Educational datasets

Great Barrier Reef carbon dioxide measurements

Australian Curriculum links

Mathematics Year 7-8

Describe relationships between variables represented in graphs of functions from authentic data (AC9M7A04)

Acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data (AC9M7ST01)

Create different types of numerical data displays including stem-and-leaf plots using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread including outliers and determining the range, median, mean and mode (AC9M7ST02)
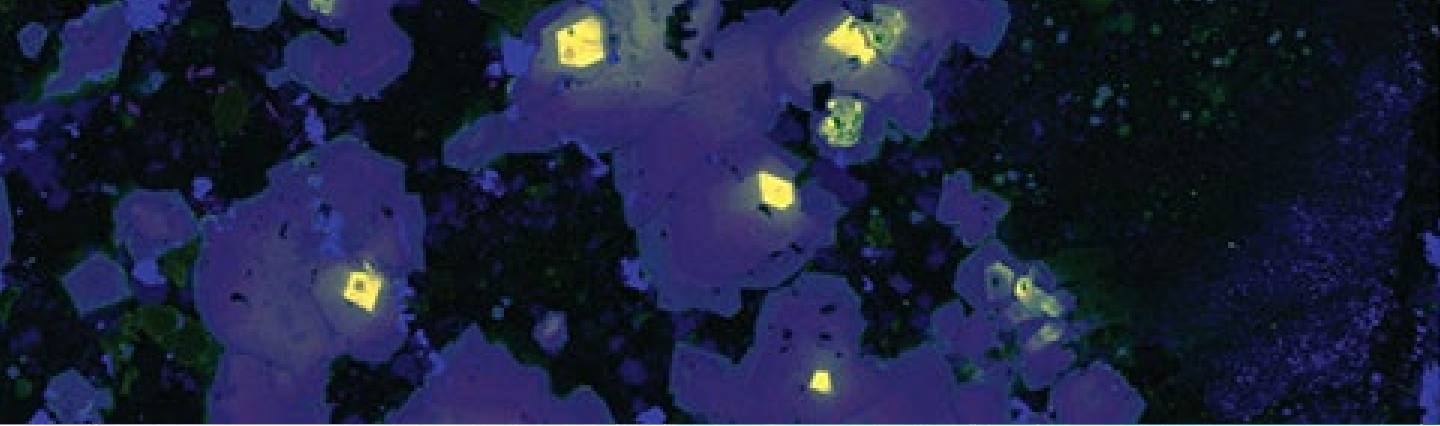
Plan and conduct statistical investigations involving data for discrete and continuous numerical variables; analyse and interpret distributions of data and report findings in terms of shape and summary statistics (AC9M7ST03)

Investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques (AC9M8ST01)

Analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques to select and study samples (AC9M8ST02)

Compare variations in distributions and proportions obtained from random samples of the same size drawn from a population and recognise the effect of sample size on this variation (AC9M8ST03)

Plan and conduct statistical investigations involving samples of a population; use ethical and fair methods to make inferences about the population and report findings, acknowledging uncertainty (AC9M8ST04)

Educational datasets
Great Barrier Reef carbon dioxide measurements

Australian Curriculum links

Science Year 7-8

Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations (AC9S7H03/AC9S8H03)

Develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships (AC9S7I01/AC9S8I01)
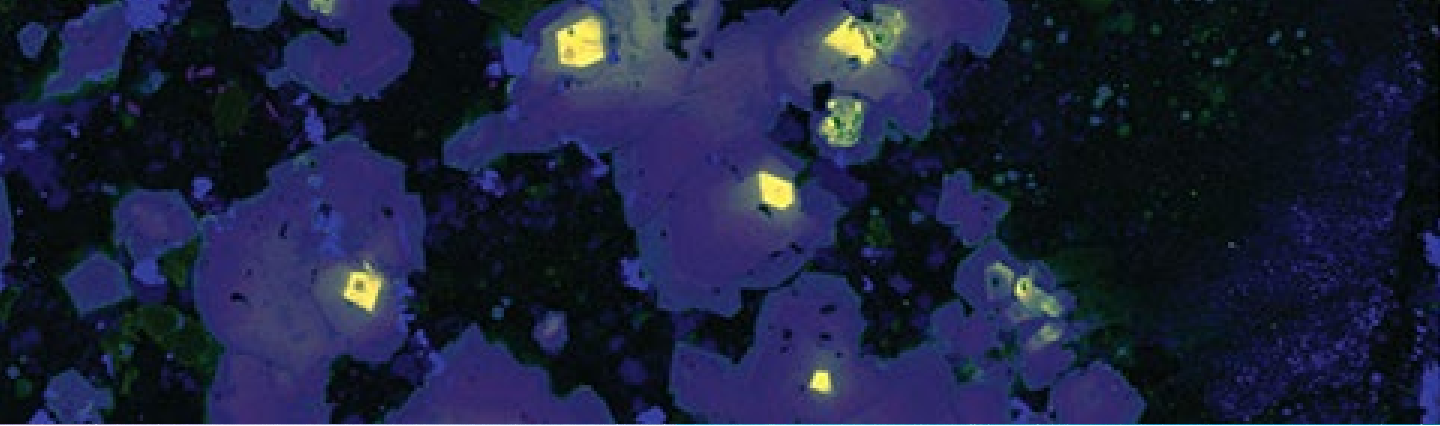
Select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information (AC9S7I04/AC9S8I04)

Analyse data and information to describe patterns, trends and relationships and identify anomalies (AC9S7I05/AC9S8I05)

Analyse methods, conclusions and claims for assumptions, possible sources of error, conflicting evidence and unanswered questions (AC9S7I06/AC9S8I06)

Construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information (AC9S7I07/AC9S8I07)

Write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools appropriate (AC9S7I08/AC9S8I08)

Educational datasets
Great Barrier Reef carbon dioxide measurements

Australian Curriculum links

Digital Technology Year 7 and 8

Acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI8P01)

Analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends (AC9TDI8P02)

Geography Year 7-8

The causes and impacts of an atmospheric or hydrological hazard, and responses from communities and governments (AC9HG7K04)
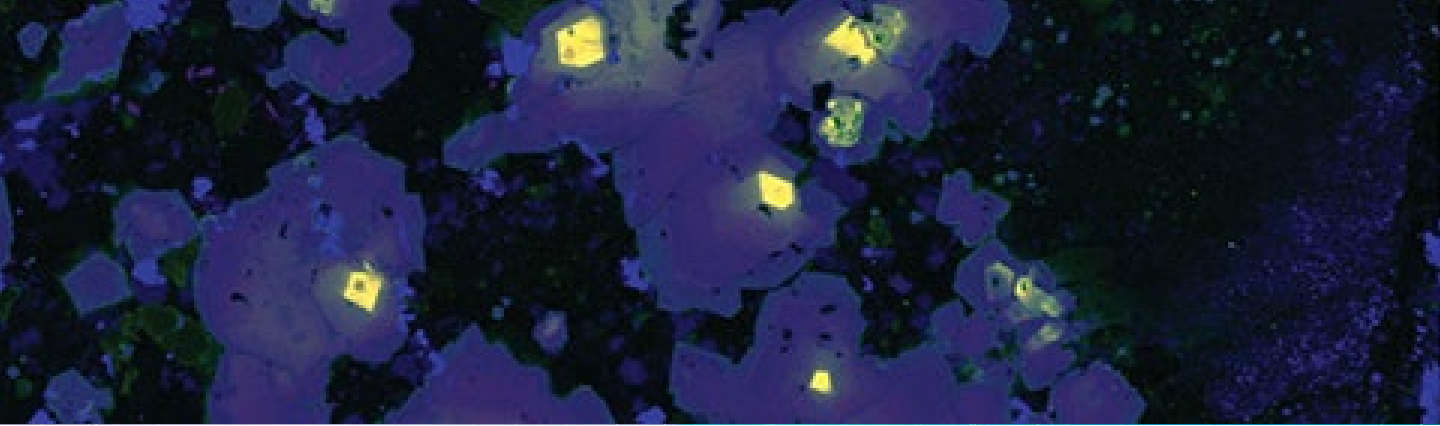
Develop questions for a geographical inquiry related to a phenomenon or challenge (AC9HG7S01 and AC9HG8S01)

Collect, organise and represent data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG7S02/AC9HG8S02)

Interpret and analyse geographical data and information to identify similarities and differences, explain patterns and trends and infer relationships (AC9HG7S03/AC9HG8S03)

Draw conclusions based on the analysis of the data and information (AC9HG7S04/AC9HG8S04)

Create descriptions, explanations and responses, using geographical knowledge and methods, concepts, terms and reference sources (AC9HG7S06/AC9HG8S06)

Educational datasets
Great Barrier Reef carbon dioxide measurements

Australian Curriculum links

Mathematics Year 9-10

Analyse how different sampling methods can affect the results of surveys and how choice of representation can be used to support a particular point of view (AC9M9ST02)

Represent the distribution of multiple data sets for numerical variables using comparative representations; compare data distributions with consideration of centre, spread and shape, and the effect of outliers on these measures (AC9M9ST03)

Choose appropriate forms of display or visualisation for a given type of data; justify selections and interpret displays for a given context (AC9M9ST04)

Plan and conduct statistical investigations involving the collection and analysis of different kinds of data; report findings and discuss the strength of evidence to support any conclusions (AC9M9ST05)
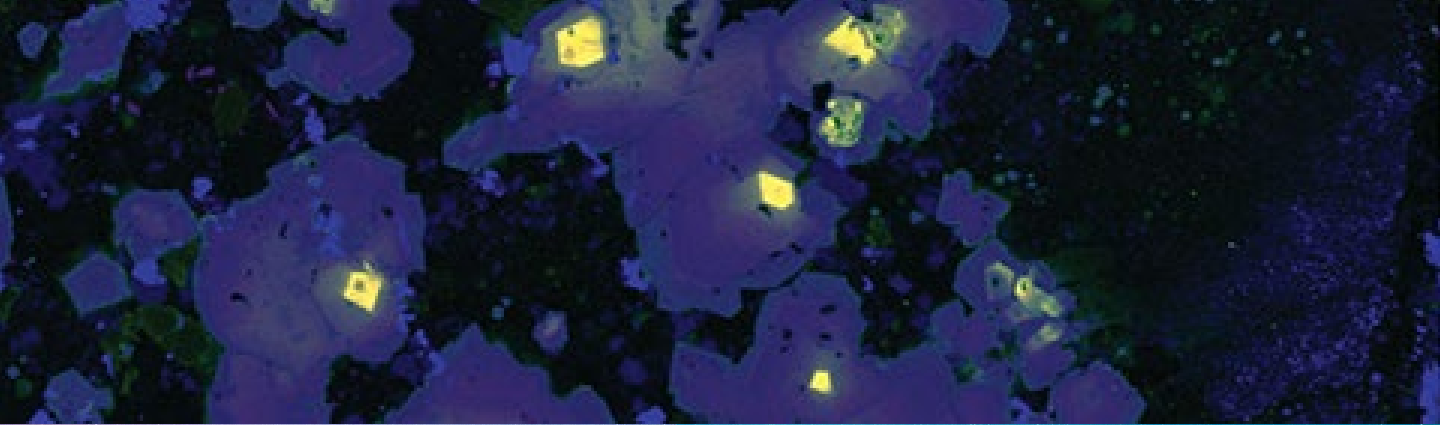
Solve linear inequalities and simultaneous linear equations in 2 variables; interpret solutions graphically and communicate solutions in terms of the situation (AC9M10A02)

Compare data distributions for continuous numerical variables using appropriate data displays including boxplots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data (AC9M10ST02)

Construct scatterplots and comment on the association between the 2 numerical variables in terms of strength, direction and linearity (AC9M10ST03)

Construct two-way tables and discuss possible relationship between categorical variables (AC9M10ST04)

Plan and conduct statistical investigations of situations that involve bivariate data; evaluate and report findings with consideration of limitations of any inferences (AC9M10ST05)

