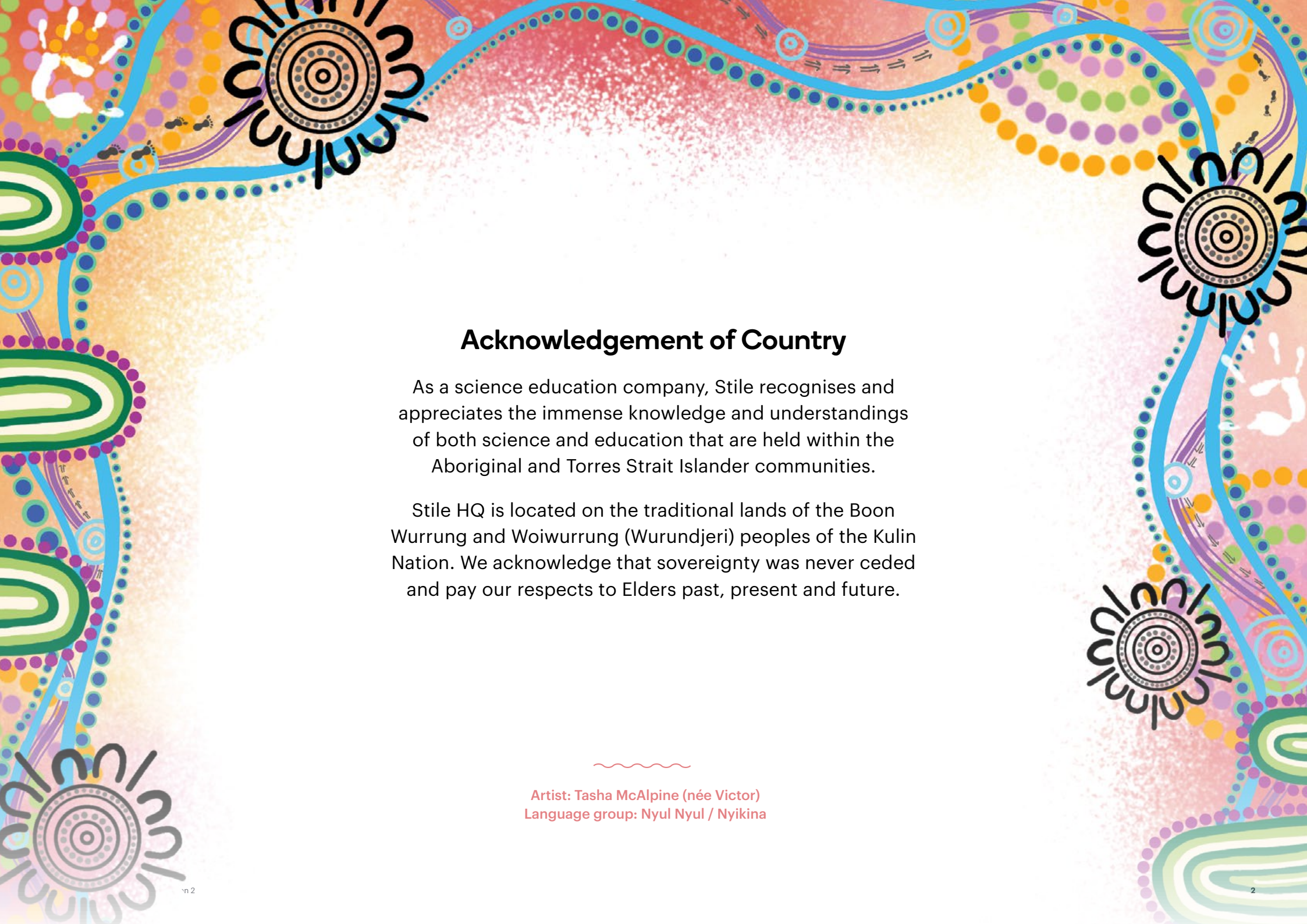
Stile

Scope and Sequence

Victorian Curriculum

2023 Edition
Version 2

A world-class science education for *every* student



Acknowledgement of Country

As a science education company, Stile recognises and appreciates the immense knowledge and understandings of both science and education that are held within the Aboriginal and Torres Strait Islander communities.

Stile HQ is located on the traditional lands of the Boon Wurrung and Woiwurrung (Wurundjeri) peoples of the Kulin Nation. We acknowledge that sovereignty was never ceded and pay our respects to Elders past, present and future.

Artist: Tasha McAlpine (née Victor)
Language group: Nyul Nyul / Nyikina

A note from our Head of Education

Clare Feeney | Head of Education
and the whole Stile team

Stile is for everyday use in your classroom. It facilitates vibrant, collaborative learning with a mixture of rich, interactive activities that collectively cover every outcome of the Years 7–10 Science curriculum.

To support you, we've created this scope and sequence document to give you guidance on how you can use Stile as a program of learning across Years 7–10. This sequence is designed to be used as a guide – a way to ensure you are covering the curriculum with our resources – but as with everything at Stile you can customise it to best suit your classes. Make as few or as many changes as you like; it's all about teaching in your style and doing what works for your students. Our curriculum-aligned lessons are ready to teach straight out of the box and have built-in customisation and editing tools that let you tailor them to your classroom. We have created these resources to do some of the work for you so you can do what you do best: teach.

If you have any questions or would like to chat more about our science program please reach out. We're a bunch of teachers and science nerds based in Melbourne, with team members across the country, and we love chatting with fellow educators about awesome science education.

Contents

All units in Stile address the general capabilities of the Victorian Curriculum. We have used the following symbols to indicate this:


