PRIMARY CREST

ROYAL SOCIETY TE APĀRANGI

2020

Contents

About CREST

CREST: CR**eativity Education in Science and T**echnology

- *CREST* is the Royal Society of New Zealand's international awards scheme designed to encourage Year 0–13 students to be innovative, creative and to problem solve in science and technology.

- *CREST* **emphasises** creativity, perseverance and the application of knowledge.

- *CREST* **provides** a model for scientists and technologists to work in schools and promote science and technology as valuable study and career pathways.

- *CREST* recognises the value of academic and industry based consultants to provide students with an educational experience that cannot be gained in the classroom especially for those students that exhibit gifted and talented attributes in the areas of science and technology.

- *CREST* is non-competitive using criterion based assessment.

- *CREST* encourages students to develop science skills in scientific research and/or technological practice.

- *CREST* operates at 5 levels of difficulty where the students work as individuals or in small teams. At all levels the students are learning skills in scientific research and/or technological practice. At the end of the project each student receives a badge and certificate.

The CREST Levels				
Years 0-8	Years 6-8	Years 9-10	Years 11-12	Years 12-13
Primary CREST	First CREST	Bronze	Silver	Gold
	Team First	Team Bronze	Team Silver	Team Gold

Each level requires are larger commitment by the consultant as the students need to tackle more difficult projects in terms of content and research practice or skill.

At all levels, the students are learning skills in scientific research and/or technological practice.

- **Primary CREST is** a series of inquiry activities based around a common context and which are led by the classroom teacher. These can be used in a variety of ways e.g.: whole class, small group, Science/Technology Club

- **FIRST** and **TEAM FIRST are** awards for ***practical*** projects.

- **BRONZE and TEAM BRONZE are** awards for more ***independent*** projects.

- **SILVER** and **TEAM SILVER** are awards for ***challenging*** projects

- **GOLD and TEAM GOLD** awards are for ***advanced*** projects.

CREST at a Glance….

Award (individual and team)	Primary CREST	First and Team First	Bronze and Team Bronze	Silver and Team Silver	Gold
Recommended Year	0-8	6-8	9-10	11-12	12-13
Prerequisite	None	None	First Recommended	Bronze **recommended**	***Must*** have achieved Silver
What's Involved?	A series of activities based on a common context. The resource itself is free to teachers and may be used in a variety of ways. (whole class, groups, integrated studies, clubs etc.)	CREST encourages students to… ➢ Use creativity ➢ Persevere ➢ Apply what they know and communicate More is expected of students at each key step	Students are asked to complete background research and to record project-related activities on a timeline	Students must apply for project approval from CREST NZ after completing background research and before undertaking their project. The student should aim to form a partnership with their consultant	Students participate in a series of meetings. They are expected to produce a project proposal, report and to present a seminar
Assessment	Teachers can attest to the successful completion of ¾ of the activities and apply for a Primary CREST certificate and badge.	It is expected that a student's teacher will assess the project	A student's teacher or an outside assessor may assess a Bronze project	Silver assessment must be undertaken by someone other than the student's teacher or consultant who has specialist knowledge in the area of the student's project. Contact CREST if you are having trouble finding an assessor.	In Gold, assessment will be carried out by CREST NZ. Details of this will be determined in consultation with student and teacher on receipt of a student's Registration of Interest

Thus, students begin with small entry-level projects and build up to large research or technological practice projects that can take up to 18 months at Gold level, and have the potential for major new discoveries.

At the end of completed projects each student receives a badge and certificate and, in the case of Gold CREST, also a medal which is usually presented at the Royal Society's annual Science Honours Dinner.

CREST provides a framework for creative and practical student projects through Inquiry Learning.

CREST is an ideal opportunity for multiple assessments; in New Zealand: NCEA credits; Duke of Edinburgh Hillary Awards, showcasing completed projects at regional science and technology fairs, and other science and technology competitions.