Educational datasets
Great Barrier Reef carbon dioxide measurements

Australian Curriculum links

Science Year 9-10

Represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth's spheres (the geosphere, biosphere, hydrosphere and atmosphere) (AC9S9U03)

Examine how the values and needs of society influence the focus of scientific research (AC9S9H04/AC9S10H04)

Develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models (AC9S9I01/AC9S10I01)

Select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information (AC9S9I04/AC9S10I04)
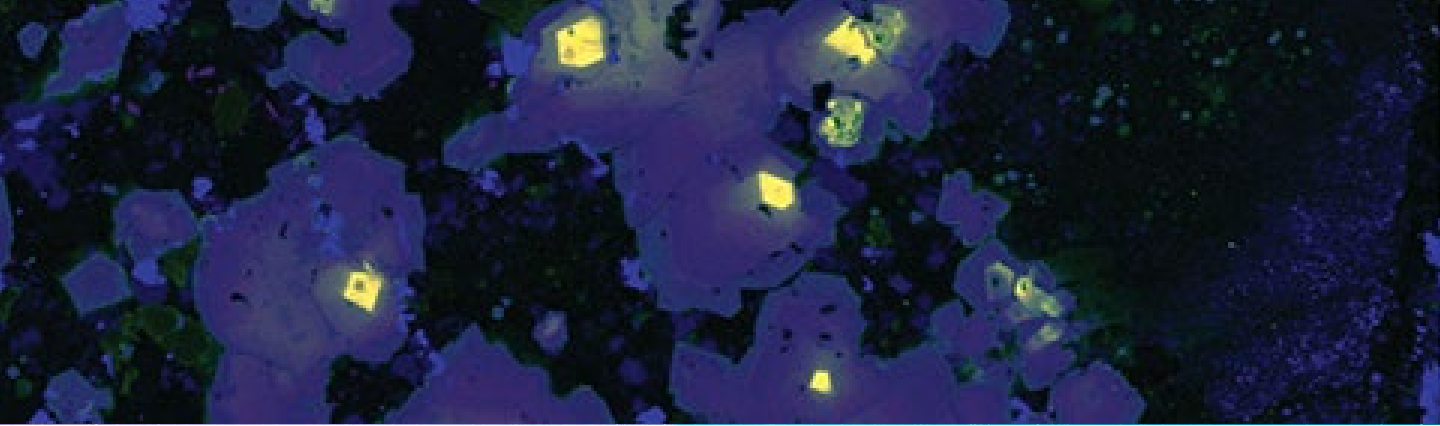
Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S9I05/ AC9S10I05)

Assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty (AC9S9I06/ AC9S10I06)

Construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information (AC9S9I07/AC9S10I07)

Use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global climate change (AC9S10U04)

Educational datasets
Great Barrier Reef carbon dioxide measurements

Australian Curriculum links

Digital Technologies Year 9-10

Develop techniques to acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI10P01)

Analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers (AC9TDI10P02)

Geography Year 9-10

Develop a range of questions for a geographical inquiry related to a phenomenon or challenge (AC9HG9S01/ AC9HG10S01)

Collect, represent and compare data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG9S02/ AC9HG10S02)
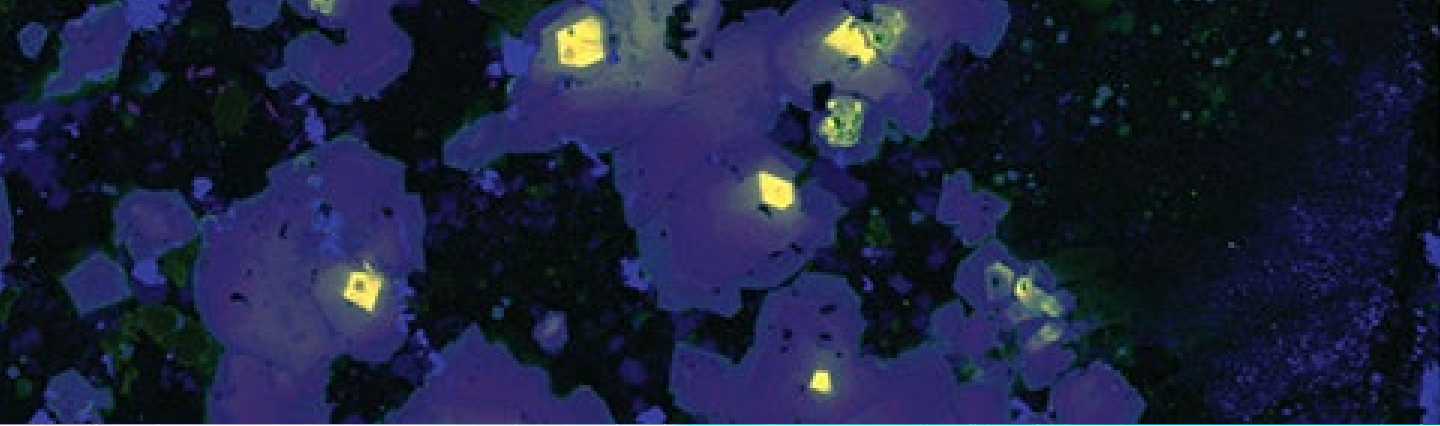
Evaluate geographical data and information to make generalisations and predictions, explain patterns and trends and infer relationships (AC9HG9S03/ AC9HG10S03)

Evaluate data and information to justify conclusions (AC9HG9S04/ AC9HG10S04)

Create descriptions, explanations and responses, using geographical knowledge and geographical tools as appropriate, and concepts and terms that incorporate and acknowledge research findings (AC9HG9S06/ AC9HG10S06)

The human-induced changes that challenge the sustainability of places and environments (AC9HG10K01)

Causes and effects of a change in an identified environment at a local, national or global scale, and strategies to manage sustainability (AC9HG10K04)

Educational datasets
Logan's Dam water quality

Australian Curriculum links

Mathematics Years 7-8

Use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts; formulate problems, choosing efficient calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model (AC9M8N05)

Acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data (AC9M7ST01)

Create different types of numerical data displays including stem-and-leaf plots using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread including outliers and determining the range, median, mean and mode (AC9M7ST02)
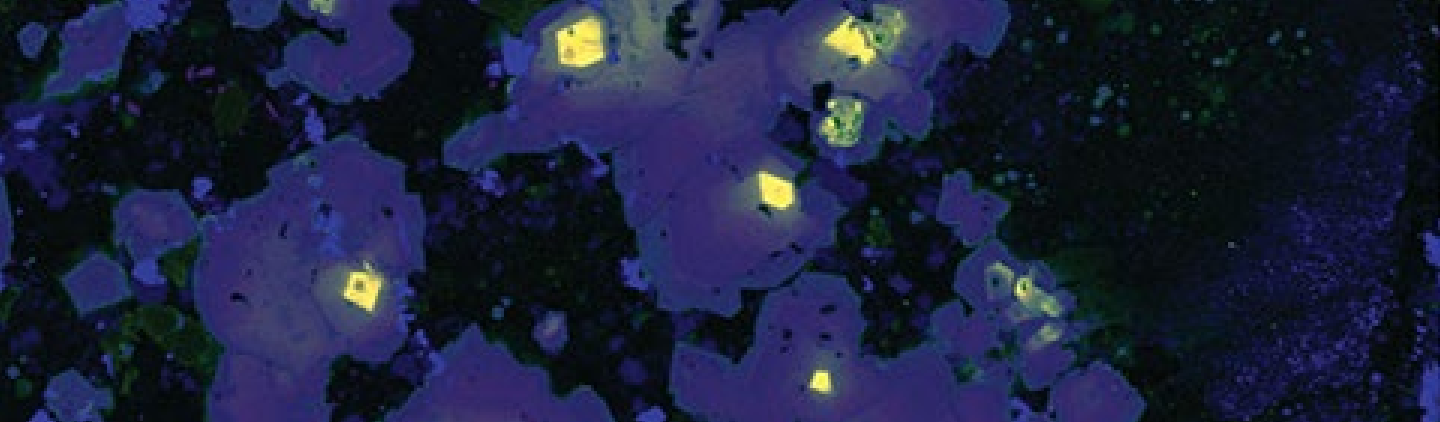
Plan and conduct statistical investigations involving data for discrete and continuous numerical variables; analyse and interpret distributions of data and report findings in terms of shape and summary statistics (AC9M7ST03)

Investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques (AC9M8ST01)

Analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques to select and study samples (AC9M8ST02)

Compare variations in distributions and proportions obtained from random samples of the same size drawn from a population and recognise the effect of sample size on this variation (AC9M8ST03)

Plan and conduct statistical investigations involving samples of a population; use ethical and fair methods to make inferences about the population and report findings, acknowledging uncertainty (AC9M8ST04)

Educational datasets
Logan's Dam water quality

Australian Curriculum links

Science Year 7-8

Use a particle model to describe differences between pure substances and mixtures and apply understanding of properties of substances to separate mixtures (AC9S7U06)

Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations (AC9S7H03/AC9S8H03)

Develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships (AC9S7I01/AC9S8I01)

Select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information (AC9S7I04/AC9S8I04)

Analyse data and information to describe patterns, trends and relationships and identify anomalies (AC9S7I05/AC9S8I05)

Analyse methods, conclusions and claims for assumptions, possible sources of error, conflicting evidence and unanswered questions (AC9S7I06/AC9S8I06)

Construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information (AC9S7I07/AC9S8I07)

Write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools as appropriate (AC9S7I08/AC9S8I08)
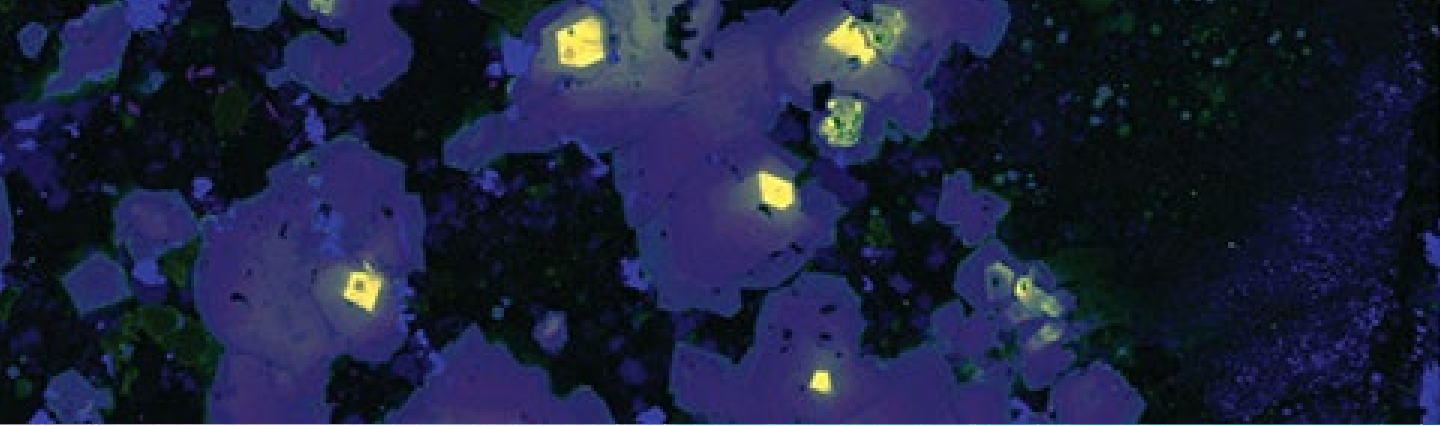
Classify matter as elements, compounds or mixtures and compare different representations of these, including 2-dimensional and 3-dimensional models, symbols for elements and formulas for molecules and compounds (AC9S8U06)

Compare physical and chemical changes and identify indicators of energy change in chemical reactions (AC9S8U07)

Digital Technologies Year 7-8

Analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends (AC9TDI8P02)

