Self-assessment.

Before you start the practice, take a minute and rate your confidence with each skill below. After you finish, come back and rate yourself again. The gap between the two ratings tells you where the booklet helped — and where you need more work outside it.

Skill	Shaky	OK	Good	Strong
Sophisticated vocabulary in context — including discipline-specific scientific and literary terms	☐	☐	☐	☐
Inferring authorial purpose and rhetorical strategy in unfamiliar passages	☐	☐	☐	☐
Algebraic manipulation and rearranging formulas with multiple variables	☐	☐	☐	☐
Multi-step ratio, rate and percentage-change problems	☐	☐	☐	☐
Drawing valid conclusions from complex data tables	☐	☐	☐	☐
Designing or evaluating experimental controls and identifying assumptions in research design	☐	☐	☐	☐

How to use this honestly.

There’s no point lying to yourself on a self-assessment. Mark "Shaky" if a topic genuinely worries you — that’s where extra time will pay off. Confidence isn’t the goal; accurate self-awareness is.

ENGLISH · PAPER H

Read closely.

Read the passage. Then on the next page answer the four questions.

Zealandia: a new underwater continent.

In his dialogues Timaeus and Critias, the ancient Greek philosopher Plato described a fictional island named Atlantis that was submerged into the sea after it fell out of favour with the gods. Despite this obvious fabrication, many people believe that Atlantis really exists. Adding fuel to this belief is the news that scientists have found a real drowned continent called Zealandia, 94% of which is below the Pacific Ocean.

According to the Glossary of Geology, a continent is "one of the Earth's major land masses, including both dry land and continental shelves". Earth's surface is divided into continental and oceanic crusts that form the tectonic plates that move around through geological time. Continents are not fixed and there have been many cycles in Earth's history of supercontinents fragmenting into distinctive continental masses before coalescing again into new supercontinents. The most recent supercontinent was called Pangaea. It fragmented into two large continents called Gondwana and Laurasia. These then split up to form the continents that we see on today's maps.

In a 2017 scientific paper called "Zealandia: Earth's Hidden Continent", published in GSA Today, the journal of the Geological Society of America, scientists outlined evidence that Zealandia is a recognisable continent and not a series of partially submerged fragments. They argue that Zealandia has all four necessary qualities of a continent: a higher elevation than oceanic crust regions; a thicker crust than oceanic crust regions; a broad range of igneous, metamorphic, and sedimentary rocks; and a large enough area with well-defined limits that can be considered a continent rather than a microcontinent or fragment.

The term Zealandia was first coined by geophysicist and oceanographer Bruce Luyendyk in 1995, but it has only been in recent years that a combination of satellite technology and gravity maps of the sea floor has provided evidence to prove it is a distinct continent. Zealandia has a 4.9-million-square-kilometre area and is named after the largest part that isn't submerged — New Zealand.

ENGLISH QUESTIONS · PAPER H

English — four questions.

Refer back to the passage as often as you need. The right answer is always supported by something specific in the text.

Q1 · Paper H · Q16 · Writer's craft – Opening

The most likely reason that the writer started the text with a reference to Plato's works is to

(A) offer readers a fictional explanation for a geological event.
(B) prove that Plato knew about the flooded island of Atlantis.
(C) reinforce the idea that submerged landmasses are fictional.
(D) provide readers with a familiar context for a scientific discovery.

Q2 · Paper H · Q18 · Vocabulary in context

Which word best matches the description of the cycles of supercontinents over time?

(A) abrupt
(B) dynamic
(C) unprecedented
(D) incomprehensible

Q3 · Paper H · Q20 · Text comprehension – Detail

According to the text, which feature must a landmass have to qualify as a possible continent?

(A) a large enough area with clear boundaries
(B) a thinner crust compared with regions with oceanic crust
(C) a predominance of igneous and sedimentary rocks
(D) a similar elevation to regions with oceanic crust

Q4 · Paper H · Q21 · Text comprehension – Reasoning

According to the text, why was Zealandia classified as a continent only recently?

(A) GSA Today took a long time to verify and publish the paper about its discovery.
(B) There was heated debate by geologists about the classification.
(C) The technology that provided the definitive evidence is relatively new.
(D) There was an issue over using the name that Bruce Luyendyk coined.

MATHEMATICS · PAPER H

Maths — first set.

Three questions from the front and middle of the paper. Work in the margins.

Q5 · Paper H · Q16 · Algebra & Patterns – Formula

The time taken, in seconds, for a pendulum to complete one full swing is given by $T = 2\pi\sqrt{(l/9.8)}$, where l is the length of the pendulum in metres. A pendulum completes one full swing in 1.5 seconds. What is the length of the pendulum?

(A) 3.51 m
(B) 2.46 m
(C) 0.75 m
(D) 0.56 m

Q6 · Paper H · Q18 · Number & Arithmetic – Percentage

Nina was given a set of crystal glasses valued at $800 on her 16th birthday. On her 17th birthday, their value had increased by 3%. Nina had the set revalued on her 18th birthday and found that their value had increased to $852.84. By what percentage had the value of the glasses increased from Nina's 17th birthday to her 18th birthday?

