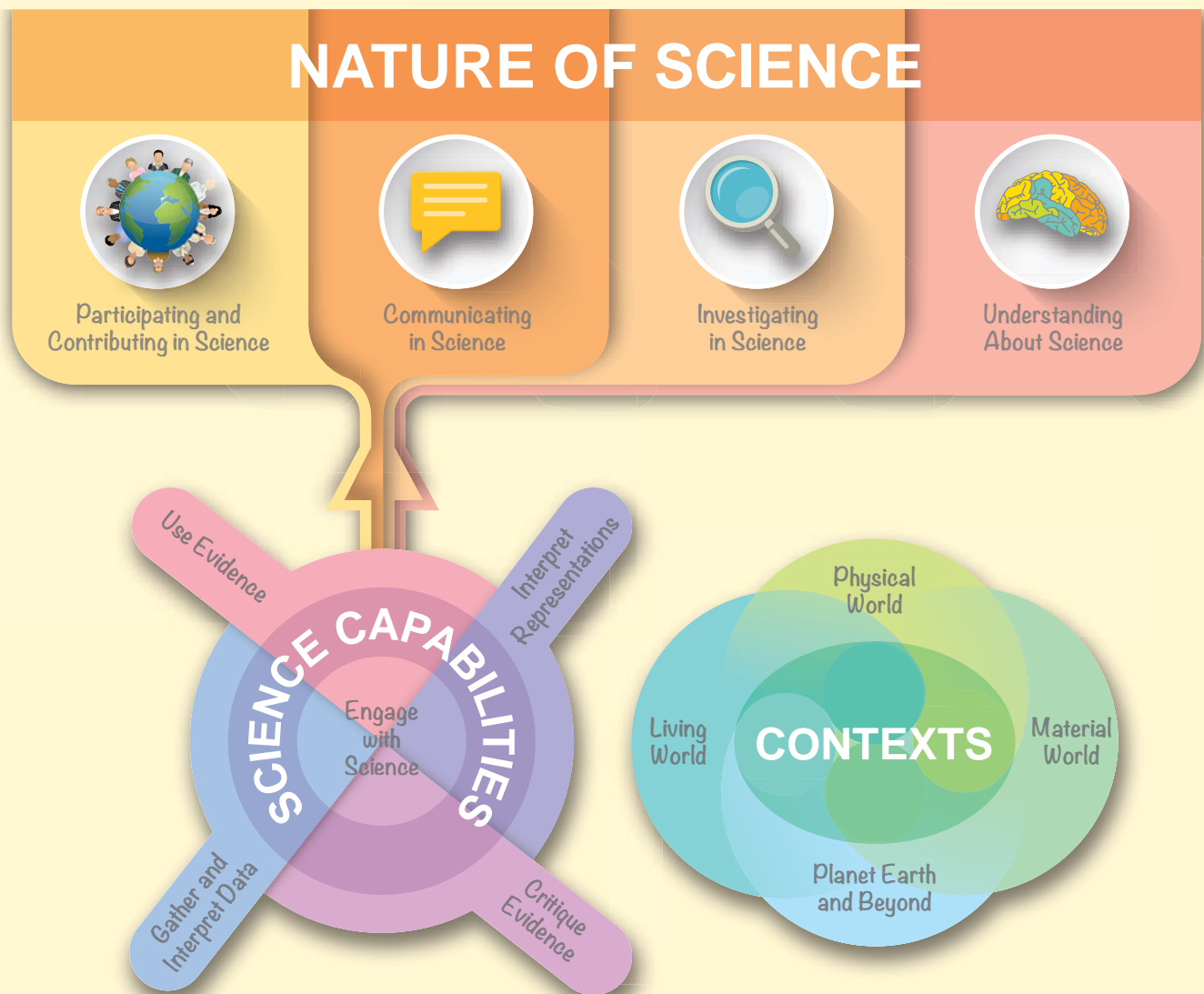


Nature of Science

Nature of Science is an overarching and unifying strand of the New Zealand Science Curriculum. It is made up of four key areas that tie in with the five science capabilities. The other four strands of the Science Curriculum (Material World, Physical World, Living World and Planet Earth and Beyond) provide contexts and topics for the aspects of the Nature of Science to be covered. Overall, it focuses on science as part of the real world and how science is carried out in reality. It is about providing students with some understanding of how scientists work and the skills that are required. Our students should be able to observe the world around them through a scientific lens and have the knowledge and understanding to interpret, investigate, critique, question and engage with what they see or experience. The four areas of the Nature of science are as follows:

- **Understanding About Science:** This is about looking at how scientists work through collaboration, by thinking critically and by investigating and explaining the world around them using evidence based theories. It is being aware that scientific knowledge is about models that change over time as new discoveries are made and new technologies are developed.