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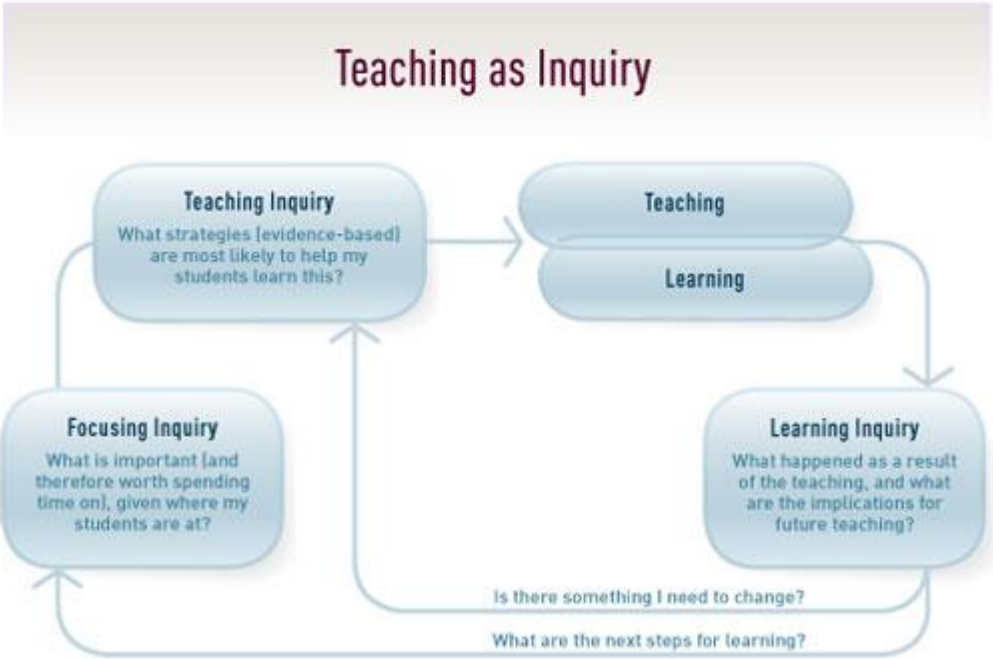
CREST Encourages….

- **authentic experiences** in technological practice or scientific investigation;
- opportunities to **work with consultants and experts** from industry;
- opportunities to **carry out projects** focussed on finding creative solutions to practical problems that are of real significance in students' lives;
- having **time** to work at the students own **pace** and to their own **potential**;
- providing **careers education**;
- developing **enterprise** and **entrepreneurial** skills;
- encouraging and rewarding students for **creative and innovative thinking**;
- practising **goal-setting** and **problem-solving**, **risk-taking** and **perseverance;**
- **reflecting** and **self evaluating**;
- **applying knowledge** in seeking practical solutions;
- **communicating** effectively;
- **being innovative**, **lateral thinkers**, open to new concepts and ideas;
- introducing students to excellent **role models** and ;
- becoming involved in **science and technology**;
- **facilitating partnerships** between The Royal Society of New Zealand, students, teachers, schools, universities, other tertiary institutions as well as research organisations and industry.

For the Teacher: Effective Pedagogy

- helping create a supportive learning environment
- encouraging reflective thought and action
- enhancing the relevance of new learning
- facilitating shared learning
- making connections to prior learning and experience
- providing sufficient opportunities to learn
- inquiring into the teaching–learning relationship.
- E-learning



Co-operative learning

Students and Teachers working together to achieve.

There are many research studies which have compared cognitive and affective results for students working cooperatively, competitively and as individuals.

The results indicate that, in comparison to competition and working individually,

Cooperation produces:

- Higher achievement and longer retention of the material learnt
- More positive attitudes about the subject matter and the teacher
- Higher self-esteem
- More effective use of social skills
- More positive feelings about each other

These advantages represent only a few of the many which have been researched, but they emphasise the powerful nature of cooperative learning.

During a science and/or technology lesson, students may be seen designing experiments, discussing results, explaining concepts and in general, learning together. In the process, students are also practising social skills such as working effectively with others, establishing positive friendships and maintaining healthy relationships with others.

There are four important elements of cooperative learning:

1. Students share the view that they are in a learning situation together and that together they will 'sink or swim'.
2. Each individual student develops an understanding of the concepts or processes involved in the learning situation and can also help others to do this.
3. Individuals have a close 'face to face' working relationship.
4. Students are taught the social skills needed for collaboration and maintenance of effective relationships within the group

Cooperative learning is set up through the teacher's use of several strategies:

- **Specifying** the desired outcomes from the lesson
- **Deciding** on the arrangement of students into groups. Give students the opportunity to work with others from a different cultural or ethnic background or to help less able students or to provide leadership in a group of less able students. However,
- keeping groups together for a few days provides them with the opportunity of learning to work together.
- **Explaining** the tasks, expected outcomes and the learning activities
- **Monitoring** the group work and facilitation of the work or the interaction between the students.
- **Evaluating** the progress made and the outcomes achieved.

Cooperative learning is also an effective classroom management technique for teachers involved in **Primary CREST**!

When students work cooperatively, there is a reduced need for equipment. Rather than needing twenty four sets of equipment, you will only need eight sets if the students are working in groups of three.

Members of each group can assume responsibility for collecting and returning or storing equipment. This can lessen the pressure on the teacher.