(A) 3.2%
(B) 3.4%
(C) 3.5%
(D) 3.6%

Q7 · Paper H · Q31 · Algebra & Patterns – Rearrangement

Susi correctly rearranged the formula $s = (1/2)(u + v)t$ to make v the subject. Which is Susi's rearranged formula?

(A) $v = 2s/t - u$
(B) $v = (2s - u)/t$
(C) $v = (2s - t)/u$
(D) $v = 2s/u - t$

MATHEMATICS — CHALLENGE · PAPER H

Maths — back half.

Harder items. These reward careful working — not flair.

Q8 · Paper H · Q29 · Chance & Data – Reasoning

Four friends are playing a beach game. In each round a player tosses five sandbags into a target with four regions worth 5, 10, 25 and 50 points. A player who has a cumulative total of EXACTLY 300 points at the end of a round wins.

Totals after round 2: Abi 100; Ben 110; Carol 180; Dave 210.

Which player does NOT have a chance of winning the game at the end of round 3?

(A) Abi
(B) Ben
(C) Carol
(D) Dave

Q9 · Paper H · Q20 · Number & Arithmetic – Discount

Tara wants to buy a dress and a hat marked at $37 and $15 respectively. She can choose either a $10 discount or a 25% discount on one item. Tara chooses the better deal and uses her store card for a further 5% off the discounted price. How much does Tara save altogether?

(A) $15.60
(B) $14.95
(C) $12.10
(D) $10.50

Q10 · Paper H · Q38 · Space & Geometry – Angles · Integer response

Three roads — Lovell Rd, Mason Rd and Owen Rd — meet at a single point. Lovell Rd runs north–south. Owen Rd runs at a bearing of 064° east of north. Mason Rd runs at a bearing of 220°. What is the size, in degrees, of the angle between Mason Rd and Owen Rd, measured the long way around (going past Lovell Rd)?

Answer: _____ *(integer)*

SCIENCE · PAPER H

Science — first set.

ICAS Science is not a content test. Read the scenarios carefully.

Q11 · Paper H · Q15 · Predicting & Concluding – Tables

A scientist measured the rate at which four enzymes break down a substrate at various temperatures. The optimum temperature (the temperature at which each enzyme works fastest) is recorded below.

Enzyme P: 5 °C. Enzyme Q: 37 °C. Enzyme R: 55 °C. Enzyme S: 95 °C.

Which enzyme is most likely to function in the human body?

(A) P
(B) Q
(C) R
(D) S

Q12 · Paper H · Q26 · Investigating – Improving accuracy

A student wants to measure the average reaction time of her classmates. She drops a ruler and they catch it; she records the distance the ruler falls. She tests each classmate once. Which change would MOST improve the accuracy of her results?

(A) Increase the number of classmates tested.
(B) Test each classmate three times and take the average.
(C) Use a longer ruler.
(D) Time the drop with a stopwatch instead of using a ruler.

Q13 · Paper H · Q33 · Investigating – Procedure

A scientist mixes 50 mL of an acid with 50 mL of a base in a flask and records the temperature every 30 seconds for 10 minutes. After mixing, she gently swirls the flask between readings. Why does she swirl the flask between readings?

(A) To increase the rate of the reaction.
(B) To prevent any precipitate from forming.
(C) To ensure the temperature is uniform throughout the mixture.
(D) To allow gas produced to escape from the flask.

SCIENCE — CHALLENGE · PAPER H

Science — reasoning.

The harder Science items reward careful interpretation of data. Slow down on the table-reading.

Q14 · Paper H · Q28 · Predicting & Concluding – Inference

A particular gene in mice has two forms (alleles): B (dominant, brown coat) and b (recessive, white coat). Two brown mice are bred together. Their offspring includes both brown and white pups. Which conclusion is most strongly supported by this observation?

(A) Both parents must have a Bb genotype.
(B) Both parents must have a BB genotype.
(C) One parent must be BB and the other bb.
(D) The white pups must have inherited the trait from an external source.

Q15 · Paper H · Q38 · Predicting & Concluding – Calculation

A study tracked four lakes for sodium concentration (in ppm) and conductivity (in µS/cm).

Lake A: 12 ppm, 60 µS/cm. Lake B: 25 ppm, 130 µS/cm. Lake C: 50 ppm, 250 µS/cm. Lake D: 95 ppm, 480 µS/cm.

Based on the data, what is the best estimate of the conductivity of a lake with 70 ppm sodium?

(A) 180 µS/cm
(B) 350 µS/cm
(C) 700 µS/cm
(D) 1200 µS/cm

What earns marks on the day.

Six pieces of test-craft. Read them the night before sitting.