Critical and creative thinking


Ethical capability


Intercultural capability


Personal and social capability

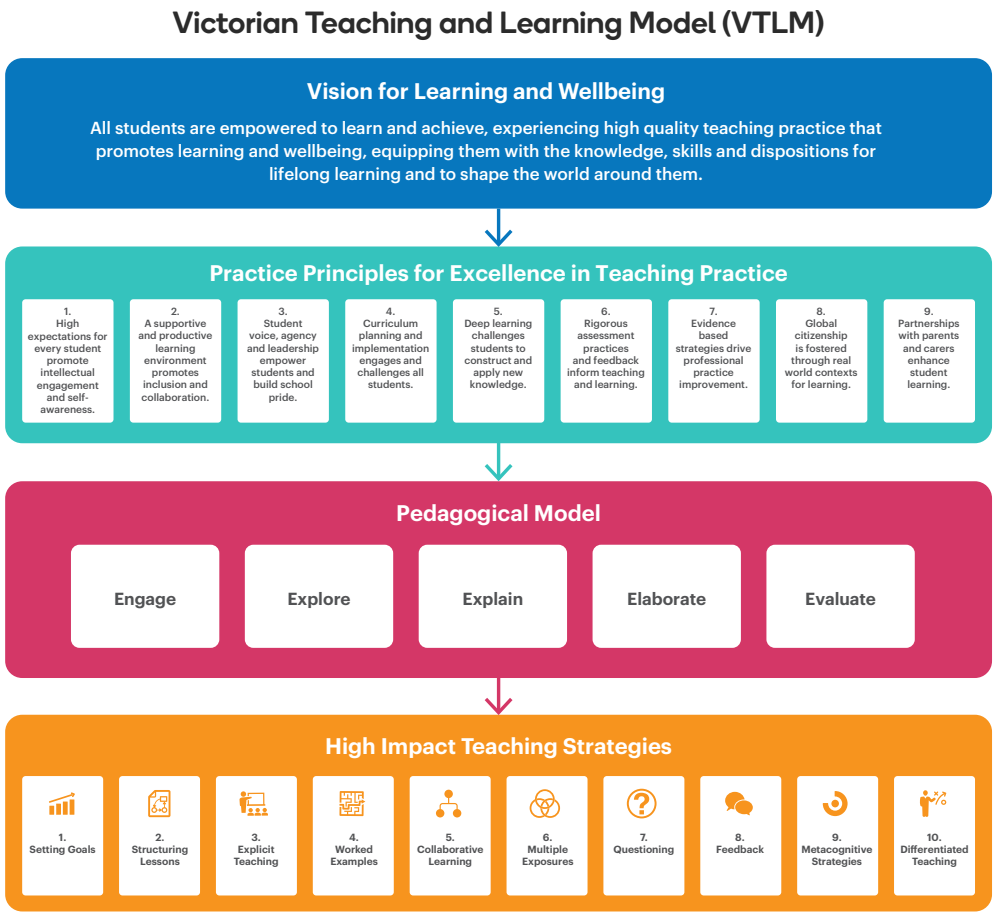
Stile and the Victorian Teaching and Learning Model

The Victorian Teaching and Learning Model, released by The Department of Education and Training in 2019, aims to support teachers and school leaders to "focus on high impact teaching and learning." In our mission to provide a high quality science education for every student, we're passionate about empowering teachers to do what they do best. That's why each aspect of the Victorian Teaching and Learning Model is represented in Stile.

The Teaching and Learning Model is aligned with the core elements of the **Framework for Improving Student Outcomes (FISO) 2.0** and consists of four components:

- The Vision for Learning and Wellbeing
- The Practice Principles for Excellence in Teaching Practice
- The Pedagogical Model
- The High Impact Teaching Strategies

The following pages detail how Stile aligns with each of the components of the Victorian Teaching and Learning Model. Annotated examples of Stile resources showing alignment to the model can also be found in the appendix.



Adapted from *Quick Guide to the Victorian Teaching and Learning Model 2022*, Department of Education and Training, Victoria

Vision for Learning and Wellbeing

Our latest resource, Stile X, is a student notebook and revision guide that has been built from the ground up to help students take ownership of their learning. Its evidence-based approach supports students to develop note-taking and study skills that set them up for success in senior science and beyond. Stile and Stile X work together to help students be the best learners they can be.

Read more about Stile X on the Stile Blog: Study skills for lifelong learning and The science of Stile X.

Metacognitive monitoring

Every Stile lesson includes opportunities for students to reflect on their learning through thinking routines and structured reflection activities. Opportunities for **metacognitive monitoring** can also be found throughout Stile X. Students reflect on their own learning, mindsets and attitudes leaving them **empowered** to take action that can improve their learning and achievement.

Gradual release of responsibility

Students are steadily introduced to **appropriately challenging** strategies for studying and note-taking that increase in complexity from Year 7 to Year 10.

Note-taking strategies

Stile X includes explicit instruction on effective **note-taking strategies**, from outline note-taking in Year 7 to Cornell note-taking in Year 10. These strategies help students to build self-efficacy, and skills for lifelong learning. This empowers them to achieve in senior science subjects, contributing to overall confidence and wellbeing.

Vision for Learning and Wellbeing

All students are empowered to learn and achieve, experiencing high quality teaching practice that promotes learning and wellbeing, equipping them with the knowledge, skills and dispositions for lifelong learning and to shape the world around them.

Differentiated learning opportunities

Stile X provides structured, scaffolded revision activities that can be used to differentiate learning for in the classroom. Within Stile, students are supported to access learning material through audio narration with word-by-word highlighting, video captions, and compatibility with screen-readers and translation tools.

Expert study tips

Helpful **expert study tips** include a range of revision techniques that help students become **lifelong learners**, including self-regulation and focus strategies, mindfulness and time management.

Real-world phenomena

Units of learning are centred around scientific phenomena, intentionally selected to motivate curiosity. Students are driven to ask questions and seek answers through examples that are relevant to their own lives.

Practice Principles for Excellence in Teaching Practice

The Practice Principles consist of nine evidence-based pedagogies associated with increased student achievement and motivation. These nine pedagogies have specific actions and indicators to describe teacher practice, some of which are detailed on this page.

Stile supports teachers to incorporate a number of the actions described by the Practice Principles.

ACTION 1.4

Teachers build student capacity to monitor and evaluate their own progress and achievement.

The metacognitive questioning included in Stile lessons and Stile X booklets guides students through the process of reflecting on their learning and considering their next steps. Read more about this under “The Vision for Learning and Wellbeing”

ACTION 4.2

Teachers collaboratively design and implement a scope and sequence of learning

Stile's scope and sequence documents provide teachers with guidance and curriculum alignment information to support them in delivering a high-quality science programme.

ACTION 1.3

Teachers scaffold and differentiate learning to enable students to achieve their goals

The Stile Science Team uses SOLO Taxonomy to inform the progression of questions within a lesson and across a unit. This can be seen in the use of cognitive verbs in each question, which correspond to the depth of knowledge required to answer the question. This allows teachers to intentionally scaffold student learning and support progress from lower-order thinking to higher-order thinking.

ACTION 2.3

Teachers develop student capacity to collaborate

Collaborative question types, such as Live Polls and Live Brainstorms, are included throughout Stile lessons. These provide excellent opportunities for students to share their thoughts, listen to others, and work together to understand ideas.

Units also incorporate activities like Socratic seminars, where students communicate with one another as they consider a range of perspectives on global issues, and engineering challenges, where they work together to engineer solutions to real-world problems. All of these learning opportunities allow teachers to guide students as they develop the ability to work together.

ACTION 2.1

Teachers build quality relationships that enhance student engagement, self-confidence and growth as a learner.

Stile is designed to help teachers deliver a high quality science programme. Everything we create is in the interest of making it easier for teachers to do what they do best: teach. By providing the very best tools and resources, Stile allows teachers to focus on developing relationships with students, rather than on developing resources or completing cumbersome marking.

Practice Principles for Excellence in Teaching Practice (cont.)

ACTION 5.3

Teachers support students to be reflective, questioning and self-monitoring learners

As with Action 1.4, the metacognitive questioning in Stile lessons and Stile X booklets help students to develop reflective thinking, questioning, and self-monitoring. In particular, Stile X is designed to support students in becoming self-motivated, lifelong learners who have the skills to succeed in high school science and beyond.

ACTION 7.2

Teachers identify and target areas for professional learning

Stile's high quality, practical professional learning workshops explore a range of evidence-based pedagogies that we've observed working in thousands of science classrooms across Australia.