Educational datasets
Logan's Dam water quality

Australian Curriculum links

Geography Year 7-8

The causes and impacts of an atmospheric or hydrological hazard, and responses from communities and governments (AC9HG7K04)

Develop questions for a geographical inquiry related to a phenomenon or challenge (AC9HG7S01/AC9HG8S01)

Collect, organise and represent data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG7S02/AC9HG8S02)

Interpret and analyse geographical data and information to identify similarities and differences, explain patterns and trends and infer relationships (AC9HG7S03/ AC9HG8S03)

Draw conclusions based on the analysis of the data and information (AC9HG7S04/AC9HG8S04)

Create descriptions, explanations and responses, using geographical knowledge and methods, concepts, terms and reference sources (AC9HG7S06/AC9HG8S06)

Mathematics Year 9-10

Identify and graph quadratic functions, solve quadratic equations graphically and numerically, and solve monic quadratic equations with integer roots algebraically, using graphing software and digital tools as appropriate (AC9M9A04)

Analyse how different sampling methods can affect the results of surveys and how choice of representation can be used to support a particular point of view (AC9M9ST02)

Represent the distribution of multiple data sets for numerical variables using comparative representations; compare data distributions with consideration of centre, spread and shape, and the effect of outliers on these measures (AC9M9ST03)

Choose appropriate forms of display or visualisation for a given type of data; justify selections and interpret displays for a given context (AC9M9ST04)
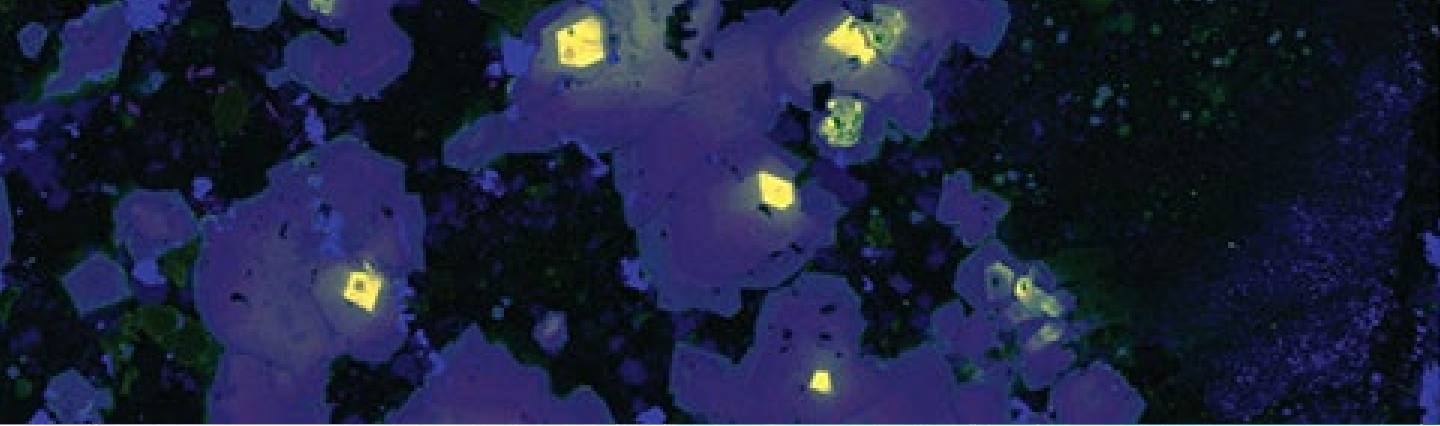
Plan and conduct statistical investigations involving the collection and analysis of different kinds of data; report findings and discuss the strength of evidence to support any conclusions (AC9M9ST05)

Compare data distributions for continuous numerical variables using appropriate data displays including boxplots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data (AC9M10ST02)

Construct scatterplots and comment on the association between the 2 numerical variables in terms of strength, direction and linearity (AC9M10ST03)

Construct two-way tables and discuss possible relationship between categorical variables (AC9M10ST04)

Plan and conduct statistical investigations of situations that involve bivariate data; evaluate and report findings with consideration of limitations of any inferences (AC9M10ST05)

Educational datasets
Logan's Dam water quality

Australian Curriculum links

Science Year 9-10

Represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth's spheres (the geosphere, biosphere, hydrosphere and atmosphere) (AC9S9U03)

Develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models (AC9S9I01/AC9S10I01)

Select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information (AC9S9I04/AC9S10I04)

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Write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate (AC9S9I08/AC9S10I08)

Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02/AC9S10H02)

Design and Technologies Year 9-10

Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments (AC9TDE10K01)

Analyse and make judgements on the ethical, secure and sustainable production and marketing of food and fibre enterprises (AC9TDE10K04)

Educational datasets
Logan's Dam water quality

Australian Curriculum links

Digital Technologies Year 9-10

Develop techniques to acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI10P01)

Analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers (AC9TDI10P02)

Geography Year 9-10

The effects on environments of human alteration of biomes to produce food, industrial materials and fibres (AC9HG9K02)

Challenges to sustainable food production and food security in Australia and appropriate management strategies (AC9HG9K04)

Develop a range of questions for a geographical inquiry related to a phenomenon or challenge (AC9HG9S01/AC9HG10S01)

Collect, represent and compare data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG9S02/C9HG10S02)
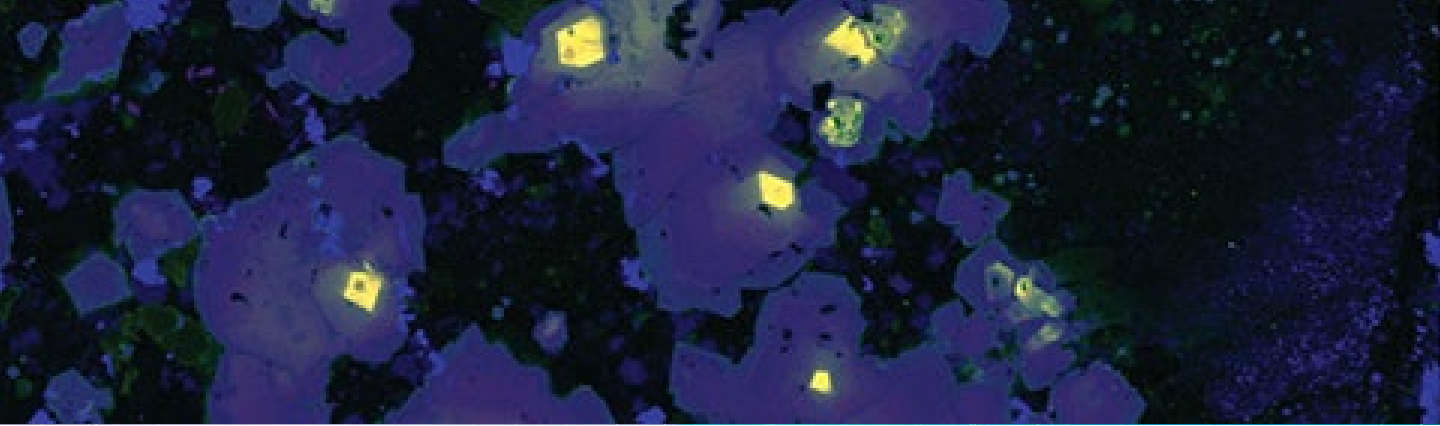
Evaluate geographical data and information to make generalisations and predictions, explain patterns and trends and infer relationships (AC9HG9S03/AC9HG10S03)

Evaluate data and information to justify conclusions (AC9HG9S04/AC9HG10S04)

Create descriptions, explanations and responses, using geographical knowledge and geographical tools as appropriate, and concepts and terms that incorporate and acknowledge research findings (AC9HG9S06/AC9HG10S06)

The human-induced changes that challenge the sustainability of places and environments (AC9HG10K01)

Causes and effects of a change in an identified environment at a local, national or global scale, and strategies to manage sustainability (AC9HG10K04)

Educational datasets
Sydney particle study

Australian Curriculum links

Mathematics Years 7-8

Use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts; formulate problems, choosing efficient calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model (AC9M8N05)

Acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data (AC9M7ST01)
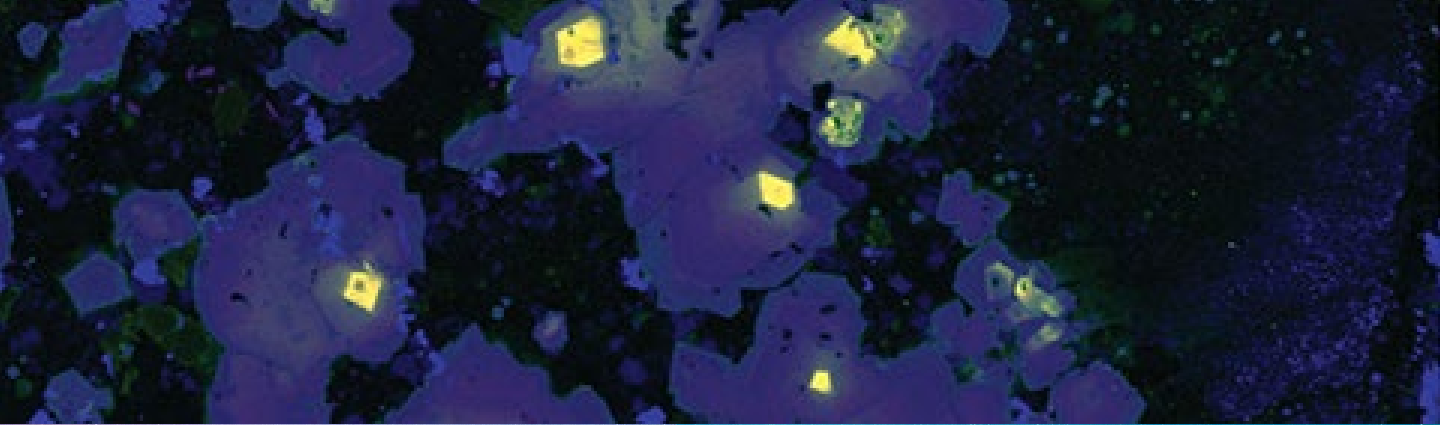
Create different types of numerical data displays including stem-and-leaf plots using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread including outliers and determining the range, median, mean and mode (AC9M7ST02)

Plan and conduct statistical investigations involving data for discrete and continuous numerical variables; analyse and interpret distributions of data and report findings in terms of shape and summary statistics (AC9M7ST03)

Investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques (AC9M8ST01)

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Educational datasets
Sydney particle study

Australian Curriculum links

Science Year 7-8

Use a particle model to describe differences between pure substances and mixtures and apply understanding of properties of substances to separate mixtures (AC9S7U06)

Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations (AC9S7H03/AC9S8H03)

Develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships (AC9S7I01/AC9S8I01)

Select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information (AC9S7I04/AC9S8I04)

Analyse data and information to describe patterns, trends and relationships and identify anomalies (AC9S7I05/AC9S8I05)