Providing safe storage for equipment also enables groups of students to continue with work begun in previous lessons. If the storage area is easily accessible, students can quickly collect their equipment and resume working at the appropriate time.

Students don't have to work in the same groups for all of the tasks. They may work in one group for one activity and then in a different group for another. By altering the composition of the group for the different tasks, teachers can identify which students work together well and which groups need some extra help

Although students may be working together to complete their activities for **Primary CREST** Awards, it is important that each individual student has their progress monitored and recorded.

This will ensure that each student is eligible to receive their own Primary CREST Award when the activities are completed.

Science Investigations

Whatever you investigate, in the end, you should be supplying explanations of how the world around you functions.

To do this you use investigations to help observe, notice and test out what is going on.

These observations and or tests will help you come up with an explanation.

REASONS	to conduct an investigation	Prove something	Disprove Something	Show a relationship or cause and effect	*Grouping* things in new ways **or** finding a way to *represent* the ideas that will lead to new understanding

INVESTIGATION TYPES	Classifying and Identifying	Based on close observation of specific feature/s, group things in a certain way. Justify that grouping
	Pattern – Seeking	Observe something over longish period of time to see if there are patterns that emerge and repeat
	Exploring	Select something to observe and do so many times. Raise questions about what observed
	Investigative Models	Create models that explain something that has been observed/tested/explained
	Fair Testing	Identify and control variable/s, change a feature and note what happens

You need to match what you are trying to do with one of the above

What Kind of Question and What Kind of Enquiry?

Different types of questions lead to differing ways of finding out.

For example: if the habitat of animals such as snails is being explored and the question is:

What conditions do snails prefer?

This investigation can be carried out in the classroom using choice chambers and would be a fair test investigation.

Alternatively if the question is:

Where do we find the most snails?

It then becomes a pattern seeking investigation where information is collected by carrying out a survey and seeking patterns in the data.

- Investigations should not be forced into a fair testing mould when another kind of investigation procedure is more appropriate.
- The categories of enquiry are not always distinct and some questions can be approached in various ways. There is not always one 'correct' solution.
- Justifying their choice of investigation is an important part of the learning for students.

Different Types of Investigations

As reported in Goldsworthy, Watson and Wood-Robinson (1998) most of the scientific investigations in primary schools include a 'fair test'. This aspect of investigating assumes it is possible to identify the variables in an investigation and put them into three categories of dependent, independent and control variables. However, there are several other ways that scientists carry out investigative work. Goldsworthy *et al.* described six types of investigations based on their observations of what actually happens within schools rather than the science investigations that are undertaken in scientific laboratories. These categories relate to the structure of the investigation rather than whether it is a part or whole investigation or undertaken by individuals or groups.

The six types of investigations are as follows:

Fair test: Identifying relationships between variables or factors. Changing one factor and observing or measuring the effect, whilst keeping the other factors the same.
Example: Which paper towel soaks up the most water?

Pattern Seeking: Observing and recording natural phenomena, or carrying out surveys, where variables cannot be readily controlled, and then seeking patterns in the data. These investigations are common in ecological studies. It is still important to identify variables to observe and measure but the investigator has less control over them and has to use values of the variable that are available naturally.
Example: Where do we find most snails?

Classifying and Identifying: This can be either arranging a selection of objects or events into sets, or recognising objects and events as members of sets, and allocating names to them.
Example: Which things float and which things sink?

Exploring: Making careful observations of objects or events, or making a series of observations over time. Not all explorations are scientific, its purpose determines whether it is scientific.
Example: What happens when different liquids are added together?

Investigating Models: Trying out explanations to see whether they work or make sense.
This category is different from the others in that it incorporates a stage where students have to decide what evidence should be collected in order to test the explanations. This may lead to one or more of the other types of investigations. The process of testing models can help students develop an insight into the relationship between evidence and scientific models.
Example: How does cooling take place through insulating materials?

Getting Started

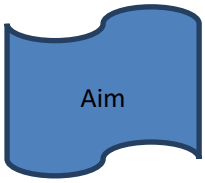
Decide how you want to keep track of your thoughts, actions, and findings. You may want to have a digital or paper based log book. This is the place you will keep record of how your investigation is going. It is important to update regularly.

Have an experience, observe phenomena (something happening), or learn about an experiment that may need to be repeated or that you want to try to disprove. **Select something you REALLY care about or want to know.**

Observe the situation more closely. Spend time noticing the situation you want to investigate: play with, take notes, look at other examples, try different things, look for what is going on and or how the phenomena behaves. This should raise questions for you.