ACTION 9.1

Teachers establish open and sustained communications with parents/carers

Parent email templates accompany each Stile unit. These templates include information about what students are learning and provide caregivers with questions they can ask their child to engage with learning at home. This provides a quick and convenient method of communicating with families about student learning.

ACTION 6.3

Teachers provide regular feedback to students on their progress against individual learning goals and curriculum standards

The learning goals in Stile's lessons are carefully aligned to curriculum standards. Each learning goal has an associated Key Question, which indicates where students will demonstrate their progress against the learning goal. This Key Question also demonstrates to teachers where they should provide written feedback. Giving feedback on the Key Question streamlines the process of marking student work and means that teachers can give more timely, specific feedback to students.

ACTION 8.1

Teachers support students to explore their role as global citizens

The real-world context provided by Stile's units and lessons makes learning about science relevant to students. By engaging with global issues, students recognise the potential impact they can have on the world around them. Engineering challenges in Stile have students working together to engineer solutions to real problems. Teachers are able to engage with students while they participate in these activities and support them to explore their role as global citizens.

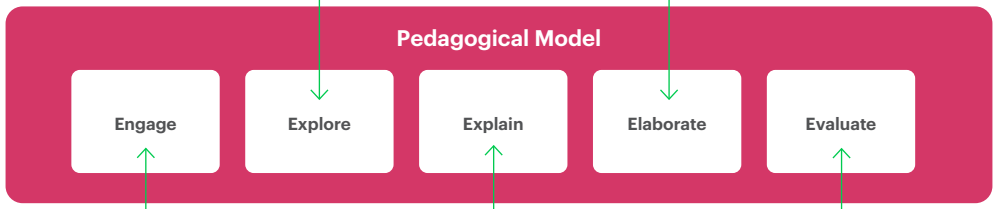
ACTION 8.2

Teachers model and facilitate use of digital tools and resources to access, use and share learning

By using Stile in the classroom, teachers are both modelling and facilitating the use of Stile's digital tools. Teach Mode lets teachers interact with a lesson as though they were a student, so they can explicitly model the process of completing a question. When teachers assign lessons, they provide students with access to information and resources from which they can learn, and facilitate the use of Stile to share their learning through answering questions and engaging in collaborative activities.

Pedagogical Model

The Victorian Pedagogical Model is made up of five phases: Engage, Explore, Explain, Elaborate and Evaluate. Each of these phases is visible within Stile's teaching and learning resources, as illustrated here and in the appendix.



Explore

Students generate and investigate questions, gather information and develop ideas, expand their understanding and prepare to navigate their own learning. This involves making explicit connections between learning goals, activities and assessment tasks; assessing students' prior knowledge, and challenging misconceptions.

Elaborate

Students deepen their knowledge as teachers support the progression from lower-order thinking to higher-order thinking. They apply knowledge and skills to novel situations and are encouraged to reflect, question, and monitor their own learning.

Engage

Motivating and empowering students to monitor their own learning and develop agency. Stile's resources draw on real-world issues and contexts that matter to young people. Lessons are designed to connect with students' prior knowledge and lived experiences in a way that makes learning meaningful.

Explain

Teachers explicitly teach knowledge, concepts and skills. They present information in a number of different ways and continue to make connections between students' new and existing knowledge. Teachers monitor progress and give opportunities for students to practise skills they have learned.

Evaluate

Assessment and feedback helps students to learn and develop agency. Teachers monitor student progress and analyse data to draw conclusions about their own teaching practice and address student needs.

High Impact Teaching Strategies

The High Impact Teaching Strategies (HITS) are 10 instructional practices that are proven to have an impact on learning outcomes. Stile supports teachers to implement HITS in a number of different ways.

Learning sequences within lessons use SOLO taxonomy to scaffold students from lower-order thinking to higher-order thinking. This is evident in the cognitive verbs that are included in each Stile question. Our science team also uses the 5E instructional model to structure learning at the unit and lesson level.

Both Model Answers and the use of teacher modelling in Teach Mode provide students with access to worked examples that demonstrate the steps required to answer a question. These provide scaffolding that supports students to acquire new knowledge and skills.

Each lesson includes clear learning goals that indicate what students should be able to know, understand, and do at the end of the lesson.

Teach Mode lets teachers intentionally model what to do and how to do it. A lesson includes learning goals accompanied by Key Questions, which give students an opportunity to demonstrate their progress against the learning goal. This makes the purpose of the lesson transparent to students.

Collaborative question types, such as Live Polls and Live Brainstorms are intentionally used to get students working together and communicating with one another. Collaborative activities, including Engineering Challenges and Socratic seminars, require student to collectively negotiate roles, responsibilities and outcomes.

High Impact Teaching Strategies (cont.)

Questions within Stile lessons are crafted to elicit students' understanding of key concepts. Key Questions in particular are aligned with the lesson's learning goals, and provide a formative assessment opportunity that helps determine next teaching steps.

Reflection activities included in Stile lessons and Stile X encourage students to think about their thinking. Students regularly evaluate their progress and receive explicit instruction on self-regulation and note-taking strategies through expert study tips.

Lessons are designed using SOLO taxonomy, and aim to extend the knowledge and skills of all students. By scaffolding students from lower-order thinking to higher-order thinking, lessons provide a point of entry for all levels of understanding. Stile includes a number of tools to support students to access learning material. Videos include captions, text comes with audio-narration and word-by-word highlighting, and our resources are compatible with screen-readers and translation tools. Open Response question types provide students with the ability to choose how they communicate their knowledge. Lessons can be further modified using Stile's editing and customisation tools to accommodate specific needs.

Following lessons with an associated quiz, activity from a Stile X booklet, or videos, flashcards and quizzes from the Stile X app give plenty of opportunities for students to encounter, engage with, and elaborate on their learning.

Student data is instantly available through Teach Mode, so teachers can immediately identify students who need support and provide them with timely verbal feedback. Model answers and rubrics help teachers to formulate specific feedback, whether written or verbal, that includes specific advice students can use to improve their performance.

Year 7 – Scope & Sequence

Stile X booklets are available for all units in this scope and sequence. With Stile X, you can offer support and extension for students in class or give them the tools to review and master knowledge independently.

Introduction to Science

What is science and how can it help us solve global problems?

Mixtures

Can we 3D-print new bones to replace broken ones?

Resources

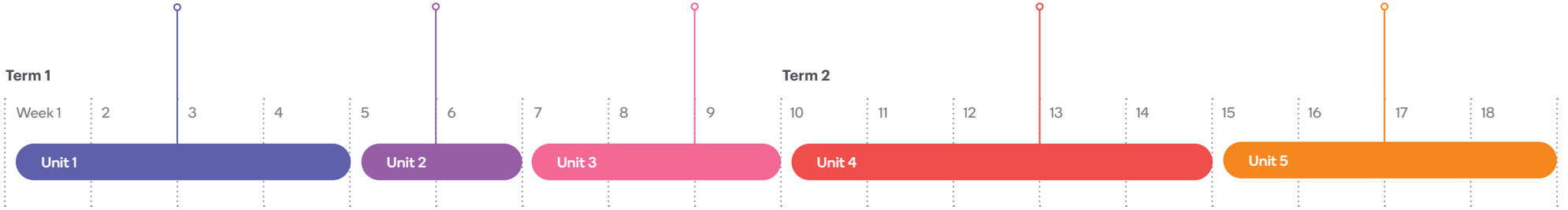
How has our use of resources changed over time?

