Skills Syllabus

Yr 7/8 JSO exam syllabus (Skills)

Australian Curriculum content descriptor (V9)	**Content presentation:**
Questioning and Predicting • develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships (AC9S7I01) **Planning and conducting** • plan and conduct reproducible investigations to answer questions and test hypotheses, including identifying variables and assumptions. **Processing, modelling and analysing** • select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information (AC9S7I04) • analyse data and information to describe patterns, trends and relationships and identify anomalies (AC9S7I05) **Evaluating**	Read Chapter 1: Measurements and Calculations in Chemistry: https://www.physicsclassroom.com/Chemistry-Tutorial/Measurement-and-Units **Consolidation of content:** • Complete the "check your understanding questions" as well as the suggested concept builders in the "before you leave" sections in the tutorials above. Introduction to units and their importance: Video: Kathryn White Understanding measurements: Units General science skills: • Reading scales on graphs • Interpreting information presented in graphs and tables • Simple multipliers (milli, kilo) • Converting between simple units. • Modelling and interpreting the predictions of models Physics skills

Skills Syllabus

• analyse methods, conclusions and claims for assumptions, possible sources of error, conflicting evidence and unanswered questions (AC9S7I06) • construct evidence-based arguments to support conclusions or evaluate claims (AC9S7I07) **Communicating** • write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools as appropriate (AC9S7I08)	• Simple dimensional analysis (e.g. reason that if $v = \frac{d}{t}$, and the units of distance d are metres, and the units of time t are seconds, then the units of speed must be m/s) • Estimation of familiar quantities (e.g. heights/lengths, masses of everyday objects) • Use an unfamiliar formula to calculate a quantity • Rearranging an algebraic expression to make a given variable the subject.

Skills Syllabus

Yr 9/10 JSO exam syllabus (Skills)

The yr 7 & 8 syllabus is assumed knowledge

Questioning and Predicting • develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models (AC9S10I01 - adjusted) **Planning and Conducting** • plan valid, reproducible investigations to answer questions and test hypotheses, including identifying and controlling for possible sources of error (AC9S10I02- adjusted) • select equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate (AC9S10I03 - adjusted) **Processing, modelling and analysing** • select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information (AC9S10I04)	**Content presentation:** Read chapters 1-11 in Physics skills in Experimentation: Physics Skills in Experimentation - Activity Book This covers a wide range of experimental skills. It includes sections on how uncertainty in measurements is described and calculated in the context of physics. Videos: Kathryn White Units, Accuracy and Significant Figures playlist: Yr 11 Chemistry (Units and Sig Figs)_ **Check your understanding:** Complete the exercises in chapters 1-11 in Physics skills in Experimentation: https://www.physics.unsw.edu.au/sites/default/files/documents/physicsskillsinexperimentation-activitybook_.pdf General science skills: • Reading scales on graphs • Interpreting information presented in graphs and tables • Interpreting the meaning of the gradient of a scatter graph. • Multipliers: Nano, Micro, Mega, Giga • Converting between complex units (preferably using dimensional analysis)

• analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S10I05) **Evaluating** • assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty (AC9S10I06) • construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information (AC9S10I07) **Communicating** • write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate (AC9S10I08)	• Modelling and interpreting models Applying significant figures rules in calculations. Physics-focused skills • More challenging dimensional analysis • Scaling • Estimation