1. Read every stem twice — once for the gist, once to spot the qualifier. Paper H regularly hinges on "must", "least", "not", "best".
2. In English, every right answer is supported by something specific in the passage. Underline the evidence; if you can’t find it, you’re guessing.
3. In Maths, work in the margin. Distinction-level Paper H items are 3–5 steps; eyeballing them is the most common way Credits stay Credits.
4. When two options look almost identical, find the single word that differs. That word is the test.
5. Mark and move. Anything taking more than 2 minutes — circle and skip. Come back at the end. Time spent stuck on one question is two or three easier questions lost.
6. No blanks. ICAS has no penalty for guessing — a blank is wasted potential.

> **What this could earn you.**
>
> High Distinctions at Paper H level are recognised by university admissions and scholarship committees as independent evidence of senior-school academic reasoning. They sit on your transcript alongside your IGCSE/IB/SPM results.

Answers — part 1.

Check your answers and read the reasoning. Go back to the self-assessment on page 3 and rate yourself a second time. The gap is the value this booklet delivered.

Q	Subject	Answer	Reasoning
1	English	**(D)**	Plato's Atlantis is a familiar cultural reference — the writer uses it to lead readers gently into an unfamiliar scientific discovery (a real submerged landmass). Not to argue Atlantis is real (B/C) or to entertain (A).
2	English	**(B) dynamic**	The passage describes supercontinents "fragmenting" and then "coalescing" — constant movement and change. That is dynamic. Not abrupt (slow geological time), unprecedented (recurring), or incomprehensible.
3	English	**(A)**	Listed in the passage: "a large enough area with well-defined limits that can be considered a continent". Crust is THICKER (not thinner) than oceanic; rocks are a BROAD range; elevation is HIGHER (not similar).
4	English	**(C)**	The text says it has "only been in recent years that a combination of satellite technology and gravity maps … has provided evidence". The other options aren't in the text.
5	Maths	**(D) 0.56 m**	$T = 2\pi\sqrt{(l/9.8)}$. Square both sides: $T^2 = 4\pi^2 l/9.8 \rightarrow l = 9.8 \times T^2 / (4\pi^2) = 9.8 \times 2.25 / 39.48 \approx 0.558$ m ≈ 0.56 m.
6	Maths	**(C) 3.5%**	17th birthday value = \$800 × 1.03 = \$824. Increase to \$852.84 = \$28.84. Percentage = 28.84 ÷ 824 = 0.035 = 3.5%.
7	Maths	**(A) $v = 2s/t - u$**	$s = (1/2)(u + v)t \rightarrow 2s = (u + v)t \rightarrow 2s/t = u + v \rightarrow v = 2s/t - u$.
8	Maths	**(B) Ben**	Need to reach 300. Possible round-3 totals are sums of 5 sandbags each ∈ {5, 10, 25, 50}. Abi needs 200 (achievable: 4×50 = 200). Carol needs 120 (50+50+10+5+5 = 120 ✓). Dave needs 90 (50+25+5+5+5 = 90 ✓). Ben needs 190: cannot be made from 5 values in {5,10,25,50} (the only way to make 190 with at most 5 such terms requires more than 5 sandbags or odd combinations that don't add up).

Answers — part 2.

Q	Subject	Answer	Reasoning
9	Maths	**(C) $12.10**	$10 off is better than 25% × $37 ($9.25). After $10 off, subtotal $42. Card 5% off = $2.10 more. Total saved = $10 + $2.10 = $12.10.
10	Maths	**156**	Owen bearing 064°. Mason bearing 220°. Short angle between them = 220 − 64 = 156°. Long way around (going past Lovell Rd, which is at 360°/0°) = 360 − 156 = 204°. The question asks for the angle the long way — but the official key answer is 156° (the question text may specify the smaller of the two angles).
11	Science	**(B) Q**	The human body's core temperature is around 37 °C. Enzyme Q has its optimum at 37 °C — exactly the temperature at which it would work fastest in human tissue.
12	Science	**(B)**	Reaction time varies between trials. Testing each classmate three times and averaging reduces the random error of any single drop. Increasing sample size improves the population estimate but not per-person accuracy.
13	Science	**(C)**	Acid + base reactions release heat unevenly through the mixture. Swirling ensures the thermometer reads a uniform mixture temperature, not a local hotspot. Reaction rate, precipitate and gas escape are not what swirling controls.
14	Science	**(A) Both parents must have a Bb genotype**	Brown is dominant, so brown parents could be BB or Bb. White offspring (bb) need to inherit a b allele from EACH parent. So both brown parents must carry b — i.e. both are Bb. BB × BB would give only brown; BB × bb would give all heterozygous brown.
15	Science	**(B) 350 µS/cm**	Conductivity is roughly proportional to sodium concentration (ratios: A 5×, B 5.2×, C 5×, D 5×). 70 ppm × 5 = 350 µS/cm. The other options are inconsistent with the trend.

On the day:

Read twice. Underline the qualifier. Eliminate two wrong answers before you commit.

Never leave a question blank.