Identify what aspect of the situation you want to explore further **Research** (talk, read, online) to find out what may **already be known** about the thing/s you have been investigating. Could it be something other than you originally thought? Talk to people who study or work with these things to get their opinion on what you have noticed

Go back to your situation and check what you were originally thinking against any new information you have gathered. (play, notice some more)



Decide what you want to find out. What is that you would like to know more about? Develop your prediction, hypothesis or clarify what it is that you are investigating.

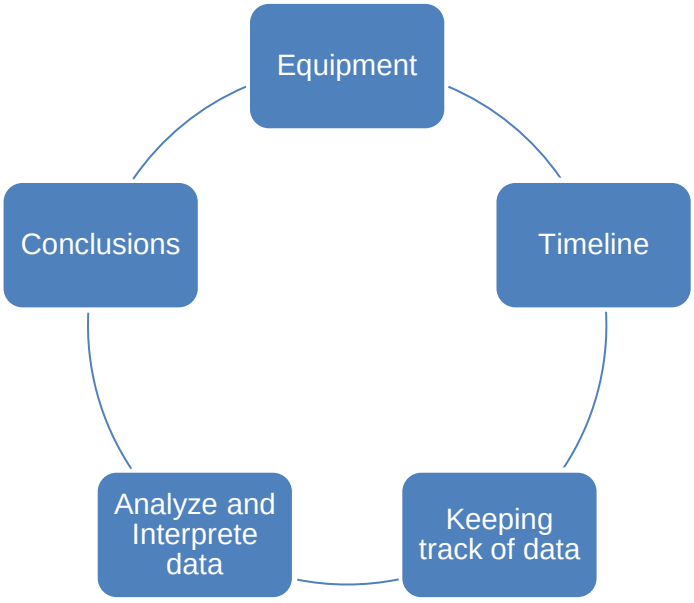
Classifying and Identifying	Pattern-Seeking	Exploring	Investigative models	Fair testing
Why are you classifying it this way? Select characteristics you will separate and id	What do you think you might find, what type of pattern/s?	What observations and how often will you conduct them . . . what do you think you are looking at/for?	What evidence are you basing the model on? What do you think your model will help to explain?	What are you trying to find out? Which variables are controlled?

Design the Investigation

When you design the investigation,

- Be fairly clear about what it is you are trying to explain.
- Be sure you have selected the best investigation style to match your situation
- Create and then follow procedures exactly
- If the procedures change, it is important to note that in your lab book
- Make data tables for easy reference and documentation of what occurred
- Repeating the experiment or observe phenomena several times. This is essential. This helps to show that the results were not a one off.
- Use good records to document what was done and what occurred during the process.

Develop a plan for your investigation.



Select which method type you will use and make decisions about each aspect of the investigation. Include reference to each of the aspects of your investigation in your log book.

What you need to be sure to include in investigation				
Classifying and Identifying	**Pattern-Seeking**	**Exploring**	**Investigative models**	**Fair testing**
Apply test that displayed characteristics you've identified drawings or photographs of features, data charts of findings keeping track of evidence	sample size, context of investigation, how measuring, potential variables, maps, diagrams, data charts or entries of observations, keeping track of evidence,	what observations are you making, how often, how many, descriptions, drawings or photographs or video keeping track of evidence	select what you are trying to represent, explore various ways to model what had been found, gather feedback on model, include explanation; either oral or written	when, where, what testing how measuring, number of trials identification of variables, data charts, keeping track of evidence

Analyze and interpret data. Explore the information from many different points of view. Mix it together in new ways trying to find trends, explanations, and/or possibilities. Discuss these findings with others.

Come to a conclusion. This conclusion will not only report what occurred but will link the observations to other work done in the area and to scientific concepts understood or beginning to be understood. At this point, professional scientist will send their report out to other scientist for review.

Different sorts of investigations are more suited to some situations than others.

Rigor

Rigor through the lens of deeper learning……..