Analyse methods, conclusions and claims for assumptions, possible sources of error, conflicting evidence and unanswered questions (AC9S7I06/AC9S8I06)
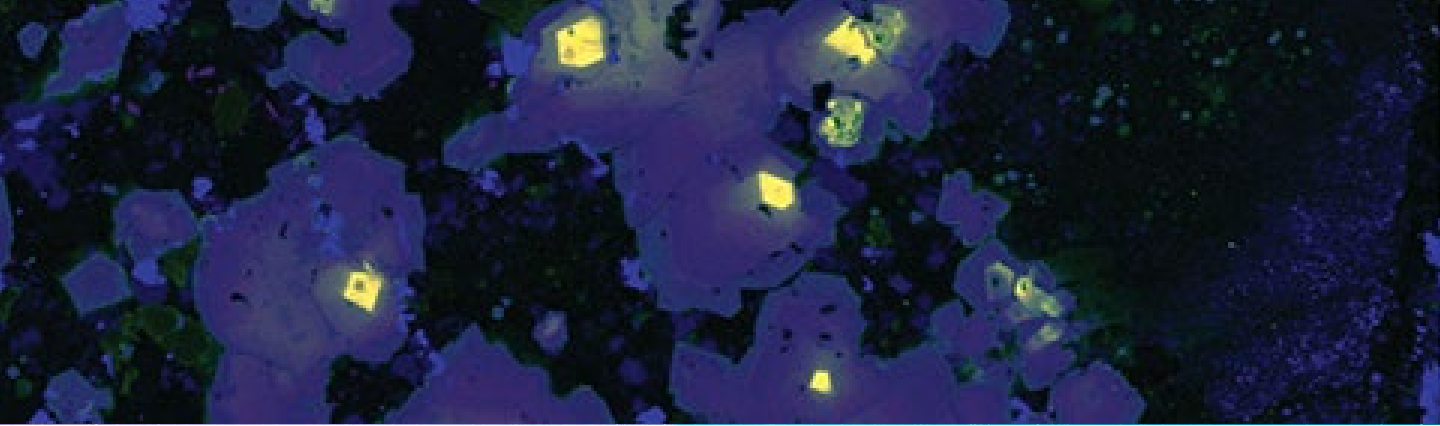
Construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information (AC9S7I07/AC9S8I07)

Write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools as appropriate (AC9S7I08/AC9S8I08)

Digital Technologies Year 7-8

Acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI8P01)

Analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends (AC9TDI8P02)

Educational datasets
Sydney particle study

Australian Curriculum links

Science Year 7-8

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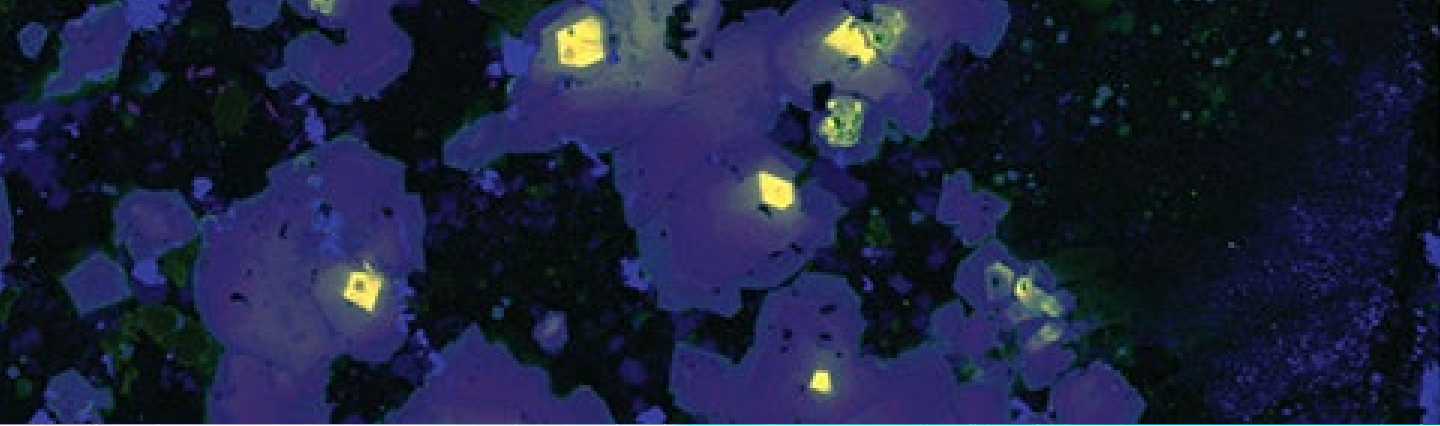
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Acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI8P01)

Analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends (AC9TDI8P02)

Educational datasets
Sydney particle study

Australian Curriculum links

Geography Year 7-8

The causes and impacts of an atmospheric or hydrological hazard, and responses from communities and governments (AC9HG7K04)

Develop questions for a geographical inquiry related to a phenomenon or challenge (AC9HG7S01 and AC9HG8S01)
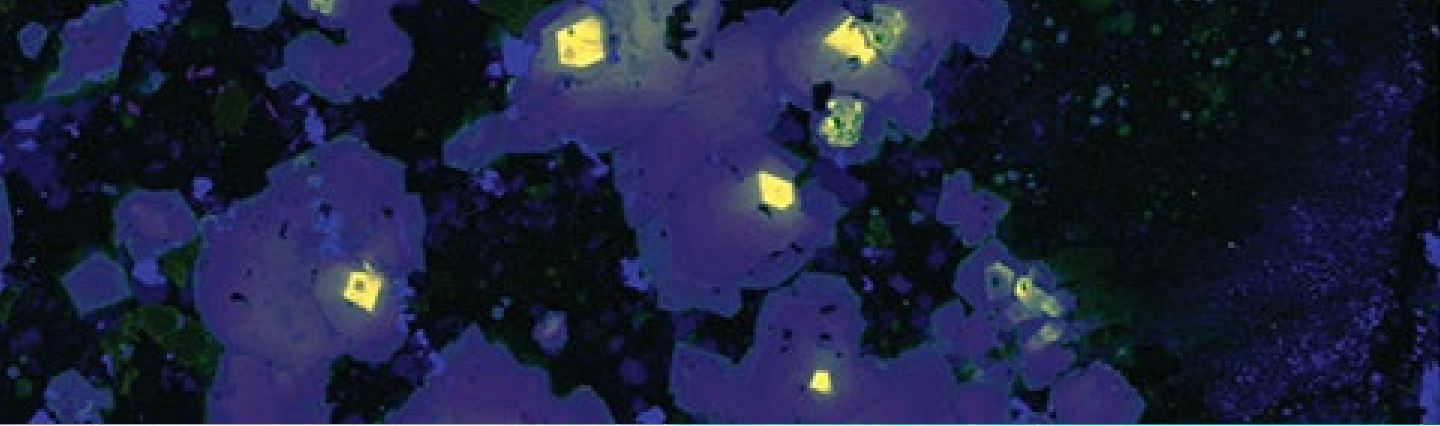
Collect, organise and represent data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG7S02/AC9HG8S02)

Interpret and analyse geographical data and information to identify similarities and differences, explain patterns and trends and infer relationships (AC9HG7S03/AC9HG8S03)

Draw conclusions based on the analysis of the data and information (AC9HG7S04/AC9HG8S04)

Create descriptions, explanations and responses, using geographical knowledge and methods, concepts, terms and reference sources (AC9HG7S06/AC9HG8S06)

Reasons for, and effects of, internal migration and international migration in Australia, China or other countries (AC9HG8K08)

Educational datasets
Sydney particle study

Australian Curriculum links

Mathematics Year 9-10

Identify and graph quadratic functions, solve quadratic equations graphically and numerically, and solve monic quadratic equations with integer roots algebraically, using graphing software and digital tools as appropriate (AC9M9A04)

Analyse how different sampling methods can affect the results of surveys and how choice of representation can be used to support a particular point of view (AC9M9ST02)

Represent the distribution of multiple data sets for numerical variables using comparative representations; compare data distributions with consideration of centre, spread and shape, and the effect of outliers on these measures (AC9M9ST03)

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Plan and conduct statistical investigations involving the collection and analysis of different kinds of data; report findings and discuss the strength of evidence to support any conclusions (AC9M9ST05)
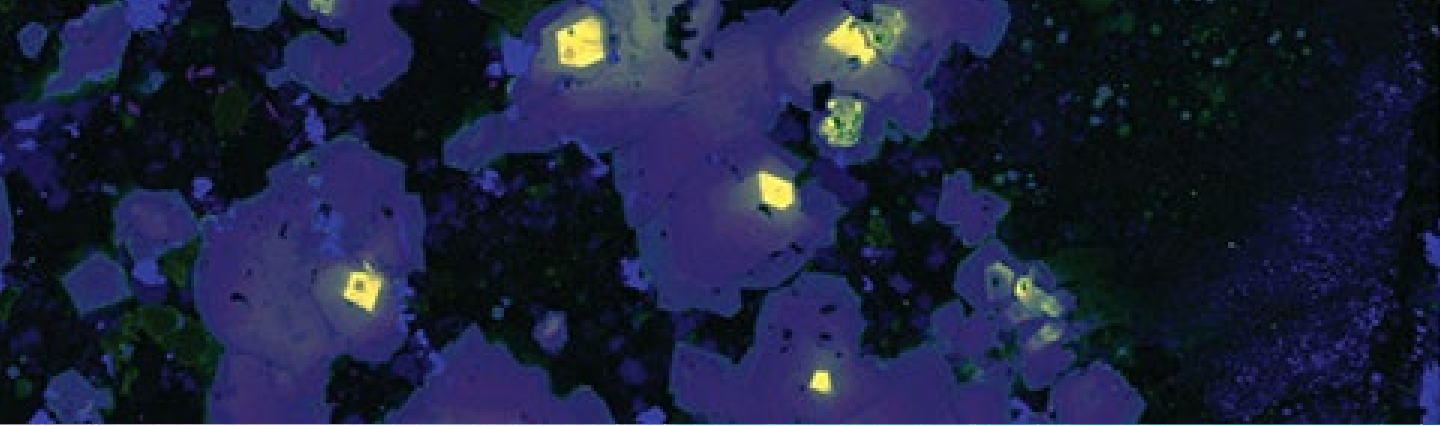
Compare data distributions for continuous numerical variables using appropriate data displays including boxplots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data (AC9M10ST02)

Construct scatterplots and comment on the association between the 2 numerical variables in terms of strength, direction and linearity (AC9M10ST03)

Construct two-way tables and discuss possible relationship between categorical variables (AC9M10ST04)

Plan and conduct statistical investigations of situations that involve bivariate data; evaluate and report findings with consideration of limitations of any inferences (AC9M10ST05)

Educational datasets
Sydney particle study

Australian Curriculum links

Science Year 9-10

Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02/AC9S10H02)

Develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models (AC9S9I01/AC9S10I01)
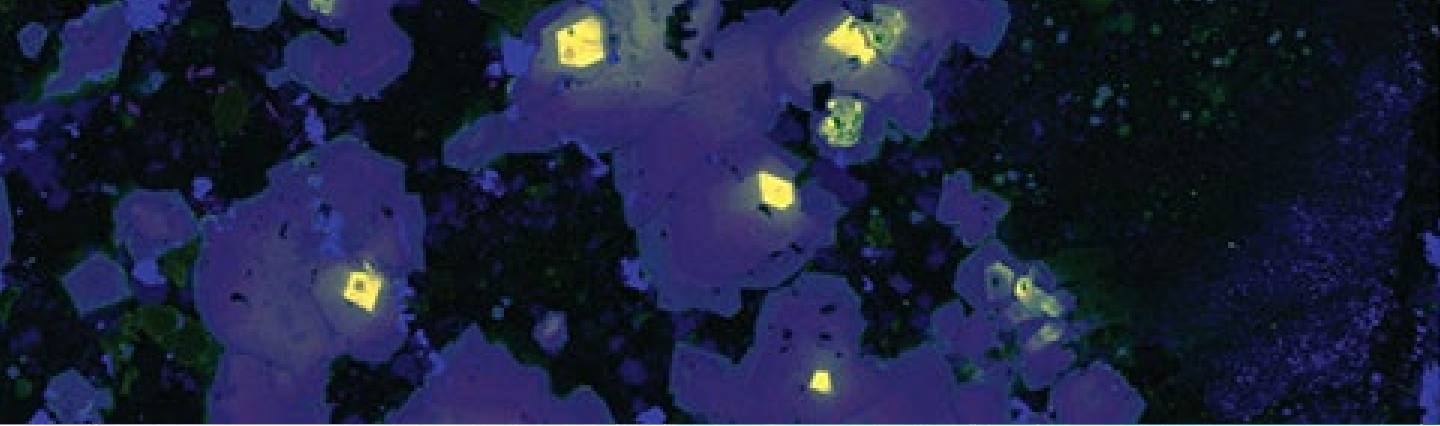
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Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S9I05/ AC9S10I05)

Assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty (AC9S9I06/AC9S10I06)

Construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information (AC9S9I07/AC9S10I07)

Write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate (AC9S9I08/AC9S10I08)

Educational datasets
Sydney particle study

Australian Curriculum links

Digital Technologies Year 9-10

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Analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers (AC9TDI10P02)

Geography Year 9-10

Develop a range of questions for a geographical inquiry related to a phenomenon or challenge (AC9HG9S01/AC9HG10S01)

Collect, represent and compare data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG9S02/C9HG10S02)
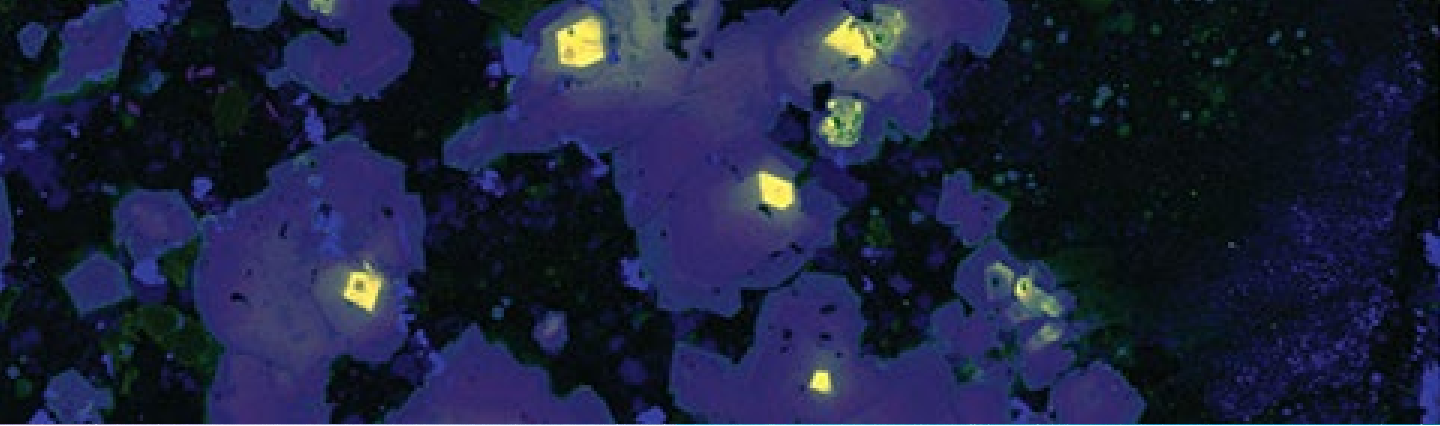
Evaluate geographical data and information to make generalisations and predictions, explain patterns and trends and infer relationships (AC9HG9S03/AC9HG10S03)

Evaluate data and information to justify conclusions (AC9HG9S04/AC9HG10S04)

Create descriptions, explanations and responses, using geographical knowledge and geographical tools as appropriate, and concepts and terms that incorporate and acknowledge research findings (AC9HG9S06/AC9HG10S06)

The human-induced changes that challenge the sustainability of places and environments (AC9HG10K01)

Causes and effects of a change in an identified environment at a local, national or global scale, and strategies to manage sustainability (AC9HG10K04)

Educational datasets
Reconstructed global mean sea level

Australian Curriculum links

Mathematics Years 7-8

Use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts; formulate problems, choosing efficient calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model (AC9M8N05)
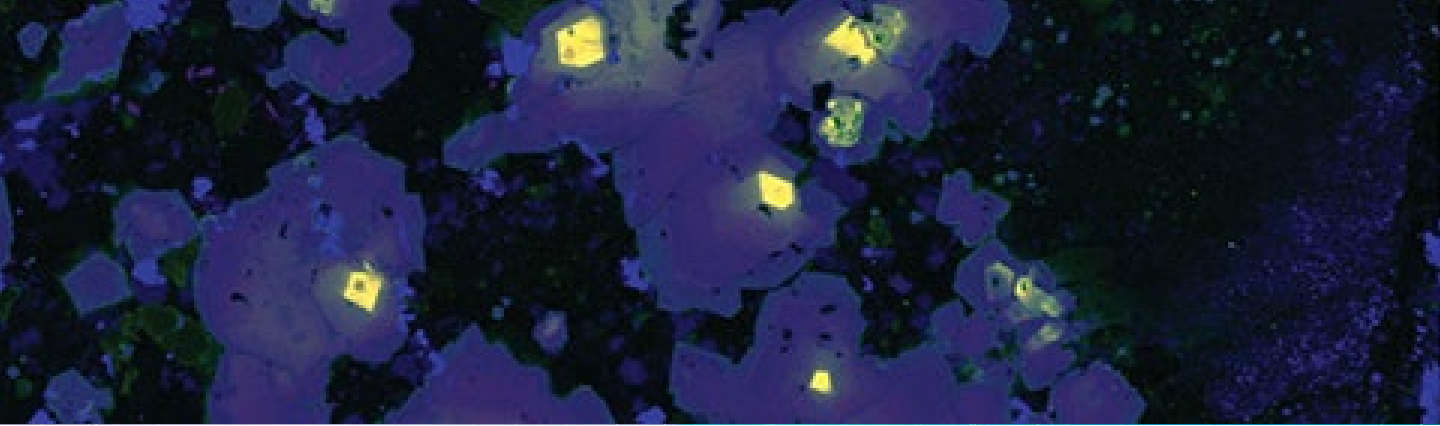
Acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data (AC9M7ST01)

Create different types of numerical data displays including stem-and-leaf plots using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread including outliers and determining the range, median, mean and mode (AC9M7ST02)

Plan and conduct statistical investigations involving data for discrete and continuous numerical variables; analyse and interpret distributions of data and report findings in terms of shape and summary statistics (AC9M7ST03)

Investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques (AC9M8ST01)

Analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques to select and study samples (AC9M8ST02)

Educational datasets
Reconstructed global mean sea level

Australian Curriculum links

Science Year 7-8

Model cyclic changes in the relative positions of the Earth, sun and moon and explain how these cycles cause eclipses and influence predictable phenomena on Earth, including seasons and tides (AC9S7U03)

Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations (AC9S7H03/AC9S8H03)

Develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships (AC9S7I01/AC9S8I01)

Select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information (AC9S7I04/AC9S8I04)

Analyse data and information to describe patterns, trends and relationships and identify anomalies (AC9S7I05/AC9S8I05)

Analyse methods, conclusions and claims for assumptions, possible sources of error, conflicting evidence and unanswered questions (AC9S7I06/AC9S8I06)
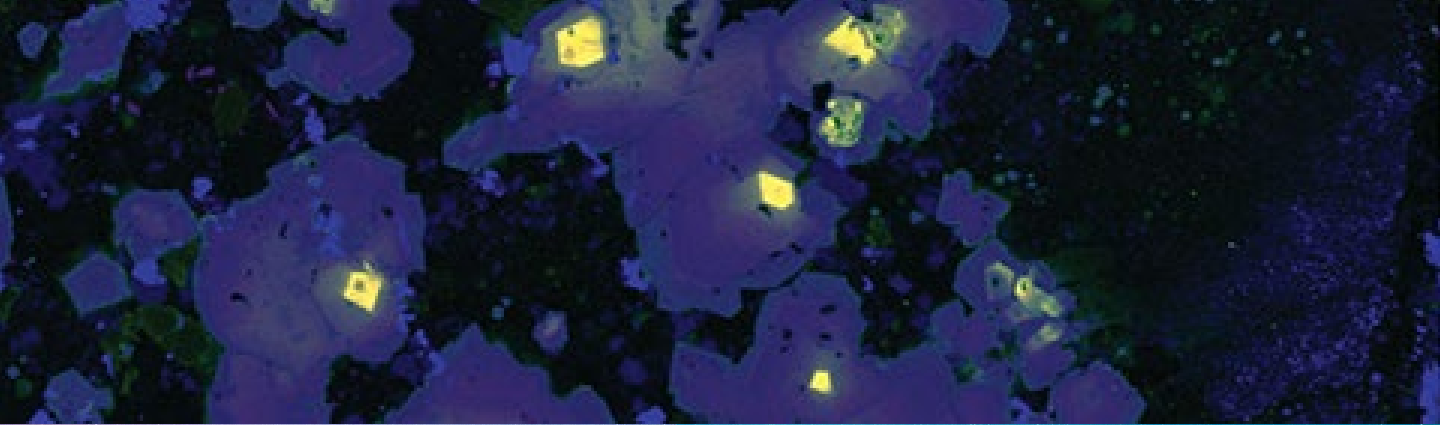
Construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information (AC9S7I07/AC9S8I07)

Write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools as appropriate (AC9S7I08/AC9S8I08)

Digital Technologies Year 7 and 8

Acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI8P01)

Analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends (AC9TDI8P02)

Educational datasets
Reconstructed global mean sea level

Australian Curriculum links

Geography Year 7-8

The economic, cultural, spiritual and aesthetic value of water for people, including First Nations Australians (AC9HG7K03)

The causes and impacts of an atmospheric or hydrological hazard, and responses from communities and governments (AC9HG7K04)

Develop questions for a geographical inquiry related to a phenomenon or challenge (AC9HG7S01 and AC9HG8S01)

Collect, organise and represent data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG7S02/AC9HG8S02)
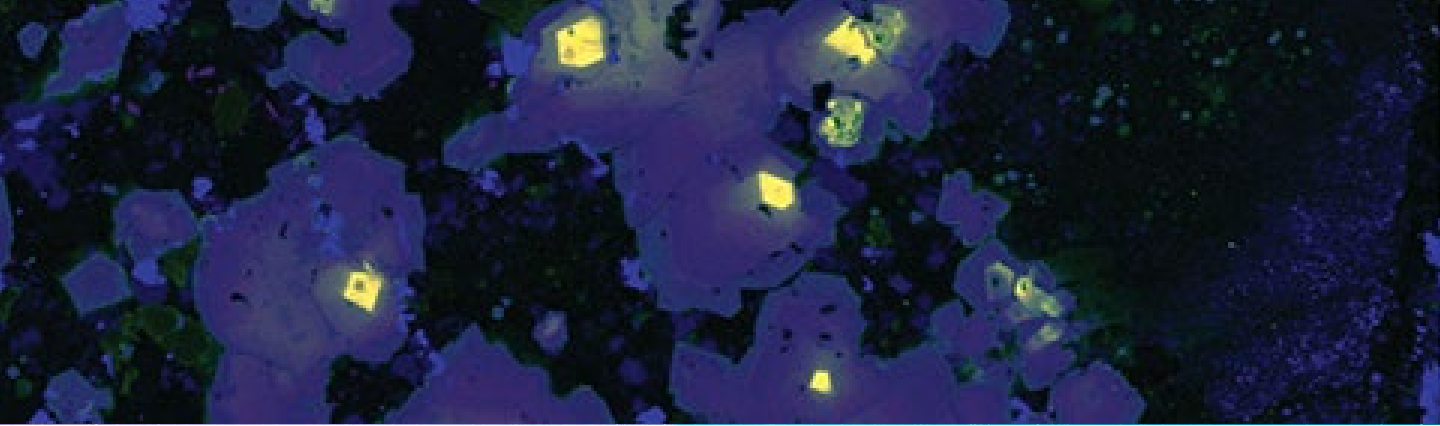
Interpret and analyse geographical data and information to identify similarities and differences, explain patterns and trends and infer relationships (AC9HG7S03/AC9HG8S03)

Draw conclusions based on the analysis of the data and information (AC9HG7S04/AC9HG8S04)

Create descriptions, explanations and responses, using geographical knowledge and methods, concepts, terms and reference sources (AC9HG7S06/AC9HG8S06)

The interconnections between human activity and geomorphological processes, and ways of managing distinctive landscapes (AC9HG8K04)

The causes and impacts of a geomorphological hazard on people, places and environments, and the effects of responses (AC9HG8K05)