Classification and Biodiversity

Do we need to save the bees?

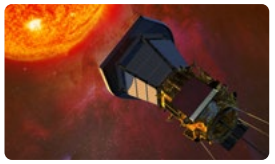
Food Chains and Food Webs

Why do cats have slit-shaped pupils?



Forces

How can you scale a wall like a gecko?



Our Place in Space

Can we travel to the Sun?

The Water Cycle

Would you ever drink your own urine?

Year 7 – Curriculum alignment

Unit 1 Introduction to Science

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 2 Mixtures

Science understanding

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

Science inquiry

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

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VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 3 Resources

Science understanding

VCSSU100

Some of Earth's resources are renewable, but others are non-renewable

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Year 7 – Curriculum alignment

Unit 4 Classification and Biodiversity

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU091

There are differences within and between groups of organisms; classification helps organise this diversity

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 5 Food Chains and Food Webs

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU093

Interactions between organisms can be described in terms of food chains and food webs and can be affected by human activity

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

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VCSIS111

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VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 6 Forces

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU103

Change to an object's motion is caused by unbalanced forces acting on the object; Earth's gravity pulls objects towards the centre of Earth

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Year 7 – Curriculum alignment

Unit 7 Our Place in Space

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

Science inquiry

VCSIS107

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VCSIS108

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Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 8 The Water Cycle

Science understanding

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU101

Water is an important resource that cycles through the environment

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

Year 8 – Scope & Sequence

Stile X booklets are available for all units in this scope and sequence. With Stile X, you can offer support and extension for students in class or give them the tools to review and master knowledge independently.

Cells
Are you ready to meet lab-grown meat?

Body Systems
What does it take to be a cold-blooded killer?

Optional extra: Plants
How do predatory plants survive?

Energy
What can we learn from nature's energy engineers?

Heat
How can I cook the perfect pizza?

Term 1

Week 1 2 3 4 5 6 7 8 9

Unit 1 | Unit 2 | Optional extra

Term 2

10 11 12 13 14 15 16 17 18

Unit 3 | Unit 4

Term 3

Week 1 2 3 4 5 6 7 8 9

Unit 5 | Unit 6 | Unit 7

Term 4

10 11 12 13 14 15 16 17 18

Unit 8 | Unit 9 | Unit 10

Light
How can my smartphone be used as a microscope?

Elements and Compounds
Why is helium so rare?

Physical and Chemical Change
What does chemistry have to do with chocolate making?

Sound
In space no one can hear you scream – or can they?

States of Matter
Why is liquid water so important for humans to live on Mars?

Active Earth (Part 1): Rocks
How do we build future-ready cities?

Year 8 – Curriculum alignment

Unit 1 Cells

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU092

Cells are the basic units of living things and have specialised structures and functions

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 2 Body Systems

Science understanding

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU094

Multi-cellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce

Science inquiry

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Optional Plants

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU094

Multicellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce

This content description is addressed in the Body Systems unit, however Plants has been included as an optional extra if you wish to examine another example of a multicellular organism.

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

Year 8 – Curriculum alignment

Unit 3 Energy

Science understanding

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU104

Energy appears in different forms including movement (kinetic energy), heat, light, chemical energy and potential energy; devices can change energy from one form to another

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

Unit 4 Heat

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU132

Energy flow in Earth's atmosphere can be explained by the processes of heat transfer

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

Unit 5 Light

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

Science inquiry

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

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VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

Year 8 – Curriculum alignment

Unit 6 Elements and Compounds

Science understanding

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU097

Differences between elements, compounds and mixtures can be described by using a particle model

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 7 Physical and Chemical Change

Science understanding

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU098

Chemical change involves substances reacting to form new substances

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

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Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 8 Sound

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU106

The properties of sound can be explained by a wave model

Science inquiry

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

Year 8 – Curriculum alignment

Unit 9 States of Matter

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU096

The properties of the different states of matter can be explained in terms of the motion and arrangement of particles

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Unit 10 Active Earth (Part 1): Rocks

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU102

Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS109

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

VCSIS111

Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions

VCSIS112

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method

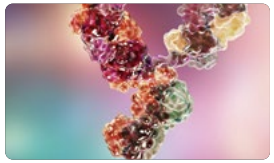
VCSIS113

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Tree roots
Tree roots are a plant organ involved in absorbing water and nutrients, anchoring the plant and storing energy.

Year 9 – Scope & Sequence

Stile X booklets are available for all units shown except Student Research Project. With Stile X, you can offer support and extension for students in class or give them the tools to review and master knowledge independently.



The Immune System

How can we protect communities from diseases?

Ecosystems

How can we prevent plastic from harming marine life?

The Nervous System

Could machines sniff out cancers better than dogs?

Active Earth (Part 2): Plate Tectonics

How do we build future-ready cities?

Term 1

Week 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

Unit 1 | Unit 2

Term 2

10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18

Unit 3 | Unit 4

Term 3

Week 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

Unit 5 | Unit 6 | SRP

Term 4

10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18

Unit 7 | Unit 8

Acids and Bases

Why are our oceans becoming more acidic?

Non-contact Forces and Electricity

Are we on track for sustainable transport?

Student Research Project

Atoms

How can the building blocks of atoms help us see further?

Chemical Reactions

What happens when sodium explodes in water?

Year 9 – Curriculum alignment

Unit 1 The Immune System

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

VCSSU117

Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS135

Independently plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 2 Ecosystems

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

VCSSU121

Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS135

Independently plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS138

Analyse patterns and trends in data, including describing relationships between variables, identifying inconsistencies in data and sources of uncertainty, and drawing conclusions that are consistent with evidence

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 3 The Nervous System

Science understanding

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

VCSSU118

An animal's response to a stimulus is coordinated by its central nervous system (brain and spinal cord); neurons transmit electrical impulses and are connected by synapses

Science inquiry

VCSIS138

Analyse patterns and trends in data, including describing relationships between variables, identifying inconsistencies in data and sources of uncertainty, and drawing conclusions that are consistent with evidence

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

Year 9 – Curriculum alignment

Unit 4 Active Earth Pt 2 (Plate Tectonics)

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

VCSSU127

The theory of plate tectonics explains global patterns of geological activity and continental movement

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

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VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 5 Acids and Bases

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

Science inquiry

VCSIS135

Independently plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods

VCSIS136

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VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 6 Non-contact Forces and Electricity

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

VCSSU130

Electric circuits can be designed for diverse purposes using different components; the operation of circuits can be explained by the concepts of voltage and current

VCSSU131

The interaction of magnets can be explained by a field model; magnets are used in the generation of electricity and the operation of motors

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS135

Independently plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Year 9 – Curriculum alignment

SRP Student Research Project

Science understanding

This unit focuses on developing science inquiry skills.