No rigor without engagement

No rigor without ownership

No rigor without exemplars

No rigor without audiences

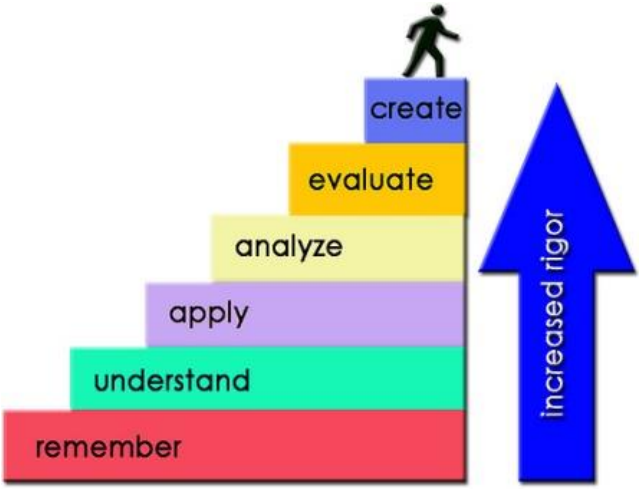
No rigor without purpose

No rigor without dreams

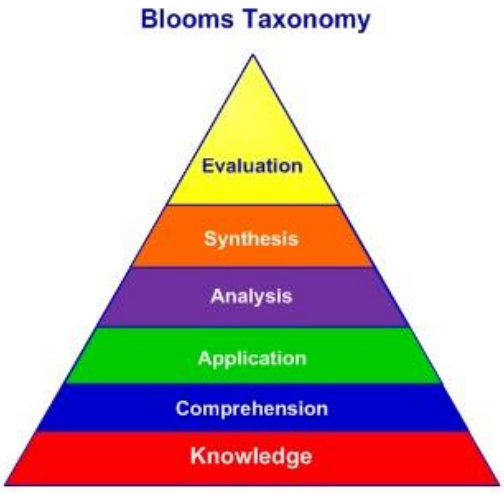
No rigor without courage

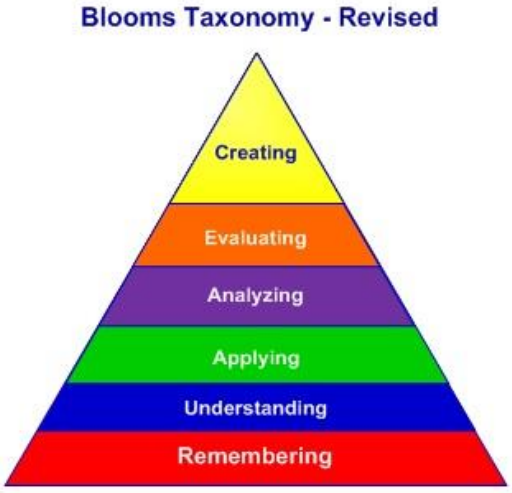
AND

No rigor without fun



Bloom's Taxonomy





Primary CREST

For Primary Teachers and their students

- **Primary CREST** is a new program of Awards offered by **the Royal Society of New Zealand's CREST awards.**

- **Primary CREST** Awards are National Awards that can be achieved by primary school students who carry out a **variety** of Science and Technology activities.

- Students achieving **Primary CREST** Awards will be demonstrating their skills in the **Nature of Science, Nature of Technology** and/or the Key **Competencies** sections of the New Zealand curriculum

- **Primary CREST** Awards have several guiding principles.

  Each context offers a variety of activities providing the children the opportunity to:

  - ✓ solve a relevant, problem, set within a context
  - ✓ work in pairs or small groups
  - ✓ take part in practical, hands-on science and technology activities
  - ✓ think and talk about science and technology, during the activity and when sharing their ideas
  - ✓ share their ideas

  The activities develop the children's scientific and technological enquiry and skills in an enjoyable context with links to the curriculum where appropriate.

- **Primary CREST** has been designed to motivate Primary students and to develop their interest in Science and Technology and an understanding of the relevance of these subjects to their everyday life.

- **Primary CREST** offers a variety of activities, within a variety of contexts/themes.

- **Primary CREST** has been designed to support Primary teachers with science and technology education.

Students could be involved in a variety of activities as they pursue the **Primary CREST** Awards.

They could be working in small groups, discussing ideas and brainstorming, problem

solving, experimenting, designing and making, recording and evaluating and reflecting.

They could also be involved in role plays, script production, excursions, reading, researching, choosing materials and communicating their ideas using a variety of media.

While the main thrust of activity is in Science and Technology, students will be using skills from other subject areas as they pursue the different topics.

They will be applying their maths, using language and relating their results to their environment.

Enjoy the challenges of **Primary CREST**!

I hope that your students surprise you with their creativity, enthusiasm and excitement.

So, what do you need to do?

The resource/s are free. Use them the way that best suits you and your students.

You may choose to pay$3/student for a Primary CREST Award on the completion of each Context/Theme.

Each certificate will identify which context has been completed.

Each Primary Science context/theme has a variety of Activities (usually 12).

To qualify for a Primary CREST Award, your students must have completed at least 8 of the activities (from the same context)

Upon completion of the student work you will need to send a completed Confirmation form with the Students' names **and** Order form and send to CREST, P.O. Box 598, WELLINGTON 6140.

Confirmation forms for each of the Contexts are at the end of this Teacher Booklet.

Certificates will be sent to you and an invoice forwarded to your school's Accounts Manager.