Educational datasets
Reconstructed global mean sea level

Australian Curriculum links

Mathematics Year 9-10

Identify and graph quadratic functions, solve quadratic equations graphically and numerically, and solve monic quadratic equations with integer roots algebraically, using graphing software and digital tools as appropriate (AC9M9A04)

Analyse how different sampling methods can affect the results of surveys and how choice of representation can be used to support a particular point of view (AC9M9ST02)

Represent the distribution of multiple data sets for numerical variables using comparative representations; compare data distributions with consideration of centre, spread and shape, and the effect of outliers on these measures (AC9M9ST03)

Choose appropriate forms of display or visualisation for a given type of data; justify selections and interpret displays for a given context (AC9M9ST04)

Plan and conduct statistical investigations involving the collection and analysis of different kinds of data; report findings and discuss the strength of evidence to support any conclusions (AC9M9ST05)
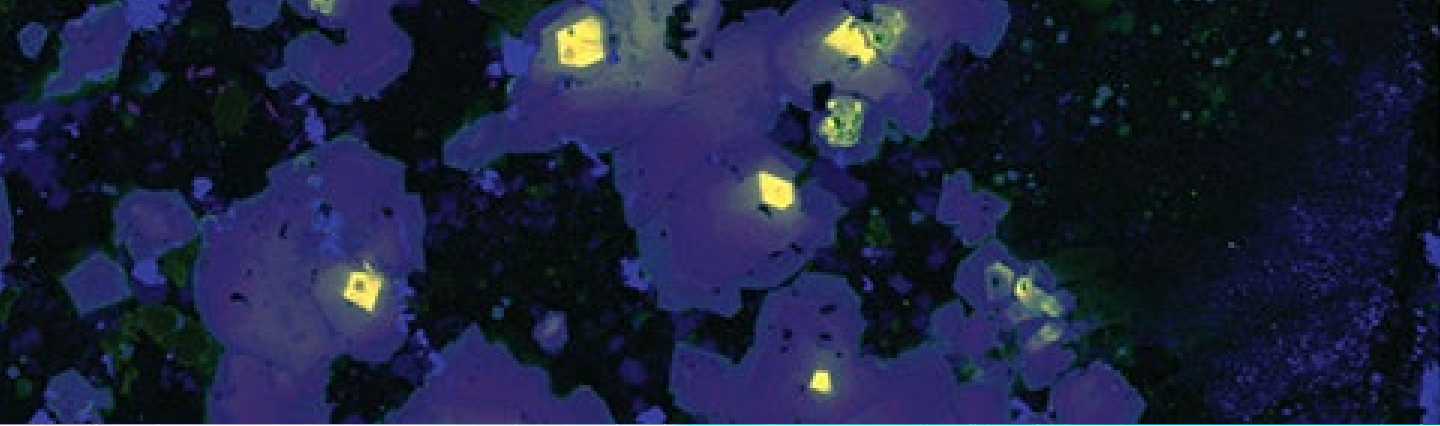
Analyse claims, inferences and conclusions of statistical reports in the media, including ethical considerations and identification of potential sources of bias (AC9M10ST01)

Compare data distributions for continuous numerical variables using appropriate data displays including boxplots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data (AC9M10ST02)

Construct scatterplots and comment on the association between the 2 numerical variables in terms of strength, direction and linearity (AC9M10ST03)

Construct two-way tables and discuss possible relationship between categorical variables (AC9M10ST04)

Plan and conduct statistical investigations of situations that involve bivariate data; evaluate and report findings with consideration of limitations of any inferences (AC9M10ST05)

Educational datasets
Reconstructed global mean sea level

Australian Curriculum links

Science Year 9-10

Represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth's spheres (the geosphere, biosphere, hydrosphere and atmosphere) (AC9S9U03)

Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02/AC9S10H02)

Develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models (AC9S9I01/AC9S10I01)
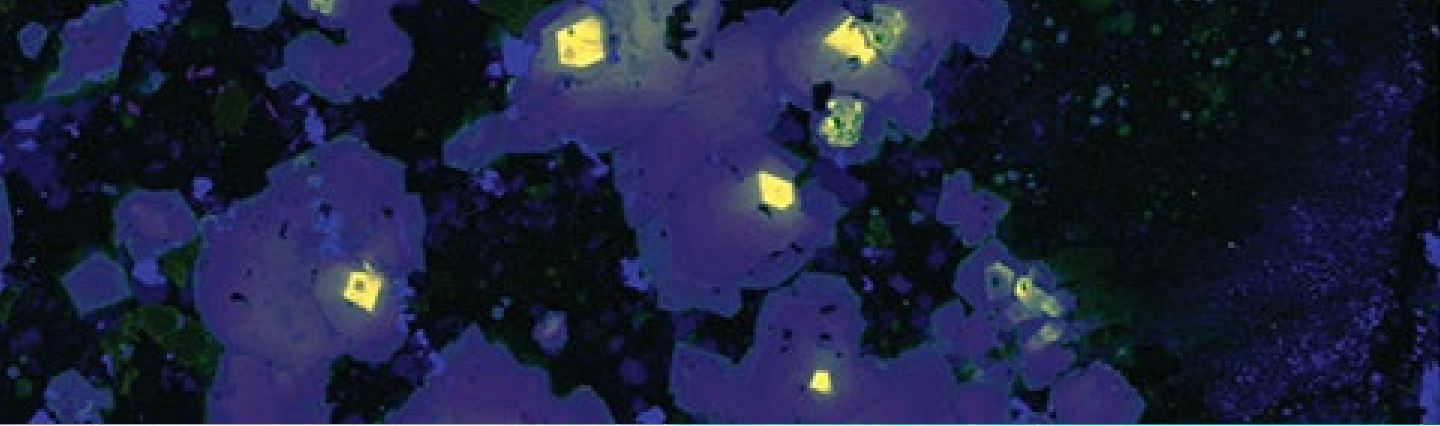
Select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information (AC9S9I04/AC9S10I04)

Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S9I05/ AC9S10I05)

Assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty (AC9S9I06/ AC9S10I06)

Construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information (AC9S9I07/AC9S10I07)

Write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate (AC9S9I08/AC9S10I08**)**

Educational datasets
Reconstructed global mean sea level

Australian Curriculum links

Digital Technologies Year 9-10

Develop techniques to acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI10P01)

Analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers (AC9TDI10P02)

Geography Year 9-10

Develop a range of questions for a geographical inquiry related to a phenomenon or challenge (AC9HG9S01/AC9HG10S01)

Collect, represent and compare data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG9S02/C9HG10S02)

Evaluate geographical data and information to make generalisations and predictions, explain patterns and trends and infer relationships (AC9HG9S03/AC9HG10S03)
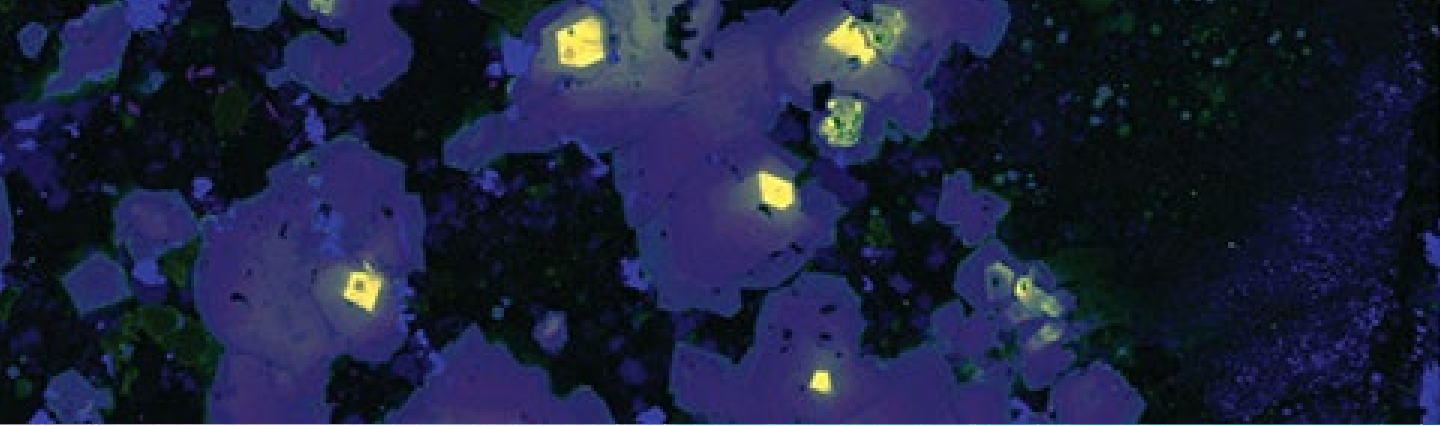
Evaluate data and information to justify conclusions (AC9HG9S04/AC9HG10S04)

Create descriptions, explanations and responses, using geographical knowledge and geographical tools as appropriate, and concepts and terms that incorporate and acknowledge research findings (AC9HG9S06/AC9HG10S06)

The human-induced changes that challenge the sustainability of places and environments (AC9HG10K01)

Causes and effects of a change in an identified environment at a local, national or global scale, and strategies to manage sustainability (AC9HG10K04)

Educational datasets
Wheatbelt bird survey

Australian Curriculum links

Mathematics Year 3-4

Recognise, represent and order natural numbers using naming and writing conventions for numerals beyond 10 000 (AC9M3N01)

Acquire data for categorical and discrete numerical variables to address a question of interest or purpose by observing, collecting and accessing data sets; record the data using appropriate methods including frequency tables and spreadsheets (AC9M3ST01)

Create and compare different graphical representations of data sets including using software where appropriate; interpret the data in terms of the context (AC9M3ST02)
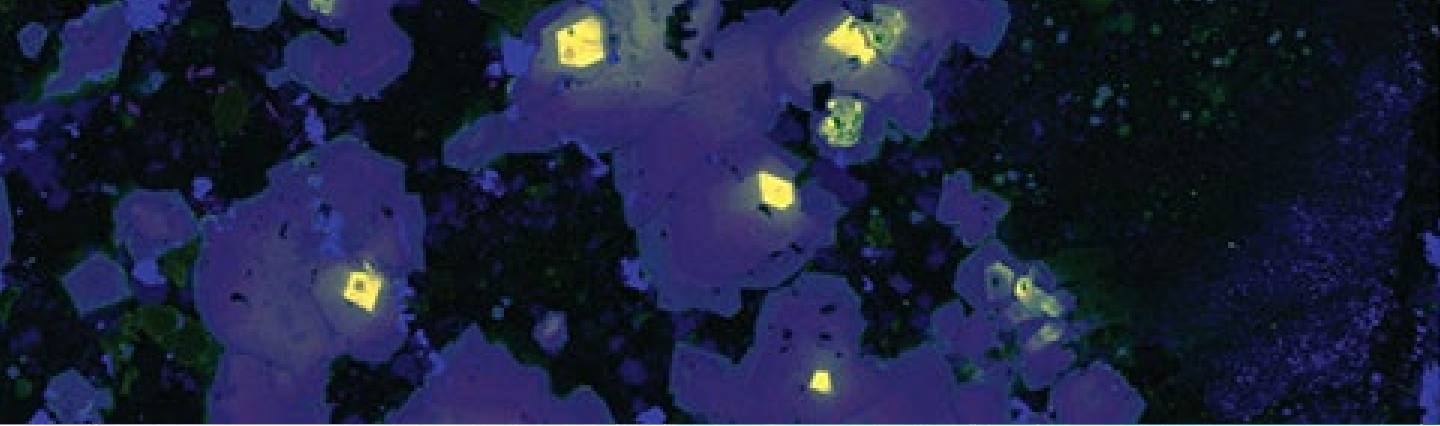
Conduct guided statistical investigations involving the collection, representation and interpretation of data for categorical and discrete numerical variables with respect to questions of interest (AC9M3ST03)

Use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate the problems using number sentences and choose efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation (AC9M4N08)