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS135

Independently plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

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VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 7 Atoms

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

Science inquiry

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS138

Analyse patterns and trends in data, including describing relationships between variables, identifying inconsistencies in data and sources of uncertainty, and drawing conclusions that are consistent with evidence

VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 8 Chemical Reactions

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

VCSSU124

Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS135

Independently plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

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VCSIS139

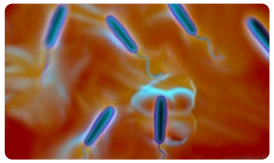
Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

Year 10 – Scope & Sequence

Stile X booklets are available for all units in this scope and sequence. With Stile X, you can offer support and extension for students in class or give them the tools to review and master knowledge independently.

Genetics

Can genes increase the risk of cancer?

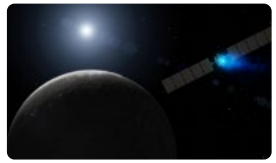


Evolution

Are we responsible for the rise of antibiotic-resistant superbugs?

Kinematics

Are self-driving cars the way of the future?



Newton's Laws of Motion

How can we apply Newton's Laws to car crash investigations?

Term 1

Week 1 2 3 4 5 6 7 8 9

Unit 1 | Unit 2

Term 2

10 11 12 13 14 15 16 17 18

Unit 3 | Unit 4

Term 3

Week 1 2 3 4 5 6 7 8 9

Unit 5 | Unit 6

Term 4

10 11 12 13 14 15 16 17 18

Unit 7 | Unit 8

The Periodic Table

How do exploding stars create heavy metals?

Reaction Types

Are self-healing space suits science fiction or just science?

Earth Systems (Part 2) Climate Change

Climate change... Is there even a debate?

The Universe

How do gravitational waves give us a new way of understanding the universe?

Year 10 – Curriculum alignment

Unit 1 Genetics

Science understanding

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

The values and needs of contemporary society can influence the focus of scientific research

Science inquiry

VCSIS135

Independently plan, select and use appropriate investigation types, including fieldwork and laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these investigation types

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 2 Evolution

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU116

The values and needs of contemporary society can influence the focus of scientific research

VCSSU120

The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

Unit 3 Kinematics

Science understanding

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

The values and needs of contemporary society can influence the focus of scientific research

VCSSU133

The description and explanation of the motion of objects involves the interaction of forces and the exchange of energy and can be described and predicted using the laws of physics

Science inquiry

VCSIS135

Independently plan, select and use appropriate investigation types, including fieldwork and laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these investigation types

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS138

Analyse patterns and trends in data, including describing relationships between variables, identifying inconsistencies in data and sources of uncertainty, and drawing conclusions that are consistent with evidence

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Year 10 – Curriculum alignment

Unit 4 Newton's Laws of Motion

Science understanding

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

The values and needs of contemporary society can influence the focus of scientific research

VCSSU133

The description and explanation of the motion of objects involves the interaction of forces and the exchange of energy and can be described and predicted using the laws of physics

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

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VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 5 The Periodic Table

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU123

The atomic structure and properties of elements are used to organise them in the periodic table

Science inquiry

VCSIS135

Independently plan, select and use appropriate investigation types, including fieldwork and laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these investigation types

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

Unit 6 Reaction Types

Science understanding

VCSSU116

The values and needs of contemporary society can influence the focus of scientific research

VCSSU125

Different types of chemical reactions are used to produce a range of products and can occur at different rates; chemical reactions may be represented by balanced chemical equations

Science inquiry

VCSIS136

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability

VCSIS137

Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS139

Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data

Year 10 – Curriculum alignment

Unit 7 Earth Systems

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

The values and needs of contemporary society can influence the focus of scientific research

VCSSU128

Global systems, including the carbon cycle, rely on interactions involving the atmosphere, biosphere, hydrosphere and lithosphere

Science inquiry

VCSIS134

Formulate questions or hypotheses that can be investigated scientifically

VCSIS135

Independently plan, select and use appropriate investigation types, including fieldwork and laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these investigation types

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VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Unit 8 The Universe

Science understanding

VCSSU114

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community

VCSSU115

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

VCSSU116

The values and needs of contemporary society can influence the focus of scientific research

VCSSU129

The Universe contains features including galaxies, stars and solar systems; the Big Bang theory can be used to explain the origin of the Universe

Science inquiry

VCSIS135

Independently plan, select and use appropriate investigation types, including fieldwork and laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these investigation types

VCSIS137

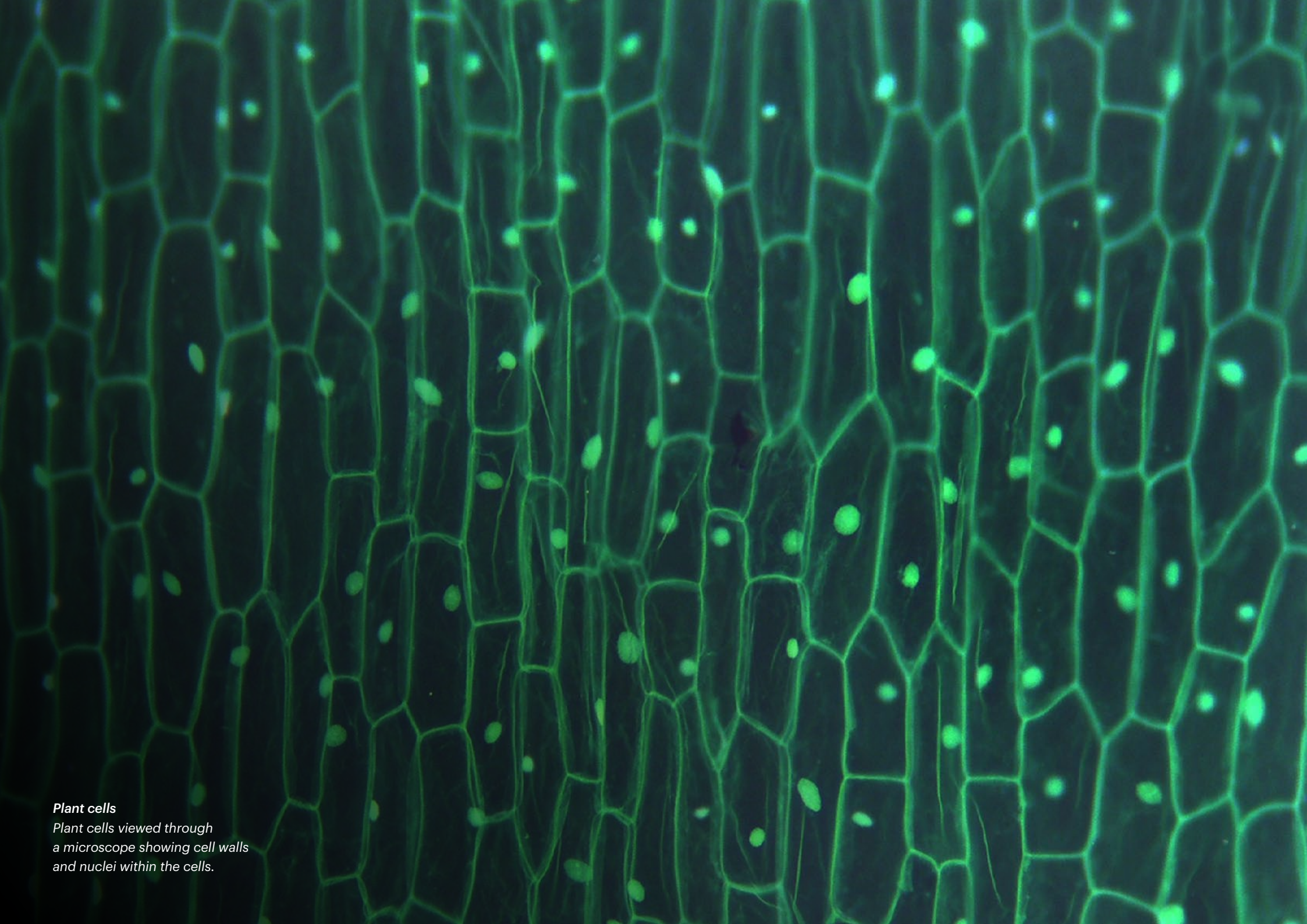
Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data