If you have any queries, please do not hesitate to contact

CREST

Royal Society of New Zealand

P.O. Box 598

WELLINGTON 6140

crest@royalsociety.org.nz

Contexts

All at https://royalsociety.org.nz/what-we-do/funds-and-opportunities/crest-awards/primary-crest/

- Primary CREST: Team Challenges
- Primary CREST : DairyNZ
- Primary CREST: GNS Volcanoes
- Primary CREST : NIWA Ocean's Investigations
- Primary CREST: NIWA Oceans Rising
- Primary CREST: NIWA What is Weather? (suitable for Y3-6)
- Primary CREST: NIWA What is Climate? (suitable Y 6-8)
- Primary CREST: SunSmart Schools

Primary CREST: Team Challenges

Science Strand	Context	Activity	Year Level	Key Competencies
Physical World	Device/Lifting	**Ball Grabber**	Y1 -Y8	Thinking; Relating to others; Participating & Contributing
Physical World	Device/Lifting	**Balloon snatcher**	Y1 -Y8	Thinking; Relating to others; Participating & Contributing
Physical World	Structure/Tower	**Flagpoles**	Y1 -Y8	Thinking; Participating & Contributing
Physical World	Device/Structure/Sport	**Hurdles & Papminton**	Y1 -Y8	Thinking; Participating & Contributing
Physical World	Device/Lifting/Conveying	**MacGyvery again!**	Y1 -Y8	Thinking; Participating & Contributing
Physical World	Device/Structure	**Marble Roll**	Y1 -Y8	Thinking; Participating & Contributing
Physical World	Structure/Tower	**Raising the Flag**	Y1 -Y8	Thinking; Participating & Contributing
Physical World	Communication/Performance	**Recycling Music**	Y1 -Y8	Thinking; Managing self; Participating and Contributing
Physical World	Structure/Tower	**Rescue 111**	Y1 -Y8	Thinking; Participating & Contributing
Physical World	Communication/Device	**Sounds of alarm**	Y1 -Y8	Thinking; Using language, symbols and texts; Participating and Contributing
Physical World	Device/Communication	**Speaking Tube**	Y1 -Y8	Thinking; Relating to others; Participating & Contributing
Physical World	Device	**Stiltathon**	Y1 -Y8	Thinking; Participating & Contributing
Physical World	Device/Sound	**The Recycling Trio**	Y1-8	Thinking; Participating & Contributing

Primary CREST: DairyNZ

- DairyNZ has developed interactive resources and up-to-date curriculum-based teacher materials to support teachers in creating engaging and active learning experiences.
- These resources were created to provide educational support and resources for teachers when they're using the New Zealand dairy industry as a learning context.
- The dairy industry is one of New Zealand's largest industries. It provides many career opportunities that can appeal to young people, especially those who may not be engaged by more traditional jobs in office environments.
- The dairy industry encompasses everything from the farm to international exports, and therefore offers many learning opportunities in different learning areas of the curriculum.
- All resources are linked to the New Zealand Curriculum and come with comprehensive teacher notes.
- **DairyNZ Primary CREST** provides a variety of activities for primary and intermediate teachers to choose from.
- These activities are free and easily accessible here.
- You may choose to pay $3/student for a DairyNZ/Primary CREST Award and CREST badge on the confirmation of the successful delivery and completion of at least 8 of the DairyNZ/Primary CREST activities.
- You will need to send a completed Confirmation form and Order form and send to:

  CREST

  P.O. Box 598

  WELLINGTON 6140

Primary CREST: GNS Volcanoes

1. Volcanoes: What is a volcano and where are New Zealand's volcanoes?	features of the Earth's surface; location, appearance and structure of NZ's volcanoes
2. Inside the Earth: What's inside the Earth?	the internal layers of the Earth and the properties of the crust, mantle and core
3. The Crust: How does the crust move?	crustal (tectonic) plates and how they interact as they move
4. Moving Plates: What pushes the plates along?	convection currents
5. Creating and Destroying Plates: What happens when plates move?	modelling interactions between plates; converging and diverging plate boundaries
6. New Zealand's Plates: What's happening with New Zealand's plates?	modelling NZ's position on a plate boundary, linking subduction to volcanism
7. Magma: Why don't all volcanoes look and act the same?	linking volcano structure and behaviour to magma composition, effects of viscosity and gas on the explosiveness of magma
8. Eruption Products: What can volcanoes produce?	the eruptive products of different NZ volcanoes and how they relate to different magmas
9. Making a Volcano: How can we make a volcano and use it to educate others?	gather information from Volcano Fact Sheets and other sources create a model of a NZ volcano, erupt it and present information to peers
10. New Zealand Eruptions: What has happened in New Zealand's recent eruptions?	the impact of 3 NZ eruptions (Taupo, Tarawera and Ruapehu) on people and the environment
11. Monitoring Volcanoes: How and why are volcanoes monitored?	the warning signs of volcanic unrest and how they are measured
12. Preparing for Eruptions: What will happen in future eruptions and how can we be prepared?	likely scenarios; the roles of individuals, scientists and Civil Defence in preparing and coping
13. Benefits of Volcanoes: What benefits do volcanoes bring to New Zealand?	economic and environmental advantages of volcanism and geothermal fields