Acquire data for categorical and discrete numerical variables to address a question of interest or purpose, using digital tools; represent data using many-to-one pictographs, column graphs and other displays or visualisations; interpret and discuss the information that has been created (AC9M4ST01)

Analyse the effectiveness of different displays or visualisations in illustrating and comparing data distributions, then discuss the shape of distributions and the variation in the data (AC9M4ST02)

Conduct statistical investigations, collecting data through survey responses and other methods; record and display data using digital tools; interpret the data and communicate the results (AC9M4ST03)

Educational datasets
Wheatbelt bird survey

Australian Curriculum links

Science Year 3-4

Compare characteristics of living and non-living things and examine the differences between the life cycles of plants and animals (AC9S3U01)

Examine how people use data to develop scientific explanations (AC9S3H01/AC9S4H01)

Consider how people use scientific explanations to meet a need or solve a problem (AC9S3H02/AC9S4H02)

Pose questions to explore observed patterns and relationships and make predictions based on observations (AC9S3I01/AC9S4I01)

Use provided scaffolds to plan and conduct investigations to answer questions or test predictions, including identifying the elements of fair tests, and considering the safe use of materials and equipment (AC9S3I02/AC9S4I02)
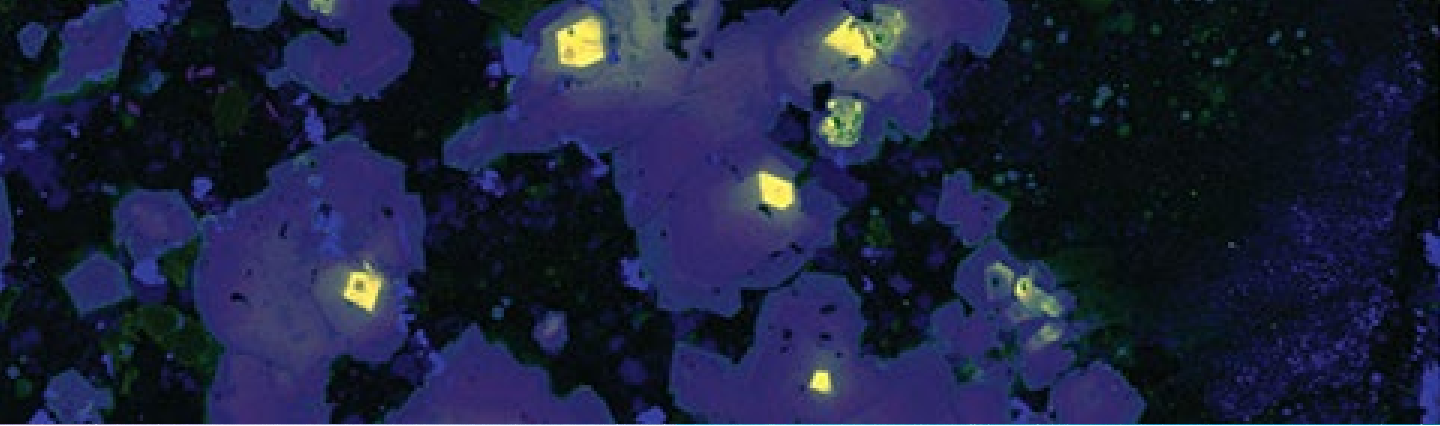
Follow procedures to make and record observations, including making formal measurements using familiar scaled instruments and using digital tools as appropriate (AC9S3I03/AC9S4I03)

Construct and use representations, including tables, simple column graphs and visual or physical models, to organise data and information, show simple relationships and identify patterns (AC9S3I04/AC9S4I04)

Compare findings with those of others, consider if investigations were fair, identify questions for further investigation and draw conclusions (AC9S3I05/AC9S4I05)

Write and create texts to communicate findings and ideas for identified purposes and audiences, using scientific vocabulary and digital tools as appropriate (AC9S3I06AC9S4I06)

Explain the roles and interactions of consumers, producers and decomposers within a habitat and how food chains represent feeding relationships (AC9S4U01)

Educational datasets
Wheatbelt bird survey

Australian Curriculum links

Humanities and Social Science Year 3-4

Develop questions to guide investigations about people, events, places and issues (AC9HS3S01/ AC9HS4S01)

Locate, collect and record information and data from a range of sources, including annotated timelines and maps (AC9HS3S02/ AC9HS4S02)

Interpret information and data displayed in different formats (AC9HS3S03/AC9HS4S03)

Analyse information and data, and identify perspectives (AC9HS3S04/AC9HS4S04)
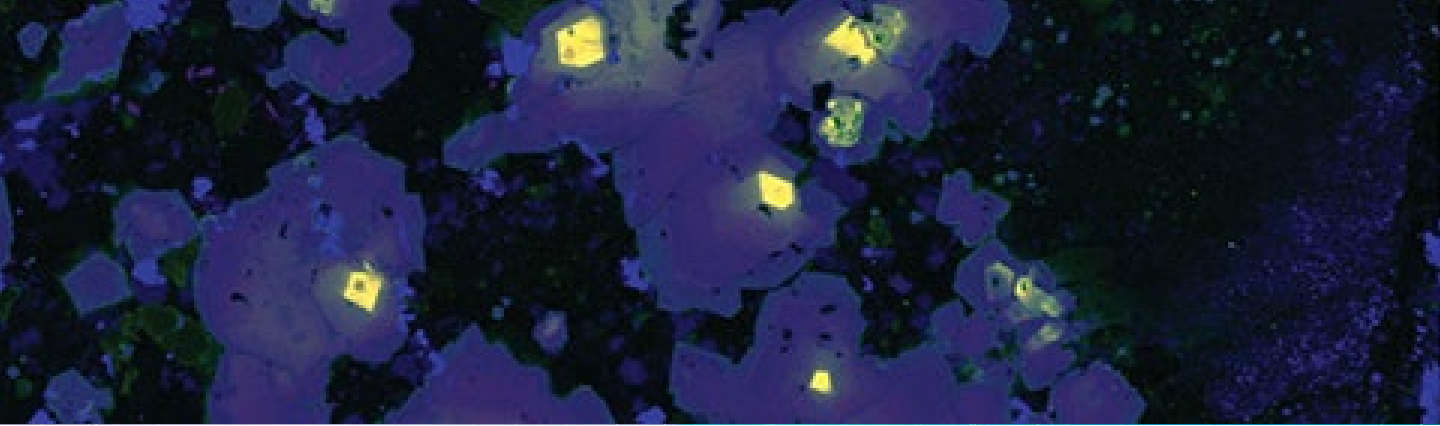
Draw conclusions based on analysis of information (AC9HS3S05/AC9HS4S05)

Propose actions or responses to an issue or challenge that consider possible effects of actions (AC9HS3S06/AC9HS4S06)

Present descriptions and explanations, using ideas from sources and relevant subject-specific terms (AC9HS3S07/AC9HS4S07)

Digital technologies Year 3-4

Use the core features of common digital tools to create, locate and communicate content, following agreed conventions (AC9TDI4P06)

Educational datasets
Wheatbelt bird survey

Australian Curriculum links

Mathematics Year 5-6

Solve problems involving multiplication of larger numbers by one- or two-digit numbers, choosing efficient calculation strategies and using digital tools where appropriate; check the reasonableness of answers (AC9M5N06)

Acquire, validate and represent data for nominal and ordinal categorical and discrete numerical variables, to address a question of interest or purpose using software including spreadsheets; discuss and report on data distributions in terms of highest frequency (mode) and shape, in the context of the data (AC9M5ST01)

Interpret line graphs representing change over time; discuss the relationships that are represented and conclusions that can be made (AC9M5ST02)
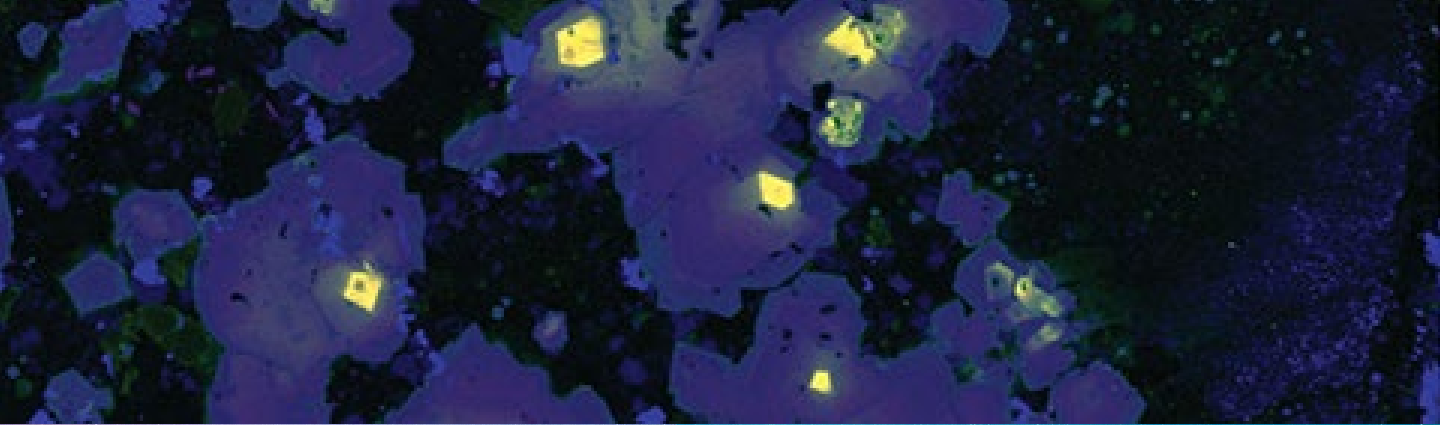
Plan and conduct statistical investigations by posing questions or identifying a problem and collecting relevant data; choose appropriate displays and interpret the data; communicate findings within the context of the investigation (AC9M5ST03)

Recognise situations, including financial contexts, that use integers; locate and represent integers on a number line and as coordinates on the Cartesian plane (AC9M6N01)

Use mathematical modelling to solve practical problems involving natural and rational numbers and percentages, including in financial contexts; formulate the problems, choosing operations and efficient calculation strategies, and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, justifying the choices made (AC9M6N09)

Interpret and compare data sets for ordinal and nominal categorical, discrete and continuous numerical variables using comparative displays or visualisations and digital tools; compare distributions in terms of mode, range and shape (AC9M6ST01)

Plan and conduct statistical investigations by posing and refining questions or identifying a problem and collecting relevant data; analyse and interpret the data and communicate findings within the context of the investigation (AC9M6ST03)

Educational datasets
Wheatbelt bird survey

Australian Curriculum links

Science Year 5-6

Examine why advances in science are often the result of collaboration or build on the work of others (AC9S5H01/AC9S6H01)

Pose investigable questions to identify patterns and test relationships and make reasoned predictions (AC9S5I01/AC9S6I01)