- **Investigating in Science:** Using prior knowledge and experiences or observations to investigate an idea and develop ideas or theories from these investigations. It is about using a wide range of methods to explain or create scientific ideas such as models, research, questioning, investigating, experimenting, evaluating data and critiquing others/own methods.
- **Communicating in Science:** Engaging with a wide range of texts (that include a range of styles and topics) to question the purpose and validity of the text. It is about being critical about what we read and being able to evaluate the text based on sound literacy skills. As part of this it is important to have the ability to use and understand a range of science related symbols and vocabulary.
- **Participating and Contributing:** Looking at issues of individual, community, national and global concern. Developing ideas on these issues using research and investigations to formulate possible conclusions based on evidence and then if possible, take action.

As part of this, the five Science Capabilities provide more specific skills and areas of development.

- **Gather and Interpret Data** (fits with *Understanding About Science* and *Investigating in Science*)
Using direct and indirect observations to gather data and then use this evidence to make inferences and draw conclusions. Inferences must be valid which is why evaluation of one's work is vital. This can be done by asking questions about the outcomes, collecting more data (perhaps using a range of methods) and discussing the ideas/evidence with other scientists to get a range of opinions.
- **Use Evidence** (fits with *Understanding About Science* and *Investigating in Science*)
Supporting all ideas with evidence from observations made. Science ideas should be measurable and theories should be data based. Using evidence from the world around us gives theories more credibility. Allows us to be sceptical and critical of what we see and hear. Being aware that as things change, our ideas may also change and that science is an evolving field of knowledge and processes.
- **Critique Evidence** (fits with *Understanding About Science* and *Investigating in Science*)
Be aware that science has limitations and that not all questions can be answered by science (yet). Use our knowledge of good scientific procedure and accuracy/validity/reliability of data to question evidence. Think about the true purpose of an investigation and any ulterior motives that a researcher may have and ask why are they doing this?
- **Interpret Representations** (fits with *Communicating in Science* and *Participating and Contributing*)
Be able to interpret and represent our own data in a variety of ways (e.g. graphs, tables, charts, diagrams, models, reports). Realise the limitations of each method of presentation but choose the most effective method for the presentation of data/ideas. Be critical about data/text and how it is represented, look at the positives and negatives of data/text to develop a sound, well-rounded understanding of the ideas being considered.
- **Engage with Science** (fits with all areas of the Nature of Science and the other science capabilities)
Use real life contexts and ideas to drive science education. Building an interest in science, have logical discussions about science issues and take action on issues when possible. Use current events to drive discussions (while maintaining a critical approach) and focus on those issues most relevant to the learner and their community. Discussions should look at ideas of others, build on those ideas, draw conclusions about the ideas and make connections between ideas.

Nature of Science Icons

Throughout these workbooks, you will find the following icons, each relating to one of the four Nature of Science strands.

	Understanding About Science	Work as scientists do, by: <ul style="list-style-type: none">• Working together with other scientists.• Using others ideas and evidence.• Investigating ideas or observations from the world around us.• Using data from observations to form conclusions.• Questioning ideas or data.
	Investigating in Science	Carry out investigations by: <ul style="list-style-type: none">• Looking at observations from the world around us to create investigations.• Gaining evidence or data from research, experiments, investigations, observations and modelling.• Being critical of your own and others' methods.
	Communicating in Science	Read scientific information by: <ul style="list-style-type: none">• Looking at a range of different types of texts.• Looking at a range of different topics.• Questioning the purpose and accuracy of what you are reading.• Being able to use a range of scientific symbols and vocabulary.
	Participating and Contributing in Science	Get involved with science by: <ul style="list-style-type: none">• Looking at 'real' issues that are relevant to you, your community, our country and planet.• Developing your own opinions about issues based on evidence and observations.• Coming up with possible actions to address these issues.