



# Science Classes Grades 7 & 8

As we move into our new custom-designed science labs, we are exploring opportunities to create more powerful learning experiences for all of our students.

One of the ways we will do this is by taking advantage of cross grade collaboration between grades 7 and 8. This will allow us to better provide support and enrichment to all students and more opportunities for student choice.

## How will the curriculum work?

Science units in Grades 7 and 8 are over two-year cycle. This ensures a broad range of science topics are covered in depth over the two years. This year is 'Cycle A', with units that are new to all Grade 7 and 8 students. Next year will be Cycle B:

- **Cycle A units:** Geology (Earth Science), Energy (Physics), Human Body Systems (Biology), Chemical Reactions (Chemistry) and Science Fair.
- **Cycle B units:** Earth in Space (Earth Science), Forces and Motions (Physics), Separation of Mixtures (Chemistry), Cells (Biology) and Science Fair

These units are designed with reference to international standards, including the Australian Curriculum (ACARA), and supplemented by international best practices, to ensure a global curriculum that is innovative and high-quality.

Students will have their own science mentor, the teacher who is overseeing their science learning for the year and the teacher parents can reach

out to if they have questions. During parts of each unit students will also have access to other teachers and experiences that make use of the new specialist labs and the diverse expertise of our team.



# Sample Unit Plan

## Unit 1 - Geology

Lesson #	Lab 1	Lab 2	Lab 3
<b>Inquiry Phase: Tuning In (Essential Knowledge)</b> Students in science mentor class groups			
1	Density Towers		
2	Rock Phenomena		
3	Layers of Earth		
4	Convection Currents		
5	Tectonic Plates and Continental Drift		
6	Rock Cycle/Types of Rocks		
<b>Inquiry Phase: Finding Out (Exploration)</b> Students have access to other teachers and experiences			
7	Convection Currents Extension	Boundary Testing	Review
8	Mineral Testing	Identifying Rocks	Review
9	Fossils	Fossil Record analysis and interpretation	Review
10	<b>Assessment - Criterion A</b> Students in science mentor class groups		
<b>Inquiry Phase: Sorting Out (Deciding on Project)</b> Students in science mentor class groups			
11	Criterion D, Criterion B & C options		
<b>Inquiry Phase: Taking Action (Working on Project)</b> Students have access to other teachers and experiences			
12	Criterion B & C	Criterion B & C	Criterion D
13	Criterion B & C	Criterion B & C	Criterion D
14	Criterion B & C	Criterion B & C	Criterion D



## How does assessment work?

Assessment will make use of the **MYP 3 (Grade 7-8)** evaluation criteria published by the IB, with regular feedback and support to ensure all learners are successful. The IB MYP evaluation criteria are divided into the 4 areas below:

<b>Criterion A: Knowing and Understanding</b>	<b>Criterion B: Inquiring and Designing</b>	<b>Criterion C: Processing and Evaluating</b>	<b>Criterion D: Reflecting on the Impact of Science</b>
<ul style="list-style-type: none"> <li><b>i.</b> describe scientific knowledge</li> <li><b>ii.</b> apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations</li> <li><b>iii.</b> analyse information to make scientifically supported.</li> </ul>	<ul style="list-style-type: none"> <li><b>i.</b> describe a problem or question to be tested by a scientific investigation</li> <li><b>ii.</b> outline a testable hypothesis and explain it using scientific reasoning</li> <li><b>iii.</b> describe how to manipulate the variables, and describe how data will be collected</li> <li><b>iv.</b> design scientific investigations.</li> </ul>	<ul style="list-style-type: none"> <li><b>i.</b> present collected and transformed data</li> <li><b>ii.</b> interpret data and describe results using scientific reasoning</li> <li><b>iii.</b> discuss the validity of a hypothesis based on the outcome of the scientific investigation</li> <li><b>iv.</b> discuss the validity of the method</li> <li><b>v.</b> describe improvements or extensions to the method.</li> </ul>	<ul style="list-style-type: none"> <li><b>i.</b> describe the ways in which science is applied and used to address a specific problem or issue</li> <li><b>ii.</b> discuss and analyse the various implications of the use of science and its application in solving a specific problem or issue</li> <li><b>iii.</b> apply scientific language effectively</li> <li><b>iv.</b> document the work of others and sources of information used.</li> </ul>



This two-year approach allows students to develop their competencies as scientists, with ongoing feedback for growth and improvement. Students are not compared to other students at any point in assessment; they are measured and supported in their own personal growth towards these competencies.



### **How are students challenged and stretched?**

Along with learning the content, skills and concepts of science, students are given opportunities to design and carry out a range of investigations and research. Within the unit there are options and pathways for all students to go deeper into the subject content, accessing knowledge and skills that are not limited to a traditional year level. Our teachers work with students to ensure they are challenged, supporting their development and extension where needed.

### **How are students supported?**

This model allows support specialists to work effectively with small groups of students across the community. Our new labs and groupings provide more time and space for differentiation to make sure we do meet the needs of all our learners.

### **How will students feel safe and included?**

Students are trained on lab safety and how to work well with others as we investigate the sciences. The MS learning community has many opportunities for students to learn across grade-levels and to learn with other people as they explore science and consider different perspectives.

### **How do we know our MYP science curriculum prepares students for the DP and beyond?**

Many of our graduates go on to be successful in STEM beyond WAB (e.g. 35% of the graduates of 2022 are pursuing STEM-related subjects at university). We have a wide range of STEM options in our IB Diploma Programme, and students' learning throughout the MYP prepares them well for higher study of science. WAB's MYP science program develops the knowledge, skills and dispositions of science learners and researchers. Each year, the curriculum is evaluated to ensure we are providing high-quality, challenging learning experiences

and we continue to use educational research and developments in science in current issues to design units that are relevant, engaging and purposeful.

### **How will we evaluate the impact of this model?**

WAB gathers feedback from our students to iterate and improve teaching, learning and their experience. As we settle into our new spaces, we will pay close attention to students' use of the spaces and their learning throughout the units. As the units progress, student-created evidence of learning, in the form of assessments, classwork and projects, will help provide information on the strengths and areas of further development for teaching and learning.

### **How will parents be involved?**

"WAB Includes the Parents" is one of our core Philosophies, and throughout this process, parents will be informed on the units of inquiry, their child's progress and invited to workshops and information sessions to learn more about STEM at WAB. We will gather parent feedback on our programmes and your child's progress, to make informed decisions as we continue to develop innovative and engaging Science learning. We welcome parents who have expertise in STEM-related fields as guest speakers, and if you would like to connect to our units of inquiry please let us know.

### **Want to Learn More?**

**Join our Science in the Middle School Workshop - September 15 | 8:45 am**

Scan the QR code to register



### **The MS Science Team**

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