Primary CREST:
NIWA Ocean Investigations

These activities are designed to help teachers feel more confident teaching science and to provide opportunities for children to:

- explore scientific concepts with hands on activities,
- discuss their scientific ideas,
- predict, observe and explain what they are doing

The teacher notes provide all the information needed including:

- background science knowledge
- curriculum links
- learning intentions
- other resources
- equipment needed
- clear instructions for what to do
- ideas for next steps or further investigations

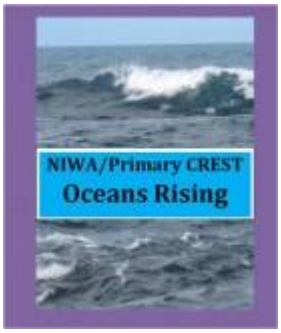
Classification	Classifying marine invertebrates	Level 3
Ocean currents	Cold water v Hot Water	Level 2
Density	Floating and Sinking	Level 2
	Salt water v fresh water	Level 2
	Floating eggs	Level 3

Acids and Bases	Acids and Bases Ocean acidification	Level 3 Level 4
Pollution	Oil Spill Pollution solution	Level 3 Level 4
Water cycle	Where does the water go? Evaporation	Level 2 Level 2
Global Warming	Global Warming	Level 3

Primary CREST:
NIWA Oceans Rising

The resources for this NIWA/Primary CREST Oceans Rising context have been sourced from the SEREAD educational resources originally designed for teaching and learning programmes in the Pacific Islands.

SEREAD stands for Scientific Educational Resources and Experience Associated with the Deployment of Argo.



The Argo Project is a series floats that move up and down vertically through the water and the information they provide is used to help understand the changes taking place in today's climate.

The SEREAD programme is sponsored by: NIWA: **National Institute for Water and Atmosphere, New Zealand**.

This resource is a series of activities which complement current teaching curriculum and demonstrate the value of scientific knowledge through realistic and locally relevant applications.

There are notes for teachers and activities for students teaching them about the fundamental measurements that are used to describe and measure changes in climate; to understand how scientists use data and to provide opportunities for interaction between scientists and teachers.

Teachers could use these activities as part of their own lesson plans or, alternatively, use the fully prepared Oceans Integrated Unit Plan

These activities are free and easily accessible here.

You may choose to pay $3/student for a **NIWA/Primary CREST Oceans Rising Award** and CREST badge on the confirmation of the successful delivery and completion of at least 8 of the NIWA/Primary CREST Oceans Rising activities.

You will need to send a completed Confirmation form and Order form. (Refer to Teachers Book) and send to: CREST, P.O. Box 598, WELLINGTON 6140

Primary CREST:
NIWA What is Weather?

The resources for this context have been sourced from the SEREAD educational resources originally designed for teaching and learning programmes in the Pacific Islands.

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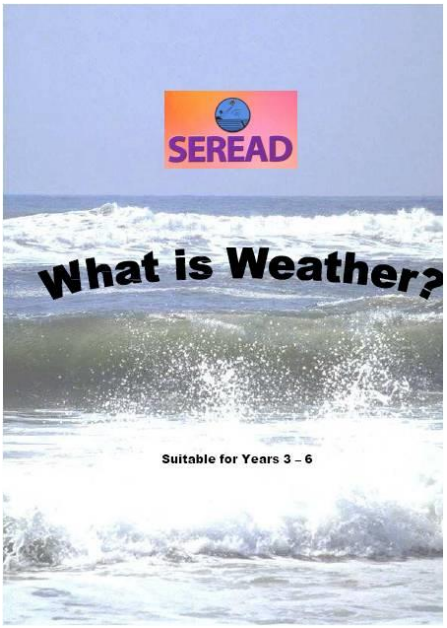


The SEREAD programme is sponsored by: NIWA: **National Institute for Water and Atmosphere, New Zealand**.

Suitable for younger students, this resource is a series of activities which complement current teaching curriculum and demonstrate the value of scientific knowledge through realistic and locally relevant applications.

There are notes for teachers and activities for students teaching them about the fundamental measurements that are used to describe and measure changes in climate and to understand how scientists use data.

Teachers could use these activities as part of their own units of work or, as a series of stand alone activities.