VCSIS138

Analyse patterns and trends in data, including describing relationships between variables, identifying inconsistencies in data and sources of uncertainty, and drawing conclusions that are consistent with evidence

VCSIS140

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations



Plant cells
Plant cells viewed through a microscope showing cell walls and nuclei within the cells.

Supplementary resources

Optional extra: Plants

How do predatory plants survive?

VCSSU094

Multicellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce

Simple Machines

How do machines make life easier?

VCSSU103

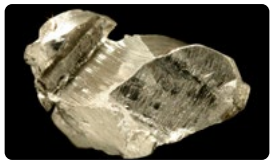
Change to an object's motion is caused by unbalanced forces acting on the object; Earth's gravity pulls objects towards the centre of Earth

The Endocrine System

Will staring at your phone screen before bed affect your sleep?

VCSSU117

Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment



Metals

How can metals help us fight cancer?

VCSSU125

Different types of chemical reactions are used to produce a range of products and can occur at different rates; chemical reactions may be represented by balanced chemical equations

Radiation

Why is cosmic radiation so dangerous?

VCSSU122

All matter is made of atoms that are composed of protons, neutrons and electrons; natural radioactivity arises from the decay of nuclei in atoms

Reactions and Energy

How can metals help us fight cancer?

VCSSU124

Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed

VCSSU126

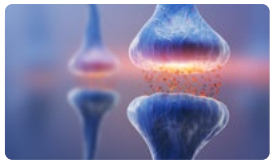
Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer

Human Impacts on Ecosystems

Are corals going extinct...again?

VCSSU093

Interactions between organisms can be described in terms of food chains and food webs and can be affected by human activity



The Nervous System

How can your gut influence your mood?

VCSSU116

Values and needs of contemporary society can influence the focus of scientific research

VCSSU118

An animal's response to a stimulus is coordinated by its central nervous system (brain and spinal cord); neurons transmit electrical impulses and are connected by synapses

Supplementary resources

Escape rooms
Engage your students in fun scientific puzzles

Women in STEM career profiles
Explore a range of careers in STEM

Science news lessons
Real-world science based on the news

Skill builders
Lessons to boost your students' science inquiry skills

Student research project
Lessons designed to teach students how to complete scientific research

Illustrated examples of Stile and the Victorian Teaching and Learning Model

Classification and Biodiversity

Do we need to save the bees?

It's a question that scientists have been asking for more than 100 years, but new research may finally have an answer. Explore classification through this real-world context, and help your students discover if the process of classification is black and white...

Big ideas:
- What key features can be used to distinguish between one animal and another?
- Why do we need to classify organisms and give them scientific names?
- What are dichotomous keys and how do they work?

Highlights
- Design a social media profile to classify and animal
- Construct a dichotomous key
- End of unit test

Teacher resources
- Teacher Guide
- Parent Email Template

Explore

Each unit is centred around a guiding question that has students thinking about **real world issues** and engineering solutions to **authentic problems**

A unit's teacher guide provides guidance around **challenging students' misconceptions** through the learning process

Engage

Parent email templates support teachers to establish **connections with parents and carers**

ACTION 8.1

Teachers support students to explore their role as global citizens by guiding them through real-world current issues where they consider their role in our planet's future.

ACTION 9.1

Teachers establish open and sustained communications with parents/carers through templates that accompany each unit in Stile

Engage

Pre-tests are designed to activate students' **prior knowledge** of how animals are classified and the role that bees play in Earth's ecosystems. They also give insight into how future lessons can **connect with their current understanding**

This unit at a glance

Do we need to save the bees?

What do you already know?

1. Lesson: A bee or not a bee?
2. Lesson: How can we tell bees apart?
3. Lesson: Why are bees important?
4. Lesson: How do bees impact biodiversity?
5. Engineering challenge: Defining the problem
6. Lesson: How do humans impact bee populations?
7. Lesson: Why do bees dance?
8. Engineering challenge: Research and brainstorm
9. Engineering challenge: Designing a solution
10. Engineering challenge: Improving your solution
11. Engineering showcase

Glossary: Do we need to save the bees?

Test: Do we need to save the bees?

Elaborate

Engineering challenges engage students through **inquiry, problem solving** and **collaboration**

Sharing their engineering projects lets students **share learning** and **challenge one another** with questioning

ACTION 2.3

Teachers develop capacity to collaborate

Teachers guide students to collaborate through structured group work

Stile units are **aligned to content descriptions** from the science learning area, and **general capabilities** are integrated throughout.

Curriculum alignment

Science understanding

VCSSU089

Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science

VCSSU090

Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations

VCSSU091

There are differences within and between groups of organisms; classification helps organise this diversity

Science inquiry

VCSIS107

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge

VCSIS108

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed

VCSIS110

Construct and use a range of representations including graphs, keys and models to record and summarise data from students' own investigations and secondary sources, and to represent and analyse patterns and relationships