Plan and conduct repeatable investigations to answer questions, including, as appropriate, deciding the variables to be changed, measured and controlled in fair tests; describing potential risks; planning for the safe use of equipment and materials; and identifying required permissions to conduct investigations on Country/Place (AC9S5I02/AC9S6I02)
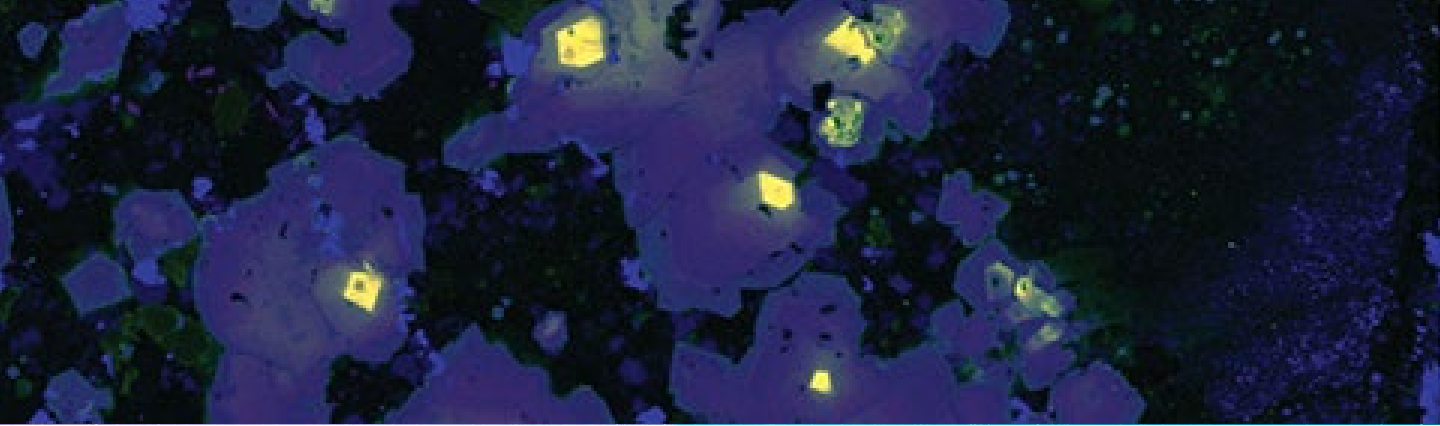
Use equipment to observe, measure and record data with reasonable precision, using digital tools as appropriate (AC9S5I03/AC9S6I03)

Construct and use appropriate representations, including tables, graphs and visual or physical models, to organise and process data and information and describe patterns, trends and relationships (AC9S5I04/AC9S6I04)

Compare methods and findings with those of others, recognise possible sources of error, pose questions for further investigation and select evidence to draw reasoned conclusions (AC9S5I05/AC9S6I05)

Write and create texts to communicate ideas and findings for specific purposes and audiences, including selection of language features, using digital tools as appropriate (AC9S5I06/AC9S6I06)

Investigate the physical conditions of a habitat and analyse how the growth and survival of living things is affected by changing physical conditions (AC9S6U01)

Educational datasets
Wheatbelt bird survey

Australian Curriculum links

Digital Technologies Year 5-6

Select and use appropriate digital tools effectively to create, locate and communicate content, applying common conventions (AC9TDI6P07)

Humanities and Social Science Year 5-6

Develop questions to investigate people, events, developments, places and systems (AC9HS5S01/AC9HS6S01)

Locate, collect and organise information and data from primary and secondary sources in a range of formats (AC9HS5S02/AC9HS6S02)
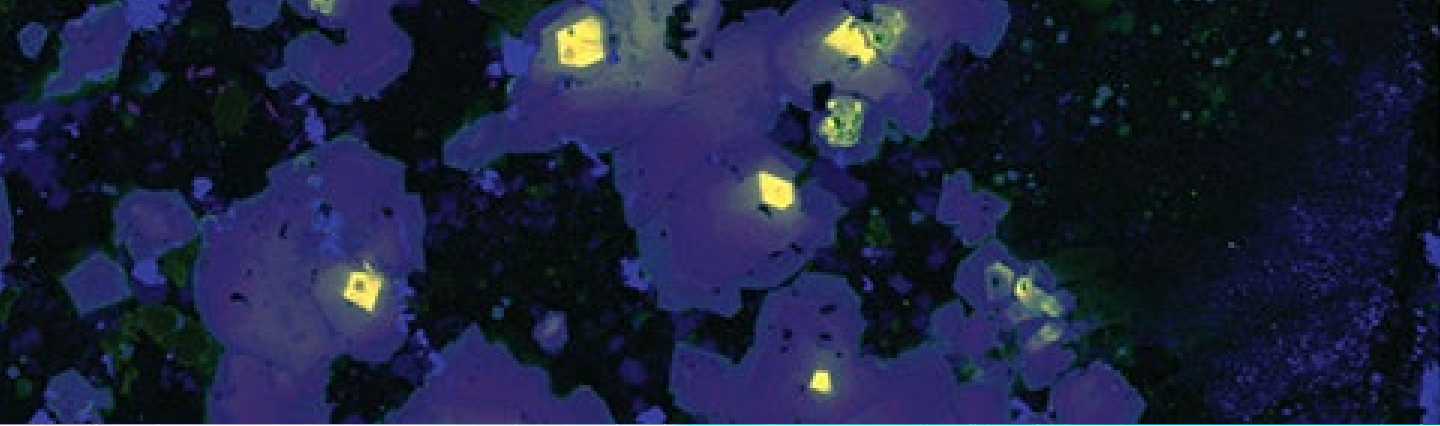
Evaluate information and data in a range of formats to identify and describe patterns and trends, or to infer relationships (AC9HS5S03/AC9HS6S03)

Evaluate primary and secondary sources to determine origin, purpose and perspectives (AC9HS5S04/AC9HS6S04)

Develop evidence-based conclusions (AC9HS5S05/AC9HS6S05)

Propose actions or responses to issues or challenges and use criteria to assess the possible effects (AC9HS5S06/ AC9HS6S06)

Present descriptions and explanations, drawing ideas, findings and viewpoints from sources, and using relevant terms and conventions (AC9HS5S07/AC9HS6S07)

Educational datasets
Income inequality

Australian Curriculum links

Mathematics Years 7-8

Use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts; formulate problems, choosing efficient calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model (AC9M8N05)

Acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data (AC9M7ST01)

Create different types of numerical data displays including stem-and-leaf plots using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread including outliers and determining the range, median, mean and mode (AC9M7ST02)

Investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques (AC9M8ST01)
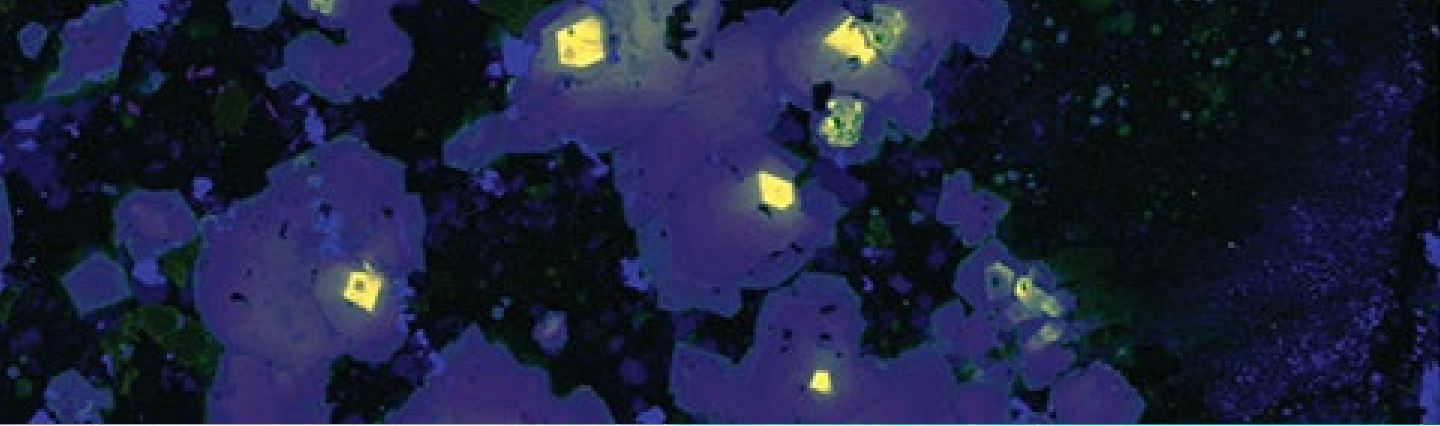
Analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques to select and study samples (AC9M8ST02)

Compare variations in distributions and proportions obtained from random samples of the same size drawn from a population and recognise the effect of sample size on this variation (AC9M8ST03)

Digital Technologies Year 7-8

Acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI8P01)

Analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends (AC9TDI8P02)

Educational datasets
Income inequality

Australian Curriculum links

Mathematics Year 9-10

Identify and graph quadratic functions, solve quadratic equations graphically and numerically, and solve monic quadratic equations with integer roots algebraically, using graphing software and digital tools as appropriate (AC9M9A04)

Represent the distribution of multiple data sets for numerical variables using comparative representations; compare data distributions with consideration of centre, spread and shape, and the effect of outliers on these measures (AC9M9ST03)

Choose appropriate forms of display or visualisation for a given type of data; justify selections and interpret displays for a given context (AC9M9ST04)

Compare data distributions for continuous numerical variables using appropriate data displays including boxplots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data (AC9M10ST02)

Construct scatterplots and comment on the association between the 2 numerical variables in terms of strength, direction and linearity (AC9M10ST03)
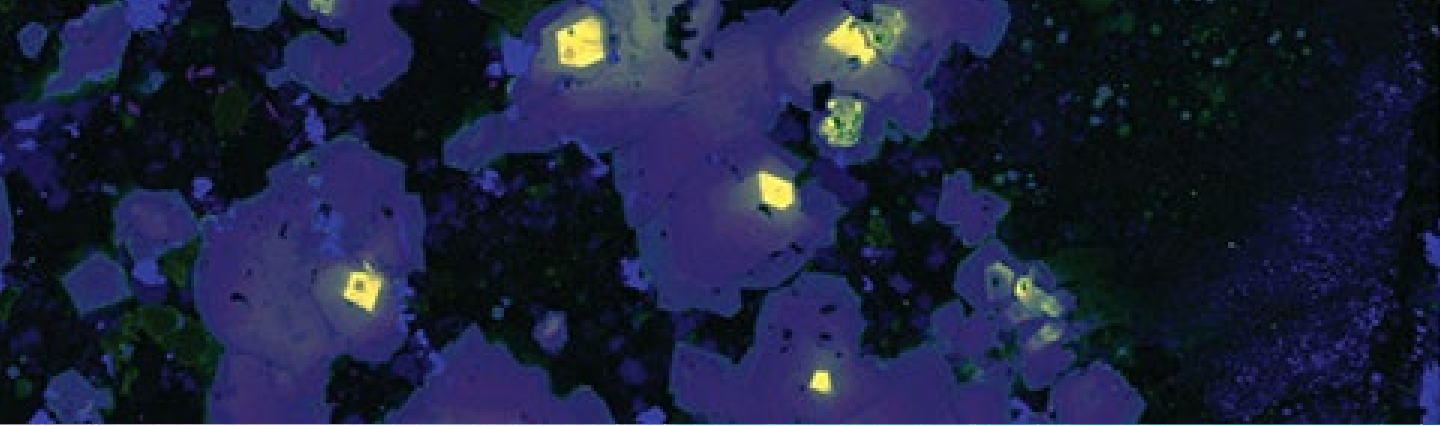
Construct two-way tables and discuss possible relationship between categorical variables (AC9M10ST04)

Digital Technologies Year 9 and 10

Develop techniques to acquire, store and validate data from a range of sources using software, including spreadsheets and databases (AC9TDI10P01)

Analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers (AC9TDI10P02)

Educational datasets
Income inequality

Australian Curriculum links

Economics and Business Year 9-10

Develop and modify questions to investigate a contemporary economic and business issue (AC9HE9S01/AC9HE10S01)

Locate, select and analyse information and data from a range of sources (AC9HE9S02/AC9HE10S02)

Interpret information and data, explaining economic and business issues, trends and economic cause and-effect relationships, and make predictions about consumer and financial impacts (AC9HE9S03/AC9HE10S03)

Develop and evaluate a response to an economic and business issue, using cost-benefit analysis or criteria to decide on a course of action (AC9HE9S04 AC9HE10S04)

Create descriptions, explanations and arguments, using economic and business knowledge, concepts and terms that incorporate and acknowledge research findings (AC9HE9S05/AC9HE10S05)

How and why the economic indicators influence economic decision-making (AC9HE10K01)

The ways that government intervenes in the economy to improve economic performance and living standards within Australian society (AC9HE10K02)

Geography Year 9-10

Reasons for, and consequences of, spatial variations in human wellbeing in Australia, including for First Nations Australians (AC9HG10K07)