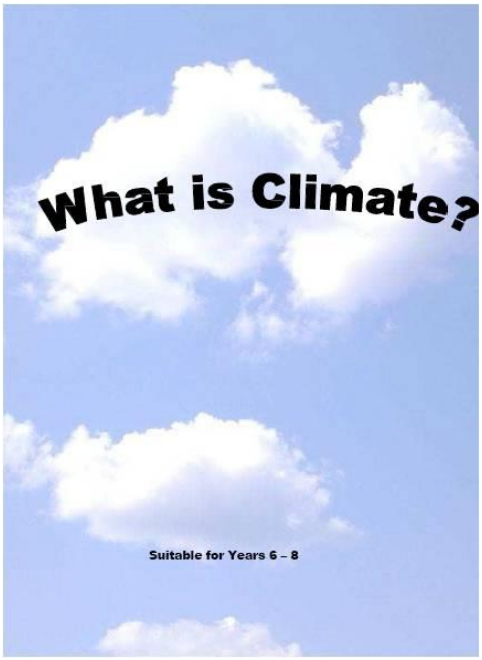
These activities are free and easily accessible here.

You may choose to pay $3/student for a **NIWA/Primary CREST What is Weather** Award and CREST badge on the confirmation of the successful delivery and completion of at least 8 of the NIWA/Primary CREST What is Weather activities.

You will need to send a completed Confirmation form and Order form. (Refer to Teachers Book) and send to: CREST, P.O. Box 598, WELLINGTON 6140

Primary CREST:
NIWA What is Climate?

The resources for this context have been sourced from the SEREAD educational resources originally designed for teaching and learning programmes in the Pacific Islands.



SEREAD stands for Scientific Educational Resources and Experience Associated with the Deployment of Argo.

The Argo Project is a series floats that move up and down vertically through the water and the information they provide is used to help understand the changes taking place in today's climate.

The SEREAD programme is sponsored by: NIWA: **National Institute for Water and Atmosphere, New Zealand**.

This resource is a series of activities which complement current teaching curriculum and demonstrate the value of scientific knowledge through realistic and locally relevant applications.

There are notes for teachers and activities for students teaching them about the fundamental measurements that are used to describe and measure changes in climate and to understand how scientists use data.

Teachers could use these activities as part of their own units of work or, as a series of stand-alone activities.

These activities are free and easily accessible here.

You may choose to pay $3/student for a **NIWA/Primary CREST What is Climate** award and CREST badge on the confirmation of the successful delivery and completion of at least 8 of the NIWA/Primary CREST What is Climate activities.

You will need to send a completed Confirmation form and Order form. (Refer to Teachers Book) and send to: CREST, P.O. Box 598, WELLINGTON 6140

Primary CREST: Sunsmart Schools

The Cancer Society's Sun Smart Learning Programme focuses on students learning and using behaviours that will keep them from exposing their skin to harmful ultraviolet radiation and getting sunburned. Sun exposure throughout your life greatly increases the chances of developing skin cancer, and NZ has some of the highest rates of skin cancer in the world.

The SunSmart Learning Programme includes new resources designed for Levels 1-4 of the New Zealand Curriculum and are cross-curricula: covering numeracy, literacy, health and science learning.

- They are Inquiry-based and can be used to assess National Standards.
- The teaching plans, activities and resources are fully downloadable.
- These resources are provided to help teachers to easily add SunSmart to their teaching and learning programmes.
- The resources also help schools become SunSmart Accredited Schools.

SunSmart Learning Programme
Curriculum Resources
CREST

Linking CREST with SunSmart Schools' teaching and learning resource's.

At Levels 1 and 2: You may choose to pay $3/student for a SunSmart/Primary CREST Award and CREST badge on the written confirmation of the successful completion of the Inquiry section.
Primary CREST

Primary CREST and SunSmart Schools

At Levels 3 and 4: You may choose to pay $3/student for a SunSmart/Primary CREST Award and CREST badge or $6/student for a SunSmart/First CREST Award and First CREST badge on the written confirmation of the successful completion of the Inquiry section.
First CREST
CREST Order forms
For further information contact crest@royalsociety.org.nz

Primary CREST: Confirmation Form and Order Forms

Order form: Go to https://royalsociety.org.nz/what-we-do/funds-and-opportunities/crest-awards/order/

Or

or email crest@royalsociety.org.nz

Teacher's Confirmation: Primary CREST

PLEASE PRINT VERY CLEARLY

I confirm that the following students have completed sufficient number of Primary CREST activities to warrant receiving a..... Primary CREST Certificate and Badge.

(***Be sure to state which type of certificate!!***)

Signed: _____

TEACHER DATE

School: _____

NAME OF SCHOOL