Engage

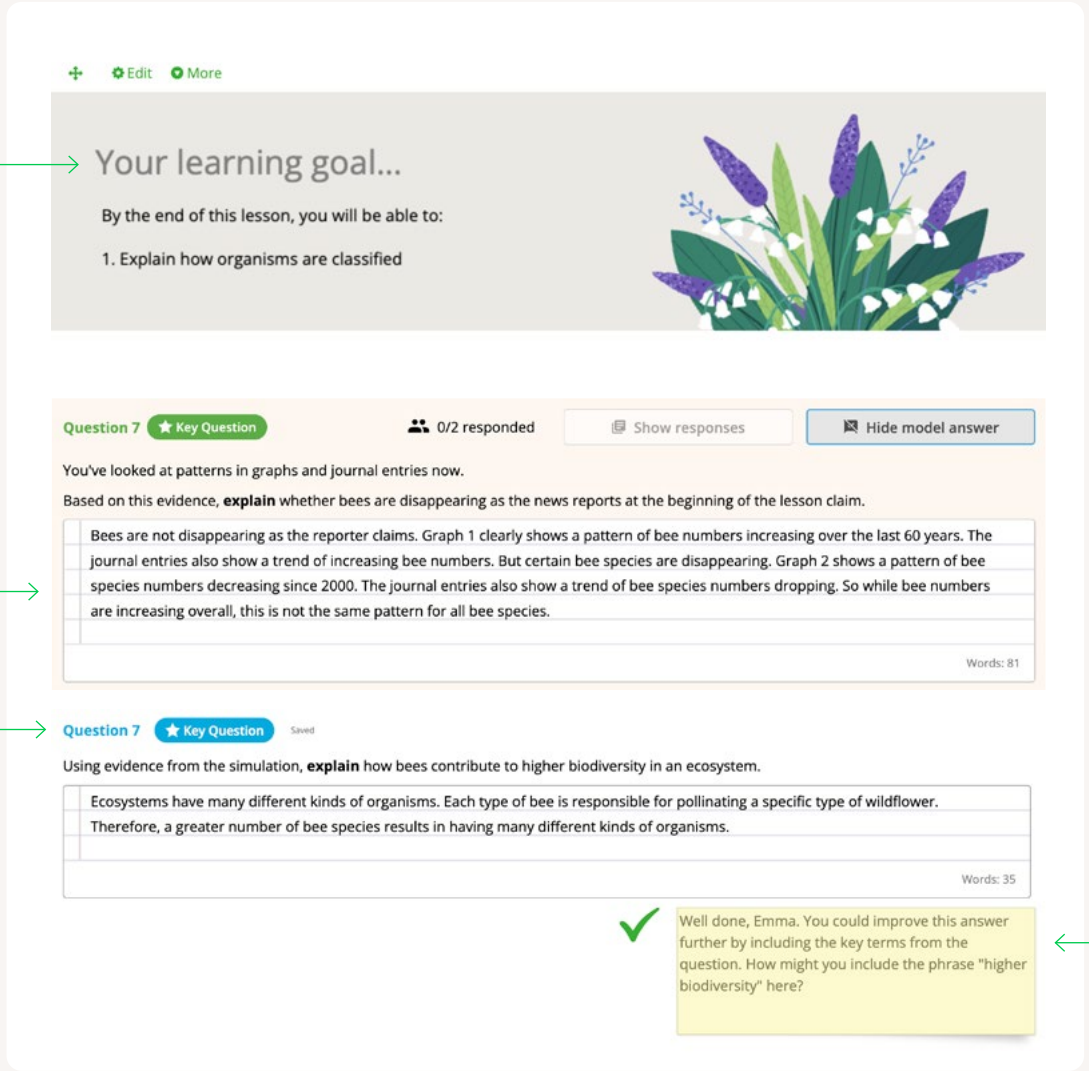
Each lesson includes **explicit learning goals**, which articulate what students should know and be able to do by the end of the lesson

Explain

Worked examples are used to support development of skills and **scaffold** student learning

Explore

Key Questions allow students to identify and **articulate success** criteria and provide an **explicit connection** between the learning **goals and activities**



ACTION 6.3

Teachers provide regular feedback to students on their progress against learning goals and curriculum standards

Key Questions indicate where questions are aligned to learning goals and teacher feedback will be most valuable. This allows teachers to provide quick, timely feedback to students

Strategy 1
Setting Goals

Strategy 3
Explicit teaching

Strategy 4
Worked examples

Strategy 7
Questioning

Engage

Collaborative question types encourage students to **actively participate in discussion**

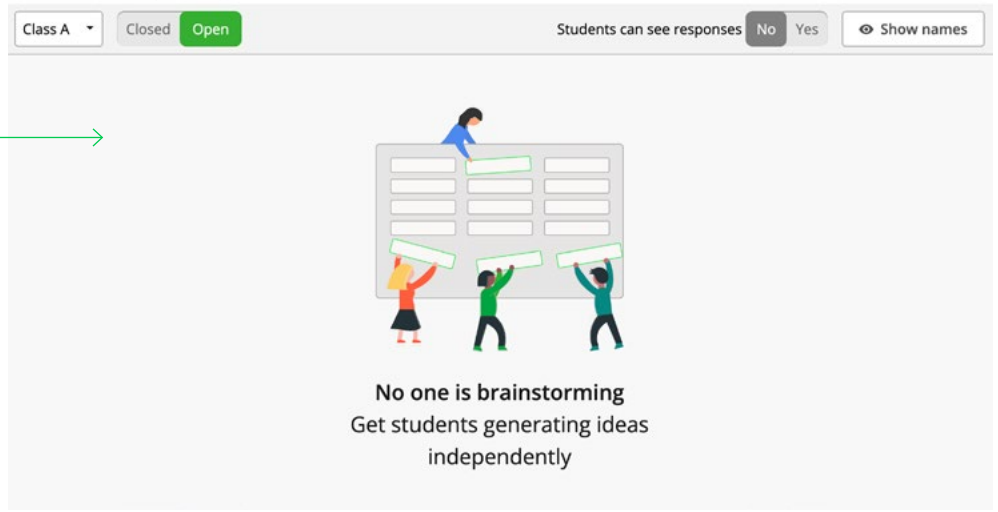
Students **actively engage in the learning process** by **generating their own questions** and discovering the answers through learning activities

Explore

Questions are designed to **elicit student misconceptions** and teachers are provided guidance on **challenging these** in the unit's Teacher Guide

1. In pairs, decide which person will communicate through movement first. The other person will interpret their movements.
2. Think of a simple sentence to communicate. You may wish to communicate a sentence that gives directions like a bee does!
3. Using only movement, try to communicate your sentence. Your partner will then try to guess the sentence by saying it out loud. Keep trying to get your message across until your partner guesses correctly.
4. Switch roles and repeat Steps 1–3.

List some ideas and questions you have about bees



Explain

Students have multiple opportunities to **interact** with and **support each other** in their learning through collaborative activities

