



SUBJECT GUIDE SCIENCE

SKILL AREAS

Learners are assessed across the key scientific areas of:

- **Observing and measuring:** Noting and measuring features of items and phenomena
- **Interpreting data:** Interpreting diagrams, tables and graphs
- **Applying data:** Including inferring, predicting and concluding
- **Investigating:** Experimental design, use of controls and notion of 'fair test'
- **Higher order skills:** Including reasoning and problem-solving.

CONTENT

ICAS Science does not test knowledge of science although the questions may assume some knowledge appropriate to the learners' age. All the information that the learners need, to respond to the question, is provided in the stimulus.

The papers cover content on:

- Earth and Beyond (incorporating the Earth Sciences and Astronomy)
- Energy and Change (incorporating Physics)
- Life and Living (incorporating Biology and Ecology)
- Natural and Processed Materials (incorporating Chemistry).

ASSESSMENT STRUCTURE

GRADE/YEAR	PAPER	QUESTION BREAKDOWN	DURATION
2	Introductory	30 multiple choice	45 minutes
3	A	30 multiple choice	45 minutes
4	B	30 multiple choice	45 minutes
5	C	35 multiple choice	55 minutes
6	D	35 multiple choice	55 minutes
7	E	40 multiple choice	1 hour
8	F	40 multiple choice	1 hour
9	G	40 multiple choice	1 hour
10	H	40 multiple choice	1 hour
11	I	40 multiple choice	1 hour
12	J	40 multiple choice	1 hour

HOW IS ICAS DIFFERENT?

ICAS is developed annually by a team of highly experienced assessment developers and psychometricians, with rigorous reviews at each stage of construction. Subject matter experts develop new ICAS questions each year, drawing on their in-depth understanding of the way learners learn. All ICAS assessments are reviewed by experienced teachers to ensure that they accurately assess learners' skills and are relevant to what they are learning at school.

This ensures that ICAS is:

- valid
- consistent from one assessment cycle to the next
- appropriately targeted for the learners being assessed
- objective and reliable
- fair (effect of gender, language background, cultural background is minimised through sensitivity reviews)
- constructed using appropriate examples and authentic contexts
- represented in a visually appealing way to capture learner attention and interest
- underpinned by methodologies from psychometric measurement theory.

“From a diagnostic perspective, because ICAS Science targets skills in interpreting data, observing, predicting, investigating, reasoning and problem-solving rather than knowledge of content, we can identify gifted learners who perhaps require more motivation to study. Where our whole cohort shows a relative internal weakness in one of these areas, we can develop resources to improve performance in that area.”

Steve Smith

Head Science Teacher
Merewether High School, Australia

SKILLS ASSESSED



ENGLISH

- Text comprehension
- Writer's craft
- Syntax
- Vocabulary



MATHEMATICS

- Algebra and patterns
- Chance and data
- Measures and units
- Number and arithmetic
- Space and geometry



SCIENCE

- Observing and measuring
- Interpreting data
- Applying data
- Investigating
- Reasoning and problem solving



DIGITAL TECHNOLOGIES

- Common operating systems and hardware
- Graphics and multimedia
- Internet and email
- Programming and scripting
- Spreadsheets and databases
- Word processing

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