Strategy 5
Collaborative learning

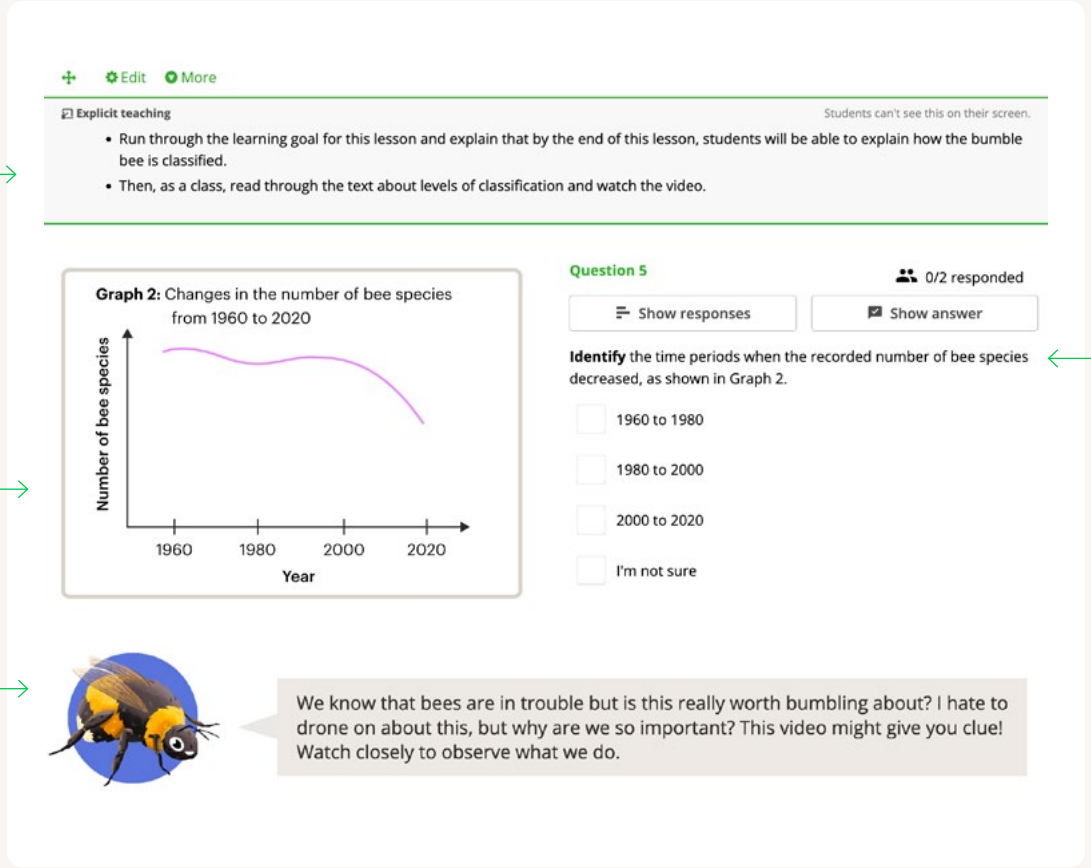
Explore

Teacher tips are designed to facilitate **high impact teaching strategies**, including explicit teaching

The general capability of numeracy is integrated throughout the unit.

Elaborate

Each lesson addresses a new aspect of the unit's phenomenon to **engage and re-engage** students with new content



ACTION 1.3

Teachers scaffold and differentiate learning to enable students to achieve their goals

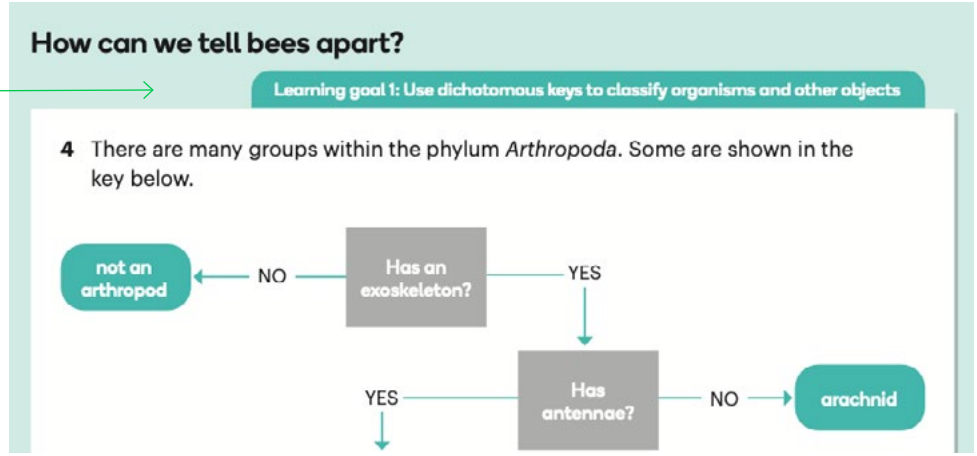
Lessons are developed using SOLO Taxonomy, and cognitive verbs indicate the progression of questioning within a lesson

Explore

Revision tasks are **explicitly linked to learning goals**

Evaluate

Practice test questions let students understand the **connections between learning activities and assessment tasks.** This helps students **understand assessment criteria** and what they need to do to **progress their learning**.

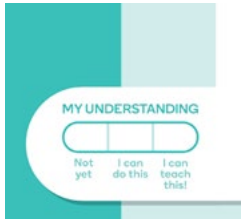


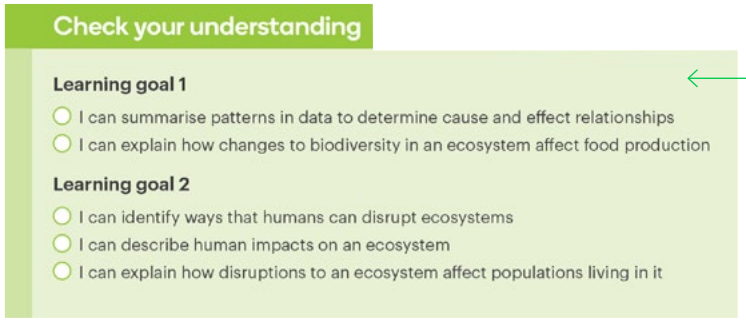
Strategy 6

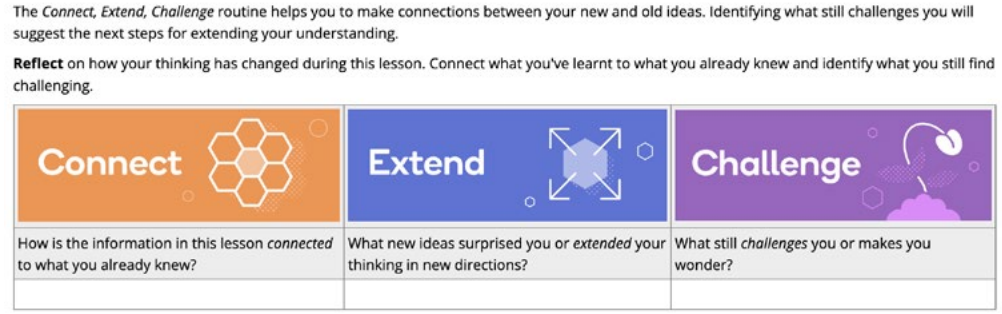
Multiple exposures

Evaluate

Metacognitive activities and self-assessment opportunities in both Stile and Stile X help students to **self-monitor** their progress, understand **assessment criteria** and what they need to do to **progress their learning**.







ACTION 1.4

Teachers build student capacity to monitor and evaluate their own progress and achievement

Stile X uses a gradual release of responsibility model and metacognitive questioning to develop students' ability to self-regulate and self-monitor. Stile lessons also incorporate metacognitive questions to encourage reflection

ACTION 5.3

Teachers support students to be reflective, questioning and self-monitoring learners

Reflection activities in Stile and Stile X encourage the process of reflection and scaffold self-monitoring behaviours

Strategy 9

Metacognitive strategies

New shoots growing from old potatoes
Potato tubers store energy so that the plant can reproduce asexually. Both roots and shoots will sprout from the tuber.

Call us on 1300 918 292

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Swing by the office to say hi!
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Stile HQ is located on the traditional lands of the Boon Wurrung and Woiwurrung (Wurundjeri) peoples of the Kulin Nation. We acknowledge that sovereignty was never ceded and pay our respects to Elders past, present and future.